

City of Mississauga

**Creditview Road Schedule C Class Environmental
Assessment
Traffic Operations Analysis – Final Report**

Prepared by:

AECOM
5080 Commerce Boulevard 905 238 0007 tel
Mississauga, ON, Canada L4W 4P2 905 238 0038 fax
www.aecom.com

Project Number:

60304588

Date:

November 2015

November 9, 2015

Ms. Dana Glofcheskie, P.Eng
Project Manager
City of Mississauga
201 City Centre Drive, Suite 800
Mississauga, ON L5B 2T4

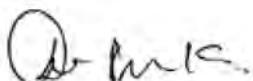
Dear Ms. Dana Glofcheskie,

Project No: 60304588
Regarding: Municipal Class Environmental Assessment Study for Creditview Road
Traffic Operations Analysis Report

AECOM Canada Ltd. was retained by the City of Mississauga to undertake a Schedule 'C' Class Environmental Assessment (EA) Study for improvements to Creditview Road. The limits of the study area extend Bancroft Drive to Old Creditview Road, in the City of Mississauga.

Please find enclosed the Traffic Operations Analysis Report as part of the Municipal Class EA process. Should you have any questions or comments regarding this report, please do not hesitate to contact the undersigned.

Sincerely,
AECOM Canada Ltd.



Pranav Dave, P.Eng., PTOE
Senior Traffic Engineer, Transportation (Transit & Rail)

PD
Encl.
cc:

Distribution List

# of Hard Copies	PDF Required	Association / Company Name

Revision Log

Revision #	Revised By	Date	Issue / Revision Description
1	RN	September 29, 2015	Addressed comments raised by the City
2	RN	November 4, 2015	Addressed comments raised by the City

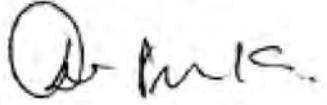
AECOM Signatures

Report Prepared By:



Reza Noroozi, M.Sc.
Transportation Planner

Report Reviewed By:



Pranav Dave, P. Eng.,PTOE,
Senior Traffic Engineer

TABLE OF CONTENTS

Letter of Transmittal

Distribution List

	Page
1. Introduction	1
1.1 Background	1
1.2 Purpose of the Study	1
1.3 Environmental Assessment Process	1
1.4 Study Scope	4
2. Existing Conditions	6
2.1 Existing Road Network.....	6
2.1.1 Road Characteristics	6
2.2 Existing Traffic Conditions.....	7
2.2.1 Average Daily Traffic (ADT) Data.....	7
2.2.2 Data Collection and Signal Timing	7
2.2.3 Traffic Operations Analysis.....	12
3. Future Conditions	16
3.1 Future Traffic Growth Projections.....	16
3.2 Future Total Traffic Volumes	16
3.3 Traffic Operations Analysis	21
3.3.1 Do Nothing.....	21
3.3.2 Alternatives Assessment	25
3.3.3 Interim Design Alternatives.....	25
3.3.3.1 Alternative 1: Signalized Design Concept.....	25
3.3.3.2 Alternative 2: Roundabout/Signalized Design Concept	30
3.3.3.3 Alternative 3: Roundabout Design Concept (Preferred Alternative).....	35
3.3.4 Ultimate Design Alternatives.....	40
3.3.4.1 Alternative 4: Signalized Design Concept.....	40
3.3.4.2 Alternative 5: Roundabout Design Concept (Long-term Solution)	43
4. Future Improvements	47
4.1 Preferred Alternative (Interim Roundabout Design Concept)	47
4.2 Long-term Solution (Ultimate Roundabout Design Concept).....	47
5. Summary of Conclusions and Recommendations	50

LIST OF FIGURES

Figure 1- Municipal Class Environmental Assessment Process	3
Figure 2- Study Area.....	5
Figure 3- Existing Lane Configurations.....	9
Figure 4- Existing Traffic Volumes – Unbalanced	10
Figure 5- Existing Traffic Volumes– Balanced	11
Figure 6- Future 2021 Traffic Volumes (No Widening).....	17
Figure 7- Future 2031 Traffic Volumes (No Widening).....	18
Figure 8- Future 2021 Traffic Volumes (4-lane Creditview Road Widening)	19

Figure 9- Future 2031 Traffic Volumes (4-lane Creditview Road Widening)	20
Figure 10- Interim Signalized Design Concept (Alternative 1)	26
Figure 11 - Interim Roundabout/Signalized Design Concept (Alternative 2)	31
Figure 12 - Interim Roundabout Design Concept (Alternative 3)	36
Figure 13 - Ultimate Signalized Design Concept (Alternative 4)	41
Figure 14 - Ultimate Roundabout Design Concept (Alternative 5)	44
Figure 15- Recommended Lane Configurations for the Interim Solution.....	48
Figure 16- Recommended Lane Configurations for the Long-term Solution	49

LIST OF TABLES

Table 1- Turning Movement Counts Inventory.....	7
Table 2- Level of Service Descriptions	12
Table 3- Existing Traffic Condition Analysis.....	13
Table 4- Future Forecast Creditview Road	16
Table 5- Year 2021 Traffic Analysis – Do Nothing	21
Table 6- Year 2031 Traffic Analysis – Do Nothing	23
Table 7- Year 2021 Traffic Analysis – Alternative 1	27
Table 8- Year 2031 Traffic Analysis – Alternative 1	29
Table 9- Year 2021 Traffic Analysis – Alternative 2	33
Table 10- Year 2031 Traffic Analysis – Alternative 2	34
Table 11- Year 2021 Traffic Analysis – Alternative 3	37
Table 12- Year 2031 Traffic Analysis – Alternative 3	38
Table 13- Future Queuing Summary – Year 2031 – Alternative 3	39
Table 14- Year 2031 Traffic Analysis – Alternative 4	42
Table 15 - Analysis Results for the Ultimate Roundabout Design (2031).....	45
Table 16- Future Queuing Summary – Year 2031 – Alternative 5	46

APPENDICES

- Appendix A ~ Existing Average Daily Traffic (ADT) Data
- Appendix B ~ Existing turning movement counts/Signal Timings
- Appendix C ~ Existing Traffic Operation, Synchro Output Sheets
- Appendix D ~ Future Growth Rate Projections
- Appendix E ~ Future Traffic Operation and Queuing Analysis

1. Introduction

1.1 Background

AECOM Canada Ltd. was retained by the City of Mississauga to undertake a Schedule 'C' Class Environmental Assessment (EA) Study to examine the opportunity to improve traffic flow, enhance safety and increase roadway capacity on Creditview Road between Bancroft Drive to Old Creditview Road, in the City of Mississauga.

The traffic study report assesses the existing traffic conditions at the intersections along Creditview Road between Bancroft Drive and Old Creditview Road; estimates and examines the traffic growth and expected future traffic volumes; analyzes the traffic impacts from the introduction of the projected traffic volumes; and finally proposes infrastructure improvements to address the deficiencies in safety and operations for the 10 year and 20 year future horizon years.

1.2 Purpose of the Study

This Class EA study is being undertaken to investigate the need for additional north-south capacity and traffic management improvements along this section of Creditview Road, taking into consideration the road's identification as a part of the City's cultural heritage landscape. The study also considers the future Active Transportation corridor, including a future multi-use trail with connections to other neighbourhoods. Using a Context Sensitive Design approach, this study follows a comprehensive and sound planning process that will recognize the multimodal transportation needs while protecting established parks, recreational areas, communities and businesses, as well as its cultural value.

1.3 Environmental Assessment Process

To address the need for improvements to Creditview Road, the City of Mississauga must comply with the requirements of the Municipal Engineers Association (MEA) *Municipal Class Environmental Assessment* (EA) document (October 2000, as amended in 2011). Approved under the Ontario *Environmental Assessment Act*, the Municipal Class EA process incorporates the following key principles of EA planning:

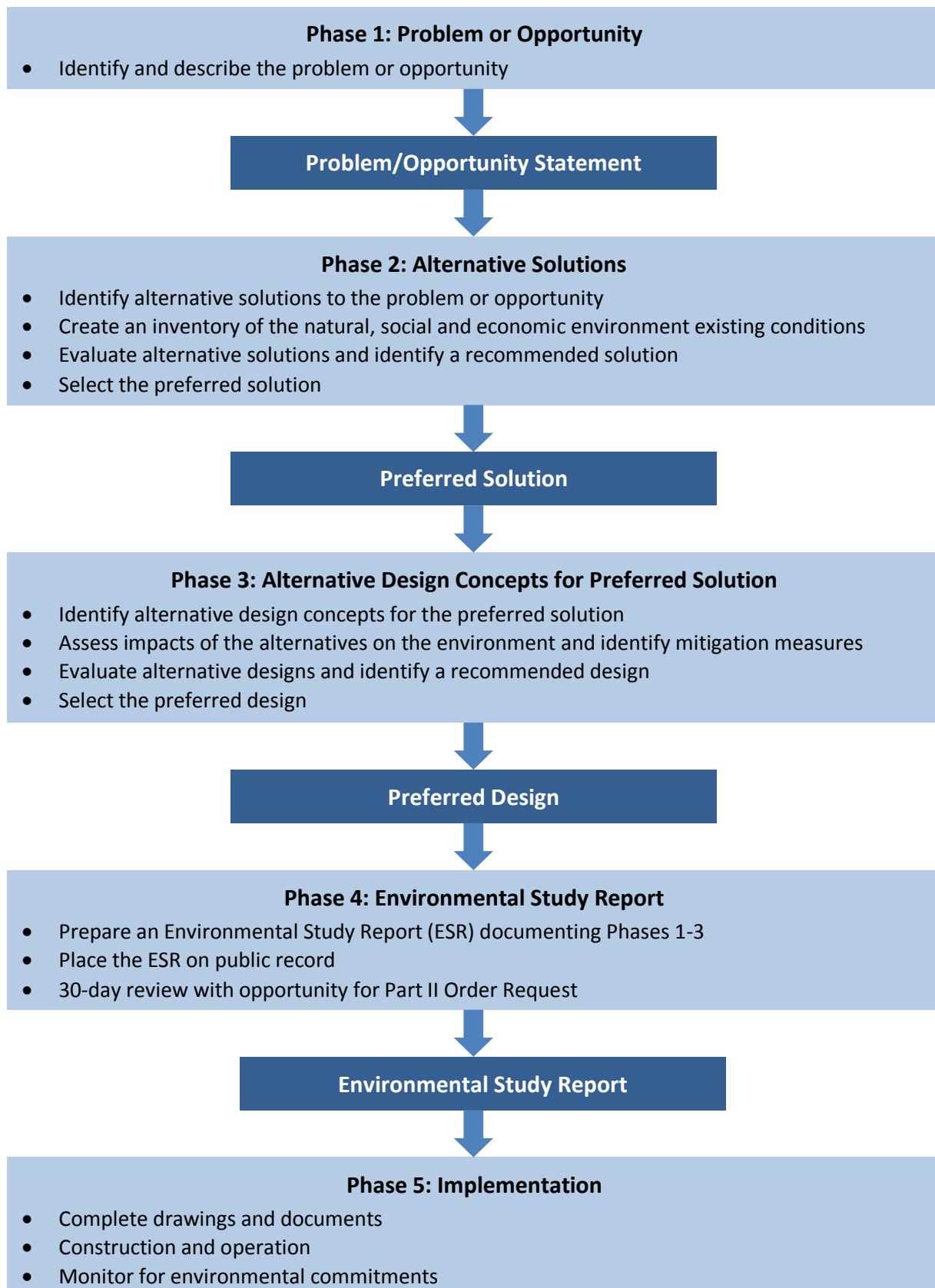
- Consultation with affected parties early in and throughout the process, such that the planning process is a cooperative venture;
- Consideration of a reasonable range of alternatives, both the functionally different 'alternatives to' and the 'alternative methods' of implementing the solution;
- Identification and consideration of the effects of each alternative on all aspects of the environment;
- Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects;
- Provision of clear and complete documentation of the planning process followed, to allow 'traceability' of decision-making with respect to the project.

As illustrated in **Figure 1**, the Municipal Class EA document outlines a five (5) phase planning and design process. Each phase is summarized below:

Phase 1 Identify the problem and/or opportunity to be addressed.

Phase 2 Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and determine the preferred solution taking into account public and regulatory agency input.

- Phase 3** Examine alternative methods of implementing the preferred solution, taking into account the existing environment, public and regulatory agency input, anticipated environmental impacts, and methods of minimizing negative impacts and maximizing positive impacts.
- Phase 4** Document, in an Environmental Study Report (ESR), a summary of the rationale and the planning, design and consultation process undertaken through Phases 1 to 3. The ESR is made available for public and agency review and comment.
- Phase 5** Complete contract drawings and documents, and proceed to construction and operation. Monitor construction and operation where necessary for adherence to environmental provisions and mitigation. Phase 5 is not part of this study. This phase will be undertaken immediately prior to construction.

Figure 1- Municipal Class Environmental Assessment Process

In addition, the Municipal Class EA document classifies transportation improvements as either Schedule A, A+, B or C projects based on the anticipated level of impact. Each schedule is described as follows:

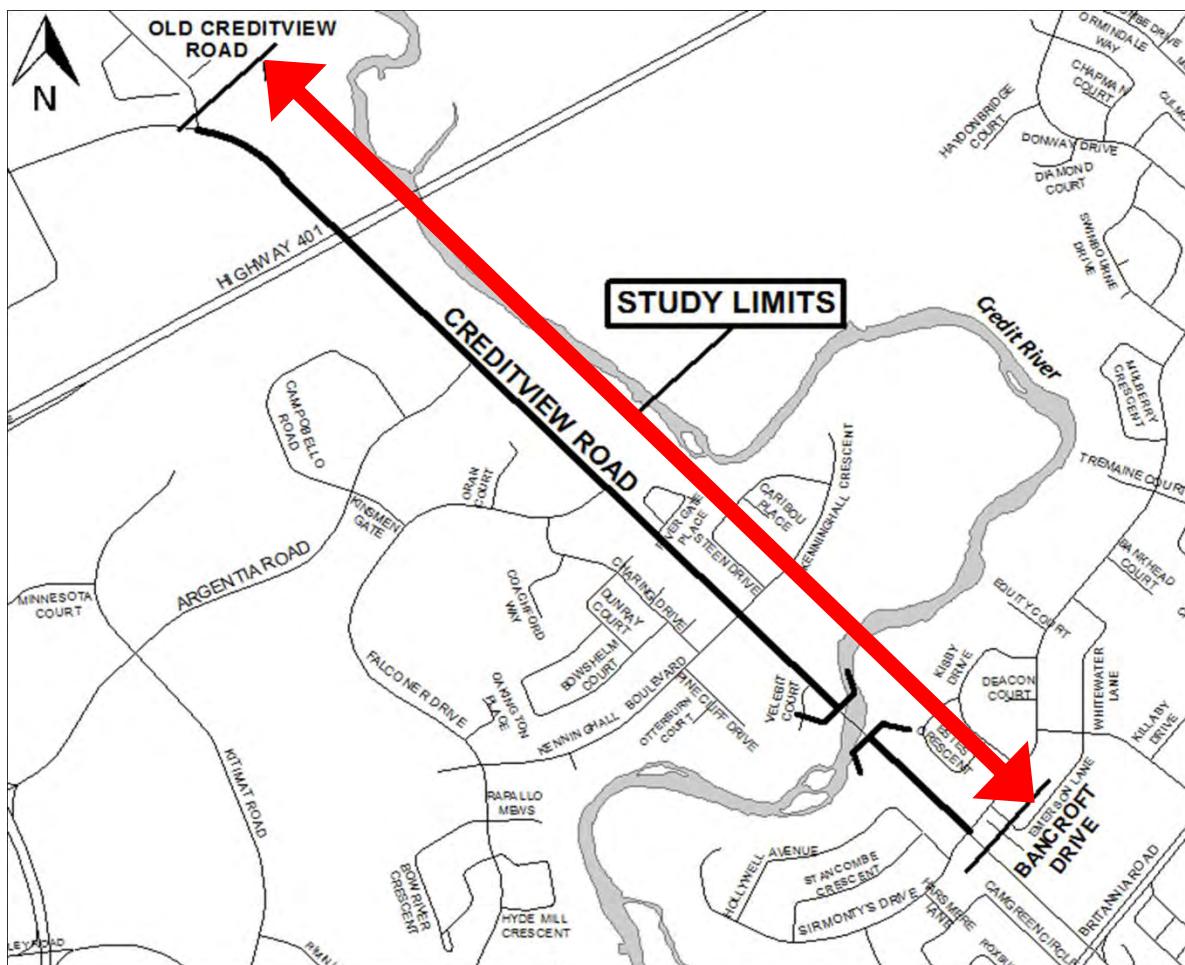
- Schedule A** Projects are limited in scale, have minimal adverse environmental impacts, and require no public notification or documentation.
- Schedule A+** Projects are limited in scale, have minimal adverse environmental impacts, and require no documentation; however, the public is to be advised of the project prior to implementation.
- Schedule B** Projects have the potential for some adverse environmental impacts. The proponent is required to undertake a screening process, involving mandatory contact with the directly affected public and regulatory agencies, to ensure that they are aware of the project and that their concerns are addressed. ‘Schedule B’ projects require that a Project File be prepared and made available for public review.
- Schedule C** Projects have the potential for significant environmental impacts and must proceed under the full planning and documentation procedures of the Municipal Class EA document. ‘Schedule C’ projects require that an ESR be prepared and filed on the public record for review by the public and regulatory agencies.

This study is classified as a ‘Schedule C’ project, which involves completion of Phases 1 through 4 of the planning and design process (Phase 5 will be completed prior to construction). This Traffic Operation Analysis Report forms Phases 1, 2, and 3 of the project, and the full process will be documented within an ESR.

1.4 Study Scope

The site area is shown in **Figure 2**. This report summarizes the following:

- Traffic data review, including turning movement counts (TMC), annual average daily traffic volumes (AADT) and relevant traffic study reports;
- An assessment of the existing traffic operations/conditions at the study area intersections on Creditview Road between Bancroft Drive and Old Creditview Road inclusive for weekday AM and PM peak hours;
- Identification of deficiencies (if any), which are contributing to the poor existing traffic operations;
- Projections of the future traffic growth to horizon year 2021 and 2031;
- The analysis of the traffic impacts resulting from the introduction of the future traffic volumes to the road network (future operational conditions). 2021 and 2031 horizon years were used for future forecasts and traffic operations analysis;
- Assembly of a list of mitigation measures required to address any safety issues and to improve traffic operations in the study area;
- Evaluation of different design concepts, and discussions about preferred alternative design solution;
- Discussion of findings, conclusions and remedial measures with City of Mississauga traffic staff; and
- Documentation and submittal of our findings and recommendations in a report to the City of Mississauga.

Figure 2- Study Area

2. Existing Conditions

2.1 Existing Road Network

Creditview Road is designated as a Major Collector in the City of Mississauga Official Plan (OP). It is under the jurisdiction of City of Mississauga. It has a posted speed of 60 km/h within the study area. It runs between Derry Road West (northern terminus) and Burnhamthorpe Road West (southern terminus).

According to the OP, Major Collectors in neighbourhoods are designed to accommodate moderate volumes of traffic and will be the focus of active transportation facilities. Vehicular access will be designed to minimize conflicts with active transportation modes. In Employment Areas, major collectors are designed to serve a moderate volume of business and goods movement traffic. Vehicular access will be designed to support the efficient flow of goods movement traffic. Where possible, consolidation of access will be encouraged in neighbourhoods and employment areas.

Creditview Road has a four (4) lane cross-section for the majority of segments between north of Burnhamthorpe Road West to Derry Road West except the study area i.e. between Bancroft Drive and Old Creditview Road which has two (2) lane cross-section. This two (2) lane cross-section of Creditview Road through the study area represents a major discontinuity in the transportation network. Network continuity is an important aspect of transportation networks and leads to more efficient and adaptable corridors. Improving network continuity supports the key goal of optimizing the existing transportation system.

2.1.1 Road Characteristics

The Creditview Road corridor between Bancroft Drive and Creditview Road is a two (2) lane Major Collector with a posted speed of 60 km/h. The 2011 City of Mississauga Official Plan identifies Creditview Road as having a 30 m designated road allowance in this section.

The corridor within the study area has four (4) signalized intersections at Bancroft Drive/Sir Monty's Drive, Kenninghall Boulevard, Argentia Road and Old Creditview Road as well as three (3) unsignalized intersections at Velebit Court, Falconer Drive and Rivergate Place.

Side streets crossing Creditview Road within the study area fall into different categories. Velebit Court, Kenninghall Crescent, and Sir Monty Drive are local roads. Rivergate Place is a private driveway, and the rest of the side streets are designated as Minor Collector Road under the jurisdiction of City of Mississauga except for Argentia Road, which is designated as Major Collector Road. The posted speed limit is 60 km/h on all Major Collector roads and 50 km/h for other road categories in the vicinity of Creditview Road in the study area.

2.2 Existing Traffic Conditions

Traffic analysis was conducted to determine existing conditions along Creditview Road, including Level of Service (LOS), volume to capacity ratio (v/c). The study area extends on Creditview Road between Old Creditview Road to the north and Sir Monty's/Bancroft Drive to the south. The traffic analysis considered the following key study area intersections. **Figure 3** shows study area intersections lane configurations.

- Creditview Road/Bancroft Drive/Sir Monty's Drive (Signalized)
- Creditview Road/Velebit Court (Unsignalized)
- Creditview Road/Kenninghall Crescent (Signalized)
- Creditview Road /Rivergate Place (Unsignalized)
- Creditview Road/Falconer Drive (Unsignalized)
- Creditview Road/Argentia Road (Signalized)
- Creditview Road/Old Creditview Road (Signalized)

2.2.1 Average Daily Traffic (ADT) Data

The ADT data for the following locations in the study area were provided by the City of Mississauga:

- Creditview Road between Old Creditview Road and Highway 401 (collected on May 30, 2013)
- Creditview Road between Velebit Court and Bancroft Drive (collected on May 11, 2010)

The AM and PM peak periods for both locations are 7:00-10:00AM and 4:00-7:00PM, respectively. Traffic volume along Creditview Road during mid-day peak period (11:00AM-1:00PM) is significantly lower than the AM and PM peak periods. Detailed ADT data is provided in **Appendix A**.

2.2.2 Data Collection and Signal Timing

Turning movement counts (TMC) and signal timings for the study area were provided by the City of Mississauga. All the TMCs were recorded on weekdays of Fall 2012 (October and November) or late Winter 2013 (March 19th). **Table 1** provides a list of the traffic volume inventory utilized for the existing condition analyses. Detailed TMC are provided in **Appendix B**.

Table 1- Turning Movement Counts Inventory

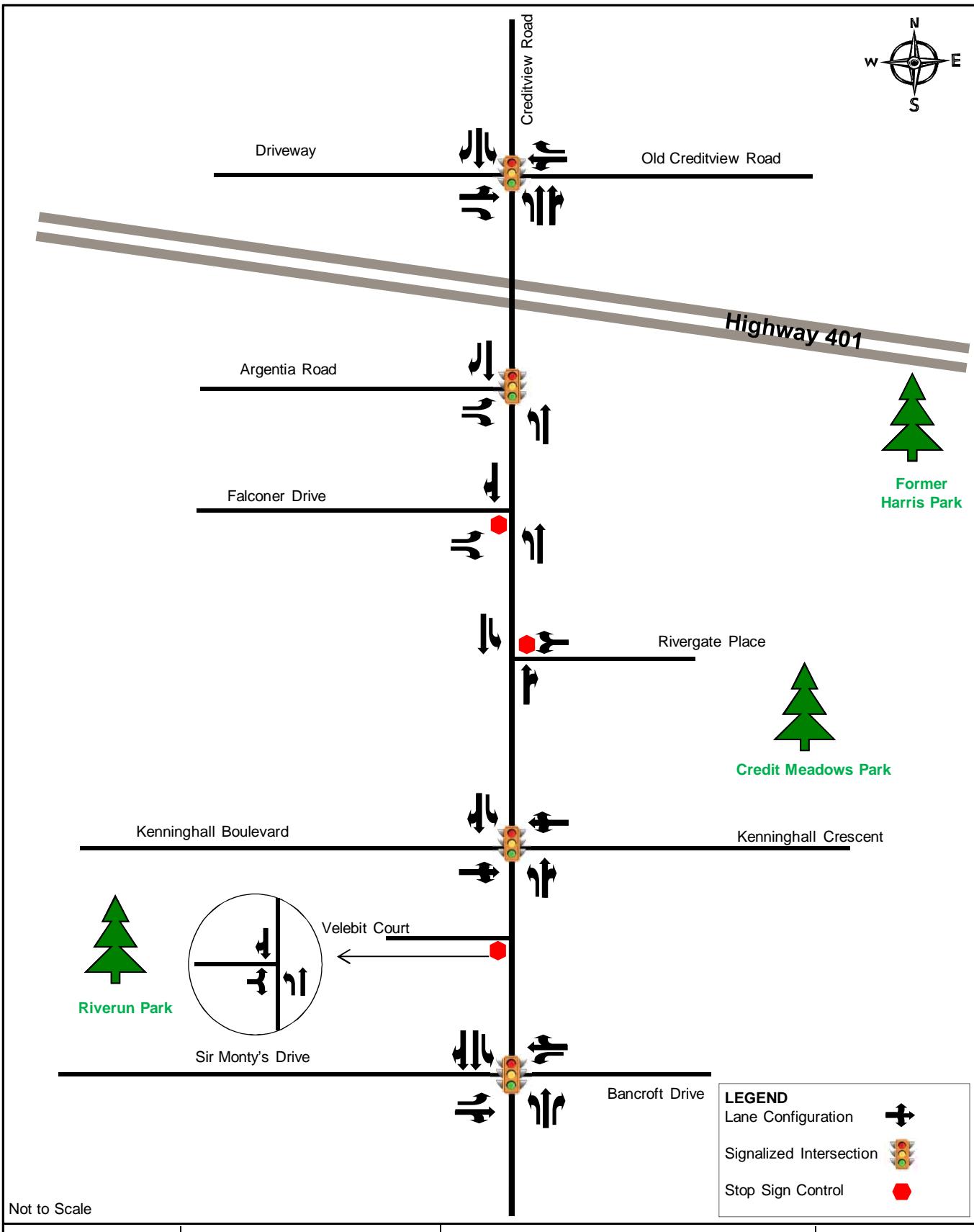
No.	Location	Intersection Control	Date (Month, Day, Yr)	Source
1	Creditview Road/Old Creditview Road	Signalized	March 19, 2013	City of Mississauga
2	Creditview Road/Argentia Road	Signalized	November 6, 2012	City of Mississauga
3	Creditview Road/Kenninghall Blvd	Signalized	October 25, 2012	City of Mississauga
4	Creditview Road /Rivergate Place	Unsignalized	-	Calculated ¹
5	Creditview Road/Falconer Drive	Unsignalized	October 24, 2012	City of Mississauga
6	Creditview Road/Velebit Court	Unsignalized	-	Calculated ¹
7	Creditview Road/Bancroft Drive/Sir Monty's Drive	Signalized	March 19, 2013	City of Mississauga

Note:

1 – Peak hour traffic volumes were generated based on Institute of Transportation Engineers (ITE) trip rates for Single Family Detached Housing located on Velebit Court and Townhouses located on Rivergate Place.

The heavy vehicle percentages for the weekday AM and PM peak hours were calculated based on the turning movement counts. Since the existing data was collected on different days, there was an inconsistency between

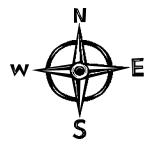
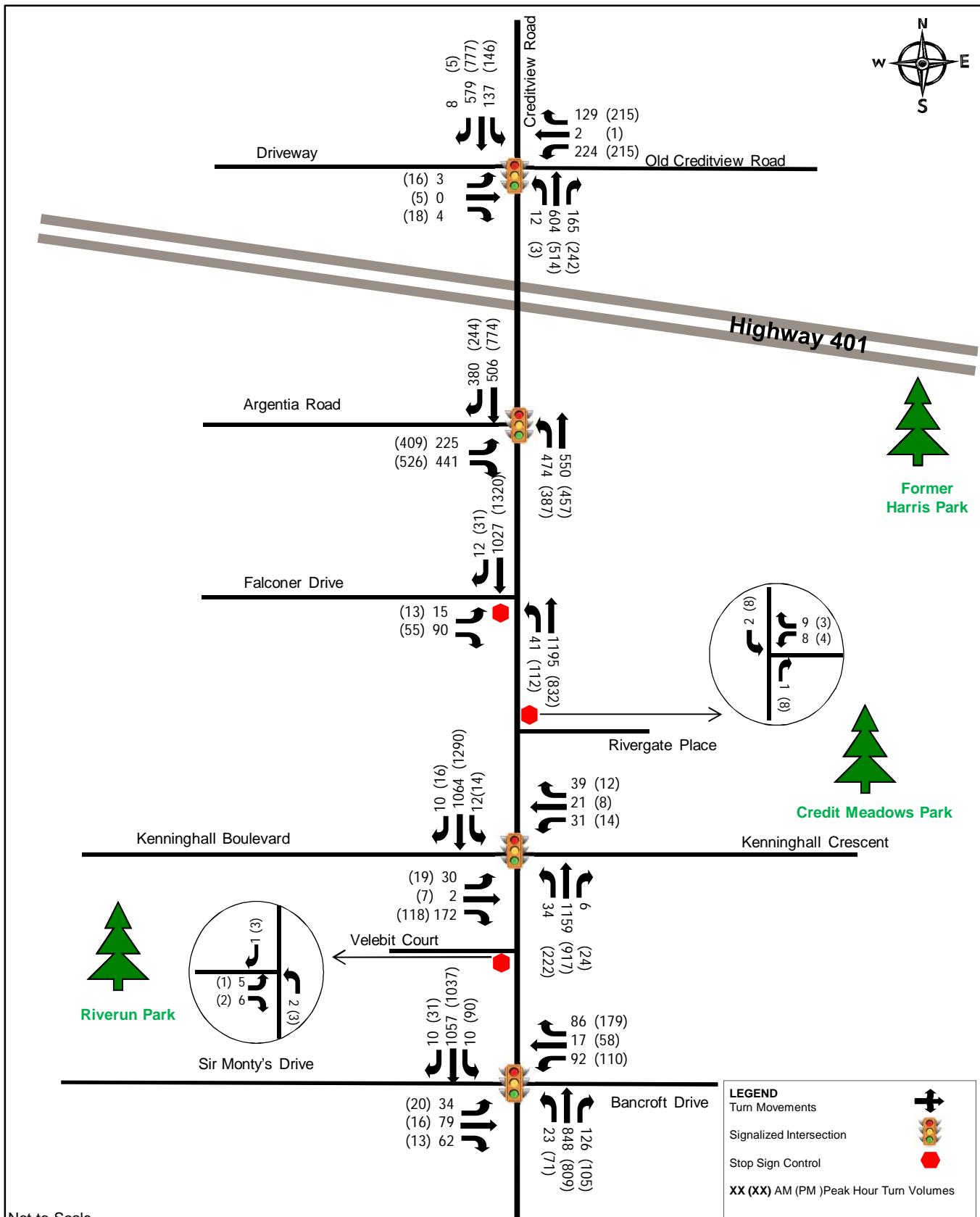
volumes leaving an intersection with volumes arriving to the next intersection. This required a balancing process among the available counts to balance traffic flow. During the balancing process, the observed traffic volumes were further adjusted to maintain the traffic flow conservation i.e. total vehicles entering a location on the network should be equal to those exiting that location. The base unbalanced counts at signalized intersections were computed based on the average of the turning movement counts for the year 2005 and the newer information provided by the City. Volumes at Rivergate Place and Velebit Court were estimated based on ITE trip rates. The volume balancing was then conducted based on review of turning movement counts at the intersections of the study area. **Figure 4** and **Figure 5** illustrate traffic volumes before and after balancing for AM and PM peak hours.



Not to Scale

LEGEND

Lane Configuration	
Signalized Intersection	
Stop Sign Control	



Former
Harris Park

Credit Meadows Park

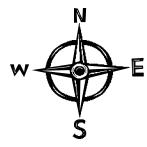
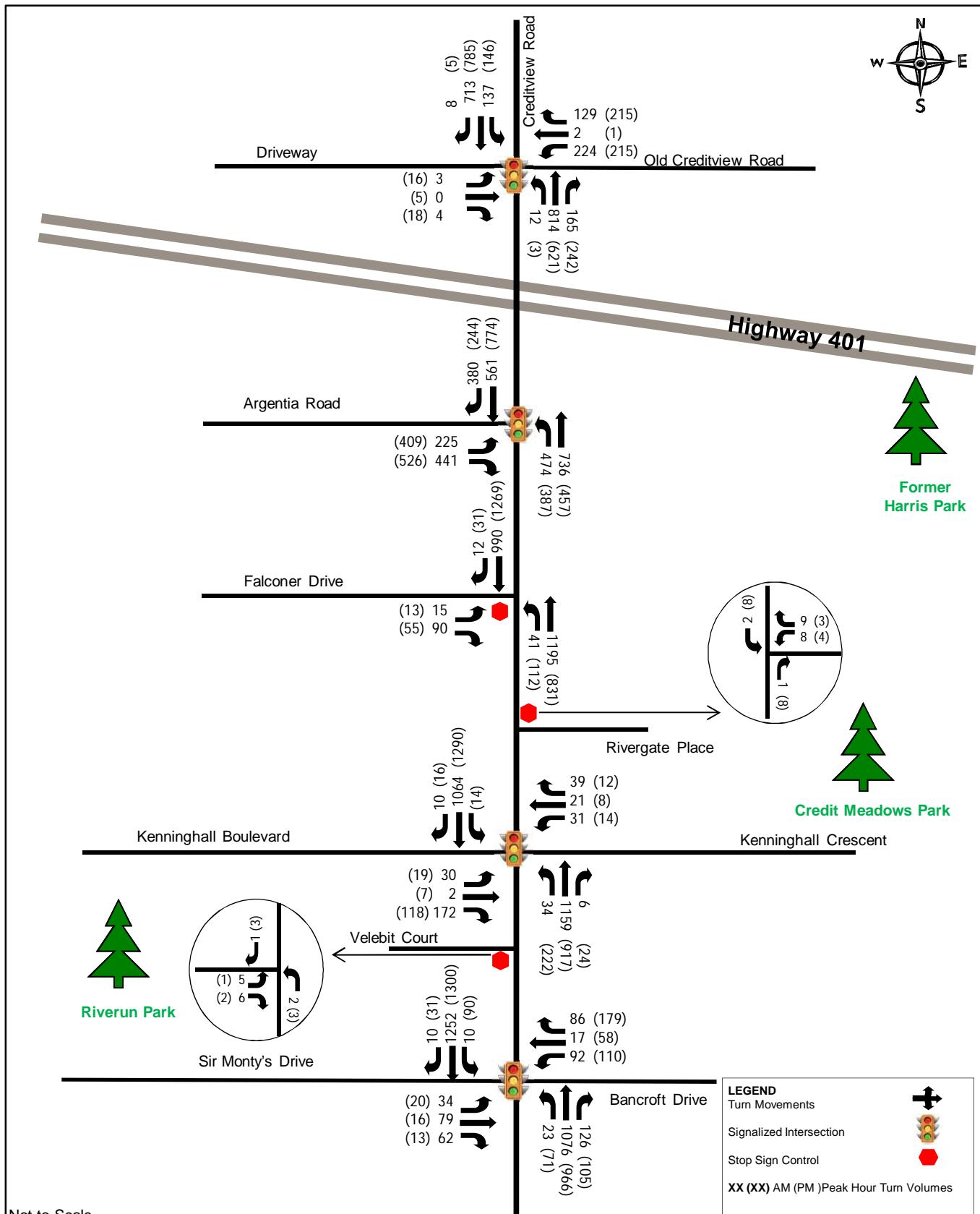
Kenninghall Crescent

Riverun Park

LEGEND
 Turn Movements
 Signalized Intersection
 Stop Sign Control
 XX (XX) AM (PM)Peak Hour Turn Volumes



Figure 4



Highway 401

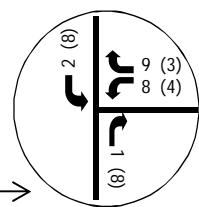


Former
Harris Park

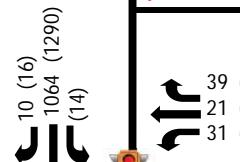


Credit Meadows Park

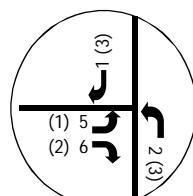
Kenninghall Crescent



Rivergate Place



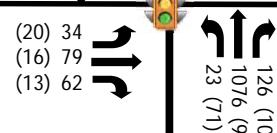
Kenninghall Boulevard



Riverrun Park



Sir Monty's Drive



(20) 34
(16) 79
(13) 62

Bancroft Drive



LEGEND
Turn Movements
Signalized Intersection
Stop Sign Control
XX (XX) AM (PM)Peak Hour Turn Volumes



Title:

Existing Traffic Volumes - Balanced

Project:

Creditview Road Environmental
Assessment

AECOM

2.2.3 Traffic Operations Analysis

Traffic operations for all the intersections within the study area were analyzed using the Synchro 7.0 software package. The Synchro software is developed based on the Highway Capacity Manual (HCM 2000) methodologies and provides a detailed assessment of traffic operations including levels of service (LOS), delays and volume to capacity ratios (V/C) for overall, approaches, as well as individual movements of unsignalized and signalized intersections. LOS describes the “driver experience” on a transportation facility, with each LOS associated with the average delay each driver would experience at an intersection (see **Table 2**).

Table 2- Level of Service Descriptions

LOS	Signalized Intersections		Unsignalized Intersections	
	Description	Delay	Description	Delay
A	Very seldom does a vehicle wait longer than one red light. The approach appears open, turns are easily made and drivers have freedom of operation.	≤10 sec	Little or no traffic delay occurs. Approaches appear open, turning movements are easily made, and drivers have freedom of operation.	≤10 sec
B	An occasional green light is fully used and many greens approach full use. Many drivers begin to feel somewhat restricted within groups of vehicles approaching the intersection.	≤20 sec	Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation.	≤15 sec
C	Intersection operation is stable but often has fully used greens. Drivers feel more restricted and occasionally may wait more than one red light. Queues may develop behind turning vehicles.	≤35 sec	Average traffic delays occur. Operations are generally stable, but drivers emerging from the minor street may experience difficulty in completing their movement. This may occasionally impact on the stability of flow on the major street.	≤25 sec
D	Drivers experience increasing restriction and instability of traffic flow. There are substantial delays to vehicles during short peaks within the peak hour, but there is enough time with lower demand to permit occasional clearing of queues and prevent excessive backups.	≤55 sec	Long traffic delays occur. Drivers emerging from minor streets experience significant restriction and frustration. Drivers on the major street will experience congestion and delay.	≤35 sec
E	The capacity of the road is reached. There are long queues of vehicles waiting upstream of the intersection and delays to vehicles may extend to several signal cycles.	≤80 sec	Very long traffic delays occur. Operations approach the capacity of the intersection.	≤50 sec
F	Vehicle demand exceeds the available capacity and delays extending through the peak hour are experienced.	>80 sec	Vehicle demand exceeds the available capacity. Very long traffic delays occur frequently.	>50 sec

The v/c ratio represents how full a road or intersection movement is, based on actual volumes versus the maximum number of vehicles that can travel. A v/c between 0.00 and 0.49 means that less than half the capacity is being used by vehicles; this is generally associated with good operating conditions. As the v/c approaches 1.00, traffic conditions worsen and at 1.00 the theoretical maximum number of vehicles is reached

and operations are generally very poor. The V/C can exceed 1.00, indicating very bad operations and extended traffic delays.

The critical movements identified in the capacity analyses summary tables are those having an LOS of "E" or "F" and/or a V/C ratio of 0.85 or greater for signalized intersections, and for unsignalized intersections an LOS of "E" or "F". Since the analysis is based on actual volumes, V/C > 1.00 indicates that the counted traffic volumes exceeded the capacity calculated by the analysis procedure/software. Individual movements at intersections with calculated V/C > 1.00 are operating essentially above capacity and can be expected to experience severe recurring queuing and congestion during both the AM and PM peak periods.

The existing traffic volumes (**Figure 5**) were analyzed based on the existing lane configurations (**Figure 3**) and signal timings provided by the City of Mississauga. The traffic operational analysis results of the study area signalized and unsignalized intersections are summarized in **Table 3**. Detailed Synchro outputs are provided in **Appendix C**. All the critical individual movements with respect to levels of service and volumes to capacity ratios are shown in **red** in the table.

Table 3- Existing Traffic Condition Analysis

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Creditview Road/Old Creditview Road (Signalized)	SB	Left	8.6	A	0.37	8.1	A
		Thru	12.1	B	0.58	12.8	B
		Right	6.1	A	0.01	6.1	A
	NB	Left	11.0	B	0.03	16.7	B
		Thru-Right	17.6	B	0.51	25.7	C
	EB	Left-Thru	34.9	C	0.02	35.4	D
		Right	34.7	C	0.00	34.8	C
	WB	Left-Thru	60.2	E	0.81	56.4	E
		Right	35.5	D	0.08	35.9	D
	Overall Intersection		20.6	C	0.64	24.1	C
Creditview Road/Argentia Road (Signalized)	EB	Left	56.7	E	0.77	190.0	F
		Right	33.2	C	0.59	31.0	C
	NB	Left	16.2	B	0.82	96.3	F
		Thru	4.8	A	0.57	9.0	A
	SB	Thru	14.9	B	0.59	53.1	D
		Right	6.5	A	0.24	14.1	B
	Overall Intersection		17.6	B	0.78	64.3	E
	Overall Intersection		17.6	B	0.78	64.3	E
Creditview Road/Kenninghall Blvd (Signalized)	EB	Left-Thru-Right	50.3	D	0.54	49.3	D
	WB	Left-Thru-Right	159.3	F	0.89	50.8	D
	NB	Left	2.9	A	0.14	103.9	F
		Thru-Right	6.4	A	0.80	6.0	A
	SB	Left	4.2	A	0.10	5.4	A
		Thru-Right	8.2	A	0.73	59.5	E
	Overall Intersection		15.9	B	0.81	43.3	D

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Bancroft Drive/Sir Monty's (Signalized)	EB	Left	44.6	D	0.24	45.6	D	0.29
		Thru-Right	48.4	D	0.54	42.3	D	0.08
	WB	Left	58.0	E	0.66	51.6	D	0.61
		Thru-Right	43.6	D	0.15	48.9	D	0.58
	NB	Left	4.1	A	0.09	7.2	A	0.29
		Thru	11.5	B	0.76	9.8	A	0.69
		Right	3.5	A	0.08	3.6	A	0.07
	SB	Left	9.0	A	0.17	7.8	A	0.30
		Thru-Right	8.0	A	0.47	8.8	A	0.50
Overall Intersection		14.4	B	0.75	14.3	B	0.68	
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	672.0	F	0.86	226.6	F	0.45
		Right	24.1	C	0.32	43.7	E	0.37
	NB	Left	11.3	B	0.07	19.5	C	0.31
Creditview Road/Velebit Court(Unsignalized)	EB	Left-Right	>1000	F	>2.00	>1000	F	1.17
	NB	Left	19.4	C	0.01	26.1	D	0.02
Creditview Road/Rivergate Place (Unsignalized)	SB	Left	17.6	C	0.01	10.8	B	0.01
	WB	Left-Right	>1000	F	>2.00	140.4	F	0.21

Note: Critical movements were shown in red in the table with V/C ratios ≥ 0.85 and or LOS E or worse

Based on the intersection capacity analyses results presented in **Table 3**, we found that half of the signalized (during the PM peak hour only) and all of the unsignalized intersections (during both the AM and PM peak hours) within the study area are operating at or above capacity with significant delays. The following individual movements are operating at LOS "E" or worse:

AM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road – eastbound left
- Creditview Road at Kenninghall Blvd – westbound left-thru-right
- Creditview Road at Bancroft Drive – westbound left
- Creditview Road at Falconer Drive – eastbound left
- Creditview Road at Velebit Court – eastbound left/right
- Creditview Road at Rivergate Place – westbound left/right

PM Peak Hour

- Creditview Road at Old Creditview Road – southbound left-thru
- Creditview Road at Argentia Road – northbound left, eastbound left, and southbound thru
- Creditview Road at Kenninghall Blvd – northbound left and southbound thru-right
- Creditview Road at Falconer Drive – eastbound left and eastbound right
- Creditview Road at Velebit Court – eastbound left/right
- Creditview Road at Rivergate Place – westbound left/right

The unsignalized intersections within the study area experience significant delay while exiting on to Creditview Road during both the peak hours. Since traffic volumes are heavier compared to the available capacity on Creditview Road during the peak hours, very minimal gap is available for vehicles exiting from the stop controlled side streets. Also with respect to the individual movements, southbound through movements on Creditview Road operate at or above capacity in the peak direction during the PM peak hour.

3. Future Conditions

3.1 Future Traffic Growth Projections

According to City of Mississauga Official Plan (OP) it is vital to preserve the capacity of the road system to meet the needs of Mississauga's population and employment growth.

City of Mississauga's latest growth forecasts published in November 2013 provides population, housing units and employment forecasts for the period 2011 to 2031. Continued growth within north-west portion of the City will increase the use of Creditview Road. Based on the anticipated growth values for the City, traffic operations for Creditview Road within the study area between Bancroft Drive and Old Creditview Road would operate beyond capacity.

For the purposes of this EA study, the updated growth forecasts and transportation model results provided by the City of Mississauga Transportation Planning Group were utilized to forecast future growth and demand on the Creditview Road corridor. Future forecast results were provided for the two following cases:

- No-widening – The existing cross-section will be maintained on Creditview Road
- Widening – Creditview Road will be widened to a four lane cross-section

Based on the growth rate provided by the City, **Table 4** shows future growth rates applied to the north-south traffic volumes on Creditview Road for horizon year 2021 and year 2031.

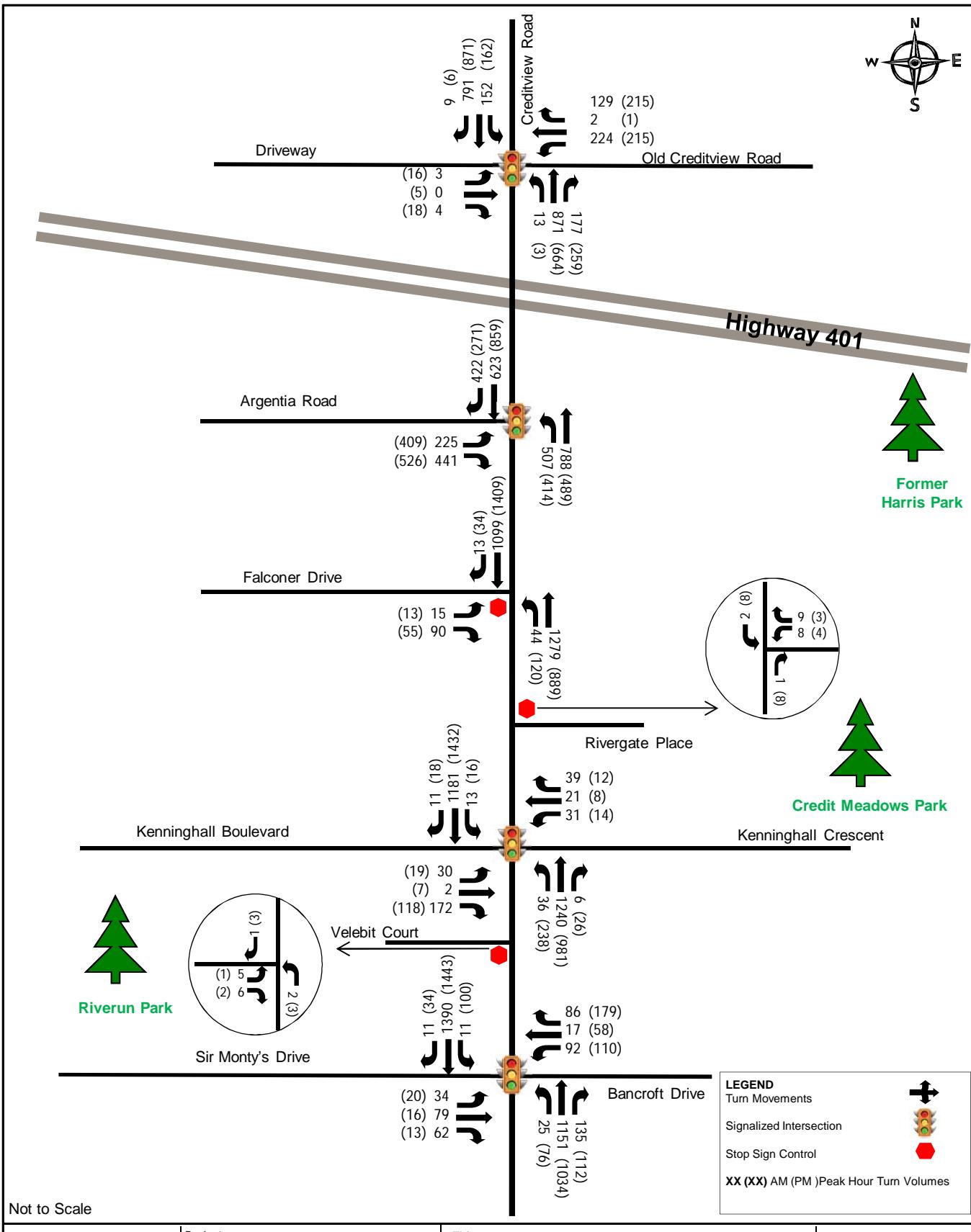
Table 4- Future Forecast Creditview Road

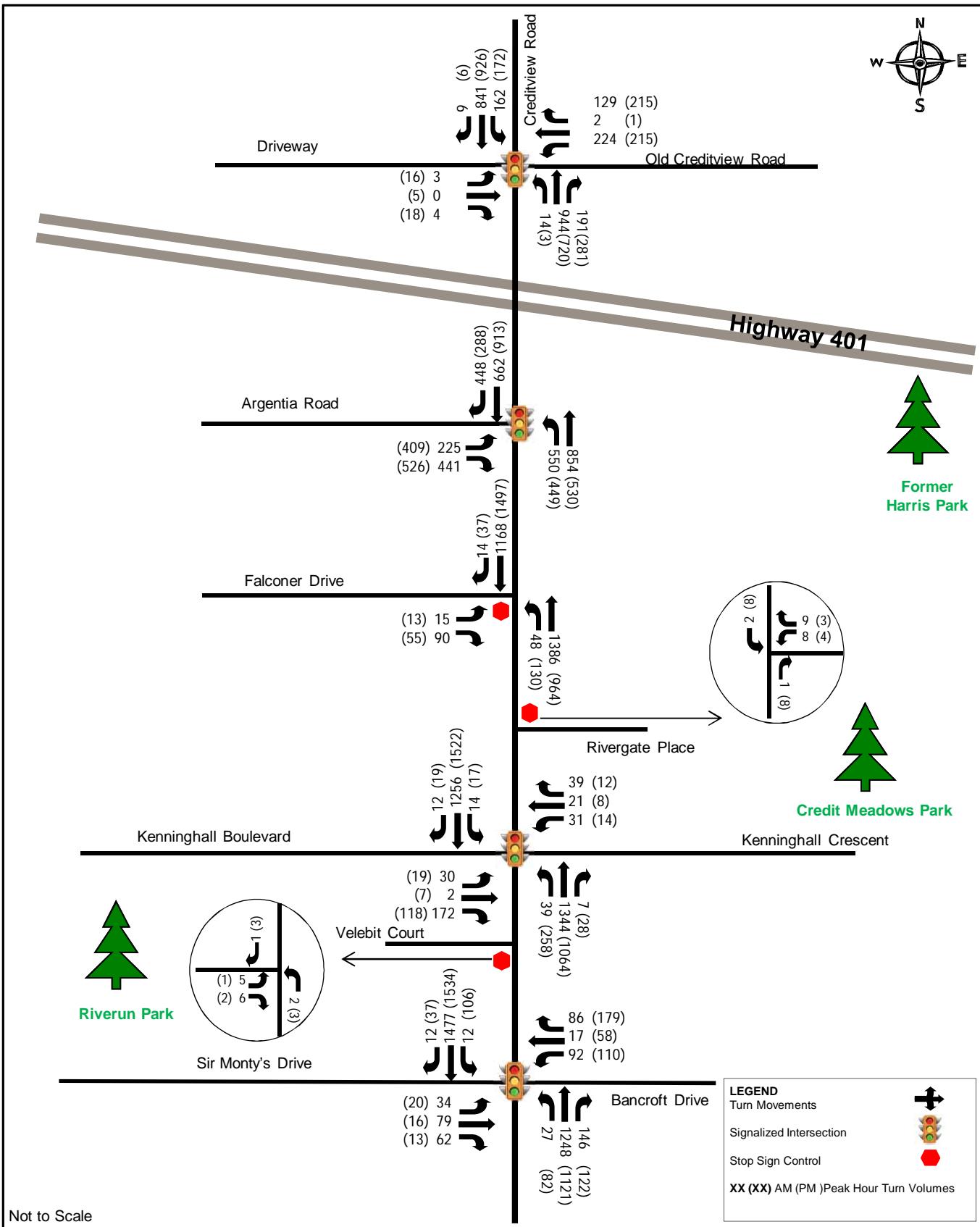
Creditview Road Cross-Section	Direction	Traffic Growth	
		Horizon Year 2021	Horizon Year 2031
No-widening	Northbound	7 %	16 %
	Southbound	11 %	18 %
Widening	Northbound	45 %	61 %
	Southbound	29 %	42 %

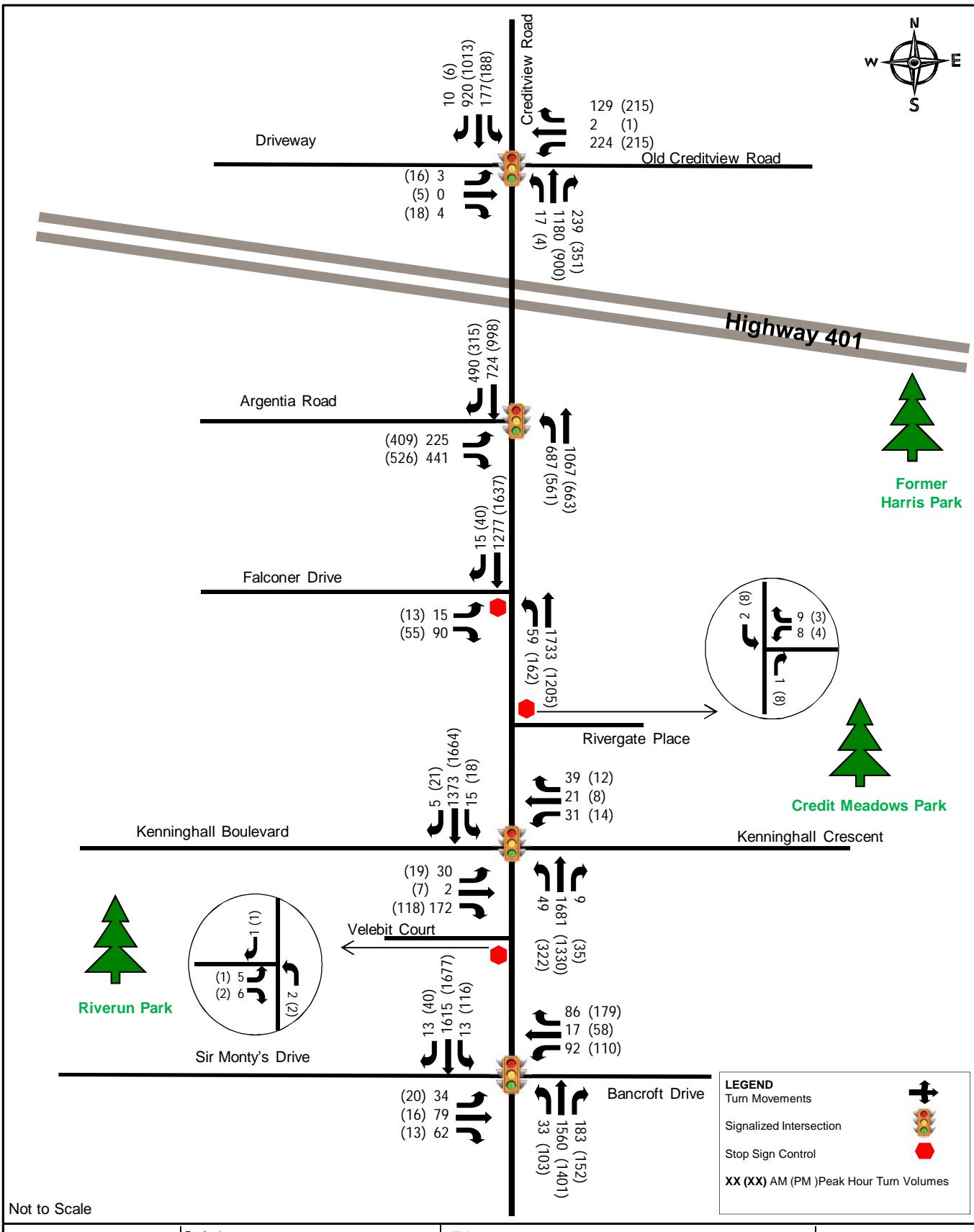
These total growth rates were applied to the link volumes at Creditview Road and distributed as per prevailing traffic conditions. Detailed traffic forecasts results provided by the City are provided in **Appendix D**.

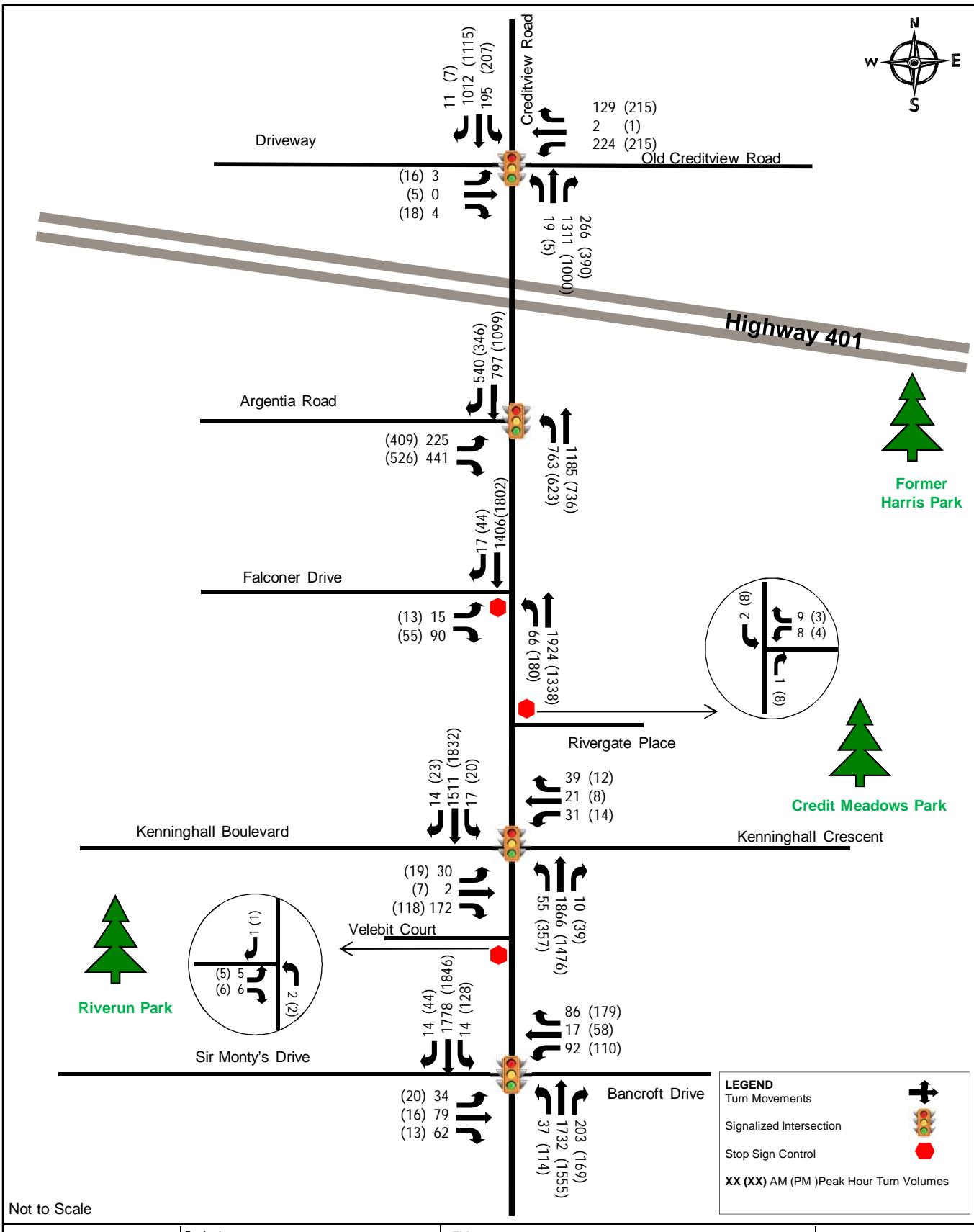
3.2 Future Total Traffic Volumes

Figure 6 and **Figure 7** illustrate future traffic volumes with no widening for horizon year 2021 and year 2031 respectively. **Figure 8** and **Figure 9** illustrate future traffic volumes for widening Creditview Road to a four-lane cross-section for horizon year 2021 and year 2031 respectively.









3.3 Traffic Operations Analysis

The traffic operations for all the intersections within the study area were analyzed using the Synchro 7.0 software package for future traffic volumes. The “critical movements” identified in the capacity analyses summary tables are those having an LOS of “E” or “F” and/or a V/C ratio of 0.85 or greater for signalized intersections, and for unsignalized intersections an LOS of “E”, or “F”. Since the analysis is based on actual volumes, V/C > 1.00 indicates that the counted traffic volumes exceeded the capacity calculated by the analysis procedure/software. Individual movements at intersections with calculated V/C > 1.00 are operating above capacity and can be expected to experience severe recurring queuing and congestion during both the AM and PM peak periods.

3.3.1 Do Nothing

Horizon year 2021

The future traffic volumes under no-widening conditions were analysed for horizon year 2021 (**Figure 6**) using existing lane configuration (**Figure 3**) and signal timings provided by the City of Mississauga. The traffic operational analysis results for the study area signalized and unsignalized intersections for horizon year 2021 are summarized in **Table 5**. Detailed Synchro outputs are provided in **Appendix E**.

Table 5- Year 2021 Traffic Analysis – Do Nothing

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Old Creditview Road (Signalized)	SB	Left	9.5	A	0.43	8.7	A	0.42
		Thru	13.5	B	0.65	14.6	B	0.69
		Right	6.1	A	0.01	6.1	A	0.00
	NB	Left	11.2	B	0.04	16.3	B	0.01
		Thru-Right	18.2	B	0.55	25.3	C	0.47
	EB	Left-Thru	34.9	C	0.02	35.4	D	0.08
		Right	34.7	C	0.00	34.8	C	0.01
	WB	Left-Thru	60.2	E	0.81	56.4	E	0.79
		Right	35.5	D	0.08	35.9	D	0.14
	Overall Intersection		21.0	C	0.69	24.2	C	0.72
Creditview Road/Argentia Road (Signalized)	EB	Left	56.7	E	0.77	190.0	F	1.05
		Right	33.1	C	0.62	36.7	D	0.78
	NB	Left	17.9	B	0.85	32.9	C	0.88
		Thru	4.9	A	0.61	9.0	A	0.40
	SB	Thru	18.1	B	0.67	74.0	E	0.99
		Right	10.3	B	0.29	10.4	B	0.23
	Overall Intersection		18.6	B	0.80	61.1	E	0.99
Creditview Road/Kenninghall Blvd (Signalized)	EB	Left-Thru-Right	52.8	D	0.63	49.3	D	0.29
	WB	Left-Thru-Right	79.4	E	0.74	50.8	D	0.32
	NB	Left	4.2	A	0.22	168.2	F	1.03
		Thru-Right	8.8	A	0.87	6.8	A	0.67
	SB	Left	6.6	A	0.16	5.6	A	0.08
		Thru-Right	11.7	B	0.83	234.3	F	1.12
	Overall Intersection		15.6	B	0.85	137.0	F	1.04

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Bancroft Drive/Sir Monty's Drive (Signalized)	EB	Left	44.6	D	0.24	45.6	D	0.29
		Thru-Right	48.4	D	0.54	42.3	D	0.08
	WB	Left	58.0	E	0.66	51.6	D	0.61
		Thru-Right	43.6	D	0.15	48.9	D	0.58
	NB	Left	4.7	A	0.12	9.8	A	0.37
		Thru	13.7	B	0.81	11.1	B	0.74
	SB	Right	3.5	A	0.09	3.7	A	0.07
		Left	8.6	A	0.19	8.4	A	0.38
		Thru-Right	8.1	A	0.52	10.1	B	0.55
	Overall Intersection		14.9	B	0.79	15.0	B	0.72
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	817.9	F	0.95	472.0	F	0.69
		Right	31.4	D	0.4	81.7	F	0.55
	NB	Left	12.6	B	0.09	28.5	D	0.44
Creditview Road/Velebit Court (Unsignalized)	EB	Left-Right	>1000	F	>2.0	>1000	F	>2.0
	NB	Left	27.9	D	0.01	38.2	E	0.03
Creditview Road/Rivergate Place (Unsignalized)	SB	Left	21.7	C	0.01	11.7	B	0.01
	WB	Left-Right	>1000	F	>2.0	561.0	F	0.56

Note: Critical movements were shown in red in the table with V/C ratios ≥ 0.85 and or LOS E or worse

Based on the intersection capacity analyses results presented in **Table 5**, we found that all signalized and unsignalized intersections within the study area expected to operate at or above capacity with significant delays during both the AM and PM peak hours during horizon year 2021 without any improvements. The following individual movements are operating at LOS "E" or worse:

AM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road – northbound left and eastbound left
- Creditview Road at Kenninghall Blvd – westbound left-thru-right and northbound thru-right
- Creditview Road at Bancroft Drive – westbound left
- Creditview Road at Falconer Drive – eastbound left
- Creditview Road at Velebit Court – eastbound left/right
- Creditview Road and Rivergate Place – westbound left/right

PM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road – northbound left, eastbound left, and southbound thru
- Creditview Road at Kenninghall Blvd – northbound left and southbound thru-right
- Creditview Road at Falconer Drive – eastbound left and eastbound right
- Creditview Road at Velebit Court – eastbound left/right and northbound left
- Creditview Road and Rivergate Place – westbound left/right

Horizon year 2031

The future traffic volumes under no-widening conditions were analysed for horizon year 2031 (**Figure 7**) using existing lane configuration (**Figure 3**) and signal timings provided by the City of Mississauga. The traffic operational analysis results for the study area signalized and unsignalized intersections for horizon year 2031 are summarized in **Table 6**. Detailed Synchro outputs are provided in **Appendix E**.

Table 6- Year 2031 Traffic Analysis – Do Nothing

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Old Creditview Road (Signalized)	SB	Left	10.8	B	0.50	9.6	A	0.48
		Thru	14.5	B	0.69	16.0	B	0.74
		Right	6.1	A	0.01	6.1	A	0.00
	NB	Left	11.4	B	0.05	15.3	B	0.01
		Thru-Right	19.1	B	0.60	25.1	C	0.51
	EB	Left-Thru	34.9	C	0.02	35.4	D	0.08
		Right	34.7	C	0.00	34.8	C	0.01
	WB	Left-Thru	60.2	E	0.81	56.4	E	0.79
		Right	35.5	D	0.08	35.9	D	0.14
	Overall Intersection		21.5	C	0.74	24.4	C	0.75
Creditview Road/Argentia Road (Signalized)	EB	Left	56.7	E	0.77	190	F	1.05
		Right	32.4	C	0.63	32.2	C	0.74
	NB	Left	21.0	C	0.91	276.5	F	1.12
		Thru	5.0	A	0.66	9.0	A	0.43
	SB	Thru	21.0	C	0.73	262.6	F	1.12
		Right	12.8	B	0.32	12.3	B	0.27
	Overall Intersection		19.7	B	0.84	149.9	F	1.05
Creditview Road/Kenninghall Blvd (Signalized)	EB	Left-Thru-Right	53.0	D	0.65	49.3	D	0.29
	WB	Left-Thru-Right	61.2	E	0.65	50.8	D	0.32
	NB	Left	8.3	A	0.38	285.7	F	1.12
		Thru-Right	17.5	B	0.95	7.9	A	0.72
	SB	Left	23.4	C	0.35	5.8	A	0.10
		Thru-Right	16.6	B	0.91	359.2	F	1.19
	Overall Intersection		20.8	C	0.91	209.0	F	1.11
	EB	Left	44.6	D	0.24	44.3	D	0.25

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
(Signalized)	WB	Left	58.0	E	0.66	49.3	D	0.59
		Thru-Right	43.7	D	0.16	51.6	D	0.65
	NB	Left	5.2	A	0.15	14.3	B	0.47
		Thru	18.7	B	0.88	14.2	B	0.81
		Right	3.6	A	0.10	3.9	A	0.08
	SB	Left	8.4	A	0.21	10.0	A	0.55
		Thru-Right	7.9	A	0.56	10.7	B	0.59
	Overall Intersection		16.4	B	0.85	16.2	B	0.78
	EB	Left	>1000	F	1.22	336.4	F	0.57
		Right	39.4	E	0.46	119	F	0.65
Creditview Road/Falconer Drive (Unsignalized)	NB	Left	13.8	B	0.1	35.5	E	0.53
Creditview Road/Velebit Court (Unsignalized)	EB	Left-Right	>1000	F	>2.00	>1000	F	>2.00
	NB	Left	35.4	E	0.02	49.5	E	0.04
Creditview Road/Rivergate Place (Unsignalized)	SB	Left	29.1	D	0.01	14.8	B	0.02
	WB	Left-Right	>1000	F	>2.00	>1000	F	>2.00

Note: Critical movements were shown in red in the table with V/C ratios ≥ 0.85 and or LOS E or worse

Based on the intersection capacity analyses results presented in **Table 6**, we found that all signalized and unsignalized intersections within the study area will continue to operate at or above capacity with significant delays during both the AM and PM peak hours during horizon year 2031 without any improvements. The following individual movements are operating at LOS “E” or worse:

AM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road – northbound left
- Creditview Road at Kenninghall Blvd – westbound left-thru-right and northbound thru-right
- Creditview Road at Bancroft Drive – westbound left
- Creditview Road at Falconer Drive – eastbound left
- Creditview Road at Velebit Court – eastbound left/right and northbound left
- Creditview Road and Rivergate Place – westbound left/right
- Creditview Road and Sir Monty’s Drive/Bancroft Drive – westbound left and northbound thru

PM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road – northbound left, eastbound left, and southbound thru
- Creditview Road at Kenninghall Blvd – northbound left and southbound thru-right
- Creditview Road at Falconer Drive – eastbound left, eastbound right, and northbound left
- Creditview Road at Velebit Court – eastbound left/right and northbound left
- Creditview Road and Rivergate Place – westbound left/right

As shown in **Table 5** and **Table 6**, all signalized and unsignalized intersections are expected to operate above capacity with significant delays during future horizon years without any improvements. Therefore, Creditview Road needs intersection improvements and/or additional lanes in order to address present and future traffic operational deficiencies.

3.3.2 Alternatives Assessment

Two groups of alternatives were defined and assessed for the study area: interim and ultimate design solutions. Under the ultimate solutions, the cross-section would be 4-lanes from Old Creditview Road to Bancroft Drive; however, a 2-lane cross-section from Argentia Road to Bancroft Drive is considered for interim solutions. Both roundabout and signalized intersection concepts were analyzed for interim and ultimate alternatives. The change in geometry and traffic control of the following three intersections have been assessed under different design alternatives while the geometry for rest of the intersections remain unchanged between interim and ultimate conditions.

- Creditview Road/Argentia Road intersection
- Creditview Road/Kenninghall Blvd intersection
- Creditview Road/Falconer Drive intersection

The intersections in the study area were analysed using Synchro version 7 for the signalized and unsignalized intersections and Sidra version 6 software for roundabout analysis. Signalized intersections can be analyzed in Sidra software; however, the analysis may yield slightly different results when compared to the results from Synchro software due to differences in the algorithms of the two software packages. The analysis results include level of service (LOS) for each approach and the overall intersection. LOS is defined in terms of average control delay per vehicle, according to the criteria of the Highway Capacity Manual (HCM). The LOS criteria for signalized intersections as shown in **Table 2** were also used to assess the LOS of roundabouts.

To investigate the adequacy of the proposed storage length, queueing analyses were conducted for the preferred interim and long-term design solutions (as presented for Alternative 3 and 5). The 50th and 95th percentile queue were estimated, and compared to the proposed storage capacity.

3.3.3 Interim Design Alternatives

3.3.3.1 Alternative 1: Signalized Design Concept

Alternative 1 has traffic signals at Argentia Road, a stop sign at Falconer Drive and traffic signals at Kenninghall Boulevard as shown in **Figure 10**. The cross-section is 4-lanes from Old Creditview Road to Argentia Road and 2-lanes from Argentia Road to Bancroft Drive. The intersections in the study area were analysed using Synchro version 7.

Horizon year 2021

The future traffic volumes under no-widening conditions were analysed for horizon year 2021 (**Figure 6**). The traffic operational analysis results for the study area signalized and unsignalized intersections are summarized in **Table 7**. Detailed Synchro outputs are provided in **Appendix E**.

The signalized intersection at Kenninghall Boulevard will not have sufficient capacity for the expected traffic volumes in 2021. The intersection is expected to operate at LOS 'F' in the PM peak period and with a V/C ratio greater than 0.85. Having a V/C greater than 0.85 indicates that there is an increased possibility of vehicle delay and queuing at the intersection.

The eastbound left turn movement at the Falconer Drive intersection is expected to operate at LOS 'F' in the AM and PM peak periods. In addition, the eastbound right turn movement is expected to operate at LOS 'F' in the PM peak period.

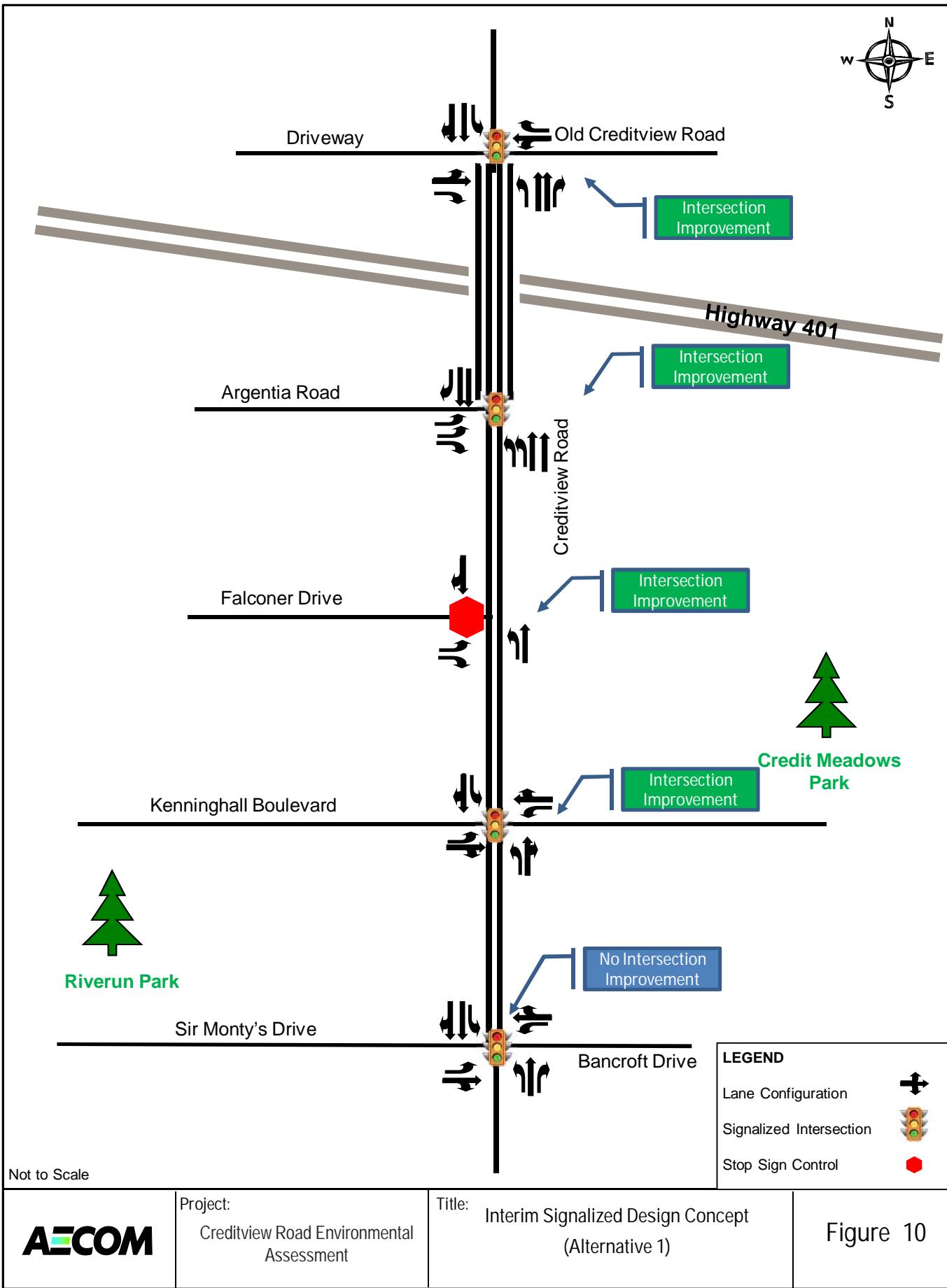


Table 7- Year 2021 Traffic Analysis – Alternative 1

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Old Creditview Road (Signalized)	SB	Left	8.2	A	0.36	7.5	A	0.33
		Thru-Right	8.3	A	0.35	8.5	A	0.37
	NB	Left	11.9	B	0.03	11.4	B	0.01
		Thru	15.9	B	0.45	12.9	B	0.33
		Right	18.0	B	0.12	23.3	C	0.16
	EB	Left-Thru	34.9	C	0.02	35.4	D	0.08
		Right	34.7	C	0.00	34.8	C	0.1
	WB	Left-Thru	60.2	E	0.81	56.4	E	0.79
		Right	35.5	D	0.08	35.9	D	0.14
	Overall Intersection		18.3	B	0.53	18.3	B	0.47
Creditview Road/Argentia Road (Signalized)	EB	Left-Left	48.4	D	0.58	47.7	D	0.71
		Right	35.5	D	0.65	52.1	D	0.88
	NB	Left-Left	52.9	D	0.74	42.8	D	0.71
		Thru	2.8	A	0.30	4.8	A	0.19
	SB	Thru	11.1	B	0.34	13.2	B	0.48
		Right	4.0	A	0.27	3.4	A	0.17
	Overall Intersection		21.4	C	0.46	26.7	C	0.61
Creditview Road/Kenninghall Blvd (Signalized)	EB	Left	46.3	D	0.22	49.2	D	0.19
		Thru-Right	49.7	D	0.52	48.6	D	0.14
	WB	Left	50.4	D	0.42	49.6	D	0.2
		Thru-Right	46.3	D	0.21	48.1	D	0.08
	NB	Left	3.6	A	0.19	168.6	F	1.03
		Thru-Right	7.4	A	0.85	6.5	A	0.66
	SB	Left	5.5	A	0.14	3.4	A	0.08
		Thru-Right	12.8	B	0.81	220.5	F	1.11
	Overall Intersection		14.1	B	0.81	129.9	F	1.03
Creditview Road/Bancroft Drive/Sir Monty's Drive (Signalized)	EB	Left	44.6	D	0.24	45.6	D	0.29
		Thru-Right	48.4	D	0.54	42.3	D	0.08
	WB	Left	58.0	E	0.66	51.6	D	0.61
		Thru-Right	43.6	D	0.15	48.9	D	0.58
	NB	Left	4.7	A	0.12	9.8	A	0.37
		Thru	13.7	B	0.81	11.1	B	0.74
		Right	3.5	A	0.09	3.7	A	0.07
	SB	Left	9.4	A	0.19	8.2	A	0.38
		Thru-Right	8.6	A	0.52	10	B	0.55
	Overall Intersection		15.1	B	0.79	14.9	B	0.72

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	>1000	F	>2.0	312.6	F 0.55
		Right	30.3	D	0.39	67.8	F 0.49
	NB	Left	24.4	C	0.39	24.4	C 0.39
Creditview Road/Velebit Court (Unsignalized)	EB	Left-Right	>1000	F	>2.0	>1000	F >2.0
	NB	Left	29.0	D	0.01	39.1	E 0.03
Creditview Road/Rivergate Place (Unsignalized)	SB	Left	22.1	C	0.01	11.7	B 0.01
	WB	Left-Right	>1000	F	>2.0	521.6	F 0.53

Note: Critical movements were shown in red in the table with V/C ratios ≥ 0.85 and or LOS E or worse

The following individual movements are operating at LOS "E" or worse:

AM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Bancroft Drive – westbound left
- Creditview Road at Falconer Drive – eastbound left
- Creditview Road at Velebit Court – eastbound left/right
- Creditview Road and Rivergate Place – westbound left/right

PM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road –eastbound right
- Creditview Road at Kenninghall Blvd –northbound thru-right
- Creditview Road at Falconer Drive – eastbound left and right
- Creditview Road at Velebit Court – eastbound left/right and northbound left
- Creditview Road and Rivergate Place – westbound left/right

Horizon year 2031

The future traffic volumes under no-widening conditions were analysed for horizon year 2031 (**Figure 7**). The traffic operational analysis results for the study area signalized and unsignalized intersections are summarized in **Table 8**. Detailed Synchro outputs are provided in **Appendix E**.

The signalized intersection at Kenninghall Boulevard is projected to have insufficient capacity for the expected traffic volumes in 2031. The intersection is expected to operate at a LOS 'F' in the PM peak period with a V/C ratio greater than 0.85 in both the AM and PM peak periods.

The eastbound left turn movement at the Falconer Drive intersection is expected to operate with a LOS 'F' in the AM and PM peak periods. In addition, the eastbound right turn movement is expected to operate with a LOS 'F' in the PM peak period.

Table 8- Year 2031 Traffic Analysis – Alternative 1

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Creditview Road/Old Creditview Road (Signalized)	SB	Left	8.8	A	0.41	7.8	A
		Thru-Right	8.5	A	0.37	8.7	A
	NB	Left	12.4	B	0.04	11.8	B
		Thru	16.8	B	0.49	13.9	B
		Right	17.6	B	0.13	26.4	C
	EB	Left-Thru	34.9	C	0.02	35.4	D
		Right	34.7	C	0.00	34.8	C
	WB	Left-Thru	60.2	E	0.81	56.4	E
		Right	35.5	D	0.08	35.9	D
	Overall Intersection		18.4	B	0.58	18.8	B
Creditview Road/Argentia Road (Signalized)	EB	Left-Left	48.4	D	0.58	47.7	D
		Right	34.7	C	0.66	50.7	D
	NB	Left-Left	51.1	D	0.75	42.8	D
		Thru	3	A	0.32	4.6	A
	SB	Thru	11.9	B	0.37	13.9	B
		Right	4.1	A	0.28	3.3	A
	Overall Intersection		20.9	C	0.49	26.2	C
	EB	Left	45.5	D	0.21	49.2	D
		Thru-Right	50.9	D	0.56	48.6	D
Creditview Road/Kenninghall Blvd (Signalized)	WB	Left	48.6	D	0.38	49.6	D
		Thru-Right	45.6	D	0.2	48.1	D
	NB	Left	5.5	A	0.30	286.0	F
		Thru-Right	12.3	B	0.93	7.6	A
	SB	Left	21.3	C	0.32	3.8	A
		Thru-Right	16.9	B	0.87	342.4	F
	Overall Intersection		17.9	B	0.89	200.4	F
	EB	Left	44.6	D	0.24	44.3	D
		Thru-Right	48.4	D	0.54	41.7	D
Creditview Road/Bancroft Drive/Sir Monty's Drive (Signalized)	WB	Left	58.0	E	0.66	49.3	D
		Thru-Right	43.7	D	0.16	51.6	D
	NB	Left	5.2	A	0.15	14.3	B
		Thru	18.7	B	0.88	14.2	B
		Right	3.6	A	0.10	3.9	A
	SB	Left	5.7	A	0.13	9.8	A
		Thru-Right	8.5	A	0.56	10.8	B
	Overall Intersection		16.6	B	0.85	16.3	B
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	>1000	F	>2.00	432.2	F
		Right	36.7	E	0.44	127.9	F
	NB	Left	13.1	B	0.10	37.5	E

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Velebit Court (Unsignalized)	EB	Left/Right	>1000	F	>2.0	>1000	F	>2.0
	NB	Left	37.9	E	0.02	51.0	F	0.04
Creditview Road/Rivergate Place (Unsignalized)	SB	Left	30.4	D	0.01	15.1	C	0.02
	WB	Left/Right	>1000	F	>2.0	>1000	F	>2.0

Note: Critical movements were shown in red in the table with V/C ratios ≥ 0.85 and or LOS E or worse

The following individual movements are operating at LOS "E" or worse and/or with V/C greater than 0.85:

AM Peak Hour

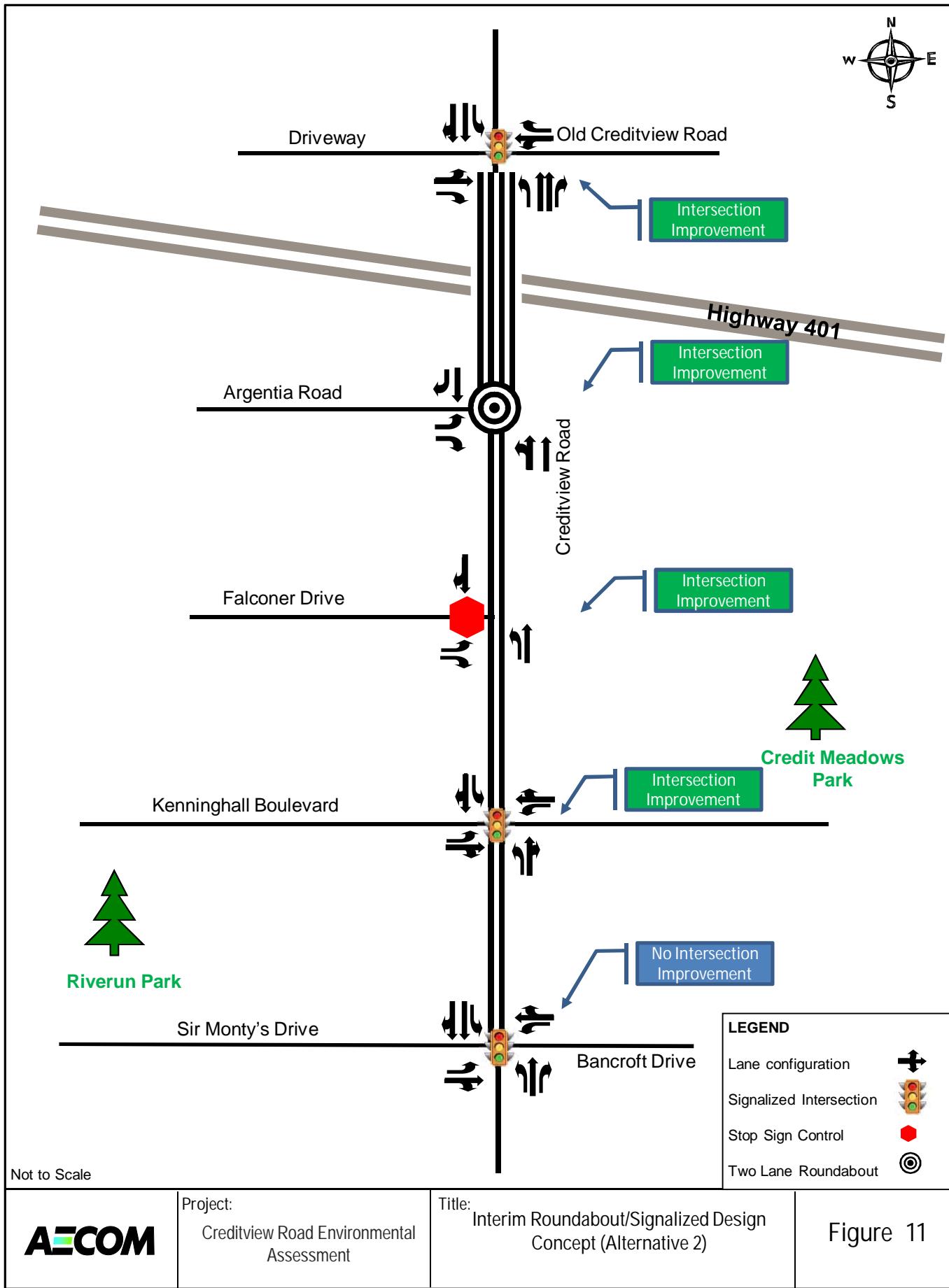
- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Kenninghall Blvd – northbound thru-right
- Creditview Road at Bancroft Drive – westbound left, northbound thru
- Creditview Road at Falconer Drive – eastbound left and right
- Creditview Road at Velebit Court – eastbound left/right and northbound left
- Creditview Road and Rivergate Place – westbound left/right
- Creditview Road and Sir Monty's Drive/Bancroft Drive – westbound left and northbound thru

PM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Argentia Road – eastbound right
- Creditview Road at Kenninghall Blvd – northbound left and southbound thru-right
- Creditview Road at Falconer Drive – eastbound left and right and northbound left
- Creditview Road at Velebit Court – eastbound left/right and northbound left
- Creditview Road and Rivergate Place – westbound left/right

3.3.3.2 Alternative 2: Roundabout/Signalized Design Concept

Alternative 2 shown in **Figure 11** has a 2-lane roundabout at Argentia Road, a stop sign at Falconer Drive, and a traffic signal at Kenninghall Boulevard. The cross-section is 4-lanes from Old Creditview Road to Argentia Road and 2-lanes from Argentia Road to Bancroft Drive. As described earlier, the three key study area intersections were analysed using Sidra version 6.



Horizon year 2021

The future traffic volumes under no-widening conditions were analysed for horizon year 2021 (**Figure 6**). The traffic operational analysis results are summarized in **Table 9**. Detailed Sidra outputs are provided in **Appendix E**.

Many of the Kenninghall Boulevard intersection turning movements operate with a LOS 'E' or a V/C ratio greater than 0.85 indicating longer delays and queuing. The northbound through movement operates with a LOS 'B' in the AM peak period, but has a V/C ratio greater than 0.85. This means that northbound traffic is flowing well, but that demand is approaching the available capacity.

In both the peak hours, the eastbound movement at Falconer Drive is predicted to have very long delays. In the PM peak hour, the northbound and southbound through movements operate with an LOS 'A', indicating that vehicles are progressing through the intersection with little delay. However, the southbound through movement v/c ratio is approaching 1.0, indicating that the demand is approaching the available capacity.

Horizon year 2031

The future traffic volumes under no-widening conditions were analysed for horizon year 2031 (**Figure 7**). The traffic operational analysis results are summarized in **Table 10**. Detailed Sidra outputs are provided in **Appendix E**.

The Kenninghall Boulevard intersection is expected to operate with an overall LOS 'C' in both peak periods. However, most of the turning movements operate with a LOS 'E' or a v/c ratio greater than 0.85 indicating long delays and queuing.

At the Falconer Drive intersection, most turning movements operate with a LOS 'F' in the PM peak period, indicating that vehicles at this intersection experience significant delay and queuing.

Table 9- Year 2021 Traffic Analysis – Alternative 2

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Creditview Road/Argentia Road (2-lane roundabout)	EB	Left	11.6	B	0.28	17.6	B
		Right	6.5	A	0.44	13.3	B
	NB	Left	9.9	A	0.50	10.5	B
		Thru	4.5	A	0.50	5.2	A
	SB	Thru	6.3	A	0.55	7.1	A
		Right	6.2	A	0.44	6.0	A
	Overall Intersection		6.9	A	0.55	9.7	A
	EB	Left	56.3	E	0.18	60.6	E
		Thru	54.5	D	0.77	71.4	E
		Right	60.1	E	0.77	76.9	E
Creditview Road/Kenninghall Blvd (Signalized)	WB	Left	64.9	E	0.37	66.2	E
		Thru	47.7	D	0.25	53.7	D
		Right	53.3	D	0.25	59.2	E
	NB	Left	27.0	C	0.22	102.3	F
		Thru	8.8	A	0.83	3.9	A
		Right	14.4	B	0.83	9.5	A
	SB	Left	32.1	C	0.10	13.8	B
		Thru	7.6	A	0.80	48.5	D
		Right	13.2	B	0.80	54.1	D
	Overall Intersection		14.1	B	0.83	38.0	D
	Overall Intersection		14.1	B	0.83	38.0	D
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	>1000	F	>2.0	>1000	F
		Right	>1000	F	>2.0	>1000	F
	NB	Left	15.2	C	0.12	171.0	F
		Thru	0.1	A	0.65	0.1	A
	SB	Thru	0.1	A	0.52	4.0	A
		Right	5.6	A	0.52	8.7	A

Note: Critical movements were shown in **red** in the table with V/C ratios ≥ 0.85 and or LOS E or worse

The following individual movements are operating at LOS “E” or worse and/or with V/C greater than 0.85:

AM Peak Hour

- Creditview Road at Kenninghall Blvd – eastbound left and right and westbound left
- Creditview Road at Falconer Drive – eastbound left and right

PM Peak Hour

- Creditview Road at Kenninghall Blvd – eastbound left, thru, and right, westbound left and right, and southbound thru and right
- Creditview Road at Falconer Drive – eastbound left and right, northbound left, and southbound thru and right

Table 10- Year 2031 Traffic Analysis – Alternative 2

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Creditview Road/Argentia Road (2-lane roundabout)	EB	Left	11.9	B	0.30	21.2	C
		Right	6.9	A	0.46	17.7	B
	NB	Left	10.0	A	0.54	10.6	B
		Thru	4.6	A	0.54	5.2	A
	SB	Thru	7.1	A	0.61	8.3	A
		Right	6.8	A	0.48	6.1	A
	Overall Intersection		7.2	A	0.61	11.2	B
	Overall Intersection		7.2	A	0.61	11.2	B
Creditview Road/Kenninghall Blvd (Signalized)	EB	Left	57.5	E	0.20	61.3	E
		Thru	58.5	E	0.83	71.7	E
		Right	64.0	E	0.83	77.2	E
	WB	Left	66.6	E	0.43	66.2	E
		Thru	48.9	D	0.27	54.0	D
		Right	54.5	D	0.27	59.6	E
	NB	Left	30.0	C	0.28	91.4	F
		Thru	13.1	B	0.89	5.3	A
		Right	18.6	B	0.89	10.8	B
	SB	Left	40.0	D	0.14	21.4	C
		Thru	7.8	A	0.84	37.4	D
		Right	13.3	B	0.84	43.0	D
	Overall Intersection		16.2	B	0.89	31.9	C
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	>1000	F	>2.0	>1000	F
		Right	>1000	F	>2.0	>1000	F
	NB	Left	17.4	B	0.16	>1000	F
		Thru	0.1	A	0.70	0.1	A
	SB	Thru	0.1	A	0.60	73.9	F
		Right	5.6	A	0.60	73.9	F

Note: Critical movements were shown in **red** in the table with V/C ratios ≥ 0.85 and or LOS E or worse

The following individual movements are operating at LOS “E” or worse and/or with V/C greater than 0.85:

AM Peak Hour

- Creditview Road at Kenninghall Blvd – eastbound left, thru, and right, westbound left, thru, and right, and northbound thru and right
- Creditview Road at Falconer Drive – eastbound left and right

PM Peak Hour

- Creditview Road at Kenninghall Blvd – eastbound left, thru, and right, westbound left, thru, and right, northbound left, and southbound thru and right
- Creditview Road at Falconer Drive – eastbound left and right, northbound left, and southbound thru and right

3.3.3.3 Alternative 3: Roundabout Design Concept (Preferred Alternative)

Alternative 3 is shown in **Figure 12** and has a 2-lane roundabout at Argentia Road and a single lane roundabout at both Falconer Drive and Kenninghall Boulevard. The cross-section is 4-lanes from Old Creditview Road to Argentia Road and 2-lanes from Argentia Road to Bancroft Drive. The intersections in the study area were analysed using Sidra version 6.

Horizon year 2021

The future traffic volumes under no-widening conditions were analysed for horizon year 2021 (**Figure 6**). The traffic operational analysis results are summarized in **Table 11**. Detailed Sidra outputs are provided in **Appendix E**.

The existing southbound traffic volume of 1320 vehicles in the PM peak hour at Kenninghall Boulevard is at the limit of the capacity of the single lane road. This alternative will function adequately during the PM peak hour under the existing southbound traffic volumes. However, the projected increase in the traffic volumes during the PM peak hour in the future cannot be accommodated. Due to these capacity constraints, not all vehicles will be able to travel through the Kenninghall Boulevard roundabout in the PM peak hour in 2021, and the southbound queue will fill the space between the Kenninghall Boulevard intersection and the Argentia Road intersection. The capacity of this intersection is also exceeded in the 2021 interim scenario with traffic signals (Alternative 1). The high traffic volumes along Creditview Road will encourage drivers to adjust their time of travel, which will result in the spreading of the peak period of travel over a greater length of time.

Horizon year 2031

The future traffic volumes under no-widening conditions were analysed for horizon year 2031 (**Figure 7**). The traffic operational analysis results are summarized in **Table 12**. Detailed Sidra outputs are provided in **Appendix E**.

In 2031, all intersections and turning movements are expected to operate with a LOS ‘C’ or better. However, similar to the horizon year 2021 results, Kenninghall Boulevard is at the limit of the capacity of the single lane road and the projected increase in the traffic volumes during the PM peak hour in the future will only exacerbate the congestion problems. The high traffic volumes in 2031 along Creditview Road will likely encourage drivers to adjust their time of travel. This will result in spreading of the peak period of travel over a greater length of time.

Traffic conditions under interim roundabout design concept (Alternative 3) is predicted to be less congested when compared to interim signalized design concept (Alternative 1). Level of service is predicted to be satisfactory during the AM peak hour for both 2021 and 2031. The only operation issues would be along the southbound direction at Kenninghall Boulevard and Falconer Drive during the PM peak hour. It should be noted that these two intersections are predicted to operate poorly under Alternative 1 during both AM and PM peak hour.

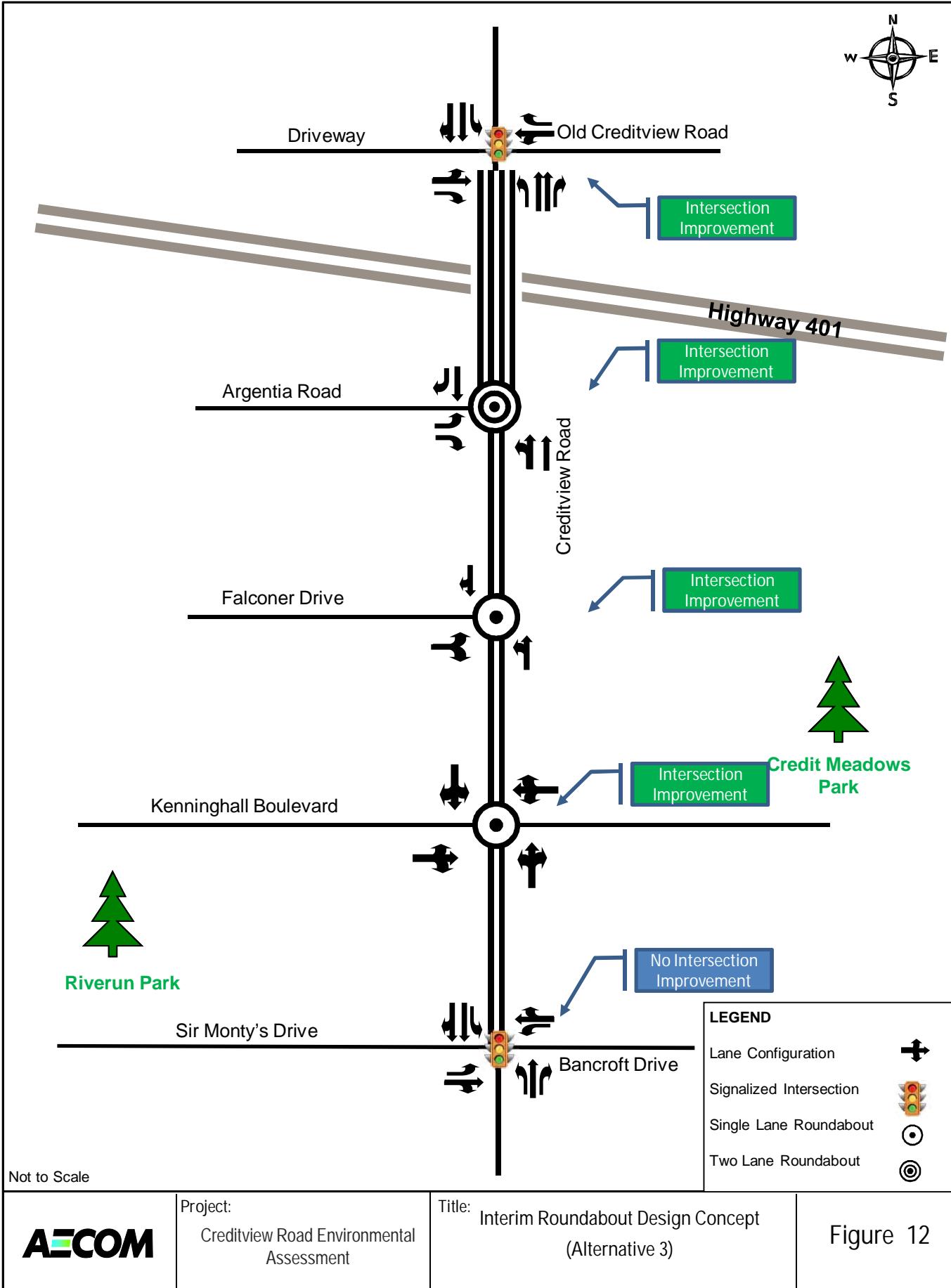


Table 11- Year 2021 Traffic Analysis – Alternative 3

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C
Creditview Road/Argentia Road (2-lane roundabout)	EB	Left	11.7	B	0.27	17.2	B
		Right	6.1	A	0.42	11.7	B
	NB	Left	10.0	B	0.49	10.7	B
		Thru	4.3	A	0.49	4.8	A
	SB	Thru	5.9	A	0.53	6.4	A
		Right	5.9	A	0.43	5.6	A
	Overall Intersection		6.6	A	0.53	9.1	A
	EB	Left	22.7	C	0.43	31.9	C
		Thru	16.7	B	0.43	25.9	C
		Right	16.9	B	0.43	26.1	C
Creditview Road/Kenninghall Blvd (Single lane roundabout)	WB	Left	22.2	C	0.21	19.3	B
		Thru	16.2	B	0.21	13.3	B
		Right	16.4	B	0.21	13.5	B
	NB	Left	9.6	A	0.78	9.5	A
		Thru	3.6	A	0.78	3.5	A
		Right	3.8	A	0.78	3.7	A
	SB	Left	9.9	A	0.78	28.2	C
		Thru	4.0	A	0.78	22.2	C
		Right	4.1	A	0.78	22.4	C
	Overall Intersection		5.4	A	0.78	14.4	B
	Overall Intersection		5.4	A	0.78	14.4	B
Creditview Road/Falconer Drive (Single lane roundabout)	EB	Left	16.6	B	0.16	28.9	C
		Right	10.8	B	0.16	23.1	C
	NB	Left	9.3	A	0.76	9.2	A
		Thru	3.3	A	0.76	3.3	A
	SB	Thru	3.5	A	0.68	5.9	A
		Right	3.6	A	0.68	6.1	A
	Overall Intersection		3.8	A	0.76	5.6	A
	Overall Intersection		3.8	A	0.76	5.6	A
	Overall Intersection		3.8	A	0.76	5.6	A
	Overall Intersection		3.8	A	0.76	5.6	A

Note: Critical movements were shown in **red** in the table with V/C ratios ≥ 0.85 and or LOS E or worse

The following individual movements are operating at LOS “E” or worse and/or with V/C greater than 0.85:

AM Peak Hour

- No movement is predicted to be critical

PM Peak Hour

- Creditview Road at Kenninghall Blvd –southbound left, thru and right
- Creditview Road at Falconer Drive –southbound thru and right

Table 12- Year 2031 Traffic Analysis – Alternative 3

Intersection	Approach/Movement	Weekday AM			Weekday PM			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Argentia Road (2-lane roundabout)	EB	Left	11.9	B	0.29	21.2	C	0.68
		Right	6.9	A	0.46	15.9	B	0.74
	NB	Left	9.8	A	0.46	10.5	B	0.37
		Thru	4.5	A	0.46	5.0	A	0.37
	SB	Thru	6.1	A	0.57	6.7	A	0.73
		Right	6.0	A	0.45	5.7	A	0.34
	Overall Intersection		6.8	A	0.57	10.4	B	0.74
	EB	Left	30.0	C	0.51	35.8	D	0.53
		Thru	24.0	C	0.51	29.9	C	0.53
		Right	24.2	C	0.51	30.0	C	0.53
Creditview Road/Kenninghall Blvd (Single lane roundabout)	WB	Left	18.1	B	0.16	15.8	B	0.05
		Thru	12.1	B	0.16	9.8	A	0.05
		Right	12.3	B	0.16	10.0	A	0.05
	NB	Left	9.5	A	0.71	9.4	A	0.66
		Thru	3.5	A	0.71	3.4	A	0.66
		Right	3.7	A	0.71	3.6	A	0.66
	SB	Left	10.0	B	0.83	23.0	C	0.97
		Thru	4.0	A	0.83	17.0	B	0.97
		Right	4.2	A	0.83	17.1	B	0.97
	Overall Intersection		5.8	A	0.83	12.5	B	0.97
Creditview Road/Falconer Drive (Single lane roundabout)	EB	Left	18.1	B	0.18	38.1	D	0.39
		Right	12.3	B	0.18	32.3	C	0.39
	NB	Left	9.3	A	0.69	9.2	A	0.51
		Thru	3.3	A	0.69	3.3	A	0.51
	SB	Thru	3.5	A	0.71	9.9	A	0.99
		Right	3.6	A	0.71	10.0	B	0.99
	Overall Intersection		3.9	A	0.71	8.4	A	0.99

Note: Critical movements were shown in **red** in the table with V/C ratios ≥ 0.85 and or LOS E or worse

The following individual movements are operating at LOS "E" or worse and/or with V/C greater than 0.85:

AM Peak Hour

- No movement is predicted to be critical

PM Peak Hour

- Creditview Road at Kenninghall Blvd –southbound left, thru and right
- Creditview Road at Falconer Drive –southbound thru and right

Future Traffic Queuing Analysis

For the preferred interim solution (Alternative 3), the queue length analyses were also conducted to investigate the adequacy of the proposed storage capacity. The 50th and 95th percentile queue were estimated and compared to the available storage capacity.

The queuing analyses were conducted using 2031 future traffic volumes. **Table 13** summarizes the queuing results for the intersections of the study area. The 95th queue is expected to exceed to the upstream intersection in the southbound approach of Creditview Road/ Kenninghall Boulevard due to the capacity constraints discussed earlier. Detailed Sidra outputs are provided in **Appendix E**.

The 4-lane cross section along Creditview Road reduces to two lanes south of Argentia Road. The queue length at the location of the lane drop was also assessed using Synchro version 7 for the PM peak hour, and is provided in **Table 13**. The 95th percentile queue is predicted to remain well below the available storage length in year 2031. Detailed Synchro outputs are provided in **Appendix E**.

Table 13- Future Queuing Summary – Year 2031 – Alternative 3

Location	Approach/ Movement	AM Peak Hour		PM Peak Hour		Existing Storage Length (m)	Proposed Storage Length (m)
		95 th Percentile Queue (m)	50 th Percentile Queue (m)	95 th Percentile Queue (m)	50 th Percentile Queue (m)		
Creditview Road/Old Creditview Road	NBL	0	0	0	0	150	150
	NBR	30	20	50*	30	-	50
	SBL	20	15	25	15	140	140
Creditview Road/Argentia Road	NBLT/NBT	20/20	5/5	15/20	5/5	350	350
	SBT/SBR	25/15	10/5	55/10	25/5	750	750
	EBL/EBR	10/20	5/10	45/65	20/25	175	175
Creditview Road/Falconer Drive	NBLT	60	25	40	15	140	140
	SBTR	40	15	140	55	350	350
	EBLR	5	5	15	5	130	130
Creditview Road/Kenninghall Blvd	NBLTR	55	25	60	25	190	190
	WBLTR	10	5	0	0	65	65
	SBLTR	65	25	290*	120	230	230
	EBLTR	25	10	30	15	50	50
Creditview Road/Sir Monty's Drive/Bancroft Drive	NBL	5	0	10	5	55	55
	SBL	0	0	20	10	55	55
	EBL	10	5	5	0	25	25
	WBL	30*	20	35*	20	25	25
Lane drop south of Argentia Road	SBT	-	-	35	20	105	105

* The movement/lane is expected to be intermittently blocked during the peak hour

Note: 1- for continuous lanes at roundabouts, the existing storage length is estimated based on the distance from the upstream intersection.

2- Queue lengths are rounded to the closest 5 meter.

3.3.4 Ultimate Design Alternatives

3.3.4.1 Alternative 4: Signalized Design Concept

The ultimate signalized design concept (Alternative 4), as shown in **Figure 13**, has traffic signals at Argentia Road, a stop sign at Falconer Drive, and traffic signals at Kenninghall Boulevard. The cross-section is 4-lanes from Old Creditview Road to Bancroft Drive. The intersections in the study area were analysed for horizon year 2031 using Synchro version 7.

Horizon year 2031

The widening future traffic volumes were analysed for horizon year 2031 (**Figure 9**). Cycle lengths for all the study area signalized intersections were kept the same as existing but signal timings were optimized for future conditions. The traffic operational analysis results for the study area signalized and unsignalized intersections for horizon year 2031 are summarized in **Table 14**. Detailed Synchro outputs are provided in **Appendix E**.

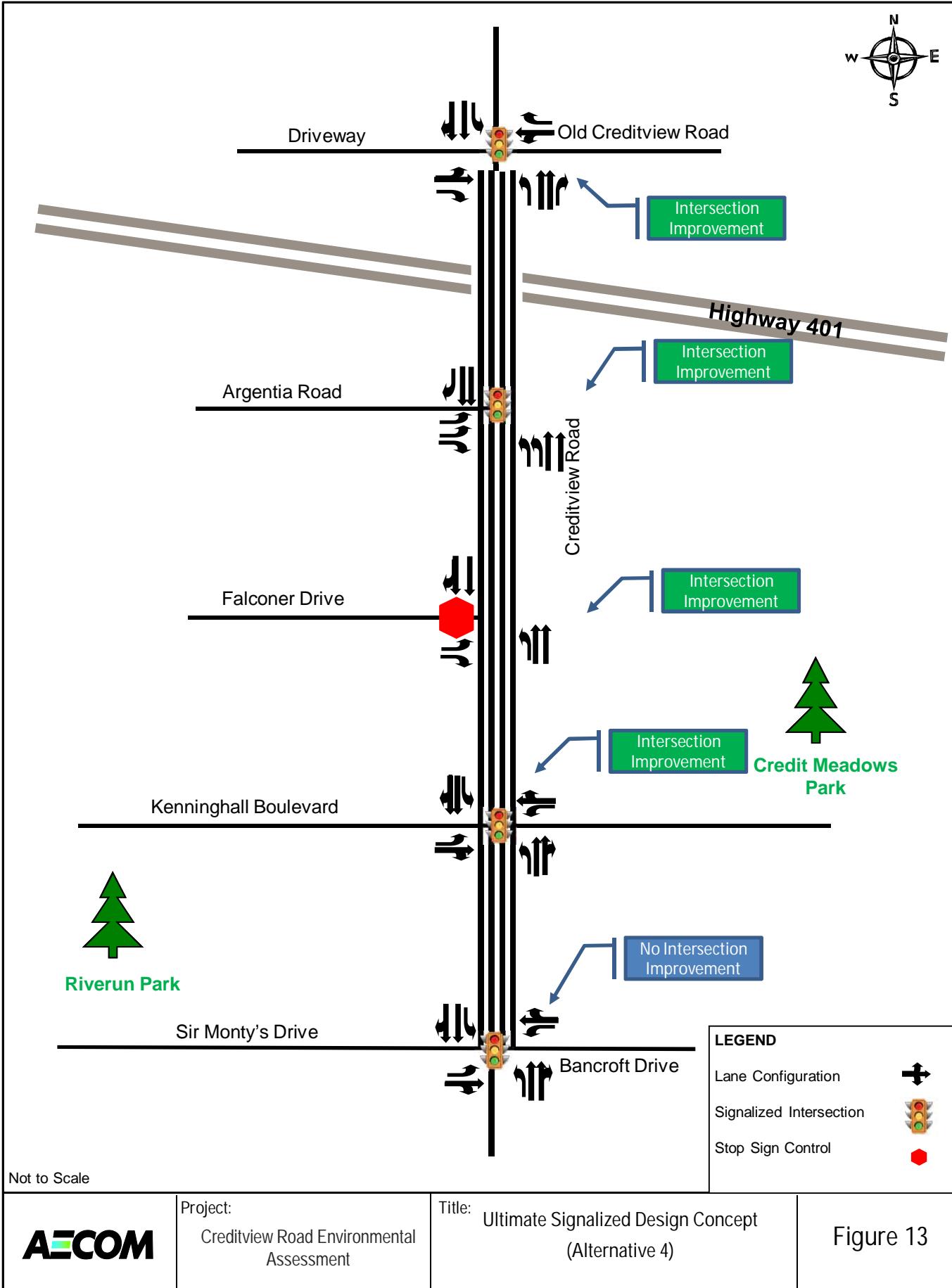


Table 14- Year 2031 Traffic Analysis – Alternative 4

Intersection	Approach/Movement	Weekday AM Peak Hour			Weekday PM Peak Hour			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Old Creditview Road (Signalized)	SB	Left	20.2	C	0.69	11.2	B	0.58
		Thru-Right	9.1	A	0.44	9.6	A	0.47
	NB	Left	11.0	B	0.06	16.9	B	0.02
		Thru	20.1	C	0.68	24.1	C	0.50
	EB	Right	15.2	B	0.22	50.2	D	0.27
		Left-Thru	35.2	D	0.02	35.4	D	0.08
	WB	Right	35.1	D	0.00	34.8	C	0.01
		Left-Thru	63.2	E	0.83	56.4	E	0.79
		Right	35.8	D	0.08	36.2	D	0.16
	Overall Intersection		19.8	B	0.69	24.5	C	0.60
Creditview Road/Argentia Road (Signalized)	EB	Left/Left	48.4	D	0.58	47.7	D	0.71
		Right	29.8	C	0.65	38.3	D	0.82
	NB	Left/Left	49.7	D	0.8	43.6	D	0.8
		Thru/Thru	4.3	A	0.45	10.8	B	0.29
	SB	Thru/Thru	17.8	B	0.53	24.5	C	0.72
		Right	5.1	A	0.38	12	B	0.24
	Overall Intersection		21.3	C	0.63	28.3	C	0.75
Creditview Road/Kenninghall Blvd (Signalized)	EB	Left	43.2	D	0.17	49.2	D	0.19
		Thru-Right	51.9	D	0.63	48.6	D	0.14
	WB	Left	44.8	D	0.28	49.6	D	0.2
		Thru-Right	44.2	D	0.27	48.1	D	0.08
	NB	Left	3.7	A	0.3	57.6	E	0.93
		Thru/Thru-Right	2	A	0.7	7.3	A	0.52
	SB	Left	10.7	B	0.25	11.7	B	0.18
		Thru/Thru-Right	4.6	A	0.57	17.1	B	0.85
	Overall Intersection		6.7	A	0.69	18.4	B	0.85
Creditview Road/Bancroft Drive/Sir Monty's Drive (Signalized)	EB	Left	44.6	D	0.24	45.6	D	0.29
		Thru-Right	48.4	D	0.54	42.3	D	0.08
	WB	Left	58.0	E	0.66	51.6	D	0.61
		Thru-Right	43.6	D	0.15	48.9	D	0.58
	NB	Left	10.2	B	0.25	23.8	C	0.57
		Thru/Thru-Right	12.9	B	0.78	16.4	B	0.77
	SB	Left	4.3	A	0.17	17.5	B	0.55
		Thru/Thru-Right	13.8	B	0.73	23.3	C	0.82
	Overall Intersection		16.5	B	0.73	22.8	C	0.74
Creditview Road/Falconer Drive (Unsignalized)	EB	Left	61.3	F	0.19	>1000	F	1.19
		Right	12.5	B	0.16	11.4	B	0.09
	NB	Left	13.0	B	0.13	26.1	D	0.52
Creditview Road/Velebit Court (Unsignalized)	EB	Left-Right	201.7	F	0.38	798.8	F	0.84
	NB	Left	15.2	C	0.01	15.7	C	0.01
Creditview Road/Rivergate Place (Unsignalized)	SB	Left	17.0	C	0.03	12.9	B	0.02
	WB	Left-Right	260.3	F	0.34	110.9	F	0.17

Note: Critical movements were shown in red in the table with V/C ratios ≥ 0.85 and or LOS E or worse

Based on the intersection capacity analyses results presented in **Table 13**, we found that all signalized intersections within the study area are expected to operate at acceptable overall levels of service "C" or better in both the AM and PM peak hours. With respect to overall V/C ratio, all signalized intersection are expected to operate at V/C ratio of 0.85 or better in AM peak hour and 0.90 or better in PM peak hour. With respect to individual movements, all movements will operate at a level of service "D" or better with V/C 0.85 or lower with exception of following:

AM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Bancroft Drive – westbound left
- Creditview Road at Falconer Drive – eastbound left
- Creditview Road at Velebit Court – eastbound left-right
- Creditview Road at Rivergate Place – westbound left-right

PM Peak Hour

- Creditview Road at Old Creditview Road – westbound left-thru
- Creditview Road at Kenninghall Blvd – northbound left
- Creditview Road at Falconer Drive – eastbound left
- Creditview Road at Velebit Court – eastbound left-right
- Creditview Road at Rivergate Place – westbound left-right

With the projected 2031 future traffic volumes and proposed improvements for Creditview Road corridor, all signalized intersections within the study area will continue to operate at overall satisfactory levels of service LOS "C" or better. All individual movements will operate below capacity with level of service "E" or better. It is noted that with four lane cross-section on Creditview Road, unsignalized intersections of Velebit Court and Rivergate Place are anticipated to experience significant delays due to minimal gaps available in north-south traffic on Creditview Road.

3.3.4.2 Alternative 5: Roundabout Design Concept (Long-term Solution)

The ultimate roundabout design concept as shown in **Figure 14** has 2-lane roundabouts at Argentia Road, Falconer Drive and Kenninghall Boulevard. The cross-section is 4-lanes from Old Creditview Road to Bancroft Drive. The intersections in the study area were analysed using Sidra version 6.

Horizon year 2031

The widening future traffic volumes were analysed for horizon year 2031 (**Figure 9**). The traffic operational analysis results for horizon year 2031 are summarized in **Table 15**. Detailed Sidra outputs are provided in **Appendix E**.

In 2031, with a widened Creditview Road, the two-lane roundabouts will operate with little delay. All intersections will operate with a LOS 'A' for both peak hours. All individual movements will operate at LOS B or better with a V/C ratio less than 0.60.

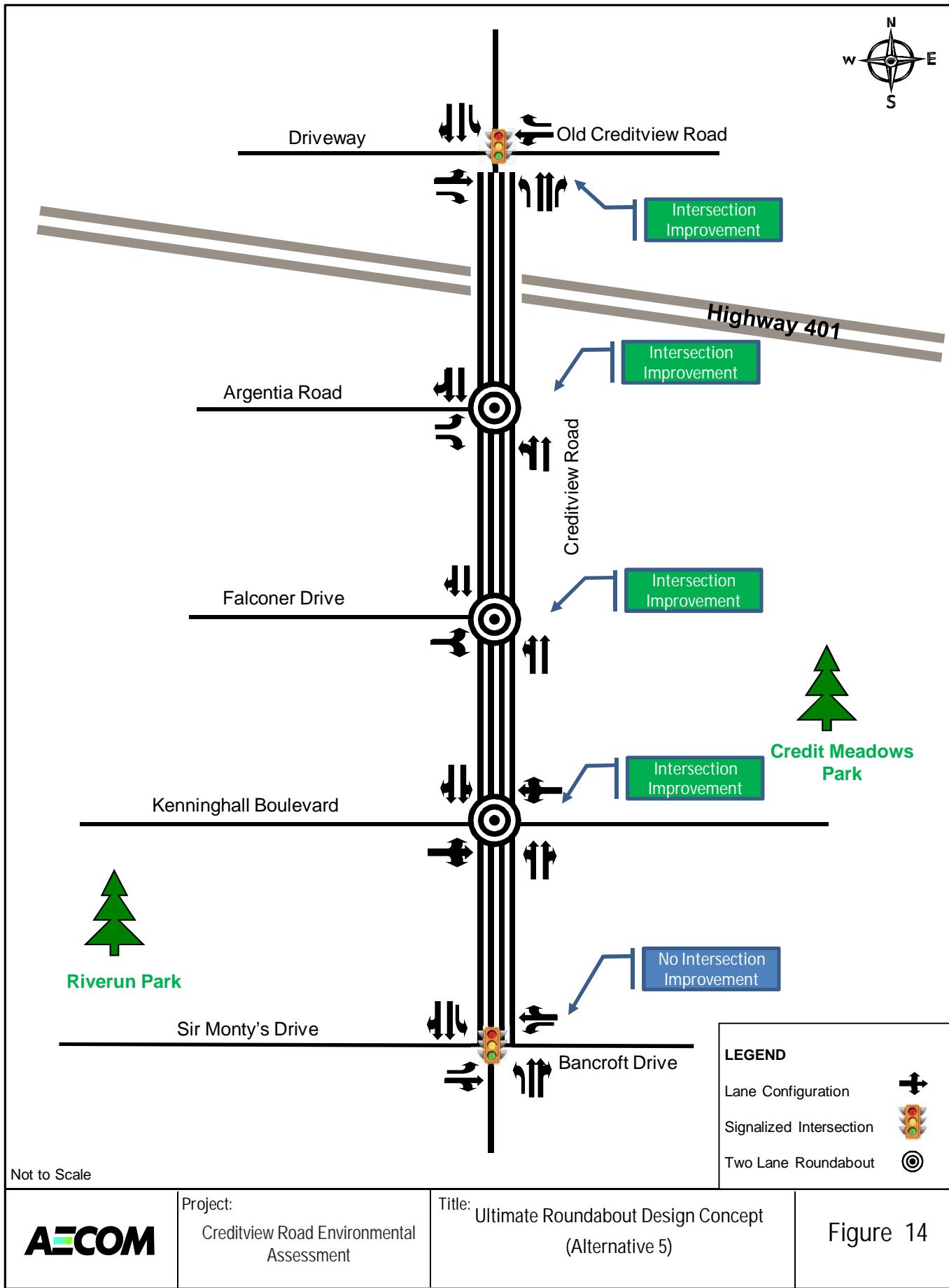


Table 15 - Analysis Results for the Ultimate Roundabout Design (2031)

Intersection	Approach/Movement	Weekday AM			Weekday PM			
		Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	
Creditview Road/Argentia Road (2-lane roundabout)	EB	Left	11.1	B	0.25	13.5	B	0.60
		Right	6.1	A	0.39	7.8	A	0.62
	NB	Left	11.1	B	0.54	11.8	B	0.61
		Thru	5.5	A	0.54	6.2	A	0.61
	SB	Thru	14.9	B	0.52	10.7	B	0.76
		Right	14.3	B	0.52	10.4	B	0.76
	Overall Intersection		10.1	B	0.80	9.2	A	0.76
Creditview Road/Kenninghall Blvd (2-lane roundabout)	EB	Left	12.9	B	0.30	14.3	B	0.32
		Thru	7.7	A	0.30	9.1	A	0.32
		Right	7.5	A	0.30	9.0	A	0.32
	WB	Left	14.1	B	0.15	13.3	B	0.05
		Thru	9.0	A	0.15	8.1	A	0.05
		Right	8.9	A	0.15	8.0	A	0.05
	NB	Left	9.2	A	0.63	9.2	A	0.61
		Thru	4.0	A	0.63	4.0	A	0.61
		Right	4.2	A	0.63	4.2	A	0.61
	SB	Left	9.5	A	0.54	14.0	B	0.79
		Thru	4.3	A	0.54	8.5	A	0.79
		Right	4.4	A	0.54	8.4	A	0.79
	Overall Intersection		4.6	A	0.63	6.9	A	0.79
Creditview Road/Falconer Drive (2-lane roundabout)	EB	Left	12.0	B	0.14	13.3	B	0.12
		Right	6.7	A	0.14	8.0	A	0.12
	NB	Left	9.1	A	0.62	9.0	A	0.47
		Thru	3.9	A	0.62	3.9	A	0.47
	SB	Thru	4.1	A	0.48	4.8	A	0.67
		Right	4.2	A	0.48	4.9	A	0.67
	Overall Intersection		4.2	A	0.62	4.8	A	0.67

Future Traffic Queuing Analysis

For the preferred long-term solution (Alternative 5), the queue length analyses were also conducted to investigate the adequacy of the proposed storage capacity. The 50th and 95th percentile queue were estimated and compared to the available storage capacity.

The queuing analyses were conducted using 2031 future traffic volumes. **Table 16** summarizes the queuing results for the intersections of the study area. The queue length on northbound left turn lane at Creditview Road/Old Creditview Road and westbound left turn lane at Creditview Road/Sir Mounty's may intermittently exceed the available storage capacity; however, the 95th percentile queue is well below the available storage length for all other movements. Detailed Sidra outputs are provided in **Appendix E**.

Table 16- Future Queuing Summary – Year 2031 – Alternative 5

Location	Approach/Movement	AM Peak Hour		PM Peak Hour		Existing Storage Length (m)	Proposed Storage Length (m)
		95 th Percentile Queue (m)	50 th Percentile Queue (m)	95 th Percentile Queue (m)	50 th Percentile Queue (m)		
Creditview Road/Old Creditview Road	NBL	5	0	0	0	150	150
Creditview Road/Old Creditview Road	NBR	60*	35	100*	60*	-	50
Creditview Road/Old Creditview Road	SBL	35	20	40	25	140	140
Creditview Road/Argentia Road	NBLT/NBT	50/55	20/20	35/35	15/15	350	350
Creditview Road/Argentia Road	SBT/SBTR	70/80	30/30	60/65	25/25	750	750
Creditview Road/Argentia Road	EBL/EBR	10/20	5/10	25/30	10/15	175	175
Creditview Road/Falconer Drive	NBLT/NBT	35/35	15/15	25/25	10/10	140	140
Creditview Road/Falconer Drive	SBT/SBTR	15/15	5/5	35/35	15/15	350	350
Creditview Road/Falconer Drive	EBLR	5	0	5	0	130	130
Creditview Road/Kenninghall Blvd	NBLT/NBTR	30/30	15/15	30/30	10/10	190	190
Creditview Road/Kenninghall Blvd	WBLTR	5	0	0	0	65	65
Creditview Road/Kenninghall Blvd	SBLT/SBTR	25/25	10/10	65/65	25/25	230	230
Creditview Road/Kenninghall Blvd	EBLTR	10	5	10	5	50	50
Creditview Road/Sir Monty's Drive/Bancroft Drive	NBL	5	5	20	10	55	55
Creditview Road/Sir Monty's Drive/Bancroft Drive	SBL	0	0	20	15	55	55
Creditview Road/Sir Monty's Drive/Bancroft Drive	EBL	10	5	5	5	25	25
Creditview Road/Sir Monty's Drive/Bancroft Drive	WBL	30*	20	35*	20	25	25

* The movement/lane is expected to be intermittently blocked during the peak hour

Note: 1- for continuous lanes at roundabouts, the existing storage length is estimated based on the distance from the upstream intersection.

2- Queue lengths are rounded to the closest 5 meter.

4. Future Improvements

Based on the foregoing traffic analysis for different design alternatives along Creditview Road corridor within the study area, two design concepts are recommended as interim and ultimate solutions.

4.1 Preferred Alternative (Interim Roundabout Design Concept)

The following improvements are recommended for the preferred alternative:

- Widening the Creditview Road to a four lane cross-section between Old Creditview Road and south of Argentia Road intersection including the underpass at Highway 401;
- Introduction of northbound right turn lane at Creditview Road/Old Creditview Road intersection;
- Introduction of a two-lane roundabout at Creditview/Argentia Road intersection;
- Introduction of a one-lane roundabout at Creditview Road/Falconer Drive intersection; and,
- Introduction of a one-lane roundabout at Creditview Road/Kenninghall Blvd intersection.

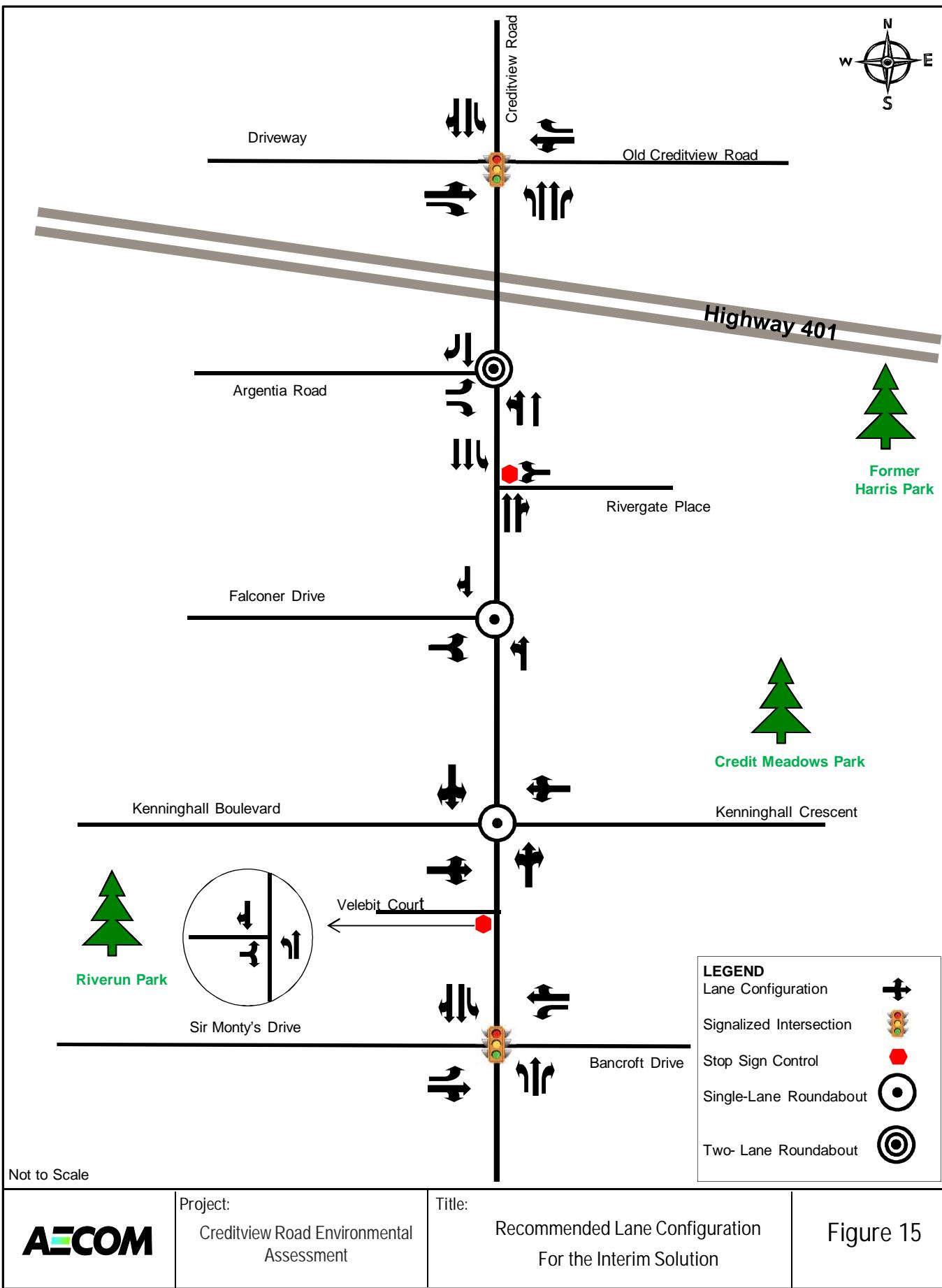
Figure 15 shows the recommended lane configuration for the preferred alternative. The preferred alternative drawings for interim solutions are provided in **Appendix F**.

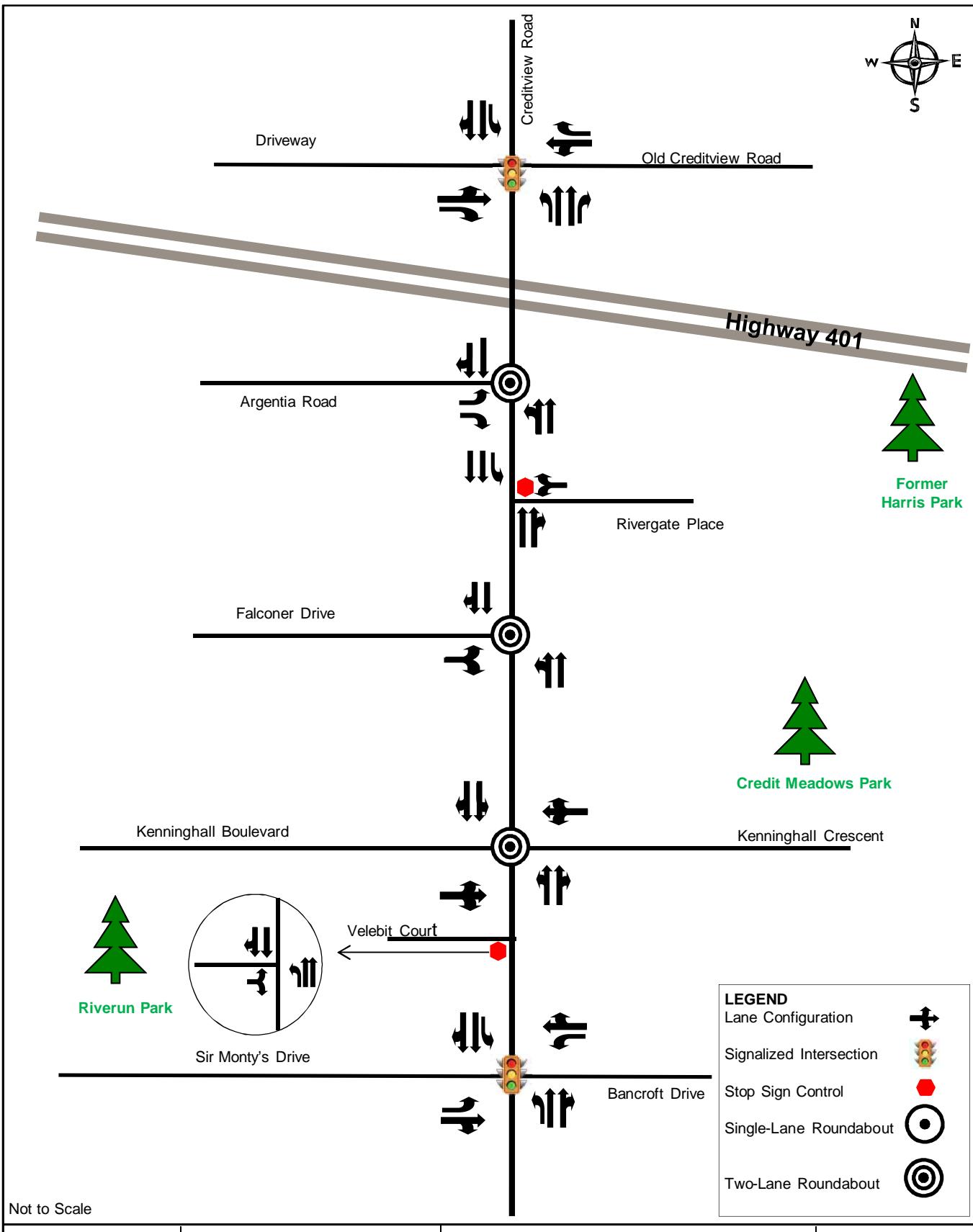
4.2 Long-term Solution (Ultimate Roundabout Design Concept)

The following improvements are recommended for the preferred alternative:

- Widening the Creditview Road to a four lane cross-section within the study area between Old Creditview Road and Bancroft Drive.
- Introduction of northbound right turn lane at Creditview Road/Old Creditview Road intersection;
- Introduction of a two-lane roundabout at Creditview/Argentia Road intersection;
- Introduction of a two-lane roundabout at Creditview Road/Falconer Drive intersection; and,
- Introduction of a two-lane roundabout at Creditview Road/Kenninghall Blvd intersection.

Figure 16 shows the recommended lane configuration for the long-term solution. The preferred long-term solution drawings are provided in **Appendix G**.





AECOM	Project: Creditview Road Environmental Assessment	Title: Recommended Lane Configuration For the Long-term Solution	Figure 16
--------------	---	--	-----------

5. Summary of Conclusions and Recommendations

The traffic analyses presented in the report provide the following conclusions:

Existing Traffic Conditions

1. Based on the Synchro analysis, weekday PM peak hour is the governing peak hour under existing conditions. Argentia Road, Kenninghall Road and Bancroft Drive intersections with Creditview Road are key intersections in the study area.
2. Based on the existing conditions capacity analysis it is found that all signalized and unsignalized intersections within the study area operate at or above capacity with significant delays during both the AM and PM peak hours. Also with respect to the individual movements, northbound/southbound thru movements on Creditview Road operate above capacity in the peak direction during the weekday AM or PM peak hours.
3. Based on the review of the existing turning movement counts within the study area it is noted that Creditview Road currently carries approximately 1200 to 1400 vehicles in a single lane in the peak direction during the weekday AM or PM peak hours. Typically a single lane can carry approximately 900 to 1,200 vehicles per hour, therefore, Creditview Road is already at capacity under existing conditions.
4. It is concluded from the existing traffic conditions that Creditview Road needs intersection improvements and/or additional lanes in order to address present and future traffic operational deficiencies.

Future Traffic Conditions

5. City of Mississauga has provided the latest growth forecasts for the Creditview Road study area for year 2021 and year 2031. Future forecast results were provided for the two following cases:
 - No-Widening: The existing cross-section will be maintained on Creditview Road
 - Widening: Creditview Road widened to a four lane cross-sectionThe overall growth rates were applied to the north-south traffic volumes on Creditview Road. The overall growth ranges between 7% to 18% for No-Widening and 29% to 61% for Widening conditions for northbound and southbound directions.
6. Under future traffic conditions in horizon years 2021 and 2031 for no-widening conditions, all study area signalized and unsignalized intersections are expected to operate above capacity with significant delays during both the future horizon years without any improvements. Therefore, Creditview Road needs intersection improvements and/or additional lanes in order to address present and future traffic operational deficiencies.

Recommended Geometric Improvements – Interim Design

7. Three interim design alternatives were defined to assess signalized and roundabout concepts. Under the interim design alternatives, the Creditview Road cross-section is 4-lanes from Old Creditview Road to Argentia Road and 2-lanes from Argentia Road to Bancroft Drive.
8. Based on the foregoing traffic analysis along Creditview Road corridor within the study area, the following improvements are recommended:

- Widening the Creditview Road to a four lane cross-section between Old Creditview Road and south of Argentia Road intersection including the underpass at Highway 401
 - Introduction of northbound right turn lane at Creditview Road/Old Creditview Road intersection
 - Introduction of a two-lane roundabout at Creditview/Argentia Road intersection
 - Introduction of a one-lane roundabout at Creditview Road/Falconer Drive intersection.
 - Introduction of a one-lane roundabout at Creditview Road/Kenninghall Blvd intersection.
9. Under future conditions with recommended improvements on Creditview Road all signalized intersections and roundabouts within the study area will operate at overall level of service “C” or better with volume to capacity ratio below 1; however, southbound direction of Creditview Road/Kenninghall Blvd is predicted to operate over capacity. The high future traffic volumes along Creditview Road will likely encourage drivers to adjust their time of travel. This will result in spreading of the peak period of travel over a greater length of time.

Recommended Geometric Improvements – Ultimate Design

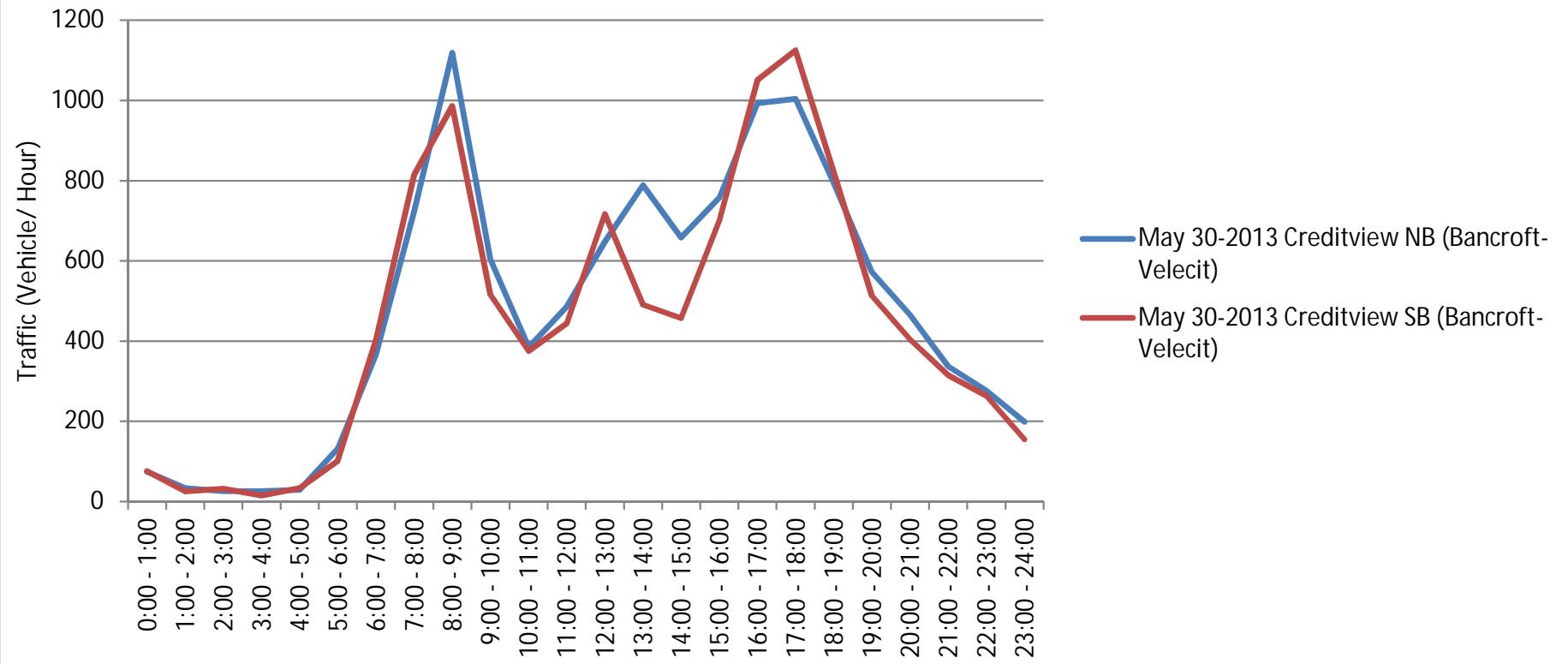
10. Two ultimate design alternatives were defined to assess signalized and roundabout concepts. Under the ultimate design alternatives, the Creditview Road cross-section is 4-lanes from Old Creditview Road to Bancroft Drive.
11. Based on the foregoing traffic analysis along Creditview Road corridor within the study area, the following improvements are recommended:
- Widening the Creditview Road to a four lane cross-section within the study area;
 - Introduction of northbound right turn lane at Creditview Road/Old Creditview Road intersection;
 - Introduction of a two-lane roundabout at Creditview/Argentia Road intersection;
 - Introduction of a two-lane roundabout at Creditview Road/Falconer Drive intersection; and,
 - Introduction of a two-lane roundabout at Creditview Road/Kenninghall Blvd intersection.
12. Under future conditions with recommended improvements on Creditview Road all signalized intersections and roundabouts within the study area will operate at overall satisfactory levels of service LOS “C” or better. All individual movements are predicted operate below capacity with level of service LOS “D” or better except a few individual movements for signalized intersection are predicted to operate at LOS E but well below capacity.

APPENDICES

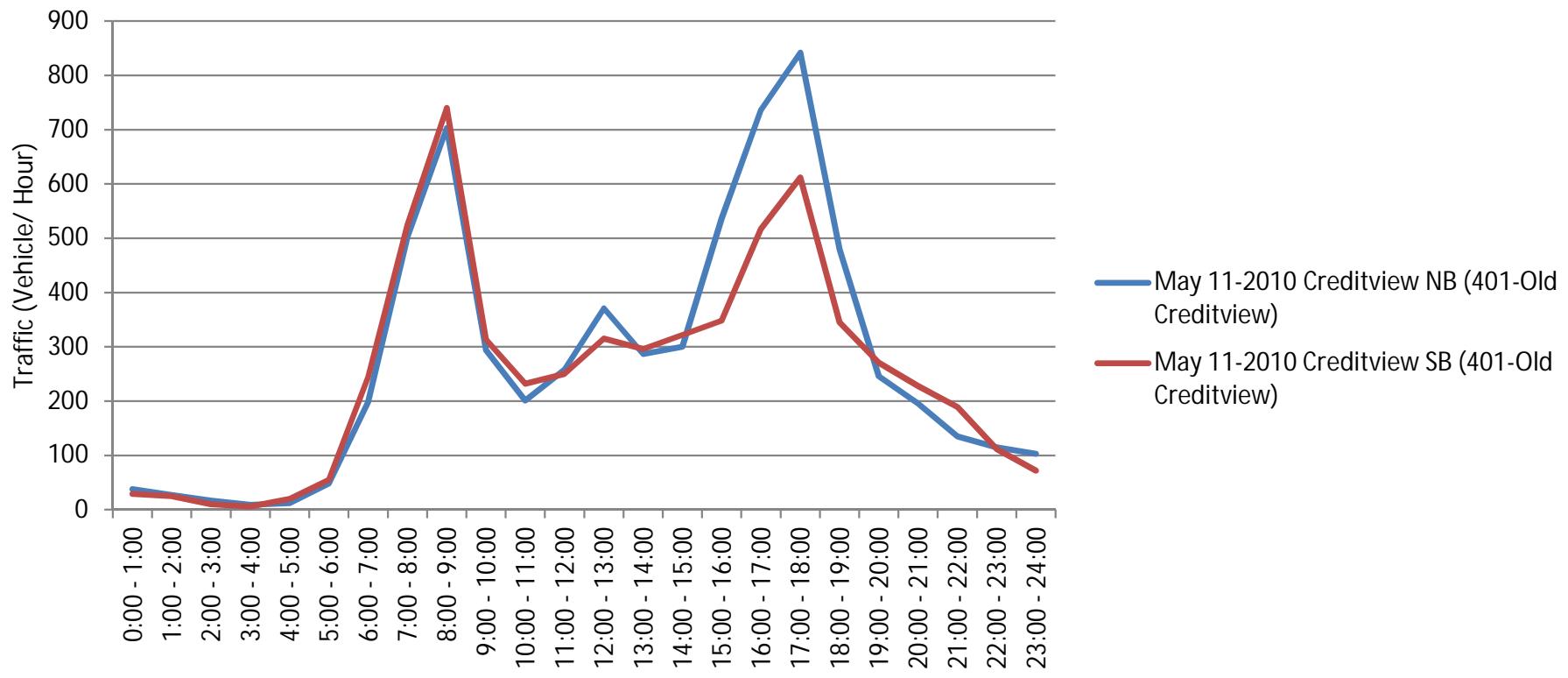
APPENDIX A

Existing Average Daily Traffic (ADT) Data

Creditview NB and SB (Bancroft-Velecit)



Creditview NB and SB (401-Old Creditview)



APPENDIX B

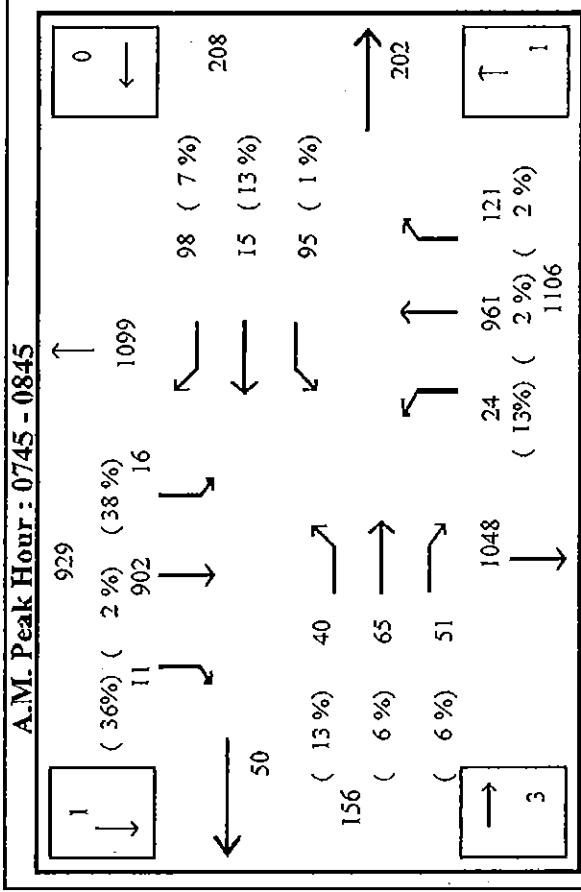
Existing Turning Movement Counts/Signal Timings

[BAN-CRE-SIR-01-S] BANCROFT DR/CREDITVIEW RD/SIR MONTYS DR

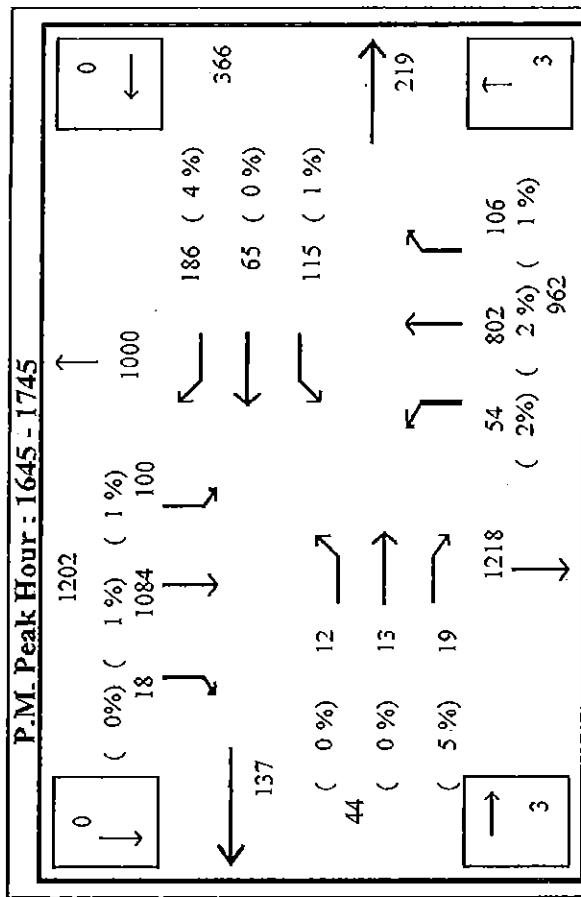
Count Date: Tuesday March 19 2013

3/27/2013

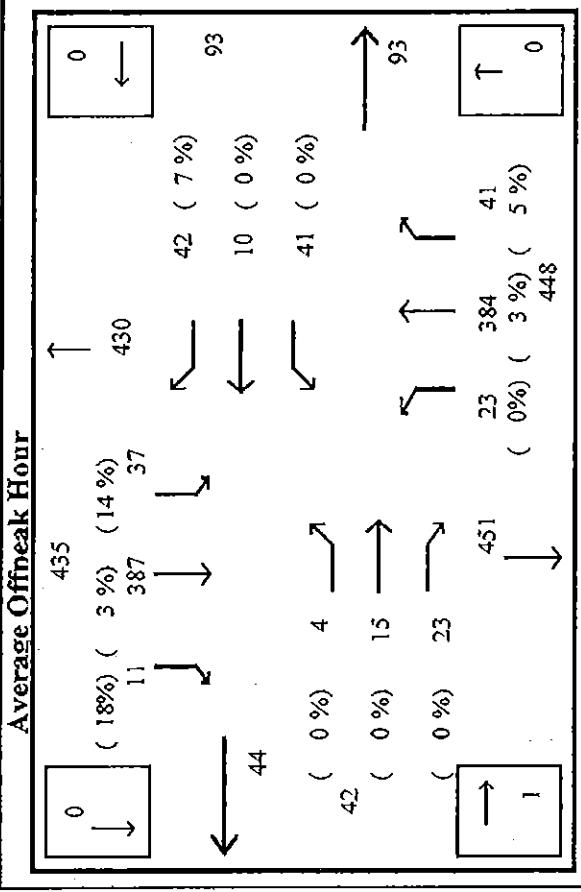
A.M. Peak Hour: 0745 - 0845



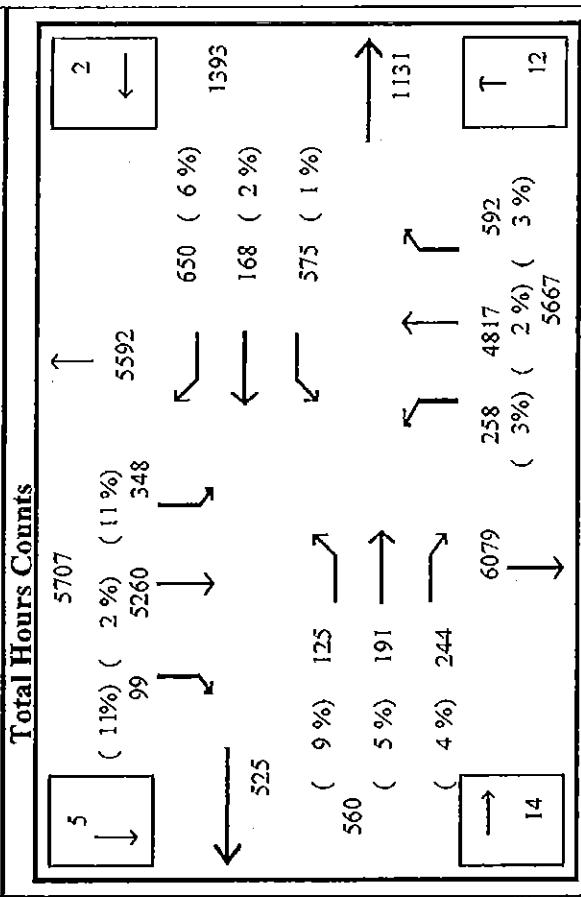
P.M. Peak Hour: 1645 - 1745



Average Offpeak Hour



Total Hours Counts



Note: North is at the top of the page

Value in (parenthesis) indicates truck/heavy vehicle percentages

Intersection count: 15-minute interval data

BANCROFT DR/CREDITVIEW RD/SIR MONTYS DR BAN-CRE-S/R-01-S ZArea: 245E

卷之三

Counted On: 2013/03/19

Report Date: 2013/03/27

卷之三

卷之三

v

All Vehicles

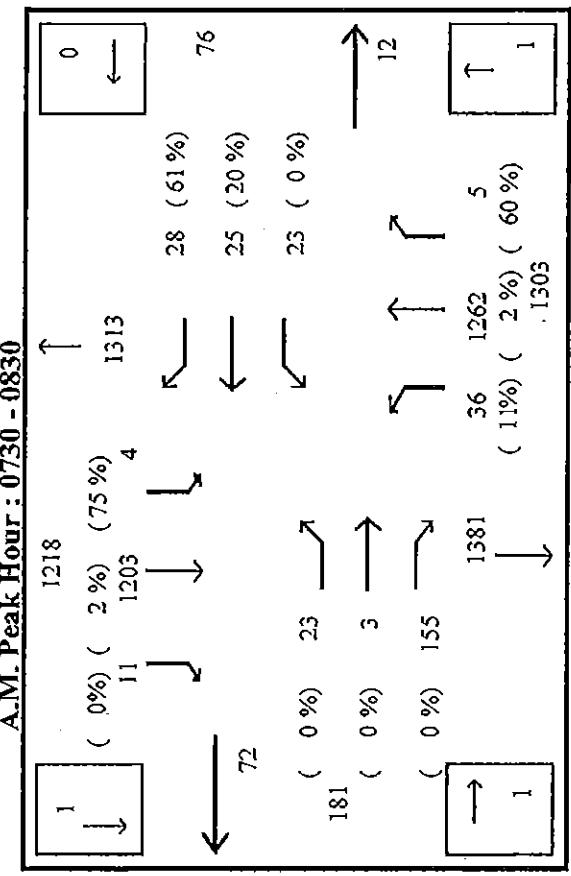
Time Ending	E - East			N - North			S - South			W - West			All Vehicles								
	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds						
715	7	5	12	1	0	2	93	14	3	0	3	153	0	3	0	14	2	10	0	0	322
730	3	11	13	1	0	4	130	20	6	0	8	152	1	3	0	6	2	13	1	0	374
745	6	14	14	1	0	2	186	16	7	0	0	226	3	4	0	26	4	10	2	0	521
800	6	10	12	0	0	0	241	21	11	0	1	225	2	4	0	28	3	21	6	1	591
815	8	14	20	3	1	6	189	35	4	0	5	250	4	5	0	21	3	9	3	0	579
830	15	16	10	4	0	6	253	31	5	3	2	200	0	12	0	23	3	31	1	0	612
845	6	21	6	5	0	9	262	31	2	0	2	207	1	9	0	22	4	30	0	0	617
900	9	10	6	0	0	2	293	14	11	0	5	159	1	3	0	20	0	35	3	1	571
Total	60	101	93	15	1	31	1647	182	49	3	26	1572	12	43	0	160	21	159	16	2	
AM Peak	E - East			N - North			S - South			W - West			All Vehicles								
800 - 845	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds						
Total	35	61	48	12	1	21	945	118	22	3	10	882	7	30	0	94	13	91	10	1	0
Offpeak	E - East			N - North			S - South			W - West			All Vehicles								
1115	4	5	10	1	0	15	123	5	5	0	15	65	5	13	0	19	2	8	0	0	295
1130	0	3	9	0	0	2	87	14	0	0	6	77	5	3	0	9	0	4	0	0	219
1145	0	3	9	0	0	0	87	16	1	0	9	96	2	2	0	9	1	12	1	0	256
1200	0	4	11	0	0	3	74	15	2	0	8	95	0	2	0	9	2	11	0	0	236
1215	3	4	3	0	0	6	73	11	4	0	6	132	5	7	0	9	2	3	0	2	268
1230	2	3	3	0	0	6	91	7	3	2	9	111	1	7	0	11	4	11	3	0	272
1245	0	3	6	0	0	2	92	8	1	0	10	102	5	2	0	13	1	8	2	0	255
1300	0	7	6	1	0	5	91	8	4	0	7	79	1	4	0	11	6	14	2	0	248
1315	0	3	3	0	0	8	121	6	5	0	7	121	2	1	0	11	4	14	0	0	306
1330	0	6	3	0	0	3	96	6	1	0	6	93	1	0	0	11	0	9	1	0	243

[CRE-KEN-KEN-01-S] CREDITVIEW RD/KENNINGHALL BLVD/KENNINGHALL CRES

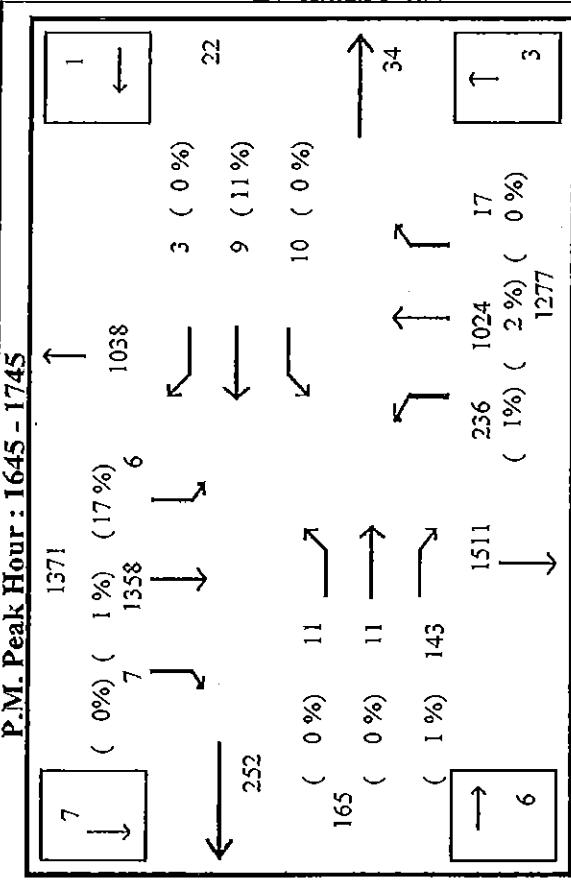
Count Date: Thursday October 25 2012

12/11/2012

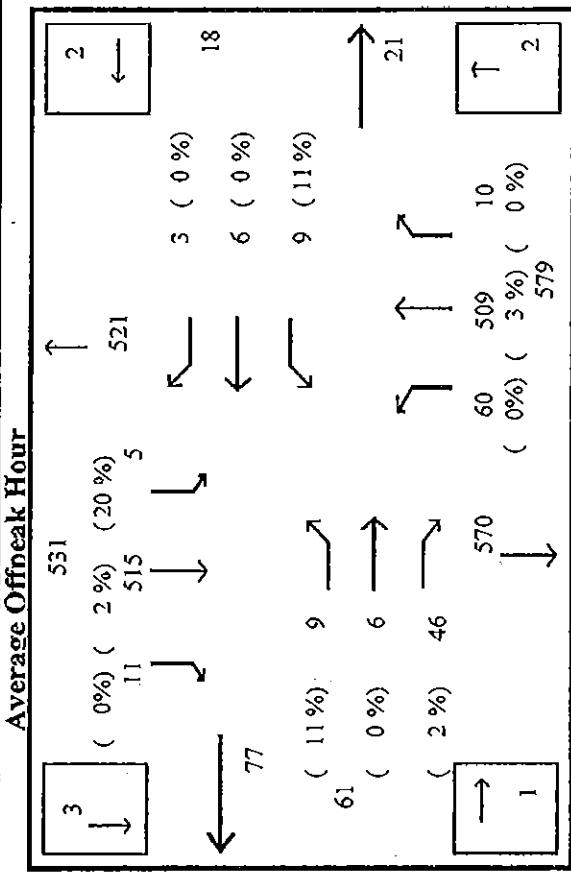
A.M. Peak Hour : 0730 - 0830



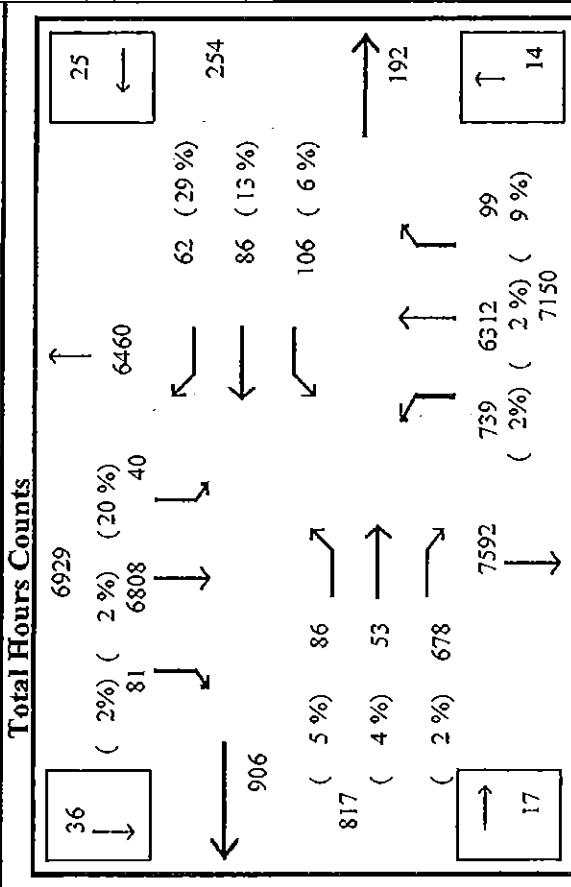
P.M. Peak Hour : 1645 - 1745



Average Offpeak Hour



Total Hours Counts



Note: North is at the top of the page

Value in (parenthesis) indicates truck/heavy vehicle percentages

CREDITVIEW RD/KENNINGHALL BLVD/KENNINGHALL CBES

Thursday October 25 2012

Count Date:

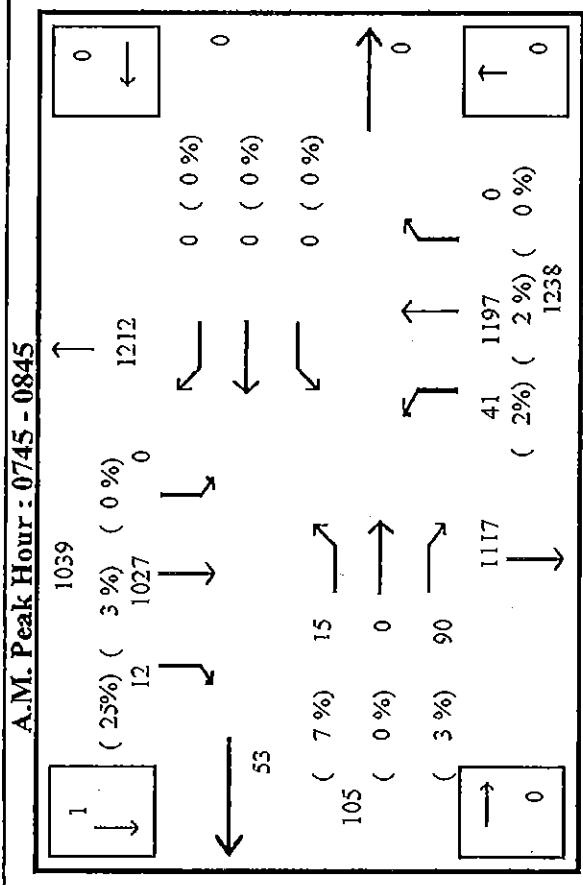
CRE-KEN-KEN-01-S										All Vehicles													
Time Ending	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND							
	LT	Thru	RT	Trk	Peds.	LT	Thru	RT	Trk	Peds.	LT	Thru	RT	Trk	Peds.	LT	Thru	RT	Trk	Peds.			
07:15	4	130	2	3	0	1	131	1	2	0	5	0	31	1	0	3	1	2	0	0			
07:30	2	169	1	6	0	0	165	1	7	3	0	0	21	1	2	3	2	3	0	0			
07:45	7	265	0	9	0	0	300	1	3	0	2	1	44	0	0	8	3	1	1	1			
08:00	6	318	0	14	0	0	308	3	7	0	5	0	29	0	1	1	8	6	17	0			
08:15	8	277	1	2	1	0	280	3	6	0	9	2	43	0	0	5	4	2	2	0			
08:30	11	381	1	3	0	1	291	4	11	0	7	0	39	0	0	9	5	2	2	0			
08:45	9	330	1	5	4	1	215	0	5	1	6	1	15	0	0	7	16	0	1	0			
09:00	18	366	1	4	0	0	207	4	3	1	2	1	32	0	4	3	3	2	0	1			
AM Total Hr	65	2236	7	46	5	3	1897	17	44	5	36	5	254	2	7	39	42	18	23	2	646		
AM Peak Hour	07:30 - 08:30					32	1241	2	28	1	1	1179	11	27	0	23	20	11	22	1	*****		
11:15	15	78	2	1	0	0	85	3	1	0	2	0	19	1	0	1	1	0	2	1	211		
11:30	14	82	1	1	0	2	75	3	0	0	1	0	18	0	0	1	1	0	0	0	199		
11:45	9	100	2	3	0	0	130	1	2	1	3	1	14	1	0	0	1	1	0	0	267		
12:00	21	96	5	4	1	0	152	2	2	0	1	1	9	0	1	2	1	1	0	0	297		
12:15	19	95	2	3	0	2	182	7	4	0	1	4	15	0	1	3	3	1	0	0	341		
12:30	12	102	6	1	1	0	187	3	2	0	2	0	4	0	0	2	0	2	1	0	324		
12:45	14	163	2	3	1	0	163	7	4	3	0	2	6	1	0	2	1	2	0	0	368		
13:00	17	170	3	7	0	1	114	1	4	0	0	2	2	1	1	2	2	0	0	1	339		
13:15	15	162	1	2	0	4	125	1	2	0	0	3	7	0	4	5	3	0	0	1	330		
13:30	19	126	1	4	0	1	97	4	7	2	6	2	13	1	1	2	3	4	1	0	291		
13:45	9	172	2	8	0	2	98	0	7	0	1	2	8	0	0	5	2	0	0	0	314		
14:00	17	137	2	8	1	2	101	2	3	2	4	2	11	1	1	2	3	0	0	2	295		
Offpeak Tot v0	181	1483	29	45	4	14	1509	34	38	8	25	19	135	6	10	25	18	11	4	6			
Offpeak Hr Avg	60	494	9	15	1	4	503	11	12	2	8	6	45	2	3	8	6	3	1	2			
15:15	18	129	2	7	0	3	175	1	3	1	0	3	0	8	1	0	4	0	1	1	356		
15:30	21	172	4	7	1	0	145	2	4	2	1	1	0	8	2	0	3	0	1	1	370		
15:45	25	146	5	8	1	1	168	3	2	0	3	3	11	1	1	4	4	2	1	0	385		
16:00	19	170	2	13	0	1	212	3	9	3	0	3	15	1	1	4	4	1	0	455			
16:15	29	158	3	5	0	2	308	5	7	0	1	1	20	0	1	5	1	2	4	0	546		
16:30	35	212	3	4	0	2	274	6	2	2	0	3	15	2	1	5	1	1	1	0	566		
16:45	32	230	8	4	0	1	304	1	3	3	1	1	23	2	1	0	1	0	1	0	611		
17:00	53	299	3	5	1	0	320	1	2	0	3	2	28	0	1	1	2	1	0	1	721		
17:15	59	242	1	9	0	2	356	2	3	1	0	3	27	1	2	3	1	2	0	0	712		
17:30	52	233	11	3	5	1	331	1	1	0	3	3	47	0	1	5	1	3	1	0	693		
17:45	70	226	2	9	0	2	345	3	3	0	2	1	40	0	1	5	3	2	0	0	709		
18:00	67	228	10	5	0	0	355	0	0	0	1	1	35	0	4	3	5	1	4	0	6		
PM Total Hr	480	2445	54	79	8	15	3291	28	39	12	21	27	277	10	19	36	15	15	8	3	716		
PM Peak Hour	16:45 - 17:45					234	1000	17	26	6	5	1350	7	9	1	11	11	142	1	7	10	3	

[CRE-FAL-01-N] CREDITVIEW RD/FALCONER DR

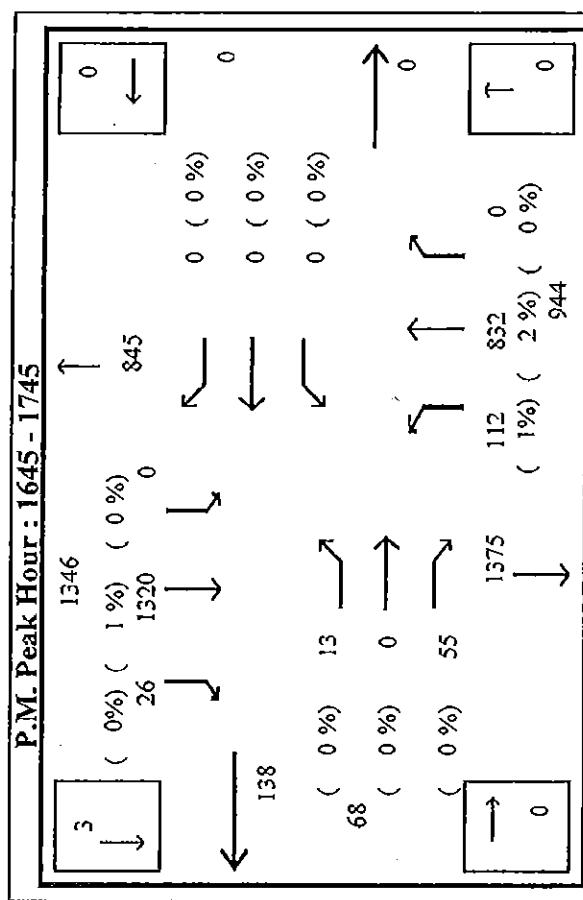
Count Date: Wednesday October 24 2012

12/11/2012

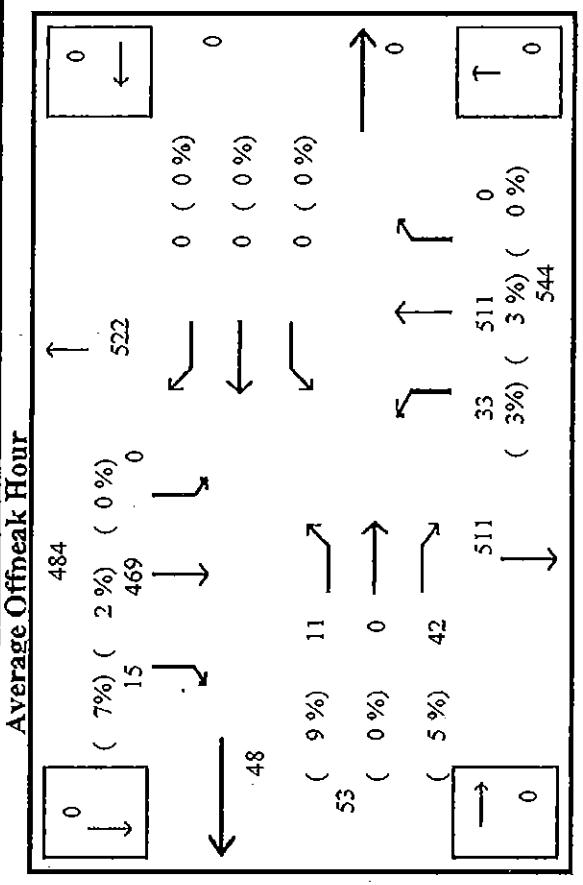
A.M. Peak Hour : 0745 - 0845



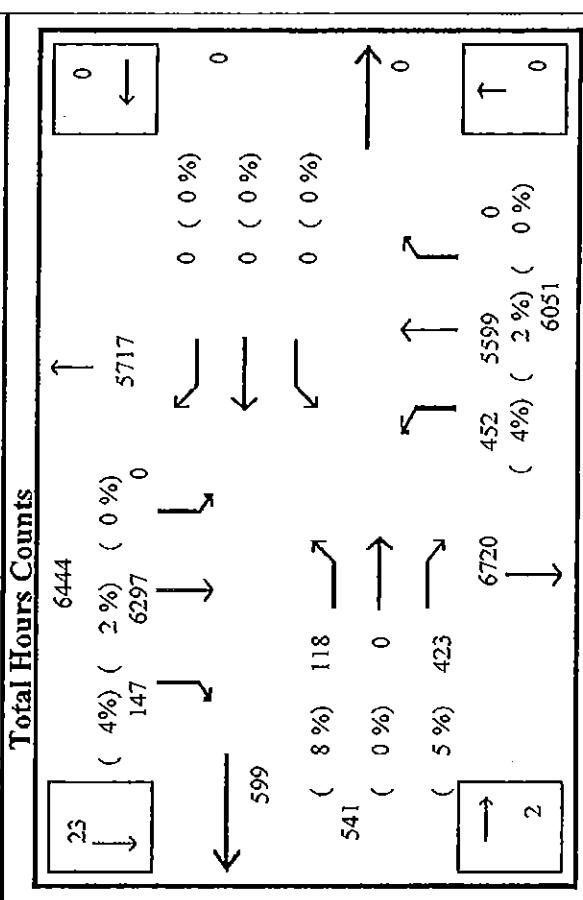
P.M. Peak Hour : 1645 - 1745



Average Offpeak Hour



Total Hours Counts



Note: North is at the top of the page

Value in (parenthesis) indicates truck/heavy vehicle percentages

Intersection count: 15-minute interval data

CREDITVIEW RD/FALCONER DR

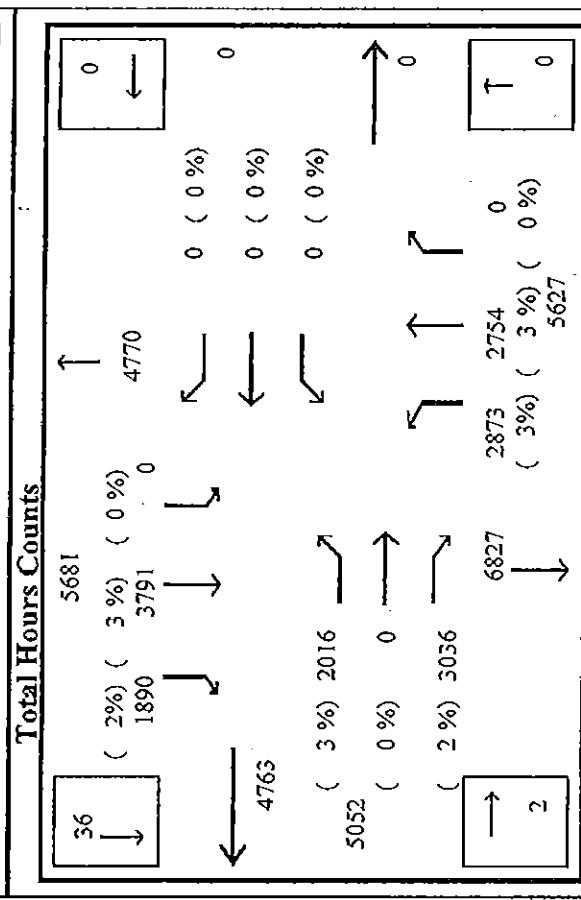
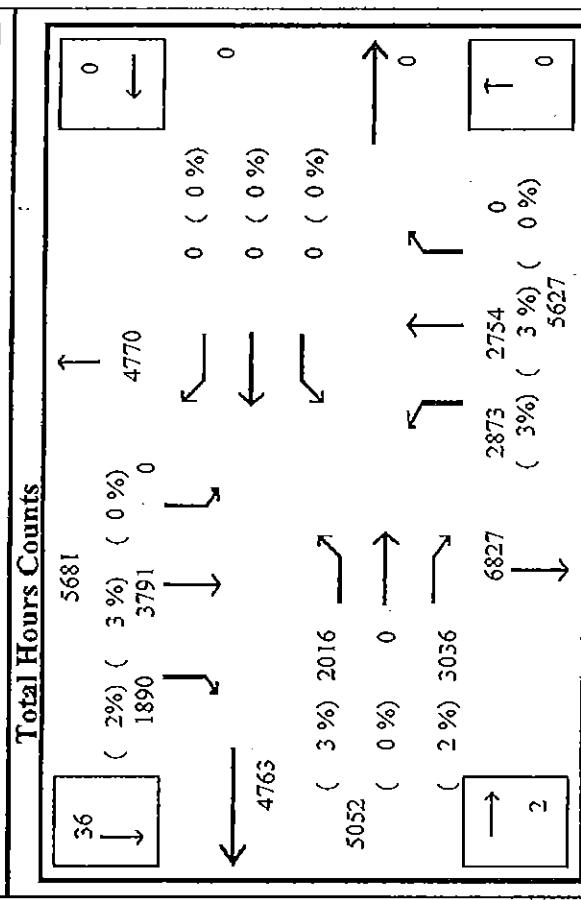
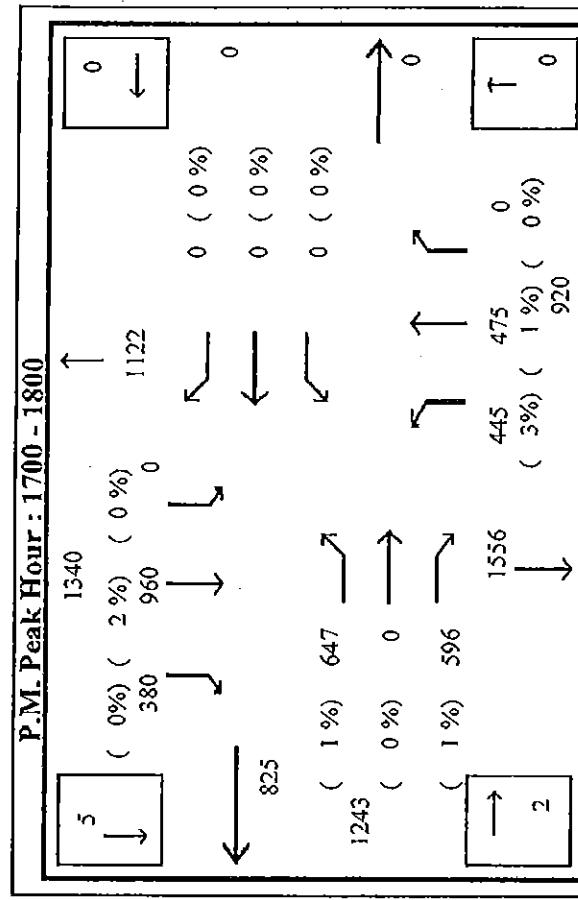
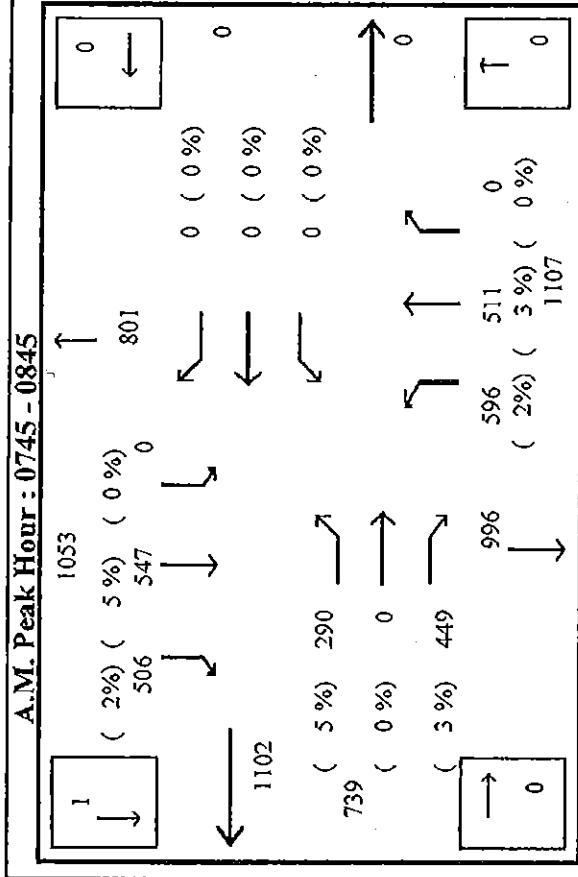
Count Date : Wednesday October 24 2012

12/11/2012

Count Date:

Tuesday November 6 2012

[ARG-CRE-01-S] ARGENTIA RD/CREDITVIEW RD



Note: North is at the top of the page
Value in (parenthesis) indicates truck/heavy vehicle percentages

Intersection count: 15-minute interval data

12/11/2012

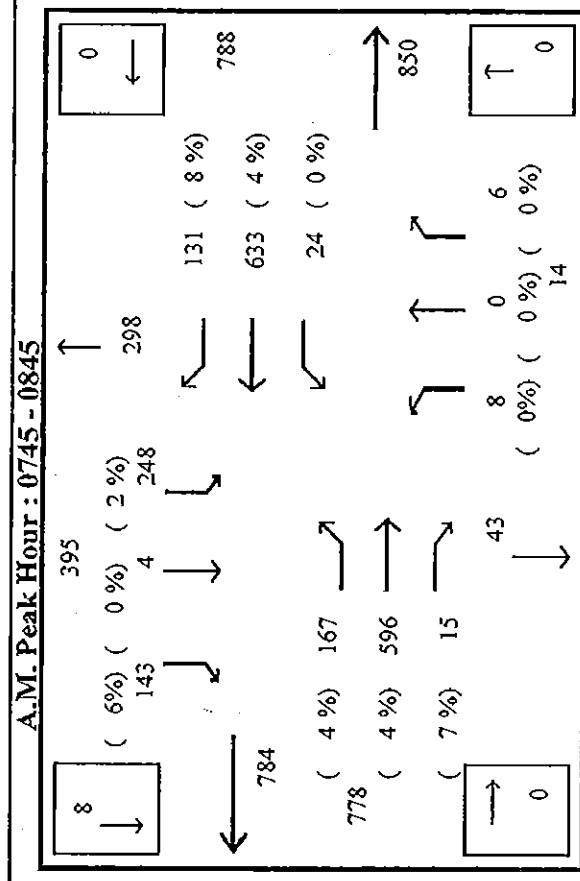
ARGENTLA RD/CREDITVIEW RD

Count Date: Tuesday March 19 2013

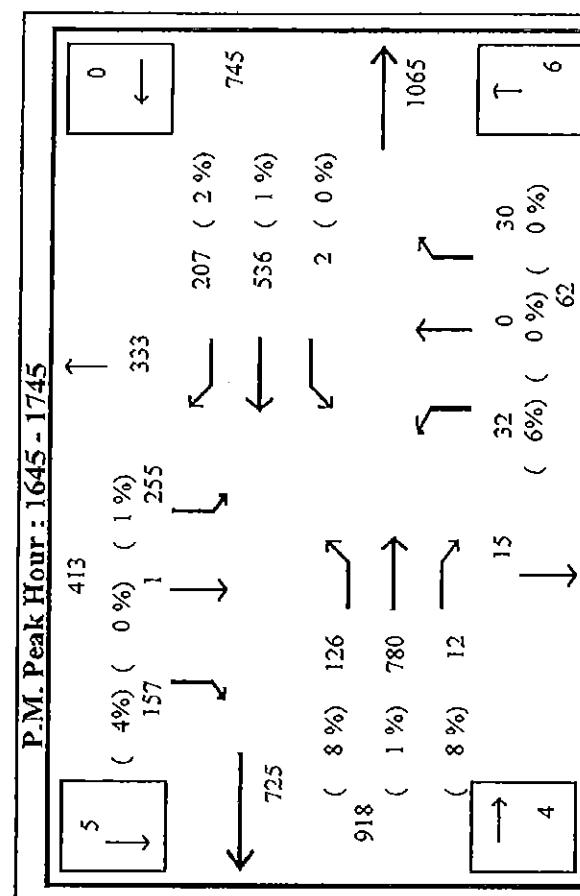
3/27/2013

[CRE-OLD-10-S] CREDITVIEW RD/OLD CREDITVIEW RD

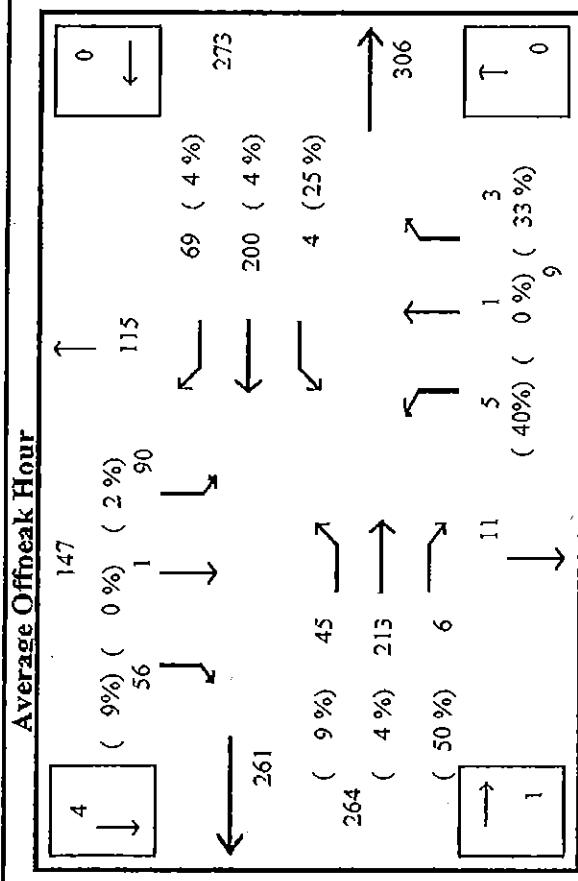
A.M. Peak Hour : 0745 - 0845



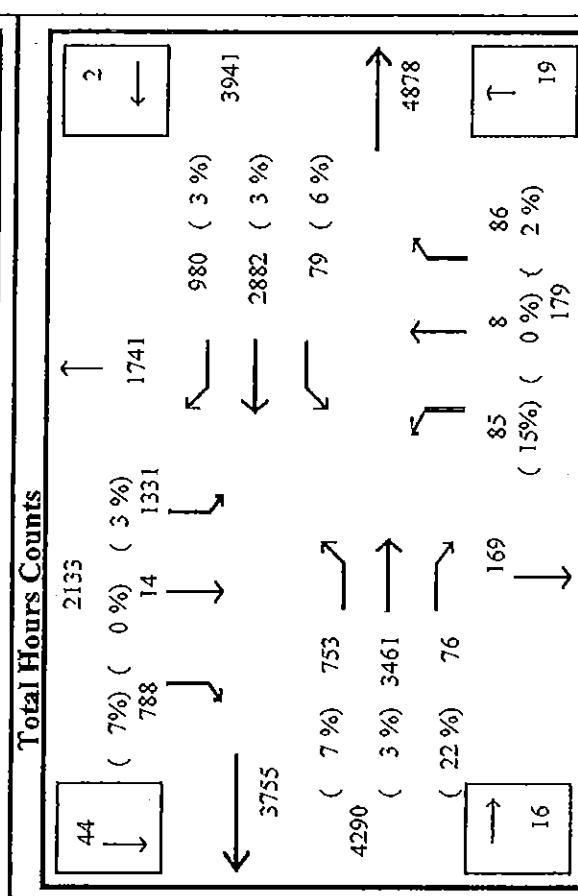
P.M. Peak Hour : 1645 - 1745



Average Offpeak Hour



Total Hours Counts



Note: North is at the top of the page

Value in (parenthesis) indicates truck/heavy vehicle percentages

Intersection count: 15-minute interval data

BANCROFT DR/CREDITVIEW RD/SIR MONTYS DR		BAN-CRE-SIR-01-S		ZArea: Z45E																					
Counted On:	Traffic Control:	Signal:		Report Date: 2013/03/27																					
1345	2	3	4	0	0																				
1400	2	1	3	0	0																				
Offpeak	13	45	70	2	0																				
Total				69	1121																				
Offpeak	4	15	23	1	0																				
Hr Avg				23	374																				
PM	E - East		N - North		W - West																				
	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds										
1515	5	4	9	1	3	12	98	13	4	1	7	140	3	4	0	17	4	13	4	0	338				
1530	6	3	9	3	0	14	137	22	4	1	8	133	0	9	1	16	5	13	5	0	387				
1545	4	2	7	1	0	9	122	16	6	1	8	159	5	3	0	13	4	15	3	2	377				
1600	3	2	7	4	1	10	149	20	3	1	11	137	1	6	1	20	7	21	1	2	402				
1615	1	2	4	3	0	11	155	23	3	0	8	190	3	21	0	21	6	24	3	0	478				
1630	3	5	4	1	0	13	151	30	4	0	22	202	5	5	0	26	9	22	1	0	503				
1645	1	2	9	0	0	5	170	20	1	0	12	209	5	1	0	20	7	24	0	0	486				
1700	2	2	4	0	0	11	204	30	4	0	24	267	5	3	0	26	17	34	1	2	634				
1715	3	3	7	0	0	13	172	21	3	1	16	238	5	4	0	26	14	63	3	0	591				
1730	5	3	6	1	0	12	230	33	3	1	36	278	2	1	0	39	16	41	1	1	707				
1745	2	5	1	0	0	17	183	21	5	1	23	293	6	1	0	23	18	41	3	0	642				
1800	6	2	4	0	0	23	168	27	5	0	13	204	6	2	0	36	6	23	1	1	526				
Total	41	35	71	14	4	150	1939	276	45	7	188	2450	46	60	2	283	113	334	26	8					
PM Peak	E - East		N - North		W - West		S - South		All Vehicles		All Vehicles		All Vehicles		All Vehicles		All Vehicles		All Vehicles		All Vehicles				
1700-1745	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds
Total	12	13	18	1	0	53	789	105	15	3	99	1076	18	9	0	114	65	179	8	3	0	0	0	0	0

Intersection count: 15-minute interval data

CREDITVIEW RD OLD CREDITVIEW RD

CRE-OLD-S

ZArea: Z45W

Counted On: 2013/03/19

Traffic Control: Signal

Report Date: 2013/03/27

Time Ending	E - East	N - North						S - South						W - West						All Vehicles	
		LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds					
715	9	45	1	2	0	0	0	0	0	0	45	0	5	1	0	5	24	12	0	0	
730	33	92	1	3	2	0	0	0	0	1	34	0	10	3	1	3	85	15	6	0	
745	42	114	5	5	0	1	0	3	0	0	43	2	26	2	0	7	111	42	5	0	
800	41	151	3	5	0	4	0	1	0	0	63	2	43	3	0	4	154	30	11	0	
815	35	154	1	5	1	1	0	2	0	0	64	0	29	6	0	3	143	38	9	0	
830	38	143	6	13	7	2	0	1	0	0	65	2	30	3	0	9	166	40	7	0	
845	47	122	4	10	0	1	0	2	0	0	50	0	32	3	0	8	145	13	8	0	
900	40	139	3	11	0	1	0	2	0	0	40	2	29	6	0	7	150	44	5	0	
Total	285	960	24	54	10	10	0	11	0	1	404	8	204	27	1	46	978	234	51	0	
AM Peak	E - East	N - North						S - South						W - West						All Vehicles	
800 - 845	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	
Total	161	570	14	33	8	8	0	6	0	0	242	4	134	15	0	24	608	121	35	0	0
Offpeak	E - East	N - North						S - South						W - West						All Vehicles	
1115	2	22	0	2	2	0	0	0	0	1	20	0	4	3	0	0	16	14	1	0	
1130	5	40	0	4	0	0	0	0	0	0	20	1	4	0	0	0	42	13	2	0	
1145	9	45	4	4	0	1	1	2	3	0	16	0	11	2	0	1	34	21	3	0	
1200	15	54	2	3	0	0	0	0	1	0	28	0	14	0	0	1	45	18	1	0	
1215	10	62	1	4	0	0	0	1	0	0	11	1	12	3	1	0	39	19	1	0	
1230	8	67	0	4	0	0	1	0	0	2	18	0	16	1	0	2	58	18	3	0	
1245	9	53	0	4	5	4	0	1	0	1	28	0	15	1	0	0	43	12	3	0	
1300	15	54	0	2	1	0	0	0	2	0	26	0	26	6	0	2	62	15	3	0	
1315	11	75	0	2	3	0	0	0	1	0	34	0	17	4	0	0	72	21	4	0	
1330	17	43	3	4	2	2	1	0	2	0	25	1	14	0	0	4	55	18	1	0	

Intersection count: 15-minute interval data

CREDITVIEW RD/OLD CREDITVIEW RD

CRE-01D-10-S ZArea: Z45W

CREDITVIEW RD/OLD CREDITVIEW RD CRE-OLD-10-S Z Area: Z45W
Counted On: 2013/03/19 Traffic Control: Signal Report Date: 2013/03/27

卷之三

卷之三

/03/27

Counted On: 2013/03/19

Report Date: 2013

1345	14	45	1	4	0	0	0	1	0	0	19	0	11	1	0	1	53	15	2	0	167	
1400	10	57	0	7	0	1	0	1	1	0	20	0	11	0	0	0	1	61	17	7	0	194

Offpeak 125 617

21

PNF East

Lane	E - East				N - North				S - South				W - West				All Vehicles
	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	Thru	RT	Trk	Peds	LT	
1515	31	88	1	7	0	1	0	4	1	0	41	0	35	8	0	3	338

1530 25 102

10

1330	33	102	1	18	0	1	0	0	41	1	36	7	0	94	43	11	0	391			
1545	14	115	3	3	5	10	2	14	1	3	38	0	35	1	0	1	74	38	6	357	
1600	18	83	0	3	0	1	1	3	0	0	51	0	18	7	0	2	61	27	1	0	276

1615 16 157

6

1613	16	137	2	3	4	3	2	6	1	1	50	0	24	6	0	0	86	38	3	2	399
1630	14	131	1	2	2	2	0	3	1	2	57	0	33	3	0	0	103	46	1	2	397
1645	30	167	1	2	4	6	0	5	0	1	42	1	21	2	0	3	94	46	3	3	423

卷之三

四

1700	30	180	1	1	0	2	0	0	63	1	45	0	0	1	118	56	1	2	500		
1715	31	196	3	8	3	18	0	21	1	0	67	0	40	5	0	0	134	47	5	0	576
1730	31	211	4	2	0	8	0	5	1	0	67	0	37	3	0	1	143	49	1	0	566

卷之三

5

	1745	1796	1800	Total	1745	1796	1800	Total	1745	1796	1800	Total
24	189	3	4	2	0	2	0	4	56	0	28	1
17	177	4	4	1	0	0	0	0	49	0	22	4
291	1796	24	59	21	54	5	66	6	11	622	3	374

卷之三

二

All Vehicles

Total 116 776

9 150 1

08:03 USER 8/12 PRINT DAILY INT REP, INT 84 662 736 812, AS 1-3

DAILY INTERSECTION REPORT FOR ACT SCH 1 (MON TUE WED THU FRI)

INT TIME SELECTION PLANS IN USE ALTERNATES

	MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC		MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC
84 00:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
84 07:00	1/1	/	/	/	1/1	/	CC	110	1	1	1	1	1009
84 09:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
84 16:00	1/1	/	/	/	1/1	/	CC	110	3	3	3	3	1009
84 18:30	/	/	/	/	/	/	LO	101	2	2	2	2	1009
662 00:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
662 07:00	1/1	/	/	/	1/1	/	CC	110	1	1	1	1	1009
662 09:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
662 16:00	1/1	/	/	/	1/1	/	CC	110	3	3	3	3	1009
662 18:30	/	/	/	/	/	/	LO	101	2	2	2	2	1009
736 00:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
736 07:00	1/1	/	/	/	1/1	/	CC	110	1	1	1	1	1009
736 09:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
736 16:00	1/1	/	/	/	1/1	/	CC	110	3	3	3	3	1009
736 18:30	/	/	/	/	/	/	LO	101	2	2	2	2	1009
812 00:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
812 07:00	1/1	/	/	/	1/1	/	CC	110	1	1	1	1	1009
812 09:00	/	/	/	/	/	/	LO	101	2	2	2	2	1009
812 16:00	1/1	/	/	/	1/1	/	CC	110	3	3	3	3	1009
812 18:30	/	/	/	/	/	/	LO	101	2	2	2	2	1009

DAILY INTERSECTION REPORT FOR ACT SCH 2 (SAT)

84 00:00	/	/	/	/	/	/	LO	101	2	2	2	2
662 00:00	/	/	/	/	/	/	LO	101	2	2	2	2
736 00:00	/	/	/	/	/	/	LO	101	2	2	2	2
812 00:00	/	/	/	/	/	/	LO	101	2	2	2	2

DAILY INTERSECTION REPORT FOR ACT SCH 3 (SUN HOL)

84 00:00	/	/	/	/	/	/	LO	101	2	2	2	2
662 00:00	/	/	/	/	/	/	LO	101	2	2	2	2
736 00:00	/	/	/	/	/	/	LO	101	2	2	2	2
812 00:00	/	/	/	/	/	/	LO	101	2	2	2	2

08:04 USER 8/12 PRINT SPLIT 1 3, INT 84 662 736 812

SPLIT TABLE

INTERSECTION 84				CREDITVIEW@ SIR MONTY'S												
TABLE	(SPLIT)	PHASE	NUMBER	(MAX SPLIT)				PHASE	NUMBER							
NO.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
		NS		EW												
1		70		30						0		0				
3		70		30						0		0				
INTERSECTION 662				CREDITVIEW@ARGENTIA												
	NBL	NS		EB												
1	19	55		26					23	0		0				
3	18	54		28					22	0		0				
INTERSECTION 736				CREDITVIEW@KENN'HALL												
	NBL	NS		EW												
1	0	72		28					0	0		0				
3	12	61		27					16	0		0				
INTERSECTION 812				CREDITVIEW@OLD CRED												
	SBL	NS		EW												
1	13	55		32					17	0		0				
3	13	55		32					17	0		0				

08:05 USER 8/12 PRINT SPF 1-3, INT 84 662 736 812

SPECIAL FUNCTIONS

INTERSECTION 84 CREDITV@ SIR MONTY'S

SPECIAL IN(Y)/OUT(N)

FUNCTION # 1 2 3

NA NA CAL PHASE OMIT

1 Y Y N

2 Y Y N

3 Y Y N

INTERSECTION 662 CREDITVIEW@ARGENTIA

NBL PED CAL PHASE OMIT BUT 2 Y=ON

1 N N N

2 N N N

3 N N N

INTERSECTION 736 CREDITVIEW@KENN'HALL

NBL PED CAL PHASE OMIT BUT SPF2 Y=ON

1 Y N N

2 Y N N

3 N N N

INTERSECTION 812 CREDITVIEW@OLD CRED

SBL PED CAL PHASE OMIT BUT SPF2 Y=ON

1 N N N

2 N N N

3 N N N

08:05 USER 8/12 PRINT CDT 84 662 736 812

CYCLE DEFINITION TABLE: 84

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	NS		8	9	4	2	1	C	CREDITVIEW ROAD
3							1		
4	EW		10	13	4	3	1		SIR MONTY'S DR
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS (Y/N)

1 2 3 1&2 1&3 2&3 ALL
Y Y Y Y Y Y Y

CYCLE DEFINITION TABLE: 662

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	NBL	5			3		1		CREDITVIEW RD
2	NS		10	14	4	3	1	C	CREDITVIEW RD
3							1		
4	EB		8	10	4	3	1		ARGENTIA RD
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS (Y/N)

1 2 3 1&2 1&3 2&3 ALL
Y Y Y Y Y Y Y

CYCLE DEFINITION TABLE: 736

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	NBL	5			3		1		CREDITVIEW RD
2	NS		8	18	4	2	1	C	CREDITVIEW RD
3							1		
4	EW		8	12	4	2	1		KENNINGHALL BLD
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS (Y/N)

1 2 3 1&2 1&3 2&3 ALL
Y Y Y Y Y Y Y

CYCLE DEFINITION TABLE: 812

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	SBL	5			3		1		
2	NS		12	18	4	3	1	C	
3							1		
4	EW		10	13	4	3	1		
5							1		
6							1		
7							1		

CYCLE DEFINITION TABLE: 812

PHASE	DIR	VEH	PED	PED	AMBER	ALL	COMM	SPECIAL	STREET	
			MIN	MIN	CLEAR		RED	DELAY	FEATURE	NAME

8

1

VALID SPECIAL FUNCTIONS (Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

08:06 USER 8/12 PRINT OFFSET 1 3, INT 84 662 736 812
OFFSET TABLE
INTERSECTION 84 CREDITV@ SIR MONTY'S
OFFSET # OFFSET %
1 17
3 19
INTERSECTION 662 CREDITVIEW@ARGENTIA
1 12
3 86
INTERSECTION 736 CREDITVIEW@KENN'HALL
1 50
3 29
INTERSECTION 812 CREDITVIEW@OLD CRED
1 72
3 49

APPENDIX C

Existing Intersections Capacity Analysis

Timings

3: Creditview Road & Old Creditview Road

Creditview Road EA - Existing Conditions

AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	↑	↑	↑	↑	↑	↑
Volume (vph)	137	713	8	12	814	3	0	4	224	2	129
Turn Type	pm+pt		Perm	Perm		Perm		Perm	Perm		Perm
Protected Phases	5	2			6		8			4	
Permitted Phases		2	2	6		8		8	4		4
Detector Phase	5	2	2	6	6	8	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	30.0	30.0	30.0	30.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	14.0	75.0	75.0	61.0	61.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	12.7%	68.2%	68.2%	55.5%	55.5%	31.8%	31.8%	31.8%	31.8%	31.8%	31.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		Lag						
Lead-Lag Optimize?	Yes		Yes		Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	77.4	73.4	73.4	61.9	61.9		22.6	22.6		22.6	22.6
Actuated g/C Ratio	0.70	0.67	0.67	0.56	0.56		0.21	0.21		0.21	0.21
v/c Ratio	0.35	0.58	0.01	0.03	0.51		0.02	0.01		0.81	0.31
Control Delay	8.6	13.4	4.4	14.1	18.5		31.7	19.8		67.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	8.6	13.4	4.4	14.1	18.5		31.7	19.8		67.0	7.8
LOS	A	B	A	B	B		C	B		E	A
Approach Delay		12.6			18.4		24.9			45.5	
Approach LOS		B			B		C			D	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 79 (72%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 20.5

Intersection LOS: C

Intersection Capacity Utilization 77.5%

ICU Level of Service D

Analysis Period (min) 60

Splits and Phases: 3: Creditview Road & Old Creditview Road



Timings

5: Argentia Road & Creditview Road

Creditview Road EA - Existing Conditions

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	225	441	474	736	561	380
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0	5.0	4.0	4.0
Minimum Split (s)	26.0	12.0	12.0	31.0	31.0	31.0
Total Split (s)	29.0	25.0	25.0	81.0	56.0	56.0
Total Split (%)	26.4%	22.7%	22.7%	73.6%	50.9%	50.9%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	18.6	42.3	81.4	77.4	57.7	57.7
Actuated g/C Ratio	0.17	0.38	0.74	0.70	0.52	0.52
v/c Ratio	0.78	0.60	0.79	0.57	0.59	0.38
Control Delay	63.7	16.1	17.5	5.2	16.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	16.1	17.5	5.2	16.7	1.7
LOS	E	B	B	A	B	A
Approach Delay	32.2			10.0	10.6	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.5

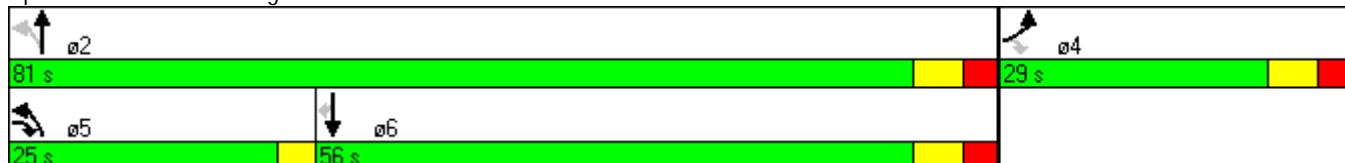
Intersection LOS: B

Intersection Capacity Utilization 83.3%

ICU Level of Service E

Analysis Period (min) 60

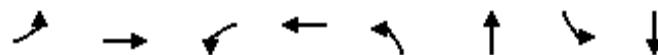
Splits and Phases: 5: Argentia Road & Creditview Road



Timings
9: Kenninghall Blvd & Creditview Road

Creditview Road EA - Existing Conditions

AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	30	2	31	21	34	1159	12	1064
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases		4		8		2		6
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	5.0	5.0	4.0	4.0
Minimum Split (s)	32.0	32.0	32.0	32.0	27.0	27.0	27.0	27.0
Total Split (s)	32.0	32.0	32.0	32.0	78.0	78.0	78.0	78.0
Total Split (%)	29.1%	29.1%	29.1%	29.1%	70.9%	70.9%	70.9%	70.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		11.6		11.6	86.4	86.4	86.4	86.4
Actuated g/C Ratio		0.11		0.11	0.79	0.79	0.79	0.79
v/c Ratio		0.73		0.92	0.14	0.80	0.10	0.73
Control Delay		34.9		146.6	4.0	7.8	6.0	9.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		34.9		146.6	4.0	7.8	6.0	9.7
LOS		C		F	A	A	A	A
Approach Delay		34.9		146.6		7.7		9.6
Approach LOS		C		F		A		A

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 15.5

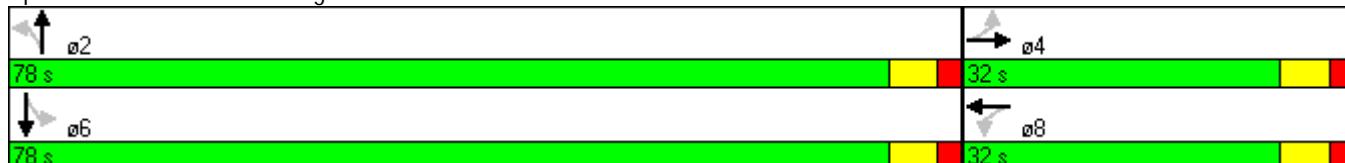
Intersection LOS: B

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 60

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



Timings
12: Sir Monty's Drive & Creditview Road

Creditview Road EA - Existing Conditions

AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↑	↓	↑	↓	↑	↑	↓	↑	↑↓
Volume (vph)	34	79	92	17	23	1076	126	10	1252
Turn Type	Perm		Perm		Perm		Perm	Perm	
Protected Phases				4		8			2
Permitted Phases					2		2	2	6
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	30.0	30.0	30.0	30.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	33.0	33.0	33.0	33.0	77.0	77.0	77.0	77.0	77.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.4	13.4	13.4	13.4	83.6	83.6	83.6	83.6	83.6
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.76	0.76	0.76	0.76	0.76
v/c Ratio	0.24	0.60	0.66	0.39	0.09	0.76	0.10	0.17	0.47
Control Delay	45.7	44.9	69.3	16.6	5.4	13.3	1.2	12.6	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	44.9	69.3	16.6	5.4	13.3	1.2	12.6	8.9
LOS	D	D	E	B	A	B	A	B	A
Approach Delay		45.1		41.5		11.9			8.9
Approach LOS		D		D		B			A

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 86.3%

ICU Level of Service E

Analysis Period (min) 60

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis

3: Creditview Road & Old Creditview Road

Creditview Road EA - Existing Conditions

AM Peak Hour

Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↑			↑	↑	↑	↑	↑
Volume (vph)	137	713	8	12	814	165	3	0	4	224	2	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1736	1827	1509	1805	3362			1805	1615		1775	1524
Flt Permitted	0.22	1.00	1.00	0.36	1.00			0.47	1.00		0.73	1.00
Satd. Flow (perm)	409	1827	1509	682	3362			885	1615		1354	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	713	8	12	814	165	3	0	4	224	2	129
RTOR Reduction (vph)	0	0	3	0	13	0	0	0	3	0	0	102
Lane Group Flow (vph)	137	713	5	12	966	0	0	3	1	0	226	27
Heavy Vehicles (%)	4%	4%	7%	0%	4%	8%	0%	0%	0%	2%	0%	6%
Turn Type	pm+pt		Perm	Perm		Perm		Perm	Perm	Perm	Perm	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	73.4	73.4	73.4	61.9	61.9			22.6	22.6		22.6	22.6
Effective Green, g (s)	73.4	73.4	73.4	61.9	61.9			22.6	22.6		22.6	22.6
Actuated g/C Ratio	0.67	0.67	0.67	0.56	0.56			0.21	0.21		0.21	0.21
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	375	1219	1007	384	1892			182	332		278	313
v/s Ratio Prot	0.03	c0.39			0.29							
v/s Ratio Perm	0.22		0.00	0.02				0.00	0.00		c0.17	0.02
v/c Ratio	0.37	0.58	0.01	0.03	0.51			0.02	0.00		0.81	0.08
Uniform Delay, d1	8.0	10.0	6.1	10.7	14.8			34.8	34.7		41.7	35.3
Progression Factor	1.00	1.00	1.00	1.02	1.14			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.6	2.1	0.0	0.1	0.8			0.0	0.0		18.6	0.1
Delay (s)	8.6	12.1	6.1	11.0	17.6			34.9	34.7		60.2	35.5
Level of Service	A	B	A	B	B			C	C		E	D
Approach Delay (s)		11.5			17.5			34.8			51.2	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM Average Control Delay		20.6			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			14.0				
Intersection Capacity Utilization		77.5%			ICU Level of Service			D				
Analysis Period (min)		60										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview Road EA - Existing Conditions
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1568	1770	1845	1810	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1719	1568	559	1845	1810	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	225	441	474	736	561	380
RTOR Reduction (vph)	0	143	0	0	0	181
Lane Group Flow (vph)	225	298	474	736	561	199
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Actuated Green, G (s)	18.6	35.3	77.4	77.4	57.7	57.7
Effective Green, g (s)	18.6	35.3	77.4	77.4	57.7	57.7
Actuated g/C Ratio	0.17	0.32	0.70	0.70	0.52	0.52
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	503	577	1298	949	830
v/s Ratio Prot	c0.13	0.09	c0.12	0.40	0.31	
v/s Ratio Perm		0.10	c0.45		0.13	
v/c Ratio	0.77	0.59	0.82	0.57	0.59	0.24
Uniform Delay, d1	43.7	31.3	6.6	8.0	18.0	14.2
Progression Factor	1.00	1.00	1.52	0.46	0.71	0.42
Incremental Delay, d2	13.0	1.9	6.2	1.1	2.2	0.6
Delay (s)	56.7	33.2	16.2	4.8	14.9	6.5
Level of Service	E	C	B	A	B	A
Approach Delay (s)	41.2			9.3	11.5	
Approach LOS	D			A	B	
Intersection Summary						
HCM Average Control Delay			17.6	HCM Level of Service		B
HCM Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		10.0
Intersection Capacity Utilization			83.3%	ICU Level of Service		E
Analysis Period (min)			60			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
7: Falconer Drive & Creditview Road

Creditview Road EA - Existing Conditions
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	90	41	1195	990	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	90	41	1195	990	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.39	0.78	0.78			
vC, conflicting volume	2273	996	1002			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2202	853	861			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	14	68	93			
cM capacity (veh/h)	17	278	608			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	90	41	1195	1002	
Volume Left	15	0	41	0	0	
Volume Right	0	90	0	0	12	
cSH	17	278	608	1700	1700	
Volume to Capacity	0.86	0.32	0.07	0.70	0.59	
Queue Length 95th (m)	33.5	11.3	1.7	0.0	0.0	
Control Delay (s)	672.0	24.1	11.3	0.0	0.0	
Lane LOS	F	C	B			
Approach Delay (s)	116.6		0.4		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization		72.9%		ICU Level of Service	C	
Analysis Period (min)		60				

HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview Road EA - Existing Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0			6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00			1.00			1.00	1.00		1.00	1.00	
Fr _t	0.89			0.94			1.00	1.00		1.00	1.00	
Flt Protected	0.99			0.98			0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671			1346			1626	1856		1031	1860	
Flt Permitted	0.93			0.49			0.19	1.00		0.15	1.00	
Satd. Flow (perm)	1563			666			320	1856		159	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
RTOR Reduction (vph)	0	115	0	0	29	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	89	0	0	62	0	34	1165	0	12	1074	0
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.6			11.6			86.4	86.4		86.4	86.4	
Effective Green, g (s)	11.6			11.6			86.4	86.4		86.4	86.4	
Actuated g/C Ratio	0.11			0.11			0.79	0.79		0.79	0.79	
Clearance Time (s)	6.0			6.0			6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	165			70			251	1458		125	1461	
v/s Ratio Prot							c0.63				0.58	
v/s Ratio Perm	0.06			c0.09			0.11			0.08		
v/c Ratio	0.54			0.89			0.14	0.80		0.10	0.73	
Uniform Delay, d1	46.7			48.6			2.8	6.8		2.7	6.0	
Progression Factor	1.00			1.00			0.76	0.43		1.06	0.88	
Incremental Delay, d2	3.7			110.8			0.8	3.4		1.3	2.9	
Delay (s)	50.3			159.3			2.9	6.4		4.2	8.2	
Level of Service	D			F			A	A		A	A	
Approach Delay (s)	50.3			159.3				6.3			8.1	
Approach LOS	D			F				A			A	
Intersection Summary												
HCM Average Control Delay	15.9			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	84.9%			ICU Level of Service			E					
Analysis Period (min)	60											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

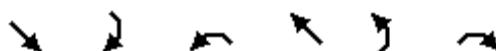
Creditview Road EA - Existing Conditions

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	1674		1787	1539		1597	1863	1583	1308	3526	
Flt Permitted	0.69	1.00		0.61	1.00		0.20	1.00	1.00	0.06	1.00	
Satd. Flow (perm)	1161	1674		1142	1539		329	1863	1583	76	3526	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
RTOR Reduction (vph)	0	30	0	0	76	0	0	0	29	0	0	0
Lane Group Flow (vph)	34	111	0	92	27	0	23	1076	97	10	1262	0
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Effective Green, g (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.76	0.76	0.76	0.76	0.76	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	204		139	187		250	1416	1203	58	2680	
v/s Ratio Prot		0.07			0.02			c0.58			0.36	
v/s Ratio Perm	0.03		c0.08			0.07		0.06	0.13			
v/c Ratio	0.24	0.54		0.66	0.15		0.09	0.76	0.08	0.17	0.47	
Uniform Delay, d1	43.7	45.4		46.1	43.2		3.4	7.5	3.4	3.6	4.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.20	1.53	
Incremental Delay, d2	0.9	3.0		11.8	0.4		0.7	4.0	0.1	4.6	0.4	
Delay (s)	44.6	48.4		58.0	43.6		4.1	11.5	3.5	9.0	8.0	
Level of Service	D	D	E	D		A	B	A	A	A		
Approach Delay (s)		47.7			50.4			10.5			8.0	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		14.4			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		86.3%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: Creditview Road & Velebit Court

Creditview Road EA - Existing Conditions
AM Peak Hour



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗		↗ ↑	↑ ↗	↗ ↘	
Volume (veh/h)	1266	1	2	1194	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1266	1	2	1194	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	204					
pX, platoon unblocked			0.25	0.25	0.25	
vC, conflicting volume		1267		2464	1266	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		575		5330	573	
tC, single (s)		4.1		*5.3	*5.3	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		99		0	96	
cM capacity (veh/h)		251		1	151	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1267	2	1194	11		
Volume Left	0	2	0	5		
Volume Right	1	0	0	6		
cSH	1700	251	1700	1		
Volume to Capacity	0.75	0.01	0.70	9.59		
Queue Length 95th (m)	0.0	0.2	0.0	Err		
Control Delay (s)	0.0	19.4	0.0	Err		
Lane LOS		C		F		
Approach Delay (s)	0.0	0.0		Err		
Approach LOS				F		
Intersection Summary						
Average Delay		44.5				
Intersection Capacity Utilization		76.7%		ICU Level of Service	D	
Analysis Period (min)		60				

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
20: Creditview Road & Rivergate Place

Creditview Road EA - Existing Conditions
AM Peak Hour



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	2	1078	1227	1	8	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	1078	1227	1	8	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			241			
pX, platoon unblocked	0.25			0.25	0.25	
vC, conflicting volume	1228			2310	1228	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	423			4704	421	
tC, single (s)	4.1			*5.4	*5.4	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			0	95	
cM capacity (veh/h)	287			1	176	
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	2	1078	1228	17		
Volume Left	2	0	0	8		
Volume Right	0	0	1	9		
cSH	287	1700	1700	2		
Volume to Capacity	0.01	0.63	0.72	7.83		
Queue Length 95th (m)	0.2	0.0	0.0	Err		
Control Delay (s)	17.6	0.0	0.0	Err		
Lane LOS	C			F		
Approach Delay (s)	0.0		0.0	Err		
Approach LOS				F		
Intersection Summary						
Average Delay			73.1			
Intersection Capacity Utilization		74.6%		ICU Level of Service	D	
Analysis Period (min)		60				

* User Entered Value

Timings

3: Creditview Road & Old Creditview Road

Creditview Road EA -Existing Conditions

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	↑	1	1	↑↓	1	1	1	1	1	1
Volume (vph)	146	785	5	3	621	16	5	18	215	1	215
Turn Type	pm+pt		Perm	Perm		Perm		Perm	Perm		Perm
Protected Phases	5	2			6		8			4	
Permitted Phases	2		2	6		8		8	4		4
Detector Phase	5	2	2	6	6	8	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	30.0	30.0	30.0	30.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	13.0	73.0	73.0	60.0	60.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	11.8%	66.4%	66.4%	54.5%	54.5%	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag							
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	77.4	73.4	73.4	61.9	61.9		22.6	22.6		22.6	22.6
Actuated g/C Ratio	0.70	0.67	0.67	0.56	0.56		0.21	0.21		0.21	0.21
v/c Ratio	0.35	0.63	0.01	0.01	0.44		0.08	0.05		0.79	0.44
Control Delay	8.6	14.5	5.2	22.3	25.7		32.8	13.2		63.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	8.6	14.5	5.2	22.3	25.7		32.8	13.2		63.0	7.4
LOS	A	B	A	C	C		C	B		E	A
Approach Delay		13.5			25.7		23.7			35.3	
Approach LOS		B			C		C			D	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 80.8%

ICU Level of Service D

Analysis Period (min) 60

Splits and Phases: 3: Creditview Road & Old Creditview Road



Timings

5: Argentia Road & Creditview Road

Creditview Road EA -Existing Conditions

PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↘	↖ ↗	↑ ↗	↗ ↘	↖ ↗
Volume (vph)	409	526	387	457	774	244
Turn Type		pm+ov	pm+pt			Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.0	11.0	11.0	31.0	31.0	31.0
Total Split (s)	31.0	24.0	24.0	79.0	55.0	55.0
Total Split (%)	28.2%	21.8%	21.8%	71.8%	50.0%	50.0%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	24.0	51.8	76.0	72.0	48.2	48.2
Actuated g/C Ratio	0.22	0.47	0.69	0.65	0.44	0.44
v/c Ratio	1.05	0.65	0.96	0.37	0.95	0.30
Control Delay	189.4	22.0	85.1	9.2	54.3	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	189.4	22.0	85.1	9.2	54.3	5.0
LOS	F	C	F	A	D	A
Approach Delay	95.2			44.0	42.5	
Approach LOS	F			D	D	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 60.6

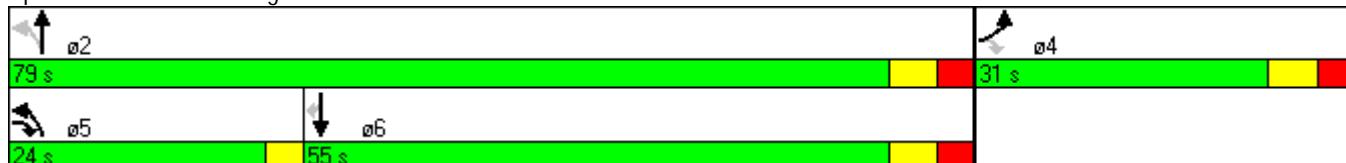
Intersection LOS: E

Intersection Capacity Utilization 99.8%

ICU Level of Service F

Analysis Period (min) 60

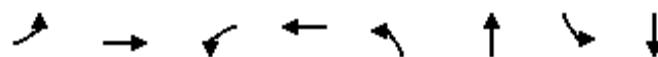
Splits and Phases: 5: Argentia Road & Creditview Road



Timings
9: Kenninghall Blvd & Creditview Road

Creditview Road EA -Existing Conditions

PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	19	7	14	8	222	917	14	1290
Turn Type	Perm		Perm		pm+pt		Perm	
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)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	30.0	30.0	30.0	30.0	11.0	27.0	27.0	27.0
Total Split (s)	30.0	30.0	30.0	30.0	13.0	80.0	67.0	67.0
Total Split (%)	27.3%	27.3%	27.3%	27.3%	11.8%	72.7%	60.9%	60.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	3.0	6.0	6.0	6.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)		8.4		8.4	92.6	89.6	76.6	76.6
Actuated g/C Ratio	0.08		0.08	0.84	0.81	0.70	0.70	
v/c Ratio	0.63		0.41	0.95	0.62	0.06	1.01	
Control Delay	25.9		49.6	92.9	6.9	6.7	62.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	25.9		49.6	92.9	6.9	6.7	62.6	
LOS	C		D	F	A	A	E	
Approach Delay	25.9		49.6		23.3		62.0	
Approach LOS	C		D		C		E	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 32 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 43.0

Intersection LOS: D

Intersection Capacity Utilization 103.6%

ICU Level of Service G

Analysis Period (min) 60

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



Timings
12: Sir Monty's Drive & Creditview Road

Creditview Road EA -Existing Conditions
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↑ ↗	↗ ↘	↖ ↗	↖ ↙	↖ ↗	↑ ↗	↖ ↗	↖ ↙	↑ ↗
Volume (vph)	20	16	110	58	71	966	105	90	1300
Turn Type	Perm		Perm		Perm		Perm	Perm	
Protected Phases		4		8		2			6
Permitted Phases	4		8	2	2	2	2	6	
Detector Phase	4	4	8	8	2	2	2	6	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	30.0	30.0	30.0	30.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	33.0	33.0	33.0	33.0	77.0	77.0	77.0	77.0	77.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.2	14.2	14.2	14.2	82.8	82.8	82.8	82.8	82.8
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.75	0.75	0.75	0.75	0.75
v/c Ratio	0.28	0.12	0.61	0.72	0.28	0.69	0.09	0.30	0.50
Control Delay	51.5	27.0	59.6	33.8	9.0	11.3	1.2	10.5	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	27.0	59.6	33.8	9.0	11.3	1.2	10.5	9.8
LOS	D	C	E	C	A	B	A	B	A
Approach Delay		37.0		42.0		10.2		9.8	
Approach LOS		D		D		B		A	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 88.3%

ICU Level of Service E

Analysis Period (min) 60

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis

3: Creditview Road & Old Creditview Road

Creditview Road EA -Existing Conditions

PM Peak Hour

Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↑			↑	↑	↑	↑	↑
Volume (vph)	146	785	5	3	621	242	16	5	18	215	1	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1671	1881	1495	1805	3414			1750	1615		1792	1553
Flt Permitted	0.27	1.00	1.00	0.31	1.00			0.74	1.00		0.71	1.00
Satd. Flow (perm)	469	1881	1495	589	3414			1343	1615		1339	1553
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	146	785	5	3	621	242	16	5	18	215	1	215
RTOR Reduction (vph)	0	0	2	0	31	0	0	0	14	0	0	171
Lane Group Flow (vph)	146	785	3	3	832	0	0	21	4	0	216	44
Heavy Vehicles (%)	8%	1%	8%	0%	1%	2%	6%	0%	0%	1%	0%	4%
Turn Type	pm+pt		Perm	Perm			Perm		Perm	Perm		Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)	73.4	73.4	73.4	61.9	61.9			22.6	22.6		22.6	22.6
Effective Green, g (s)	73.4	73.4	73.4	61.9	61.9			22.6	22.6		22.6	22.6
Actuated g/C Ratio	0.67	0.67	0.67	0.56	0.56			0.21	0.21		0.21	0.21
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	406	1255	998	331	1921			276	332		275	319
v/s Ratio Prot	0.03	c0.42			0.24							
v/s Ratio Perm	0.21		0.00	0.01				0.02	0.00		c0.16	0.03
v/c Ratio	0.36	0.63	0.00	0.01	0.43			0.08	0.01		0.79	0.14
Uniform Delay, d1	7.6	10.5	6.1	10.6	13.9			35.3	34.8		41.4	35.7
Progression Factor	1.00	1.00	1.00	1.58	1.81			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	2.4	0.0	0.0	0.5			0.1	0.0		15.0	0.2
Delay (s)	8.1	12.8	6.1	16.7	25.7			35.4	34.8		56.4	35.9
Level of Service	A	B	A	B	C			D	C		E	D
Approach Delay (s)		12.1			25.6			35.1			46.2	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay		24.1			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			14.0				
Intersection Capacity Utilization		80.8%			ICU Level of Service			D				
Analysis Period (min)		60										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview Road EA -Existing Conditions
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1752	1881	1863	1615
Flt Permitted	0.95	1.00	0.08	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	144	1881	1863	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	409	526	387	457	774	244
RTOR Reduction (vph)	0	62	0	0	0	100
Lane Group Flow (vph)	409	464	387	457	774	144
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Actuated Green, G (s)	24.0	44.8	72.0	72.0	48.2	48.2
Effective Green, g (s)	24.0	44.8	72.0	72.0	48.2	48.2
Actuated g/C Ratio	0.22	0.41	0.65	0.65	0.44	0.44
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	390	651	398	1231	816	708
v/s Ratio Prot	c0.23	0.13	c0.18	0.24	0.42	
v/s Ratio Perm		0.16	c0.45		0.09	
v/c Ratio	1.05	0.71	0.97	0.37	0.95	0.20
Uniform Delay, d1	43.0	27.2	35.2	8.7	29.7	19.1
Progression Factor	1.00	1.00	1.12	0.96	0.93	0.71
Incremental Delay, d2	147.0	3.8	56.8	0.7	25.4	0.5
Delay (s)	190.0	31.0	96.3	9.0	53.1	14.1
Level of Service	F	C	F	A	D	B
Approach Delay (s)	100.5			49.0	43.8	
Approach LOS	F			D	D	
Intersection Summary						
HCM Average Control Delay			64.3	HCM Level of Service		E
HCM Volume to Capacity ratio			0.95			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		10.0
Intersection Capacity Utilization			99.8%	ICU Level of Service		F
Analysis Period (min)			60			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
7: Falconer Drive & Creditview Road

Creditview Road EA -Existing Conditions
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	55	112	831	1269	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	55	112	831	1269	31
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.69	0.60	0.60			
vC, conflicting volume	2340	1284	1300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2077	1139	1165			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	55	63	69			
cM capacity (veh/h)	29	148	360			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	13	55	112	831	1300	
Volume Left	13	0	112	0	0	
Volume Right	0	55	0	0	31	
cSH	29	148	360	1700	1700	
Volume to Capacity	0.45	0.37	0.31	0.49	0.76	
Queue Length 95th (m)	15.9	13.7	10.7	0.0	0.0	
Control Delay (s)	226.6	43.7	19.5	0.0	0.0	
Lane LOS	F	E	C			
Approach Delay (s)	78.7		2.3		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization		96.5%		ICU Level of Service		F
Analysis Period (min)		60				

HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview Road EA -Existing Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0			6.0			3.0	6.0		6.0		6.0	
Lane Util. Factor	1.00			1.00			1.00	1.00		1.00		1.00	
Fr _t	0.89			0.95			1.00	1.00		1.00		1.00	
Flt Protected	0.99			0.98			0.95	1.00		0.95		1.00	
Satd. Flow (prot)	1665			1728			1787	1857		1031		1860	
Flt Permitted	0.95			0.53			0.05	1.00		0.30		1.00	
Satd. Flow (perm)	1587			929			95	1857		331		1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	19	7	118	14	8	12	222	917	24	14	1290	16	
RTOR Reduction (vph)	0	109	0	0	11	0	0	1	0	0	0	0	
Lane Group Flow (vph)	0	35	0	0	23	0	222	940	0	14	1306	0	
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%	
Turn Type	Perm			Perm			pm+pt			Perm			
Protected Phases		4			8		5	2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)	8.4			8.4			89.6	89.6		76.6		76.6	
Effective Green, g (s)	8.4			8.4			89.6	89.6		76.6		76.6	
Actuated g/C Ratio	0.08			0.08			0.81	0.81		0.70		0.70	
Clearance Time (s)	6.0			6.0			3.0	6.0		6.0		6.0	
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	121			71			231	1513		230		1295	
v/s Ratio Prot					c0.09	0.51				c0.70			
v/s Ratio Perm	0.02			c0.02			0.70			0.04			
v/c Ratio	0.29			0.32			0.96	0.62		0.06		1.01	
Uniform Delay, d1	48.0			48.1			41.4	3.8		5.3		16.7	
Progression Factor	1.00			1.00			0.85	1.19		0.97		0.77	
Incremental Delay, d2	1.3			2.7			68.8	1.5		0.3		46.6	
Delay (s)	49.3			50.8			103.9	6.0		5.4		59.5	
Level of Service	D			D			F	A		A		E	
Approach Delay (s)	49.3			50.8				24.7			58.9		
Approach LOS	D			D			C			E			
Intersection Summary													
HCM Average Control Delay	43.3			HCM Level of Service				D					
HCM Volume to Capacity ratio	0.94												
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				15.0					
Intersection Capacity Utilization	103.6%			ICU Level of Service				G					
Analysis Period (min)	60												
c Critical Lane Group													

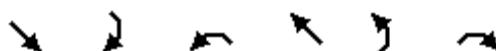
HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Creditview Road EA -Existing Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1733		1787	1635		1770	1863	1599	1787	3563	
Flt Permitted	0.29	1.00		0.74	1.00		0.18	1.00	1.00	0.22	1.00	
Satd. Flow (perm)	546	1733		1389	1635		331	1863	1599	405	3563	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
RTOR Reduction (vph)	0	11	0	0	115	0	0	0	26	0	1	0
Lane Group Flow (vph)	20	18	0	110	122	0	71	966	79	90	1330	0
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		82.8	82.8	82.8	82.8	82.8	
Effective Green, g (s)	14.2	14.2		14.2	14.2		82.8	82.8	82.8	82.8	82.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.75	0.75	0.75	0.75	0.75	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	70	224		179	211		249	1402	1204	305	2682	
v/s Ratio Prot		0.01			0.07			c0.52			0.37	
v/s Ratio Perm	0.04			c0.08			0.21		0.05	0.22		
v/c Ratio	0.29	0.08		0.61	0.58		0.29	0.69	0.07	0.30	0.50	
Uniform Delay, d1	43.3	42.1		45.3	45.1		4.3	7.0	3.5	4.3	5.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.62	1.59	
Incremental Delay, d2	2.3	0.2		6.3	3.9		2.9	2.8	0.1	0.8	0.2	
Delay (s)	45.6	42.3		51.6	48.9		7.2	9.8	3.6	7.8	8.8	
Level of Service	D	D		D	D		A	A	A	A	A	
Approach Delay (s)		43.6			49.8			9.1			8.7	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM Average Control Delay		14.3			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		88.3%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: Creditview Road & Velebit Court

Creditview Road EA -Existing Conditions
PM Peak Hour



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗		↑ ↗	↑ ↗	↗ ↖	
Volume (veh/h)	1419	3	3	1162	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1419	3	3	1162	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	209					
pX, platoon unblocked			0.31	0.31	0.31	
vC, conflicting volume		1422		2588	1420	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1250		4988	1245	
tC, single (s)		4.1		*5.4	*5.4	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		98		0	98	
cM capacity (veh/h)		174		1	88	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1422	3	1162	3		
Volume Left	0	3	0	1		
Volume Right	3	0	0	2		
cSH	1700	174	1700	3		
Volume to Capacity	0.84	0.02	0.68	1.17		
Queue Length 95th (m)	0.0	0.4	0.0	17.9		
Control Delay (s)	0.0	26.1	0.0	3306.3		
Lane LOS		D		F		
Approach Delay (s)	0.0	0.1		3306.3		
Approach LOS				F		
Intersection Summary						
Average Delay		3.9				
Intersection Capacity Utilization		84.9%		ICU Level of Service	E	
Analysis Period (min)		60				

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
20: Creditview Road & Rivergate Place

Creditview Road EA -Existing Conditions
PM Peak Hour



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	8	1316	940	8	4	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1316	940	8	4	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)			241			
pX, platoon unblocked	0.72			0.72	0.72	
vC, conflicting volume	948			2276	944	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	733			2578	728	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			80	99	
cM capacity (veh/h)	627			20	305	
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	8	1316	948	7		
Volume Left	8	0	0	4		
Volume Right	0	0	8	3		
cSH	627	1700	1700	33		
Volume to Capacity	0.01	0.77	0.56	0.21		
Queue Length 95th (m)	0.3	0.0	0.0	6.0		
Control Delay (s)	10.8	0.0	0.0	140.4		
Lane LOS	B			F		
Approach Delay (s)	0.1		0.0	140.4		
Approach LOS				F		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization		79.3%		ICU Level of Service		D
Analysis Period (min)		60				

APPENDIX D

Future Growth Rate Projections

5.0 Results

The results of the strategic model analysis for the Creditview Rd EA to be passed on to AECOM are as follows:

Table 5.0.1

Growth on Creditview Rd		2021	2031
Forecast Year BAU Scenario	NB	7.0%	16.0%
	SB	11.0%	18.0%
Forecast Year Scenario including the widening of Creditview Rd	NB	45.0%	61.0%
	SB	29.0%	42.0%

*This table shows the growth on Creditview Rd from the existing scenario for both forecast years, 2021 and 2031.

For each forecast year, two scenarios are shown. The first row shows growth in the BAU scenarios from the existing scenario and the second row shows growth in the forecast year scenarios including the widening of Creditview Rd to a 4 lane cross section from the existing scenario.

Table 5.0.2

Impact of Removing Second Line West Structure in 2016 BAU Scenario		Creditview Rd not widened	Creditview Rd widened
Mississauga Rd	NB	1.0%	1.0%
	SB	0.5%	0.0%
Creditview Rd	NB	3.0%	2.5%
	SB	3.0%	1.0%
Mavis Rd	NB	3.0%	3.0%
	SB	13.0%	13.0%

*This table shows the traffic growth on Mississauga Rd, Creditview Rd, and Mavis Rd should the Second Ln W structure over Hwy 401 be removed. Two separate scenarios are shown. The first column assumes Creditview Rd is not widened, ie. 2 lane cross section. The second column assumes Creditview Rd is widened, ie. 4 lane cross section.

The network assumptions made in each forecast year are shown in *Figures 5.0.1*, *Figure 5.0.2*, and *Figure 5.0.3* below.

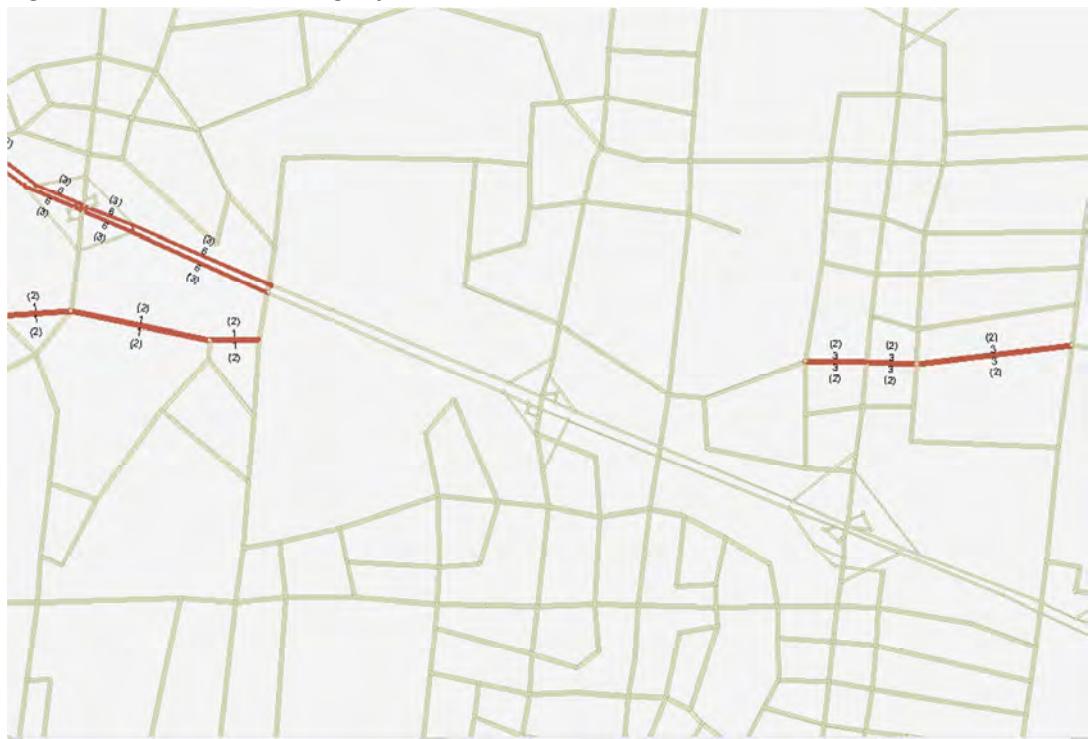
Figure 5.0.1: Network Changes from Existing to 2016 BAU



Figure 5.0.2: Network Changes from 2016 BAU to 2021 BAU



Figure 5.0.3: Network Changes from 2021 BAU to 2031 BAU



APPENDIX E

Future Traffic Operation and Queuing Analysis

Do-Nothing

Lanes, Volumes, Timings

3: Office Entrance & Creditview Road

Creditview Road EA - Future 2021 Without 2nd Line W

2021 -AM Peak Hour- No Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	35.0		0.0	150.0		0.0	140.0		0.0
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	4	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	30.0	30.0		13.0	30.0	30.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	61.0	61.0	0.0	14.0	75.0	75.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	31.8%	31.8%	55.5%	55.5%	0.0%	12.7%	68.2%	68.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag			Lead		
Lead-Lag Optimize?						Yes	Yes			Yes		
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

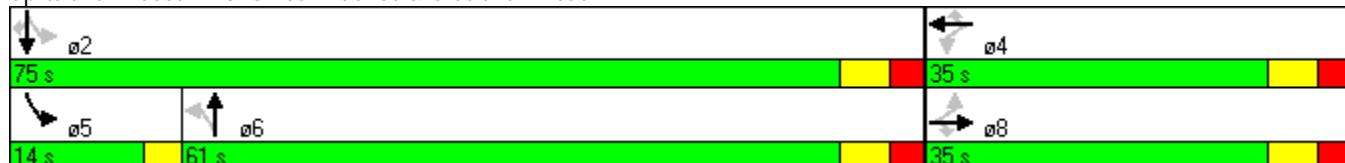
Actuated Cycle Length: 110

Offset: 79 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
 3: Office Entrance & Creditview Road

2021 -AM Peak Hour- No Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97			1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1805	1615		1775	1524	1805	3361			1736	1827	1509
Flt Permitted	0.47	1.00		0.73	1.00	0.31	1.00			0.20	1.00	1.00
Satd. Flow (perm)	885	1615		1354	1524	584	3361			365	1827	1509
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	3	0	4	224	2	129	13	871	177	152	791	9
RTOR Reduction (vph)	0	0	3	0	0	102	0	13	0	0	0	3
Lane Group Flow (vph)	0	3	1	0	226	27	13	1035	0	152	791	6
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Turn Type	Perm		Perm	Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6			2		2
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.7	61.7		73.4	73.4	73.4	
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.7	61.7		73.4	73.4	73.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56		0.67	0.67	0.67	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0		3.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	182	332		278	313	328	1885		352	1219	1007	
v/s Ratio Prot							0.31		0.03	c0.43		
v/s Ratio Perm	0.00	0.00		c0.17	0.02	0.02			0.25		0.00	
v/c Ratio	0.02	0.00		0.81	0.08	0.04	0.55		0.43	0.65	0.01	
Uniform Delay, d1	34.8	34.7		41.7	35.3	10.8	15.3		8.6	10.7	6.1	
Progression Factor	1.00	1.00		1.00	1.00	1.01	1.13		1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.0		18.6	0.1	0.2	0.9		0.9	2.7	0.0	
Delay (s)	34.9	34.7		60.2	35.5	11.2	18.2		9.5	13.5	6.1	
Level of Service	C	C		E	D	B	B		A	B	A	
Approach Delay (s)	34.8			51.2			18.1			12.8		
Approach LOS	C			D			B			B		
Intersection Summary												
HCM Average Control Delay	21.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.69											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)			14.0					
Intersection Capacity Utilization	81.7%			ICU Level of Service			D					
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Creditview Road EA - Future 2021 Without 2nd Line W

2021 -AM Peak Hour- No Improvements



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↗	↗ ↘	↑ ↗	↗ ↘	↗ ↘
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	70.0			70.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5	7.5	7.5			7.5
Right Turn on Red	Yes					Yes
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			382.8	591.9	
Travel Time (s)	12.4			27.6	42.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Shared Lane Traffic (%)						
Turn Type	pm+ov	pm+pt				Perm
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0	5.0	4.0	4.0
Minimum Split (s)	26.0	12.0	12.0	31.0	31.0	31.0
Total Split (s)	29.0	25.0	25.0	81.0	56.0	56.0
Total Split (%)	26.4%	22.7%	22.7%	73.6%	50.9%	50.9%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

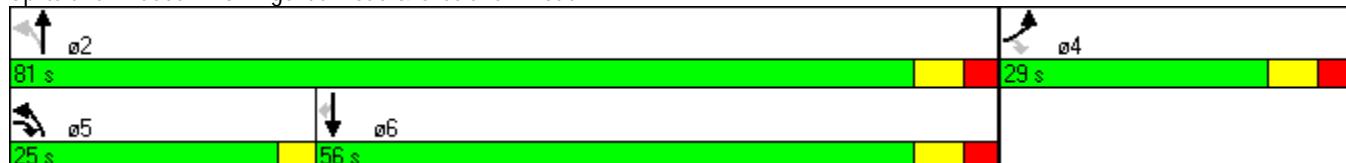
Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
 5: Argentia Road & Creditview Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1568	1770	1845	1810	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1719	1568	559	1845	1810	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	107%	107%	111%	111%
Adj. Flow (vph)	225	441	507	788	623	422
RTOR Reduction (vph)	0	116	0	0	0	190
Lane Group Flow (vph)	225	325	507	788	623	232
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.6	36.7	77.4	77.4	56.3	56.3
Effective Green, g (s)	18.6	36.7	77.4	77.4	56.3	56.3
Actuated g/C Ratio	0.17	0.33	0.70	0.70	0.51	0.51
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	523	593	1298	926	810
v/s Ratio Prot	c0.13	0.10	c0.14	0.43	0.34	
v/s Ratio Perm		0.11	c0.46			0.15
v/c Ratio	0.77	0.62	0.85	0.61	0.67	0.29
Uniform Delay, d1	43.7	30.8	6.8	8.4	20.0	15.4
Progression Factor	1.00	1.00	1.60	0.45	0.75	0.63
Incremental Delay, d2	13.0	2.3	7.0	1.1	3.1	0.7
Delay (s)	56.7	33.1	17.9	4.9	18.1	10.3
Level of Service	E	C	B	A	B	B
Approach Delay (s)	41.1			10.0	14.9	
Approach LOS	D			A	B	
Intersection Summary						
HCM Average Control Delay		18.6		HCM Level of Service		B
HCM Volume to Capacity ratio		0.80				
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization		88.3%		ICU Level of Service		E
Analysis Period (min)		60				
c Critical Lane Group						

Lanes, Volumes, Timings

7: Falconer Drive & Creditview Road

Creditview Road EA - Future 2021 Without 2nd Line W

2021 -AM Peak Hour- No Improvements



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↘	↖ ↗	↑ ↗	↓ ↖	↗ ↙
Volume (vph)	15	90	41	1195	990	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.1	382.8	
Travel Time (s)	14.6			10.7	27.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	7%	3%	2%	2%	3%	25%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

HCM Unsignalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
 7: Falconer Drive & Creditview Road

2021 -AM Peak Hour- No Improvements



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↔	
Volume (veh/h)	15	90	41	1195	990	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	90	44	1279	1099	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.43	0.72	0.72			
vC, conflicting volume	2472	1106	1112			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2311	953	962			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	5	60	91			
cM capacity (veh/h)	16	226	516			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	90	44	1279	1112	
Volume Left	15	0	44	0	0	
Volume Right	0	90	0	0	13	
cSH	16	226	516	1700	1700	
Volume to Capacity	0.95	0.40	0.09	0.75	0.65	
Queue Length 95th (m)	36.5	15.5	2.2	0.0	0.0	
Control Delay (s)	817.8	31.4	12.6	0.0	0.0	
Lane LOS	F	D	B			
Approach Delay (s)	143.8		0.4		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization		77.3%		ICU Level of Service		D
Analysis Period (min)		60				

Lanes, Volumes, Timings

9: Kenninghall Blvd & Creditview Road

Creditview Road EA - Future 2021 Without 2nd Line W

2021 -AM Peak Hour- No Improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	233.2			322.1			203.8			241.9		
Travel Time (s)	16.8			23.2			14.7			17.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	5.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		27.0	27.0		27.0	27.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	29.1%	29.1%	0.0%	29.1%	29.1%	0.0%	70.9%	70.9%	0.0%	70.9%	70.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
9: Kenninghall Blvd & Creditview Road

2021 -AM Peak Hour- No Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor	1.00				1.00		1.00	1.00		1.00	1.00	
Fr _t	0.89				0.94		1.00	1.00		1.00	1.00	
Flt Protected	0.99				0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671				1346		1626	1856		1031	1861	
Flt Permitted	0.93				0.53		0.12	1.00		0.10	1.00	
Satd. Flow (perm)	1566				722		212	1856		106	1861	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	30	2	172	31	21	39	36	1240	6	13	1181	11
RTOR Reduction (vph)	0	88	0	0	28	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	116	0	0	63	0	36	1246	0	13	1192	0
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Turn Type	Perm				Perm			Perm			Perm	
Protected Phases		4				8			2			6
Permitted Phases	4				8			2			6	
Actuated Green, G (s)	13.0				13.0		85.0	85.0		85.0	85.0	
Effective Green, g (s)	13.0				13.0		85.0	85.0		85.0	85.0	
Actuated g/C Ratio	0.12				0.12		0.77	0.77		0.77	0.77	
Clearance Time (s)	6.0				6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	185				85		164	1434		82	1438	
v/s Ratio Prot								c0.67			0.64	
v/s Ratio Perm	0.07				c0.09		0.17			0.12		
v/c Ratio	0.63				0.74		0.22	0.87		0.16	0.83	
Uniform Delay, d1	46.2				46.9		3.4	8.6		3.2	7.9	
Progression Factor	1.00				1.00		0.66	0.42		0.95	0.85	
Incremental Delay, d2	6.6				32.6		2.0	5.2		3.5	5.0	
Delay (s)	52.8				79.4		4.2	8.9		6.6	11.7	
Level of Service	D				E		A	A		A	B	
Approach Delay (s)	52.8				79.4			8.7			11.7	
Approach LOS	D				E			A			B	
Intersection Summary												
HCM Average Control Delay	15.6				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.85											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			12.0				
Intersection Capacity Utilization	89.2%				ICU Level of Service			E				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

12: Sir Monty's Drive & Creditview Road

Creditview Road EA - Future 2021 Without 2nd Line W

2021 -AM Peak Hour- No Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	

Intersection Summary

Area Type: Other

Cycle Length: 110

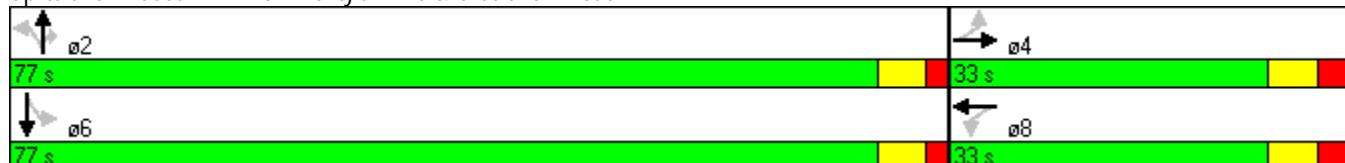
Actuated Cycle Length: 110

Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
12: Sir Monty's Drive & Creditview Road

2021 -AM Peak Hour- No Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	1674		1787	1539		1597	1863	1583	1308	3526	
Flt Permitted	0.69	1.00		0.61	1.00		0.16	1.00	1.00	0.06	1.00	
Satd. Flow (perm)	1161	1674		1142	1539		275	1863	1583	76	3526	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	34	79	62	92	17	86	25	1151	135	11	1390	11
RTOR Reduction (vph)	0	30	0	0	76	0	0	0	29	0	0	0
Lane Group Flow (vph)	34	111	0	92	27	0	25	1151	106	11	1401	0
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Effective Green, g (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.76	0.76	0.76	0.76	0.76	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	204		139	187		209	1416	1203	58	2680	
v/s Ratio Prot		0.07			0.02			c0.62			0.40	
v/s Ratio Perm	0.03		c0.08				0.09		0.07	0.15		
v/c Ratio	0.24	0.54		0.66	0.15		0.12	0.81	0.09	0.19	0.52	
Uniform Delay, d1	43.7	45.4		46.1	43.2		3.5	8.3	3.4	3.7	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.08	1.45	
Incremental Delay, d2	0.9	3.0		11.8	0.4		1.2	5.4	0.1	4.6	0.5	
Delay (s)	44.6	48.4		58.0	43.6		4.7	13.7	3.5	8.6	8.1	
Level of Service	D	D		E	D		A	B	A	A	A	
Approach Delay (s)		47.7			50.4			12.5			8.1	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		14.9			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		90.3%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings

17: Rivergate Place & Creditview Road

Creditview Road EA - Future 2021 Without 2nd Line W

2021 -AM Peak Hour- No Improvements



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	8	9	1227	1	2	1078
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	0.0	35.0		
Storage Lanes	1	0	0	1		
Taper Length (m)	7.5	7.5	7.5	7.5		
Link Speed (k/h)	50		50		50	
Link Distance (m)	80.5		241.9		148.1	
Travel Time (s)	5.8		17.4		10.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	100%	100%	111%
Shared Lane Traffic (%)						
Sign Control	Stop		Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
17: Rivergate Place & Creditview Road

2021 -AM Peak Hour- No Improvements



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y		Y	Y
Volume (veh/h)	8	9	1227	1	2	1078
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	9	1313	1	2	1197
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			242			
pX, platoon unblocked	0.26	0.26			0.26	
vC, conflicting volume	2514	1313			1314	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5381	786			788	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	91			99	
cM capacity (veh/h)	0	102			217	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	17	1314	2	1197		
Volume Left	8	0	2	0		
Volume Right	9	1	0	0		
cSH	0	1700	217	1700		
Volume to Capacity	84.10	0.77	0.01	0.70		
Queue Length 95th (m)	Err	0.0	0.2	0.0		
Control Delay (s)	Err	0.0	21.7	0.0		
Lane LOS	F		C			
Approach Delay (s)	Err	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		67.2				
Intersection Capacity Utilization		79.2%		ICU Level of Service	D	
Analysis Period (min)		60				



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	1266	1	2	1194	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		0.0	0.0	
Storage Lanes	0	1		1	0	
Taper Length (m)	7.5	7.5		7.5	7.5	
Link Speed (k/h)	50		50	50		
Link Distance (m)	203.8		346.2	165.8		
Travel Time (s)	14.7		24.9	11.9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	111%	100%	100%	107%	100%	100%
Shared Lane Traffic (%)						
Sign Control	Free		Free	Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

HCM Unsignalized Intersection Capacity Analysis Road EA - Future 2021 Without 2nd Line W
21: Creditview Road & Velebit Court

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑		↑	↑	↑	
Volume (veh/h)	1266	1	2	1194	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1405	1	2	1278	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	204					
pX, platoon unblocked			0.26	0.26	0.26	
vC, conflicting volume			1406	2687	1406	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1138	6082	1136	
tC, single (s)			4.1	*5.3	*5.3	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			99	0	93	
cM capacity (veh/h)			159	0	85	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1406	2	1278	11		
Volume Left	0	2	0	5		
Volume Right	1	0	0	6		
cSH	1700	159	1700	0		
Volume to Capacity	0.83	0.01	0.75	24.87		
Queue Length 95th (m)	0.0	0.3	0.0	Err		
Control Delay (s)	0.0	27.9	0.0	Err		
Lane LOS		D		F		
Approach Delay (s)	0.0	0.0		Err		
Approach LOS				F		
Intersection Summary						
Average Delay			40.8			
Intersection Capacity Utilization		84.0%		ICU Level of Service		E
Analysis Period (min)		60				

* User Entered Value

Lanes, Volumes, Timings

3: Office Entrance & Creditview Road

Creditview Road EA -Future 2021 without 2nd Line W

2021 PM Peak Hour- No improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	0.0			35.0			0.0	150.0		0.0	140.0	
Storage Lanes	0			1			1	1		0	1	
Taper Length (m)	7.5			7.5			7.5	7.5		7.5	7.5	
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	4	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	30.0	30.0		13.0	30.0	30.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	60.0	60.0	0.0	13.0	73.0	73.0
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	54.5%	54.5%	0.0%	11.8%	66.4%	66.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag			Lead		
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	54 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
Creditview Road EA -Future 2021 without 2nd Line W
3: Office Entrance & Creditview Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Fr _t	1.00	0.85		1.00	0.85	1.00	0.96			1.00	1.00	0.85
Flt Protected	0.96	1.00		0.95	1.00	0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1750	1615		1792	1553	1805	3414			1671	1881	1495
Flt Permitted	0.74	1.00		0.71	1.00	0.25	1.00			0.24	1.00	1.00
Satd. Flow (perm)	1343	1615		1339	1553	483	3414			428	1881	1495
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	16	5	18	215	1	215	3	664	259	162	871	6
RTOR Reduction (vph)	0	0	14	0	0	171	0	32	0	0	0	2
Lane Group Flow (vph)	0	21	4	0	216	44	3	891	0	162	871	4
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Turn Type	Perm		Perm	Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6			2		2
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.7	61.7		73.4	73.4	73.4	
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.7	61.7		73.4	73.4	73.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56		0.67	0.67	0.67	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0		3.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	276	332		275	319	271	1915		384	1255	998	
v/s Ratio Prot							0.26			0.03	c0.46	
v/s Ratio Perm	0.02	0.00		c0.16	0.03	0.01				0.25		0.00
v/c Ratio	0.08	0.01		0.79	0.14	0.01	0.47			0.42	0.69	0.00
Uniform Delay, d1	35.3	34.8		41.4	35.7	10.7	14.4			8.0	11.3	6.1
Progression Factor	1.00	1.00		1.00	1.00	1.52	1.72			1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		15.0	0.2	0.1	0.6			0.8	3.2	0.0
Delay (s)	35.4	34.8		56.4	35.9	16.3	25.3			8.7	14.6	6.1
Level of Service	D	C		E	D	B	C			A	B	A
Approach Delay (s)	35.1			46.2			25.3				13.6	
Approach LOS	D			D			C				B	
Intersection Summary												
HCM Average Control Delay	24.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)			14.0					
Intersection Capacity Utilization	85.3%			ICU Level of Service			E					
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Creditview Road EA -Future 2021 without 2nd Line W

2021 PM Peak Hour- No improvements



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↘	↑ ↘	↑ ↗	↑ ↗	↑ ↙	↑ ↙
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	70.0			70.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5	7.5	7.5			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			382.8	591.9	
Travel Time (s)	12.4			27.6	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.0	11.0	11.0	31.0	31.0	31.0
Total Split (s)	31.0	24.0	24.0	79.0	55.0	55.0
Total Split (%)	28.2%	21.8%	21.8%	71.8%	50.0%	50.0%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
 Argentia Road & Creditview Road EA -Future 2021 without 2nd Line W
 5: Argentia Road & Creditview Road

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1752	1881	1863	1615
Flt Permitted	0.95	1.00	0.20	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	369	1881	1863	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	107%	107%	111%	111%
Adj. Flow (vph)	409	526	414	489	859	271
RTOR Reduction (vph)	0	49	0	0	0	96
Lane Group Flow (vph)	409	477	414	489	859	175
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	24.0	42.0	72.0	72.0	51.0	51.0
Effective Green, g (s)	24.0	42.0	72.0	72.0	51.0	51.0
Actuated g/C Ratio	0.22	0.38	0.65	0.65	0.46	0.46
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	390	611	468	1231	864	749
v/s Ratio Prot	c0.23	0.13	c0.14	0.26	c0.46	
v/s Ratio Perm		0.17	0.43			0.11
v/c Ratio	1.05	0.78	0.88	0.40	0.99	0.23
Uniform Delay, d1	43.0	29.9	12.7	8.9	29.4	17.7
Progression Factor	1.00	1.00	1.26	0.93	0.88	0.56
Incremental Delay, d2	147.0	6.7	16.9	0.7	48.2	0.6
Delay (s)	190.0	36.7	32.9	9.0	74.0	10.4
Level of Service	F	D	C	A	E	B
Approach Delay (s)	103.7			20.0	58.7	
Approach LOS	F			B	E	
Intersection Summary						
HCM Average Control Delay			61.1	HCM Level of Service		E
HCM Volume to Capacity ratio			0.99			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		17.0
Intersection Capacity Utilization			105.8%	ICU Level of Service		G
Analysis Period (min)			60			
c Critical Lane Group						

Lanes, Volumes, Timings

7: Falconer Drive & Creditview Road

Creditview Road EA -Future 2021 without 2nd Line W

2021 PM Peak Hour- No improvements



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↓	↗
Volume (vph)	13	55	112	831	1269	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.4	382.8	
Travel Time (s)	14.6			10.7	27.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	0%	0%	1%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Road EA -Future 2021 without 2nd Line W
7: Falconer Drive & Creditview Road

2021 PM Peak Hour- No improvements



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↔	
Volume (veh/h)	13	55	112	831	1269	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	55	120	889	1409	34
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.68	0.55	0.55			
vC, conflicting volume	2555	1426	1443			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2203	1366	1397			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	31	45	56			
cM capacity (veh/h)	19	101	273			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	13	55	120	889	1443	
Volume Left	13	0	120	0	0	
Volume Right	0	55	0	0	34	
cSH	19	101	273	1700	1700	
Volume to Capacity	0.69	0.55	0.44	0.52	0.85	
Queue Length 95th (m)	25.3	25.4	18.3	0.0	0.0	
Control Delay (s)	472.0	81.7	28.5	0.0	0.0	
Lane LOS	F	F	D			
Approach Delay (s)	156.3		3.4		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization		105.4%		ICU Level of Service	G	
Analysis Period (min)		60				

Lanes, Volumes, Timings

9: Kenninghall Blvd & Creditview Road

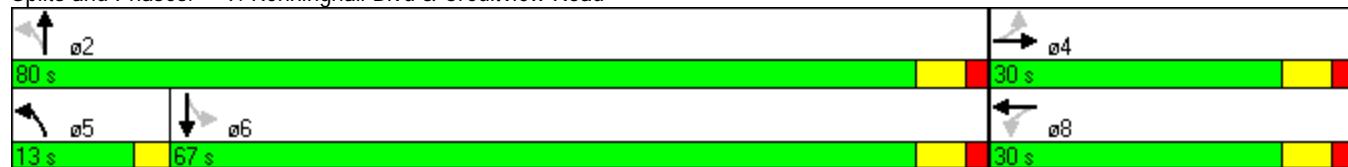
Creditview Road EA -Future 2021 without 2nd Line W

2021 PM Peak Hour- No improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	0.0			0.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	0			0		0	0	1		0	1	0
Taper Length (m)	7.5			7.5		7.5	7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			203.7			241.6	
Travel Time (s)		16.8			23.2			14.7			17.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			pm+pt			Perm		
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)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		11.0	27.0		27.0	27.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	13.0	80.0	0.0	67.0	67.0	0.0
Total Split (%)	27.3%	27.3%	0.0%	27.3%	27.3%	0.0%	11.8%	72.7%	0.0%	60.9%	60.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	150											
Control Type:	Actuated-Coordinated											

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
Creditview Road EA -Future 2021 without 2nd Line W
9: Kenninghall Blvd & Creditview Road

2021 PM Peak Hour- No improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)							3.0	6.0		6.0	6.0	
Lane Util. Factor	1.00				1.00		1.00	1.00		1.00	1.00	
Fr _t	0.89				0.95		1.00	1.00		1.00	1.00	
Flt Protected	0.99				0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1665				1728		1787	1856		1031	1860	
Flt Permitted	0.95				0.53		0.05	1.00		0.27	1.00	
Satd. Flow (perm)	1587				929		95	1856		296	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	19	7	118	14	8	12	238	981	26	16	1432	18
RTOR Reduction (vph)	0	109	0	0	11	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	35	0	0	23	0	238	1006	0	16	1450	0
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4				8			5	2		6
Permitted Phases	4				8				2		6	
Actuated Green, G (s)	8.4				8.4		89.6	89.6		76.6	76.6	
Effective Green, g (s)	8.4				8.4		89.6	89.6		76.6	76.6	
Actuated g/C Ratio	0.08				0.08		0.81	0.81		0.70	0.70	
Clearance Time (s)	6.0				6.0		3.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	121				71		231	1512		206	1295	
v/s Ratio Prot							c0.09	0.54			c0.78	
v/s Ratio Perm	0.02				c0.02		0.75			0.05		
v/c Ratio	0.29				0.32		1.03	0.67		0.08	1.12	
Uniform Delay, d1	48.0				48.1		41.9	4.1		5.4	16.7	
Progression Factor	1.00				1.00		0.85	1.23		0.97	0.72	
Incremental Delay, d2	1.3				2.7		132.9	1.7		0.4	222.3	
Delay (s)	49.3				50.8		168.3	6.8		5.6	234.4	
Level of Service	D				D		F	A		A	F	
Approach Delay (s)	49.3				50.8			37.6			231.9	
Approach LOS	D				D			D			F	
Intersection Summary												
HCM Average Control Delay	137.0				HCM Level of Service				F			
HCM Volume to Capacity ratio	1.04											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)				15.0			
Intersection Capacity Utilization	112.0%				ICU Level of Service				H			
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

12: Sir Monty's Drive & Creditview Road

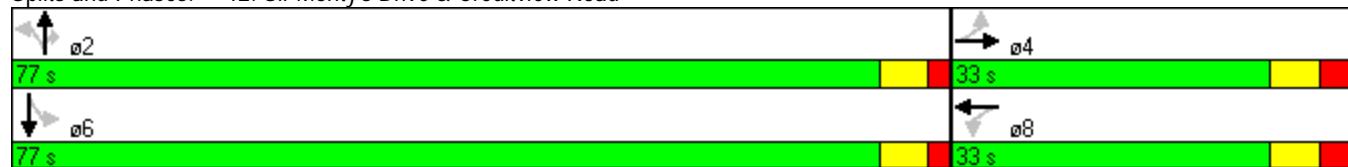
Creditview Road EA -Future 2021 without 2nd Line W

2021 PM Peak Hour- No improvements



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	25.0			25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1			0	1		0	1		1	1	0
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
Creditview Road EA -Future 2021 without 2nd Line W
12: Sir Monty's Drive & Creditview Road

2021 PM Peak Hour- No improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1733		1787	1635		1770	1863	1599	1787	3563	
Flt Permitted	0.29	1.00		0.74	1.00		0.15	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	546	1733		1389	1635		272	1863	1599	345	3563	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	20	16	13	110	58	179	76	1034	112	100	1443	34
RTOR Reduction (vph)	0	11	0	0	115	0	0	0	27	0	1	0
Lane Group Flow (vph)	20	18	0	110	122	0	76	1034	85	100	1476	0
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		82.8	82.8	82.8	82.8	82.8	
Effective Green, g (s)	14.2	14.2		14.2	14.2		82.8	82.8	82.8	82.8	82.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.75	0.75	0.75	0.75	0.75	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	70	224		179	211		205	1402	1204	260	2682	
v/s Ratio Prot		0.01			0.07			c0.56			0.41	
v/s Ratio Perm	0.04		c0.08				0.28		0.05	0.29		
v/c Ratio	0.29	0.08		0.61	0.58		0.37	0.74	0.07	0.38	0.55	
Uniform Delay, d1	43.3	42.1		45.3	45.1		4.7	7.6	3.6	4.7	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.69	1.74	
Incremental Delay, d2	2.3	0.2		6.3	3.9		5.1	3.6	0.1	0.4	0.1	
Delay (s)	45.6	42.3		51.6	48.9		9.8	11.1	3.7	8.4	10.1	
Level of Service	D	D		D	D		A	B	A	A	B	
Approach Delay (s)		43.6			49.8			10.4			10.0	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		15.0			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		92.4%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings

17: Rivergate Place & Creditview Road

Creditview Road EA -Future 2021 without 2nd Line W

2021 PM Peak Hour- No improvements



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	4	3	940	8	8	1316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	0.0		0.0	35.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5	7.5		7.5	7.5	
Link Speed (k/h)	50		50			50
Link Distance (m)	111.3		241.6		148.4	
Travel Time (s)	8.0		17.4		10.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	100%	100%	111%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%		0%	
Shared Lane Traffic (%)						
Sign Control	Stop		Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Road EA -Future 2021 without 2nd Line W
17: Rivergate Place & Creditview Road

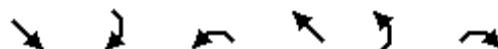
2021 PM Peak Hour- No improvements



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Volume (veh/h)	4	3	940	8	8	1316
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	3	1006	8	8	1461
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.60	0.60		0.60		
vC, conflicting volume	2487	1010		1014		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3133	689		695		
tC, single (s)	6.4	6.2		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	45	99		99		
cM capacity (veh/h)	7	269		544		
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	7	1014	8	1461		
Volume Left	4	0	8	0		
Volume Right	3	8	0	0		
cSH	13	1700	544	1700		
Volume to Capacity	0.56	0.60	0.01	0.86		
Queue Length 95th (m)	17.1	0.0	0.4	0.0		
Control Delay (s)	561.0	0.0	11.7	0.0		
Lane LOS	F		B			
Approach Delay (s)	561.0	0.0	0.1			
Approach LOS	F					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization		86.9%		ICU Level of Service		E
Analysis Period (min)		60				

Lanes, Volumes, Timings
21: Creditview Road & Velebit Court

Creditview Road EA -Future 2021 without 2nd Line W
2021 PM Peak Hour- No improvements



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	1	2	3	4	5	6
Volume (vph)	1419	3	3	1162	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	203.7			346.3	156.9	
Travel Time (s)	14.7			24.9	11.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	111%	100%	100%	107%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Road EA -Future 2021 without 2nd Line W
21: Creditview Road & Velebit Court

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑		↑	↑	↑	
Volume (veh/h)	1419	3	3	1162	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1575	3	3	1243	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	204					
pX, platoon unblocked			0.31	0.31	0.31	
vC, conflicting volume			1578	2826	1577	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1751	5756	1746	
tC, single (s)			4.1	*5.3	*5.3	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			97	0	96	
cM capacity (veh/h)			111	0	52	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1578	3	1243	3		
Volume Left	0	3	0	1		
Volume Right	3	0	0	2		
cSH	1700	111	1700	1		
Volume to Capacity	0.93	0.03	0.73	2.77		
Queue Length 95th (m)	0.0	0.7	0.0	21.2		
Control Delay (s)	0.0	38.2	0.0	9311.8		
Lane LOS		E		F		
Approach Delay (s)	0.0	0.1		9311.8		
Approach LOS				F		
Intersection Summary						
Average Delay			9.9			
Intersection Capacity Utilization		93.1%		ICU Level of Service		F
Analysis Period (min)			60			

* User Entered Value

Lanes, Volumes, Timings

3: Office Entrance & Creditview Road

Creditview Road EA - 2031 Do-nothing

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	35.0		0.0	150.0		0.0	140.0		0.0
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	4	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	30.0	30.0		13.0	30.0	30.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	61.0	61.0	0.0	14.0	75.0	75.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	31.8%	31.8%	55.5%	55.5%	0.0%	12.7%	68.2%	68.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag			Lead		
Lead-Lag Optimize?						Yes	Yes			Yes		
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

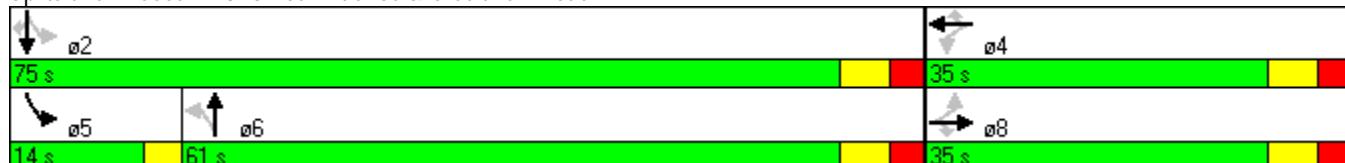
Actuated Cycle Length: 110

Offset: 79 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Fr _t	1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615		1775	1524	1805	3362		1736	1827	1509	
Flt Permitted	0.47	1.00		0.73	1.00	0.27	1.00		0.17	1.00	1.00	
Satd. Flow (perm)	885	1615		1354	1524	522	3362		315	1827	1509	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	3	0	4	224	2	129	14	944	191	162	841	9
RTOR Reduction (vph)	0	0	3	0	0	102	0	13	0	0	0	3
Lane Group Flow (vph)	0	3	1	0	226	27	14	1122	0	162	841	6
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Turn Type	Perm		Perm	Perm		Perm	Perm		pm+pt		Perm	
Protected Phases		8			4			6		5	2	
Permitted Phases	8		8	4		4	6			2	2	
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.5	61.5		73.4	73.4	73.4	
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.5	61.5		73.4	73.4	73.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56		0.67	0.67	0.67	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0		3.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	182	332		278	313	292	1880		325	1219	1007	
v/s Ratio Prot							0.33		0.04	c0.46		
v/s Ratio Perm	0.00	0.00		c0.17	0.02	0.03			0.29		0.00	
v/c Ratio	0.02	0.00		0.81	0.08	0.05	0.60		0.50	0.69	0.01	
Uniform Delay, d1	34.8	34.7		41.7	35.3	11.0	16.0		9.6	11.3	6.1	
Progression Factor	1.00	1.00		1.00	1.00	1.01	1.12		1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.0		18.6	0.1	0.2	1.1		1.2	3.3	0.0	
Delay (s)	34.9	34.7		60.2	35.5	11.4	19.1		10.8	14.5	6.1	
Level of Service	C	C		E	D	B	B		B	B	A	
Approach Delay (s)	34.8			51.2			19.0			13.9		
Approach LOS	C			D			B			B		
Intersection Summary												
HCM Average Control Delay	21.5			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.72											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				14.0				
Intersection Capacity Utilization	84.3%			ICU Level of Service				E				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Creditview Road EA - 2031 Do-nothing

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↘	↗ ↘	↑ ↗	↗ ↘	↗ ↘
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	70.0			70.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5	7.5	7.5			7.5
Right Turn on Red	Yes				Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			382.8	591.9	
Travel Time (s)	12.4			27.6	42.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Shared Lane Traffic (%)						
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0	5.0	4.0	4.0
Minimum Split (s)	26.0	12.0	12.0	31.0	31.0	31.0
Total Split (s)	29.0	25.0	25.0	81.0	56.0	56.0
Total Split (%)	26.4%	22.7%	22.7%	73.6%	50.9%	50.9%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1719	1568	1770	1845	1810	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	1719	1568	559	1845	1810	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	116%	116%	118%	118%
Adj. Flow (vph)	225	441	550	854	662	448
RTOR Reduction (vph)	0	101	0	0	0	195
Lane Group Flow (vph)	225	340	550	854	662	254
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.6	38.0	77.4	77.4	55.0	55.0
Effective Green, g (s)	18.6	38.0	77.4	77.4	55.0	55.0
Actuated g/C Ratio	0.17	0.35	0.70	0.70	0.50	0.50
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	542	607	1298	905	792
v/s Ratio Prot	c0.13	0.11	c0.16	0.46	0.37	
v/s Ratio Perm		0.11	c0.48			0.16
v/c Ratio	0.77	0.63	0.91	0.66	0.73	0.32
Uniform Delay, d1	43.7	30.1	7.0	9.0	21.7	16.4
Progression Factor	1.00	1.00	1.66	0.44	0.78	0.73
Incremental Delay, d2	13.0	2.3	9.3	1.1	4.0	0.8
Delay (s)	56.7	32.4	21.0	5.0	21.0	12.8
Level of Service	E	C	C	A	C	B
Approach Delay (s)	40.6			11.3	17.7	
Approach LOS	D			B	B	
Intersection Summary						
HCM Average Control Delay		19.7		HCM Level of Service		B
HCM Volume to Capacity ratio		0.84				
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		10.0
Intersection Capacity Utilization		92.8%		ICU Level of Service		F
Analysis Period (min)		60				
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↘	↗ ↙	↑ ↗	↓ ↘	
Volume (vph)	15	90	41	1195	990	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0	0.0	70.0		0.0	
Storage Lanes	1	1	1		0	
Taper Length (m)	7.5	7.5	7.5		7.5	
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			149.4	382.8	
Travel Time (s)	14.6			10.8	27.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	7%	3%	2%	2%	3%	25%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

HCM Unsignalized Intersection Capacity Analysis
7: Falconer Drive & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	90	41	1195	990	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	90	48	1386	1168	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.44	0.68	0.68			
vC, conflicting volume	2657	1175	1182			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2486	1022	1033			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	0	54	90			
cM capacity (veh/h)	12	194	457			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	90	48	1386	1182	
Volume Left	15	0	48	0	0	
Volume Right	0	90	0	0	14	
cSH	12	194	457	1700	1700	
Volume to Capacity	1.22	0.46	0.10	0.82	0.70	
Queue Length 95th (m)	43.7	19.9	2.8	0.0	0.0	
Control Delay (s)	1315.6	39.4	13.8	0.0	0.0	
Lane LOS	F	E	B			
Approach Delay (s)	221.7		0.5		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			8.8			
Intersection Capacity Utilization		83.0%		ICU Level of Service		E
Analysis Period (min)		60				

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)	50		50		50		50		50		50	
Link Distance (m)	233.2		322.1		204.1		240.6					
Travel Time (s)	16.8		23.2		14.7		17.3					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Shared Lane Traffic (%)												
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4		8		2			6				
Detector Phase	4	4	8	8	2	2	2	6	6	6		
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	5.0	5.0	4.0	4.0				
Minimum Split (s)	32.0	32.0	32.0	32.0	27.0	27.0	27.0	27.0				
Total Split (s)	32.0	32.0	0.0	32.0	78.0	78.0	0.0	78.0				
Total Split (%)	29.1%	29.1%	0.0%	29.1%	70.9%	70.9%	0.0%	70.9%				
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max				

Intersection Summary

Area Type: Other

Cycle Length: 110

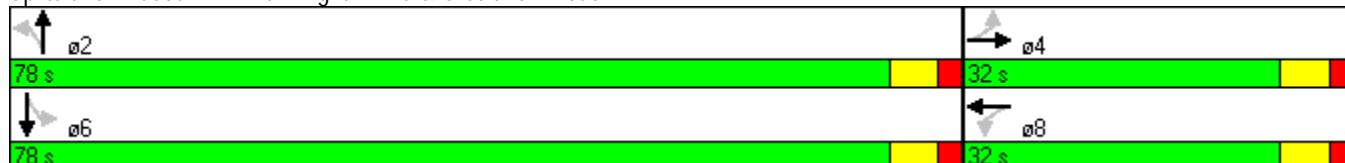
Actuated Cycle Length: 110

Offset: 42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0				6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00				1.00		1.00	1.00		1.00	1.00	
Fr _t	0.89				0.94		1.00	1.00		1.00	1.00	
Flt Protected	0.99				0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671				1346		1626	1856		1031	1860	
Flt Permitted	0.93				0.56		0.08	1.00		0.05	1.00	
Satd. Flow (perm)	1572				766		133	1856		52	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	30	2	172	31	21	39	39	1344	7	14	1256	12
RTOR Reduction (vph)	0	74	0	0	28	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	130	0	0	63	0	39	1351	0	14	1268	0
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.0			14.0			84.0	84.0		84.0	84.0	
Effective Green, g (s)	14.0			14.0			84.0	84.0		84.0	84.0	
Actuated g/C Ratio	0.13			0.13			0.76	0.76		0.76	0.76	
Clearance Time (s)	6.0			6.0			6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200			97			102	1417		40	1420	
v/s Ratio Prot								c0.73			0.68	
v/s Ratio Perm	c0.08			0.08			0.29			0.27		
v/c Ratio	0.65			0.65			0.38	0.95		0.35	0.89	
Uniform Delay, d1	45.7			45.7			4.3	11.3		4.2	9.7	
Progression Factor	1.00			1.00			0.51	0.43		0.87	0.85	
Incremental Delay, d2	7.3			15.5			6.1	12.7		19.8	8.4	
Delay (s)	53.0			61.2			8.3	17.5		23.4	16.6	
Level of Service	D			E			A	B		C	B	
Approach Delay (s)	53.0			61.2				17.2			16.6	
Approach LOS	D			E				B			B	
Intersection Summary												
HCM Average Control Delay	20.8			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.91											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				12.0				
Intersection Capacity Utilization	94.7%			ICU Level of Service				F				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	

Intersection Summary

Area Type: Other

Cycle Length: 110

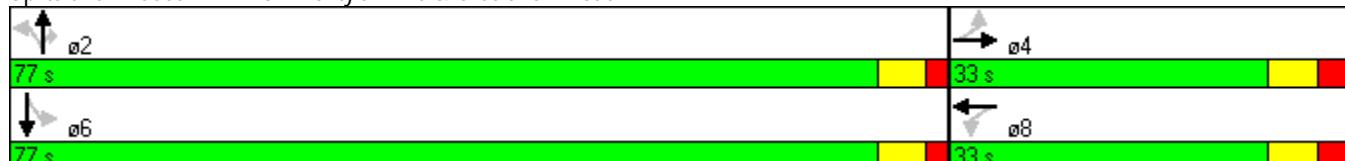
Actuated Cycle Length: 110

Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	1674		1787	1539		1597	1863	1583	1308	3525	
Flt Permitted	0.69	1.00		0.61	1.00		0.15	1.00	1.00	0.06	1.00	
Satd. Flow (perm)	1161	1674		1142	1539		244	1863	1583	76	3525	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	34	79	62	92	17	86	27	1248	146	12	1477	12
RTOR Reduction (vph)	0	30	0	0	73	0	0	0	29	0	0	0
Lane Group Flow (vph)	34	111	0	92	30	0	27	1248	117	12	1489	0
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Effective Green, g (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.76	0.76	0.76	0.76	0.76	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	204		139	187		185	1416	1203	58	2679	
v/s Ratio Prot		0.07			0.02			c0.67			0.42	
v/s Ratio Perm	0.03		c0.08				0.11		0.07	0.16		
v/c Ratio	0.24	0.54		0.66	0.16		0.15	0.88	0.10	0.21	0.56	
Uniform Delay, d1	43.7	45.4		46.1	43.3		3.6	9.6	3.4	3.8	5.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.02	1.35	
Incremental Delay, d2	0.9	3.0		11.8	0.4		1.7	9.1	0.2	4.5	0.5	
Delay (s)	44.6	48.4		58.0	43.7		5.2	18.7	3.6	8.4	7.9	
Level of Service	D	D		E	D		A	B	A	A	A	
Approach Delay (s)		47.7			50.4			16.9			7.9	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		16.4			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		95.4%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
19: Creditview Road & Velebit Court

Creditview Road EA - 2031 Do-nothing
AM Peak Hour



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗	↗	↖ ↗	↑ ↗	↖ ↗	↖ ↗
Volume (vph)	1266	1	2	1194	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	204.1			345.9	176.0	
Travel Time (s)	14.7			24.9	12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	118%	100%	100%	116%	100%	100%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

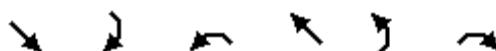
Intersection Summary

Area Type: Other

Control Type: Unsignalized

HCM Unsignalized Intersection Capacity Analysis
19: Creditview Road & Velebit Court

Creditview Road EA - 2031 Do-nothing
AM Peak Hour



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗		↑ ↗	↑ ↗	↗ ↘	
Volume (veh/h)	1266	1	2	1194	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1494	1	2	1385	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	204					
pX, platoon unblocked			0.26	0.26	0.26	
vC, conflicting volume			1495	2883	1494	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1481	6722	1479	
tC, single (s)			4.1	*5.3	*5.3	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			98	0	90	
cM capacity (veh/h)			120	0	60	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1495	2	1385	11		
Volume Left	0	2	0	5		
Volume Right	1	0	0	6		
cSH	1700	120	1700	0		
Volume to Capacity	0.88	0.02	0.81	56.72		
Queue Length 95th (m)	0.0	0.4	0.0	Err		
Control Delay (s)	0.0	35.4	0.0	Err		
Lane LOS		E		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
Intersection Summary						
Average Delay	38.0					
Intersection Capacity Utilization	88.7%	ICU Level of Service	E			
Analysis Period (min)	60					

* User Entered Value

Lanes, Volumes, Timings
20: Creditview Road & Rivergate Place

Creditview Road EA - 2031 Do-nothing
AM Peak Hour



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	2	1078	1227	1	8	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5			7.5	7.5	7.5
Link Speed (k/h)		50	50		50	
Link Distance (m)		149.4	240.6		104.2	
Travel Time (s)		10.8	17.3		7.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	118%	116%	100%	100%	100%
Shared Lane Traffic (%)						
Sign Control	Free	Free		Stop		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
20: Creditview Road & Rivergate Place

Creditview Road EA - 2031 Do-nothing
AM Peak Hour

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	2	1078	1227	1	8	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	1272	1423	1	8	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.26			0.26	0.26	
vC, conflicting volume	1424			2700	1424	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1212			6061	1210	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			0	85	
cM capacity (veh/h)	151			0	59	
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	2	1272	1424	17		
Volume Left	2	0	0	8		
Volume Right	0	0	1	9		
cSH	151	1700	1700	0		
Volume to Capacity	0.01	0.75	0.84	251.15		
Queue Length 95th (m)	0.3	0.0	0.0	Err		
Control Delay (s)	29.1	0.0	0.0	Err		
Lane LOS	D			F		
Approach Delay (s)	0.0		0.0	Err		
Approach LOS				F		
Intersection Summary						
Average Delay			62.6			
Intersection Capacity Utilization		85.0%		ICU Level of Service		E
Analysis Period (min)			60			

Lanes, Volumes, Timings
3: Office Entrance & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	0.0		0.0	35.0		0.0	150.0		0.0	140.0		0.0
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	73.7			210.5			185.7			208.2		
Travel Time (s)	5.3			15.2			13.4			15.0		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%			0%			0%			0%		
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm		pm+pt		Perm	
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	4	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	30.0	30.0		13.0	30.0	30.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	60.0	60.0	0.0	13.0	73.0	73.0
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	54.5%	54.5%	0.0%	11.8%	66.4%	66.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		0.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	3.0	7.0	7.0
Lead/Lag						Lag	Lag		Lead			
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	54 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Fr _t	1.00	0.85		1.00	0.85	1.00	0.96			1.00	1.00	0.85
Flt Protected	0.96	1.00		0.95	1.00	0.95	1.00			0.95	1.00	1.00
Satd. Flow (prot)	1750	1615		1792	1553	1805	3414			1671	1881	1495
Flt Permitted	0.74	1.00		0.71	1.00	0.22	1.00			0.21	1.00	1.00
Satd. Flow (perm)	1343	1615		1339	1553	415	3414			378	1881	1495
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	16	5	18	215	1	215	3	720	281	172	926	6
RTOR Reduction (vph)	0	0	14	0	0	171	0	32	0	0	0	2
Lane Group Flow (vph)	0	21	4	0	216	44	3	969	0	172	926	4
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Turn Type	Perm		Perm	Perm		Perm	Perm			pm+pt		Perm
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6			2		2
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.5	61.5		73.4	73.4	73.4	
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.5	61.5		73.4	73.4	73.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56		0.67	0.67	0.67	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0		3.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	276	332		275	319	232	1909		357	1255	998	
v/s Ratio Prot							0.28		0.04	c0.49		
v/s Ratio Perm	0.02	0.00		c0.16	0.03	0.01			0.28		0.00	
v/c Ratio	0.08	0.01		0.79	0.14	0.01	0.51		0.48	0.74	0.00	
Uniform Delay, d1	35.3	34.8		41.4	35.7	10.8	14.9		8.6	12.0	6.1	
Progression Factor	1.00	1.00		1.00	1.00	1.41	1.63		1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.0		15.0	0.2	0.1	0.7		1.0	4.0	0.0	
Delay (s)	35.4	34.8		56.4	35.9	15.3	25.1		9.6	16.0	6.1	
Level of Service	D	C		E	D	B	C		A	B	A	
Approach Delay (s)	35.1			46.2			25.1			14.9		
Approach LOS	D			D			C			B		
Intersection Summary												
HCM Average Control Delay		24.4			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.75										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			14.0				
Intersection Capacity Utilization		88.2%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
5: Argentia Road & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↙	↑ ↙	↗ ↘	↑	↑ ↗	↗ ↘
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	70.0			70.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5	7.5	7.5			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			382.8	591.9	
Travel Time (s)	12.4			27.6	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.0	11.0	11.0	31.0	31.0	31.0
Total Split (s)	31.0	24.0	24.0	79.0	55.0	55.0
Total Split (%)	28.2%	21.8%	21.8%	71.8%	50.0%	50.0%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1752	1881	1863	1615
Flt Permitted	0.95	1.00	0.08	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	145	1881	1863	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	116%	116%	118%	118%
Adj. Flow (vph)	409	526	449	530	913	288
RTOR Reduction (vph)	0	40	0	0	0	101
Lane Group Flow (vph)	409	486	449	530	913	187
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Turn Type	pm+ov	pm+pt			Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4	2		6
Actuated Green, G (s)	24.0	45.0	72.0	72.0	48.0	48.0
Effective Green, g (s)	24.0	45.0	72.0	72.0	48.0	48.0
Actuated g/C Ratio	0.22	0.41	0.65	0.65	0.44	0.44
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	390	654	402	1231	813	705
v/s Ratio Prot	c0.23	0.14	c0.21	0.28	0.49	
v/s Ratio Perm		0.16	c0.52			0.12
v/c Ratio	1.05	0.74	1.12	0.43	1.12	0.27
Uniform Delay, d1	43.0	27.6	36.1	9.1	31.0	19.8
Progression Factor	1.00	1.00	1.09	0.90	0.88	0.59
Incremental Delay, d2	147.0	4.7	237.3	0.8	235.3	0.7
Delay (s)	190.0	32.3	276.5	9.0	262.6	12.3
Level of Service	F	C	F	A	F	B
Approach Delay (s)	101.3			131.7	202.6	
Approach LOS	F			F	F	
Intersection Summary						
HCM Average Control Delay			149.9	HCM Level of Service		F
HCM Volume to Capacity ratio			1.05			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		10.0
Intersection Capacity Utilization			110.6%	ICU Level of Service		H
Analysis Period (min)			60			
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	13	55	112	831	1269	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.8	382.8	
Travel Time (s)	14.6			10.7	27.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	0%	0%	1%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
7: Falconer Drive & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	55	112	831	1269	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	55	130	964	1497	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.76	0.58	0.58			
vC, conflicting volume	2740	1516	1534			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2040	1527	1559			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	43	35	47			
cM capacity (veh/h)	23	84	247			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	13	55	130	964	1534	
Volume Left	13	0	130	0	0	
Volume Right	0	55	0	0	37	
cSH	23	84	247	1700	1700	
Volume to Capacity	0.57	0.65	0.53	0.57	0.90	
Queue Length 95th (m)	20.9	34.6	25.3	0.0	0.0	
Control Delay (s)	336.4	119.0	35.5	0.0	0.0	
Lane LOS	F	F	E			
Approach Delay (s)	160.6		4.2		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization		111.4%		ICU Level of Service		H
Analysis Period (min)		60				

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

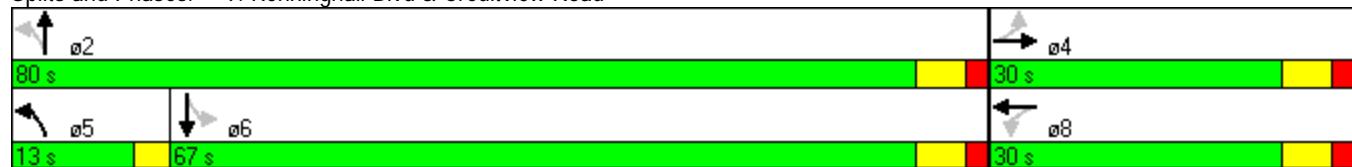
Creditview Road EA -2031 Do-nothing
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	0.0			0.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	0			0		0	0	1		0	1	0
Taper Length (m)	7.5			7.5		7.5	7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			208.4			241.2	
Travel Time (s)		16.8			23.2			15.0			17.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm			pm+pt			Perm			
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)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		11.0	27.0		27.0	27.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	13.0	80.0	0.0	67.0	67.0	0.0
Total Split (%)	27.3%	27.3%	0.0%	27.3%	27.3%	0.0%	11.8%	72.7%	0.0%	60.9%	60.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag						Lead			Lag		Lag	
Lead-Lag Optimize?						Yes			Yes		Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	150											
Control Type:	Actuated-Coordinated											

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

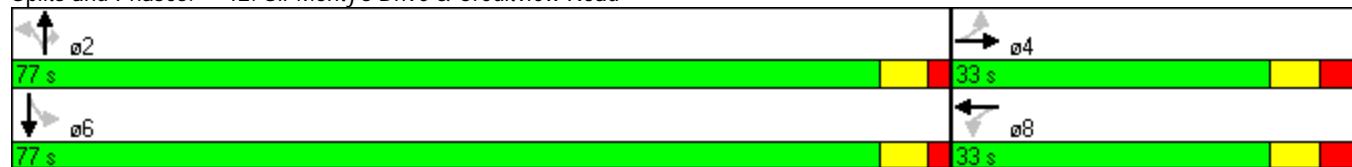
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)							3.0	6.0		6.0	6.0	
Lane Util. Factor	1.00				1.00		1.00	1.00		1.00	1.00	
Fr _t	0.89				0.95		1.00	1.00		1.00	1.00	
Flt Protected	0.99				0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1665				1728		1787	1857		1031	1860	
Flt Permitted	0.95				0.53		0.05	1.00		0.23	1.00	
Satd. Flow (perm)	1587				929		95	1857		251	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	19	7	118	14	8	12	258	1064	28	17	1522	19
RTOR Reduction (vph)	0	109	0	0	11	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	35	0	0	23	0	258	1091	0	17	1541	0
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4				8			5	2		6
Permitted Phases	4				8				2		6	
Actuated Green, G (s)	8.4				8.4		89.6	89.6		76.6	76.6	
Effective Green, g (s)	8.4				8.4		89.6	89.6		76.6	76.6	
Actuated g/C Ratio	0.08				0.08		0.81	0.81		0.70	0.70	
Clearance Time (s)	6.0				6.0		3.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	121				71		231	1513		175	1295	
v/s Ratio Prot							c0.10	0.59			c0.83	
v/s Ratio Perm	0.02				c0.02		0.81			0.07		
v/c Ratio	0.29				0.32		1.12	0.72		0.10	1.19	
Uniform Delay, d1	48.0				48.1		41.9	4.6		5.4	16.7	
Progression Factor	1.00				1.00		0.82	1.28		0.97	0.81	
Incremental Delay, d2	1.3				2.7		251.4	2.0		0.5	345.7	
Delay (s)	49.3				50.8		285.7	7.9		5.8	359.2	
Level of Service	D				D		F	A		A	F	
Approach Delay (s)	49.3				50.8			61.0			355.4	
Approach LOS	D				D			E			F	
Intersection Summary												
HCM Average Control Delay	209.0				HCM Level of Service				F			
HCM Volume to Capacity ratio	1.11											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)				15.0			
Intersection Capacity Utilization	117.9%				ICU Level of Service				H			
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)				0%		0%			0%		0%	
Storage Length (m)	25.0			25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1			0	1		0	1		1	1	0
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	2	6	
Detector Phase	4	4		8	8		2	2	2	2	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	110											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1733		1787	1635		1770	1863	1599	1787	3562	
Flt Permitted	0.31	1.00		0.74	1.00		0.13	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	583	1733		1389	1635		236	1863	1599	259	3562	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	20	16	13	110	58	179	82	1121	122	106	1534	37
RTOR Reduction (vph)	0	11	0	0	94	0	0	0	28	0	1	0
Lane Group Flow (vph)	20	18	0	110	143	0	82	1121	94	106	1570	0
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	14.9	14.9		14.9	14.9		82.1	82.1	82.1	82.1	82.1	
Effective Green, g (s)	14.9	14.9		14.9	14.9		82.1	82.1	82.1	82.1	82.1	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.75	0.75	0.75	0.75	0.75	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	79	235		188	221		176	1390	1193	193	2659	
v/s Ratio Prot		0.01			c0.09			c0.60			0.44	
v/s Ratio Perm	0.03			0.08			0.35		0.06	0.41		
v/c Ratio	0.25	0.08		0.59	0.65		0.47	0.81	0.08	0.55	0.59	
Uniform Delay, d1	42.6	41.5		44.6	45.1		5.4	8.9	3.8	6.0	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.49	1.68	
Incremental Delay, d2	1.7	0.1		4.7	6.5		8.8	5.3	0.1	1.0	0.1	
Delay (s)	44.3	41.7		49.3	51.6		14.3	14.2	3.9	10.0	10.7	
Level of Service	D	D		D	D		B	B	A	A	B	
Approach Delay (s)		42.7			50.9			13.3			10.6	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM Average Control Delay		16.2			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		97.3%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
19: Creditview Road & Velebit Court

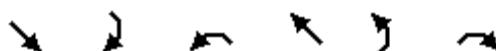
Creditview Road EA -2031 Do-nothing
PM Peak Hour



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑		↑	↑	↑	
Volume (vph)	1419	3	3	1162	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	208.4			341.6	105.0	
Travel Time (s)	15.0			24.6	7.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	118%	100%	100%	116%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
19: Creditview Road & Velebit Court

Creditview Road EA -2031 Do-nothing
PM Peak Hour



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗		↑ ↗	↑ ↗	↗ ↘	
Volume (veh/h)	1419	3	3	1162	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1674	3	3	1348	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	209					
pX, platoon unblocked			0.31	0.31	0.31	
vC, conflicting volume		1677		3030	1676	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		2069		6409	2064	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		96		0	91	
cM capacity (veh/h)		84		0	21	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1677	3	1348	3		
Volume Left	0	3	0	1		
Volume Right	3	0	0	2		
cSH	1700	84	1700	0		
Volume to Capacity	0.99	0.04	0.79	47.74		
Queue Length 95th (m)	0.0	0.9	0.0	Err		
Control Delay (s)	0.0	49.5	0.0	Err		
Lane LOS		E		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
Intersection Summary						
Average Delay		9.9				
Intersection Capacity Utilization	98.3%		ICU Level of Service		F	
Analysis Period (min)		60				

Lanes, Volumes, Timings
20: Creditview Road & Rivergate Place

Creditview Road EA -2031 Do-nothing
PM Peak Hour



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	8	1316	940	8	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)		0%	0%		0%	
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5			7.5	7.5	7.5
Link Speed (k/h)		50	50		50	
Link Distance (m)		148.8	241.2		127.0	
Travel Time (s)		10.7	17.4		9.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	118%	116%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Sign Control	Free	Free		Stop		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
20: Creditview Road & Rivergate Place

Creditview Road EA -2031 Do-nothing
PM Peak Hour

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	8	1316	940	8	4	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1553	1090	8	4	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.23			0.23	0.23	
vC, conflicting volume	1098			2663	1094	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0			6548	0	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	98			0	99	
cM capacity (veh/h)	374			0	250	
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	8	1553	1098	7		
Volume Left	8	0	0	4		
Volume Right	0	0	8	3		
cSH	374	1700	1700	0		
Volume to Capacity	0.02	0.91	0.65	318.75		
Queue Length 95th (m)	0.5	0.0	0.0	Err		
Control Delay (s)	14.8	0.0	0.0	Err		
Lane LOS	B			F		
Approach Delay (s)	0.1		0.0	Err		
Approach LOS				F		
Intersection Summary						
Average Delay			26.3			
Intersection Capacity Utilization		91.7%		ICU Level of Service		F
Analysis Period (min)		60				

Alternative 1

Lanes, Volumes, Timings
3: Office Entrance & Creditview Road

Creditview -Future Interim Signal Concept 1
2021 -AM Peak Hour 2 Lane C-S to Argentia

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	0.0			35.0		0.0	150.0		50.0	140.0		0.0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	8	8	8	4	4	4	6	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	30.0	30.0	30.0	13.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	61.0	61.0	61.0	14.0	75.0	0.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	31.8%	31.8%	55.5%	55.5%	55.5%	12.7%	68.2%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	4.0
Lead/Lag						Lag	Lag	Lag	Lag			
Lead-Lag Optimize?						Yes	Yes	Yes	Yes			
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	79 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 3: Office Entrance & Creditview Road

2021 -AM Peak Hour 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1615		1775	1524	1805	3471	1495	1736	3464		
Flt Permitted	0.47	1.00		0.73	1.00	0.35	1.00	1.00	0.26	1.00		
Satd. Flow (perm)	885	1615		1354	1524	664	3471	1495	480	3464		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	3	0	4	224	2	129	13	871	177	152	791	9
RTOR Reduction (vph)	0	0	3	0	0	102	0	0	78	0	1	0
Lane Group Flow (vph)	0	3	1	0	226	27	13	871	99	152	799	0
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.7	61.7	61.7	73.4	73.4		
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.7	61.7	61.7	73.4	73.4		
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56	0.56	0.67	0.67		
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	3.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	182	332		278	313	372	1947	839	420	2311		
v/s Ratio Prot							c0.25		c0.03	0.23		
v/s Ratio Perm	0.00	0.00		c0.17	0.02	0.02		0.07	0.21			
v/c Ratio	0.02	0.00		0.81	0.08	0.03	0.45	0.12	0.36	0.35		
Uniform Delay, d1	34.8	34.7		41.7	35.3	10.8	14.2	11.4	7.6	7.9		
Progression Factor	1.00	1.00		1.00	1.00	1.09	1.07	1.56	1.00	1.00		
Incremental Delay, d2	0.0	0.0		18.6	0.1	0.2	0.7	0.3	0.5	0.4		
Delay (s)	34.9	34.7		60.2	35.5	11.9	15.9	18.0	8.2	8.3		
Level of Service	C	C		E	D	B	B	B	A	A		
Approach Delay (s)	34.8			51.2			16.2			8.3		
Approach LOS	C			D			B			A		
Intersection Summary												
HCM Average Control Delay	18.3				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			17.0				
Intersection Capacity Utilization	66.7%				ICU Level of Service			C				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings
5: Argentia Road & Creditview Road

Creditview -Future Interim Signal Concept 1
2021 -AM Peak Hour 2 Lane C-S to Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	60.0	0.0	90.0			70.0
Storage Lanes	1	1	2			1
Taper Length (m)	7.5	7.5	60.0			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			199.1	591.9	
Travel Time (s)	12.4			14.3	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type		pm+ov	Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0	5.0	4.0	4.0
Minimum Split (s)	26.0	12.0	12.0	31.0	31.0	31.0
Total Split (s)	29.0	25.0	25.0	81.0	56.0	56.0
Total Split (%)	26.4%	22.7%	22.7%	73.6%	50.9%	50.9%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 5: Argentia Road & Creditview Road 2021 -AM Peak Hour 2 Lane C-S to Argentia

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1568	3433	3505	3438	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	3335	1568	1084	3505	3438	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	107%	107%	111%	111%
Adj. Flow (vph)	225	441	507	788	623	422
RTOR Reduction (vph)	0	119	0	0	0	198
Lane Group Flow (vph)	225	322	507	788	623	224
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Turn Type	pm+ov		Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Actuated Green, G (s)	12.7	34.7	22.0	83.3	58.3	58.3
Effective Green, g (s)	12.7	34.7	22.0	83.3	58.3	58.3
Actuated g/C Ratio	0.12	0.32	0.20	0.76	0.53	0.53
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	385	495	687	2654	1822	839
v/s Ratio Prot	0.07	c0.13	c0.15	0.22	c0.18	
v/s Ratio Perm			0.08			0.14
v/c Ratio	0.58	0.65	0.74	0.30	0.34	0.27
Uniform Delay, d1	46.1	32.4	41.3	4.2	14.8	14.1
Progression Factor	1.00	1.00	1.22	0.64	0.71	0.23
Incremental Delay, d2	2.3	3.1	2.5	0.2	0.5	0.7
Delay (s)	48.4	35.5	52.9	2.8	11.1	4.0
Level of Service	D	D	D	A	B	A
Approach Delay (s)	39.9			22.4	8.2	
Approach LOS	D			C	A	
Intersection Summary						
HCM Average Control Delay			21.4	HCM Level of Service		C
HCM Volume to Capacity ratio			0.46			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		13.0
Intersection Capacity Utilization			53.7%	ICU Level of Service		A
Analysis Period (min)			60			
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Creditview -Future Interim Signal Concept 1
2021 -AM Peak Hour 2 Lane C-S to Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (vph)	15	90	41	1195	990	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.1	143.2	
Travel Time (s)	14.6			10.7	10.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	7%	3%	2%	2%	3%	25%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 7: Falconer Drive & Creditview Road

2021 -AM Peak Hour 2 Lane C-S to Argentia



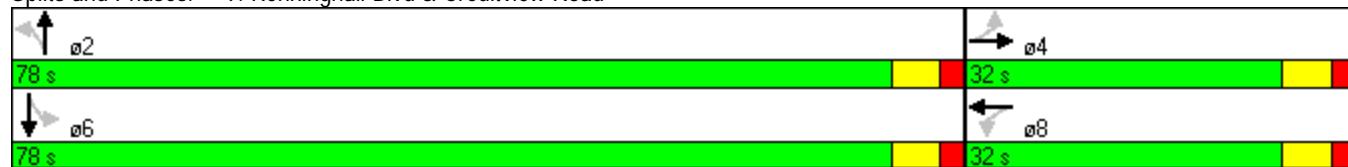
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (veh/h)	15	90	41	1195	990	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	90	44	1279	1099	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.38	0.79	0.79			
vC, conflicting volume	2472	1106	1112			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2819	1000	1008			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	0	61	92			
cM capacity (veh/h)	7	232	542			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	90	44	1279	1112	
Volume Left	15	0	44	0	0	
Volume Right	0	90	0	0	13	
cSH	7	232	542	1700	1700	
Volume to Capacity	2.29	0.39	0.08	0.75	0.65	
Queue Length 95th (m)	58.5	14.9	2.1	0.0	0.0	
Control Delay (s)	3619.4	30.3	12.2	0.0	0.0	
Lane LOS	F	D	B			
Approach Delay (s)	543.0		0.4		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			22.7			
Intersection Capacity Utilization		77.3%		ICU Level of Service		D
Analysis Period (min)		60				

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

Creditview -Future Interim Signal Concept 1
2021 -AM Peak Hour 2 Lane C-S to Argentia

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	30.0			0.0	30.0		0.0	90.0		0.0	50.0	
Storage Lanes	1			0	1		0	1		0	1	
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50				50			50			50
Link Distance (m)		233.2				322.1			204.1			241.9
Travel Time (s)		16.8				23.2			14.7			17.4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%		0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	5.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		27.0	27.0		27.0	27.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	29.1%	29.1%	0.0%	29.1%	29.1%	0.0%	70.9%	70.9%	0.0%	70.9%	70.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	110											
Control Type:	Actuated-Coordinated											

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 9: Kenninghall Blvd & Creditview Road

2021 -AM Peak Hour 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.85		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)	1805	1618		1805	1169		1626	1856		1031	1861	
Flt Permitted	0.72	1.00		0.38	1.00		0.14	1.00		0.11	1.00	
Satd. Flow (perm)	1364	1618		722	1169		236	1856		122	1861	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	30	2	172	31	21	39	36	1240	6	13	1181	11
RTOR Reduction (vph)	0	90	0	0	35	0	0	0	0	0	0	0
Lane Group Flow (vph)	30	84	0	31	25	0	36	1246	0	13	1192	0
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.1	11.1		11.1	11.1		86.9	86.9		86.9	86.9	
Effective Green, g (s)	11.1	11.1		11.1	11.1		86.9	86.9		86.9	86.9	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.79	0.79		0.79	0.79	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	138	163		73	118		186	1466		96	1470	
v/s Ratio Prot	c0.05			0.02			c0.67			0.64		
v/s Ratio Perm	0.02			0.04			0.15			0.11		
v/c Ratio	0.22	0.52		0.42	0.21		0.19	0.85		0.14	0.81	
Uniform Delay, d1	45.5	46.9		46.5	45.4		2.9	7.4		2.7	6.7	
Progression Factor	1.00	1.00		1.00	1.00		0.72	0.40		1.03	1.19	
Incremental Delay, d2	0.8	2.8		4.0	0.9		1.5	4.4		2.7	4.8	
Delay (s)	46.3	49.7		50.4	46.3		3.6	7.4		5.5	12.8	
Level of Service	D	D		D	D		A	A		A	B	
Approach Delay (s)		49.2			47.7			7.3			12.8	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM Average Control Delay		14.1			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		94.7%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

Creditview -Future Interim Signal Concept 1
2021 -AM Peak Hour 2 Lane C-S to Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	25.0			25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1			0	1		0	1		1	1	0
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 12: Sir Monty's Drive & Creditview Road 2021 -AM Peak Hour 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	1674		1787	1539		1597	1863	1583	1308	3526	
Flt Permitted	0.69	1.00		0.61	1.00		0.16	1.00	1.00	0.06	1.00	
Satd. Flow (perm)	1161	1674		1142	1539		275	1863	1583	76	3526	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	34	79	62	92	17	86	25	1151	135	11	1390	11
RTOR Reduction (vph)	0	30	0	0	76	0	0	0	29	0	0	0
Lane Group Flow (vph)	34	111	0	92	27	0	25	1151	106	11	1401	0
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Effective Green, g (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.76	0.76	0.76	0.76	0.76	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	204		139	187		209	1416	1203	58	2680	
v/s Ratio Prot		0.07			0.02			c0.62			0.40	
v/s Ratio Perm	0.03		c0.08				0.09		0.07	0.15		
v/c Ratio	0.24	0.54		0.66	0.15		0.12	0.81	0.09	0.19	0.52	
Uniform Delay, d1	43.7	45.4		46.1	43.2		3.5	8.3	3.4	3.7	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.23	1.55	
Incremental Delay, d2	0.9	3.0		11.8	0.4		1.2	5.4	0.1	4.8	0.5	
Delay (s)	44.6	48.4		58.0	43.6		4.7	13.7	3.5	9.4	8.6	
Level of Service	D	D		E	D		A	B	A	A	A	
Approach Delay (s)		47.7			50.4			12.5			8.6	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		15.1			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		90.3%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
17: Rivergate Place & Creditview Road

Creditview -Future Interim Signal Concept 1
2021 -AM Peak Hour 2 Lane C-S to Argentia



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	8	9	1227	1	2	1078
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	0.0		0.0	35.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5	7.5		7.5	7.5	
Link Speed (k/h)	50		50			50
Link Distance (m)	80.5		241.9			148.1
Travel Time (s)	5.8		17.4			10.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	100%	100%	111%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 17: Rivergate Place & Creditview Road

2021 -AM Peak Hour 2 Lane C-S to Argentia



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T		L	T
Volume (veh/h)	8	9	1227	1	2	1078
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	9	1313	1	2	1197
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			242			
pX, platoon unblocked	0.24	0.24			0.24	
vC, conflicting volume	2514	1313			1314	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5654	736			738	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	91			99	
cM capacity (veh/h)	0	102			212	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	17	1314	2	1197		
Volume Left	8	0	2	0		
Volume Right	9	1	0	0		
cSH	0	1700	212	1700		
Volume to Capacity	139.53	0.77	0.01	0.70		
Queue Length 95th (m)	Err	0.0	0.2	0.0		
Control Delay (s)	Err	0.0	22.1	0.0		
Lane LOS	F		C			
Approach Delay (s)	Err	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			67.2			
Intersection Capacity Utilization		79.2%		ICU Level of Service	D	
Analysis Period (min)		60				



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	1	1	1	1	1	1
Volume (vph)	1266	1	2	1194	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	204.1			345.9	179.3	
Travel Time (s)	14.7			24.9	12.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	111%	100%	100%	107%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Lanes, Volumes, Timings
3: Office Entrance & Creditview Road

Creditview-Future Interim Signal Concept 1

2021 PM Peak Hour- 2 Lane C-S Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	0.0		0.0	35.0		0.0	150.0		50.0	140.0		0.0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	8	8	8	4	4	4	6	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	30.0	30.0	30.0	13.0	30.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	60.0	60.0	60.0	13.0	73.0	0.0
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	54.5%	54.5%	54.5%	11.8%	66.4%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	4.0
Lead/Lag						Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	82 (75%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.96	1.00		0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1750	1615		1792	1553	1805	3574	1583	1671	3569		
Flt Permitted	0.74	1.00		0.71	1.00	0.32	1.00	1.00	0.35	1.00		
Satd. Flow (perm)	1343	1615		1339	1553	615	3574	1583	620	3569		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	16	5	18	215	1	215	3	664	259	162	871	6
RTOR Reduction (vph)	0	0	14	0	0	171	0	0	114	0	0	0
Lane Group Flow (vph)	0	21	4	0	216	44	3	664	145	162	877	0
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.7	61.7	61.7	73.4	73.4		
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.7	61.7	61.7	73.4	73.4		
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56	0.56	0.67	0.67		
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	3.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	276	332		275	319	345	2005	888	497	2381		
v/s Ratio Prot							0.19			0.03	c0.25	
v/s Ratio Perm	0.02	0.00		c0.16	0.03	0.00		0.09		0.19		
v/c Ratio	0.08	0.01		0.79	0.14	0.01	0.33	0.16	0.33	0.37		
Uniform Delay, d1	35.3	34.8		41.4	35.7	10.7	13.0	11.7	7.1	8.1		
Progression Factor	1.00	1.00		1.00	1.00	1.07	0.96	1.97	1.00	1.00		
Incremental Delay, d2	0.1	0.0		15.0	0.2	0.0	0.4	0.4	0.4	0.4	0.4	
Delay (s)	35.4	34.8		56.4	35.9	11.4	12.9	23.3	7.5	8.5		
Level of Service	D	C		E	D	B	B	C	A	A		
Approach Delay (s)	35.1			46.2			15.8			8.4		
Approach LOS	D			D			B			A		
Intersection Summary												
HCM Average Control Delay	18.3				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.47											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			14.0				
Intersection Capacity Utilization	63.7%				ICU Level of Service			B				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings
5: Argentia Road & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	60.0	0.0	90.0			70.0
Storage Lanes	1	1	2			1
Taper Length (m)	7.5	7.5	60.0			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			204.0	591.9	
Travel Time (s)	12.4			14.7	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type		pm+ov	Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.0	11.0	11.0	31.0	31.0	31.0
Total Split (s)	31.0	24.0	24.0	79.0	55.0	55.0
Total Split (%)	28.2%	21.8%	21.8%	71.8%	50.0%	50.0%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Intersection Summary						
Area Type:	Other					
Cycle Length:	110					
Actuated Cycle Length:	110					
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection						
Natural Cycle:	70					
Control Type:	Actuated-Coordinated					

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3467	1599	3400	3574	3539	1615
Flt Permitted	0.95	1.00	0.20	1.00	1.00	1.00
Satd. Flow (perm)	3467	1599	716	3574	3539	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	107%	107%	111%	111%
Adj. Flow (vph)	409	526	414	489	859	271
RTOR Reduction (vph)	0	52	0	0	0	133
Lane Group Flow (vph)	409	474	414	489	859	138
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Turn Type	pm+ov		Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Actuated Green, G (s)	18.2	37.1	18.9	77.8	55.9	55.9
Effective Green, g (s)	18.2	37.1	18.9	77.8	55.9	55.9
Actuated g/C Ratio	0.17	0.34	0.17	0.71	0.51	0.51
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	574	539	584	2528	1798	821
v/s Ratio Prot	0.12	c0.15	0.12	0.14	c0.24	
v/s Ratio Perm		0.15			0.09	
v/c Ratio	0.71	0.88	0.71	0.19	0.48	0.17
Uniform Delay, d1	43.4	34.3	43.0	5.5	17.6	14.5
Progression Factor	1.00	1.00	0.92	0.85	0.70	0.21
Incremental Delay, d2	4.3	17.7	3.1	0.1	0.9	0.4
Delay (s)	47.7	52.1	42.8	4.8	13.2	3.4
Level of Service	D	D	D	A	B	A
Approach Delay (s)	50.2			22.2	10.9	
Approach LOS	D			C	B	
Intersection Summary						
HCM Average Control Delay	26.7		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.61					
Actuated Cycle Length (s)	110.0		Sum of lost time (s)		13.0	
Intersection Capacity Utilization	65.5%		ICU Level of Service		C	
Analysis Period (min)	60					
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	13	55	112	831	1269	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.4	157.6	
Travel Time (s)	14.6			10.7	11.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	107%	111%	111%
Heavy Vehicles (%)	0%	0%	1%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview-Future Interim Signal Concept 1
 7: Falconer Drive & Creditview Road

2021 PM Peak Hour- 2 Lane C-S Argentia

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	55	112	831	1269	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	55	120	889	1409	34
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.75	0.62	0.62			
vC, conflicting volume	2555	1426	1443			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2170	1381	1409			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	45	51	61			
cM capacity (veh/h)	24	111	305			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	13	55	120	889	1443	
Volume Left	13	0	120	0	0	
Volume Right	0	55	0	0	34	
cSH	24	111	305	1700	1700	
Volume to Capacity	0.55	0.49	0.39	0.52	0.85	
Queue Length 95th (m)	19.9	21.4	15.3	0.0	0.0	
Control Delay (s)	312.6	67.8	24.4	0.0	0.0	
Lane LOS	F	F	C			
Approach Delay (s)	114.6		2.9		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		105.4%		ICU Level of Service	G	
Analysis Period (min)		60				

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

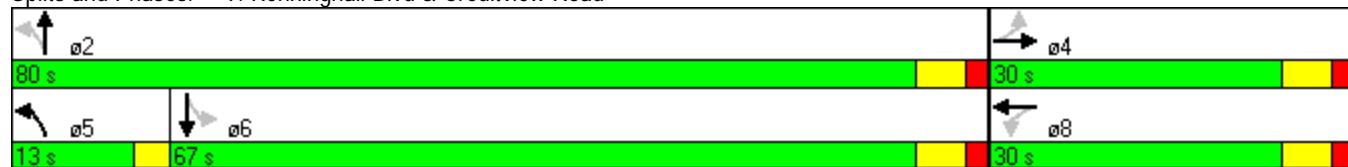
Creditview-Future Interim Signal Concept 1

2021 PM Peak Hour- 2 Lane C-S Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	30.0		0.0	30.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			203.7			241.6	
Travel Time (s)		16.8			23.2			14.7			17.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%		0%		0%
Shared Lane Traffic (%)												
Turn Type	Perm		Perm		pm+pt			Perm				
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)	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	30.0	30.0	30.0	30.0		11.0	27.0		27.0	27.0		
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	13.0	80.0	0.0	67.0	67.0	0.0
Total Split (%)	27.3%	27.3%	0.0%	27.3%	27.3%	0.0%	11.8%	72.7%	0.0%	60.9%	60.9%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag						Lead			Lag	Lag		
Lead-Lag Optimize?						Yes			Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max		C-Max	C-Max		
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	150											
Control Type:	Actuated-Coordinated											

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.86		1.00	0.91		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)	1805	1616		1805	1656		1787	1856		1031	1860	
Flt Permitted	0.74	1.00		0.53	1.00		0.05	1.00		0.28	1.00	
Satd. Flow (perm)	1414	1616		1013	1656		94	1856		300	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	19	7	118	14	8	12	238	981	26	16	1432	18
RTOR Reduction (vph)	0	110	0	0	11	0	0	1	0	0	0	0
Lane Group Flow (vph)	19	15	0	14	9	0	238	1006	0	16	1450	0
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.7	7.7		7.7	7.7		90.3	90.3		77.3	77.3	
Effective Green, g (s)	7.7	7.7		7.7	7.7		90.3	90.3		77.3	77.3	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.82	0.82		0.70	0.70	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	99	113		71	116		231	1524		211	1307	
v/s Ratio Prot		0.01			0.01		c0.09	0.54			c0.78	
v/s Ratio Perm	0.01			c0.01			0.75			0.05		
v/c Ratio	0.19	0.14		0.20	0.08		1.03	0.66		0.08	1.11	
Uniform Delay, d1	48.2	48.0		48.2	47.8		42.1	3.9		5.1	16.4	
Progression Factor	1.00	1.00		1.00	1.00		0.85	1.26		0.55	0.77	
Incremental Delay, d2	0.9	0.5		1.4	0.3		132.9	1.6		0.6	207.9	
Delay (s)	49.2	48.6		49.6	48.1		168.6	6.5		3.4	220.5	
Level of Service	D	D		D	D		F	A		A	F	
Approach Delay (s)		48.6			48.7			37.5			218.2	
Approach LOS		D			D			D			F	
Intersection Summary												
HCM Average Control Delay		129.9			HCM Level of Service			F				
HCM Volume to Capacity ratio		1.03										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		114.6%			ICU Level of Service			H				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

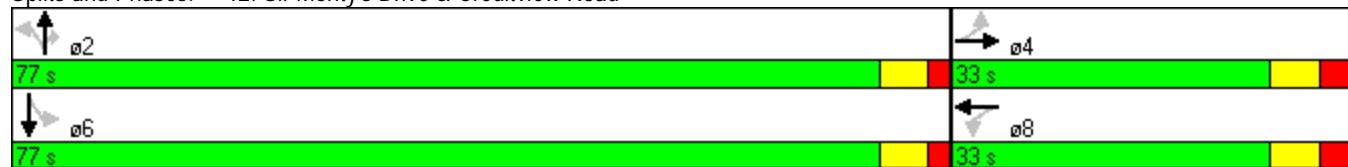
Creditview-Future Interim Signal Concept 1

2021 PM Peak Hour- 2 Lane C-S Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	25.0			25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1			0	1		0	1		1	1	0
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1733		1787	1635		1770	1863	1599	1787	3563	
Flt Permitted	0.29	1.00		0.74	1.00		0.15	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	546	1733		1389	1635		272	1863	1599	345	3563	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	107%	107%	107%	111%	111%	111%
Adj. Flow (vph)	20	16	13	110	58	179	76	1034	112	100	1443	34
RTOR Reduction (vph)	0	11	0	0	115	0	0	0	27	0	1	0
Lane Group Flow (vph)	20	18	0	110	122	0	76	1034	85	100	1476	0
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		82.8	82.8	82.8	82.8	82.8	
Effective Green, g (s)	14.2	14.2		14.2	14.2		82.8	82.8	82.8	82.8	82.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.75	0.75	0.75	0.75	0.75	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	70	224		179	211		205	1402	1204	260	2682	
v/s Ratio Prot		0.01			0.07			c0.56			0.41	
v/s Ratio Perm	0.04		c0.08				0.28		0.05	0.29		
v/c Ratio	0.29	0.08		0.61	0.58		0.37	0.74	0.07	0.38	0.55	
Uniform Delay, d1	43.3	42.1		45.3	45.1		4.7	7.6	3.6	4.7	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.66	1.74	
Incremental Delay, d2	2.3	0.2		6.3	3.9		5.1	3.6	0.1	0.4	0.1	
Delay (s)	45.6	42.3		51.6	48.9		9.8	11.1	3.7	8.2	10.0	
Level of Service	D	D		D	D		A	B	A	A	B	
Approach Delay (s)		43.6			49.8			10.4			9.9	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		14.9			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		92.4%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
17: Rivergate Place & Creditview Road

Creditview-Future Interim Signal Concept 1
2021 PM Peak Hour- 2 Lane C-S Argentia



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Volume (vph)	4	3	940	8	8	1316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	0.0		0.0	35.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5	7.5		7.5	7.5	
Link Speed (k/h)	50		50			50
Link Distance (m)	111.3		241.6			148.4
Travel Time (s)	8.0		17.4			10.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	107%	100%	100%	111%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview-Future Interim Signal Concept 1
 17: Rivergate Place & Creditview Road

2021 PM Peak Hour- 2 Lane C-S Argentina



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y		Y	Y
Volume (veh/h)	4	3	940	8	8	1316
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	3	1006	8	8	1461
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.61	0.61			0.61	
vC, conflicting volume	2487	1010			1014	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3112	699			706	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	48	99			99	
cM capacity (veh/h)	8	269			546	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	7	1014	8	1461		
Volume Left	4	0	8	0		
Volume Right	3	8	0	0		
cSH	13	1700	546	1700		
Volume to Capacity	0.53	0.60	0.01	0.86		
Queue Length 95th (m)	16.4	0.0	0.4	0.0		
Control Delay (s)	521.5	0.0	11.7	0.0		
Lane LOS	F		B			
Approach Delay (s)	521.5	0.0	0.1			
Approach LOS	F					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization		86.9%		ICU Level of Service		E
Analysis Period (min)		60				



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑		↑	↑	↑	
Volume (vph)	1419	3	3	1162	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	203.7			346.2	167.9	
Travel Time (s)	14.7			24.9	12.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	111%	100%	100%	107%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview-Future Interim Signal Concept 1
22: Creditview Road & Velebit Court

2021 PM Peak Hour- 2 Lane C-S Argentina

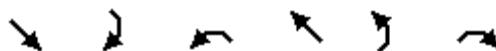


Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑		↑	↑	↑	
Volume (veh/h)	1419	3	3	1162	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1575	3	3	1243	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	204					
pX, platoon unblocked			0.31	0.31	0.31	
vC, conflicting volume			1578	2826	1577	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1756	5845	1751	
tC, single (s)			4.1	*5.3	*5.3	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			97	0	96	
cM capacity (veh/h)			109	0	51	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1578	3	1243	3		
Volume Left	0	3	0	1		
Volume Right	3	0	0	2		
cSH	1700	109	1700	1		
Volume to Capacity	0.93	0.03	0.73	3.18		
Queue Length 95th (m)	0.0	0.7	0.0	Err		
Control Delay (s)	0.0	39.1	0.0	Err		
Lane LOS		E		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
Intersection Summary						
Average Delay			10.7			
Intersection Capacity Utilization		93.1%		ICU Level of Service		F
Analysis Period (min)		60				

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis Creditview -Future Interim Signal Concept 1
 23: Creditview Road & Velibit Court

2021 -AM Peak Hour 2 Lane C-S to Argentia



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗		↑ ↗	↑ ↗	↗ ↘	
Volume (veh/h)	1266	1	2	1194	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1405	1	2	1278	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	204					
pX, platoon unblocked			0.24	0.24	0.24	
vC, conflicting volume			1406	2687	1406	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1112	6409	1110	
tC, single (s)			4.1	*5.3	*5.3	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			99	0	93	
cM capacity (veh/h)			152	0	82	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1406	2	1278	11		
Volume Left	0	2	0	5		
Volume Right	1	0	0	6		
cSH	1700	152	1700	0		
Volume to Capacity	0.83	0.01	0.75	40.92		
Queue Length 95th (m)	0.0	0.3	0.0	Err		
Control Delay (s)	0.0	29.0	0.0	Err		
Lane LOS		D		F		
Approach Delay (s)	0.0	0.0		Err		
Approach LOS				F		
Intersection Summary						
Average Delay			40.8			
Intersection Capacity Utilization		84.0%		ICU Level of Service		E
Analysis Period (min)		60				

* User Entered Value

Lanes, Volumes, Timings
3: Office Entrance & Creditview Road

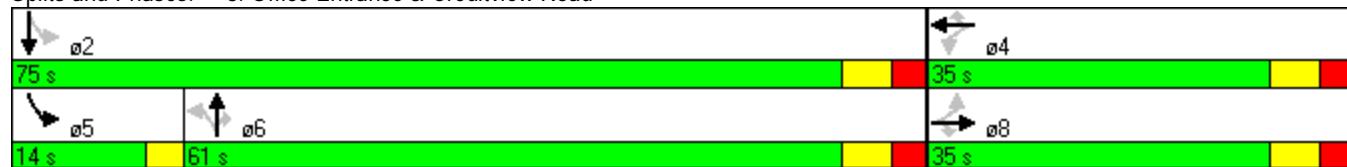
Creditview Future Interim Design Concept 1

2031 AM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	0.0		0.0	35.0		0.0	150.0		50.0	140.0		0.0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	8	8	8	4	4	4	6	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	30.0	30.0	30.0	13.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	61.0	61.0	61.0	14.0	75.0	0.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	31.8%	31.8%	55.5%	55.5%	55.5%	12.7%	68.2%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	4.0
Lead/Lag						Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	79 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Creditview Future Interim Design Concept 1
2031 AM Peak Hour- 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1615		1775	1524	1805	3471	1495	1736	3465		
Flt Permitted	0.47	1.00		0.73	1.00	0.33	1.00	1.00	0.23	1.00		
Satd. Flow (perm)	885	1615		1354	1524	632	3471	1495	429	3465		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	3	0	4	224	2	129	14	944	191	162	841	9
RTOR Reduction (vph)	0	0	3	0	0	102	0	0	79	0	1	0
Lane Group Flow (vph)	0	3	1	0	226	27	14	944	112	162	849	0
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.5	61.5	61.5	73.4	73.4		
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.5	61.5	61.5	73.4	73.4		
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56	0.56	0.67	0.67		
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	3.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	182	332		278	313	353	1941	836	392	2312		
v/s Ratio Prot							c0.27		c0.03	0.25		
v/s Ratio Perm	0.00	0.00		c0.17	0.02	0.02		0.07	0.24			
v/c Ratio	0.02	0.00		0.81	0.08	0.04	0.49	0.13	0.41	0.37		
Uniform Delay, d1	34.8	34.7		41.7	35.3	10.9	14.7	11.6	8.1	8.1		
Progression Factor	1.00	1.00		1.00	1.00	1.11	1.08	1.50	1.00	1.00		
Incremental Delay, d2	0.0	0.0		18.6	0.1	0.2	0.8	0.3	0.7	0.5		
Delay (s)	34.9	34.7		60.2	35.5	12.4	16.8	17.6	8.8	8.5		
Level of Service	C	C		E	D	B	B	B	A	A		
Approach Delay (s)	34.8			51.2			16.9			8.6		
Approach LOS	C			D			B			A		
Intersection Summary												
HCM Average Control Delay	18.4				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.56											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			17.0				
Intersection Capacity Utilization	69.2%				ICU Level of Service			C				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Creditview Future Interim Design Concept 1

2031 AM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	60.0	0.0	90.0			70.0
Storage Lanes	1	1	2			1
Taper Length (m)	7.5	7.5	60.0			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			207.8	591.9	
Travel Time (s)	12.4			15.0	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type		pm+ov	Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0	5.0	4.0	4.0
Minimum Split (s)	26.0	12.0	12.0	31.0	31.0	31.0
Total Split (s)	29.0	25.0	25.0	81.0	56.0	56.0
Total Split (%)	26.4%	22.7%	22.7%	73.6%	50.9%	50.9%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview Future Interim Design Concept 1
2031 AM Peak Hour- 2 Lane C-S to Argentia

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1568	3433	3505	3438	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	1568	3433	3505	3438	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	116%	116%	118%	118%
Adj. Flow (vph)	225	441	550	854	662	448
RTOR Reduction (vph)	0	103	0	0	0	216
Lane Group Flow (vph)	225	338	550	854	662	232
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Turn Type	pm+ov		Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Actuated Green, G (s)	12.7	36.1	23.4	83.3	56.9	56.9
Effective Green, g (s)	12.7	36.1	23.4	83.3	56.9	56.9
Actuated g/C Ratio	0.12	0.33	0.21	0.76	0.52	0.52
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	385	515	730	2654	1778	819
v/s Ratio Prot	0.07	c0.14	c0.16	0.24	c0.19	
v/s Ratio Perm			0.08			0.15
v/c Ratio	0.58	0.66	0.75	0.32	0.37	0.28
Uniform Delay, d1	46.1	31.6	40.6	4.3	15.9	15.0
Progression Factor	1.00	1.00	1.21	0.66	0.72	0.22
Incremental Delay, d2	2.3	3.0	2.2	0.2	0.6	0.8
Delay (s)	48.4	34.7	51.1	3.0	11.9	4.1
Level of Service	D	C	D	A	B	A
Approach Delay (s)	39.3			21.8	8.7	
Approach LOS	D			C	A	
Intersection Summary						
HCM Average Control Delay			20.9	HCM Level of Service		C
HCM Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		13.0
Intersection Capacity Utilization			55.4%	ICU Level of Service		B
Analysis Period (min)			60			
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Creditview Future Interim Design Concept 1
2031 AM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↗ ↓	↖ ↗	↑ ↗	↓ ↘	↖ ↗
Volume (vph)	15	90	41	1195	990	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			149.4	157.1	
Travel Time (s)	14.6			10.8	11.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	7%	3%	2%	2%	3%	25%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview Future Interim Design Concept 1
 7: Falconer Drive & Creditview Road

2031 AM Peak Hour- 2 Lane C-S to Argentia



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗	↑ ↗
Volume (veh/h)	15	90	41	1195	990	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	90	48	1386	1168	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.38	0.76	0.76			
vC, conflicting volume	2657	1175	1182			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3115	1074	1083			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	0	56	90			
cM capacity (veh/h)	4	203	491			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	15	90	48	1386	1182	
Volume Left	15	0	48	0	0	
Volume Right	0	90	0	0	14	
cSH	4	203	491	1700	1700	
Volume to Capacity	3.57	0.44	0.10	0.82	0.70	
Queue Length 95th (m)	Err	18.4	2.6	0.0	0.0	
Control Delay (s)	Err	36.7	13.1	0.0	0.0	
Lane LOS	F	E	B			
Approach Delay (s)	1459.9		0.4		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			56.6			
Intersection Capacity Utilization		83.0%		ICU Level of Service		E
Analysis Period (min)		60				

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

Creditview Future Interim Design Concept 1

2031 AM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	30.0		0.0	30.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			204.1			240.6	
Travel Time (s)		16.8			23.2			14.7			17.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%		0%		0%
Shared Lane Traffic (%)												
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	5.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		27.0	27.0		27.0	27.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	29.1%	29.1%	0.0%	29.1%	29.1%	0.0%	70.9%	70.9%	0.0%	70.9%	70.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	42 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	130											
Control Type:	Actuated-Coordinated											

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview Future Interim Design Concept 1
2031 AM Peak Hour- 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.85		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)	1805	1618		1805	1169		1626	1856		1031	1860	
Flt Permitted	0.72	1.00		0.40	1.00		0.10	1.00		0.05	1.00	
Satd. Flow (perm)	1364	1618		760	1169		165	1856		56	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	30	2	172	31	21	39	39	1344	7	14	1256	12
RTOR Reduction (vph)	0	76	0	0	35	0	0	0	0	0	0	0
Lane Group Flow (vph)	30	98	0	31	25	0	39	1351	0	14	1268	0
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.8	11.8		11.8	11.8		86.2	86.2		86.2	86.2	
Effective Green, g (s)	11.8	11.8		11.8	11.8		86.2	86.2		86.2	86.2	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.78	0.78		0.78	0.78	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	146	174		82	125		129	1454		44	1458	
v/s Ratio Prot	c0.06			0.02			c0.73			0.68		
v/s Ratio Perm	0.02			0.04			0.24			0.25		
v/c Ratio	0.21	0.56		0.38	0.20		0.30	0.93		0.32	0.87	
Uniform Delay, d1	44.8	46.7		45.7	44.8		3.4	9.5		3.4	8.1	
Progression Factor	1.00	1.00		1.00	1.00		0.61	0.40		1.08	1.17	
Incremental Delay, d2	0.7	4.2		2.9	0.8		3.4	8.5		17.6	7.5	
Delay (s)	45.5	50.9		48.6	45.6		5.5	12.3		21.3	16.9	
Level of Service	D	D		D	D		A	B		C	B	
Approach Delay (s)		50.1			46.6			12.1			17.0	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM Average Control Delay			17.9				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			100.3%				ICU Level of Service			G		
Analysis Period (min)			60									
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

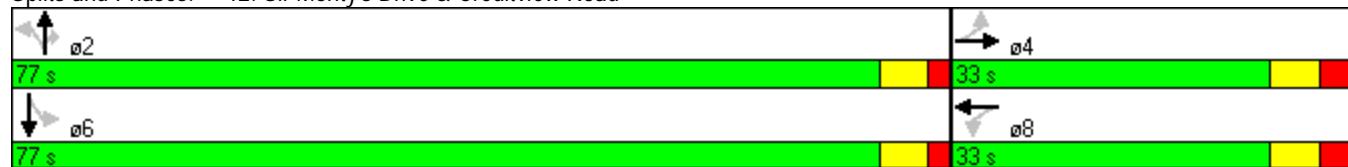
Creditview Future Interim Design Concept 1

2031 AM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	25.0			25.0		0.0	55.0		0.0	55.0		150.0
Storage Lanes	1			0	1		0	1		1	1	0
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	100											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis

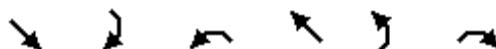
12: Sir Monty's Drive & Creditview Road

Creditview Future Interim Design Concept 1

2031 AM Peak Hour- 2 Lane C-S to Argentia



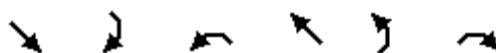
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	↑ ↗	↑ ↘	↑ ↗	↑ ↘
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	1674		1787	1539		1597	1863	1583	1308	3525	
Flt Permitted	0.69	1.00		0.61	1.00		0.15	1.00	1.00	0.09	1.00	
Satd. Flow (perm)	1161	1674		1142	1539		244	1863	1583	117	3525	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	34	79	62	92	17	86	27	1248	146	12	1477	12
RTOR Reduction (vph)	0	30	0	0	73	0	0	0	29	0	0	0
Lane Group Flow (vph)	34	111	0	92	30	0	27	1248	117	12	1489	0
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Effective Green, g (s)	13.4	13.4		13.4	13.4		83.6	83.6	83.6	83.6	83.6	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.76	0.76	0.76	0.76	0.76	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	204		139	187		185	1416	1203	89	2679	
v/s Ratio Prot		0.07			0.02			c0.67			0.42	
v/s Ratio Perm	0.03			c0.08			0.11		0.07	0.10		
v/c Ratio	0.24	0.54		0.66	0.16		0.15	0.88	0.10	0.13	0.56	
Uniform Delay, d1	43.7	45.4		46.1	43.3		3.6	9.6	3.4	3.5	5.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.07	1.45	
Incremental Delay, d2	0.9	3.0		11.8	0.4		1.7	9.1	0.2	1.9	0.5	
Delay (s)	44.6	48.4		58.0	43.7		5.2	18.7	3.6	5.7	8.5	
Level of Service	D	D		E	D		A	B	A	A	A	
Approach Delay (s)		47.7			50.4			16.9			8.4	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay		16.6			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		95.4%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	1266	1	2	1194	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	204.1			345.9	176.0	
Travel Time (s)	14.7			24.9	12.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	118%	100%	100%	116%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview Future Interim Design Concept 1
 19: Creditview Road & Velebit Court

2031 AM Peak Hour- 2 Lane C-S to Argentia



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑ ↗		↑ ↗	↑ ↗	↗ ↘	
Volume (veh/h)	1266	1	2	1194	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1494	1	2	1385	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	204					
pX, platoon unblocked			0.25	0.25	0.25	
vC, conflicting volume			1495	2883	1494	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1479	7146	1477	
tC, single (s)			4.1	*5.3	*5.3	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			98	0	89	
cM capacity (veh/h)			112	0	55	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1495	2	1385	11		
Volume Left	0	2	0	5		
Volume Right	1	0	0	6		
cSH	1700	112	1700	0		
Volume to Capacity	0.88	0.02	0.81	107.76		
Queue Length 95th (m)	0.0	0.4	0.0	Err		
Control Delay (s)	0.0	37.9	0.0	Err		
Lane LOS		E		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
Intersection Summary						
Average Delay	38.0					
Intersection Capacity Utilization	88.7%	ICU Level of Service	E			
Analysis Period (min)	60					

* User Entered Value

Lanes, Volumes, Timings
20: Creditview Road & Rivergate Place

Creditview Future Interim Design Concept 1

2031 AM Peak Hour- 2 Lane C-S to Argentia



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	2	1078	1227	1	8	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)		0%	0%		0%	
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5			7.5	7.5	7.5
Link Speed (k/h)		50	50		50	
Link Distance (m)		149.4	240.6		104.2	
Travel Time (s)		10.8	17.3		7.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	118%	116%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Sign Control	Free	Free		Stop		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview Future Interim Design Concept 1
20: Creditview Road & Rivergate Place

2031 AM Peak Hour- 2 Lane C-S to Argentia



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	2	1078	1227	1	8	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	1272	1423	1	8	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.24			0.24	0.24	
vC, conflicting volume	1424			2700	1424	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191			6401	1189	
tC, single (s)	4.1			*5.4	*5.4	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			0	88	
cM capacity (veh/h)	144			0	73	
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	2	1272	1424	17		
Volume Left	2	0	0	8		
Volume Right	0	0	1	9		
cSH	144	1700	1700	0		
Volume to Capacity	0.01	0.75	0.84	76.52		
Queue Length 95th (m)	0.3	0.0	0.0	Err		
Control Delay (s)	30.4	0.0	0.0	Err		
Lane LOS	D			F		
Approach Delay (s)	0.0		0.0	Err		
Approach LOS				F		
Intersection Summary						
Average Delay			62.6			
Intersection Capacity Utilization		85.0%		ICU Level of Service		E
Analysis Period (min)		60				

* User Entered Value

Timings

3: Office Entrance & Creditview Road

Creditview Future Interim Signa Concept 1

2031 PM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt	
Protected Phases		8			4			6		5	2
Permitted Phases	8		8	4		4	6		6	2	
Detector Phase	8	8	8	4	4	4	6	6	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	30.0	30.0	30.0	13.0	30.0
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	60.0	60.0	60.0	13.0	73.0
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	54.5%	54.5%	54.5%	11.8%	66.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max
Act Effct Green (s)	22.6	22.6		22.6	22.6	61.5	61.5	61.5	77.4	73.4	
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56	0.56	0.70	0.67	
v/c Ratio	0.08	0.05		0.79	0.44	0.01	0.36	0.28	0.35	0.39	
Control Delay	32.8	13.2		63.0	7.4	15.7	15.2	4.9	8.4	9.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	13.2		63.0	7.4	15.7	15.2	4.9	8.4	9.6	
LOS	C	B		E	A	B	B	A	A	A	
Approach Delay	23.7			35.3			12.3			9.4	
Approach LOS	C			D			B			A	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 82 (75%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.1

Intersection LOS: B

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 60

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Creditview Future Interim Signla Concept 1
2031 PM Peak Hour- 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.96	1.00		0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1750	1615		1792	1553	1805	3574	1583	1671	3569		
Flt Permitted	0.74	1.00		0.71	1.00	0.31	1.00	1.00	0.33	1.00		
Satd. Flow (perm)	1343	1615		1339	1553	583	3574	1583	573	3569		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	16	5	18	215	1	215	3	720	281	172	926	6
RTOR Reduction (vph)	0	0	14	0	0	171	0	0	124	0	0	0
Lane Group Flow (vph)	0	21	4	0	216	44	3	720	157	172	932	0
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.5	61.5	61.5	73.4	73.4		
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.5	61.5	61.5	73.4	73.4		
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56	0.56	0.67	0.67		
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	3.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	276	332		275	319	326	1998	885	471	2381		
v/s Ratio Prot							0.20			0.03	c0.26	
v/s Ratio Perm	0.02	0.00		c0.16	0.03	0.01		0.10	0.21			
v/c Ratio	0.08	0.01		0.79	0.14	0.01	0.36	0.18	0.37	0.39		
Uniform Delay, d1	35.3	34.8		41.4	35.7	10.7	13.4	11.9	7.3	8.2		
Progression Factor	1.00	1.00		1.00	1.00	1.09	1.00	2.19	1.00	1.00		
Incremental Delay, d2	0.1	0.0		15.0	0.2	0.0	0.5	0.4	0.5	0.5		
Delay (s)	35.4	34.8		56.4	35.9	11.8	13.9	26.4	7.8	8.7		
Level of Service	D	C		E	D	B	B	C	A	A		
Approach Delay (s)	35.1			46.2			17.4			8.6		
Approach LOS	D			D			B			A		
Intersection Summary												
HCM Average Control Delay	18.7				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.48											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			14.0				
Intersection Capacity Utilization	65.3%				ICU Level of Service			C				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Creditview Future Interim Signa Concept 1

2031 PM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	60.0	0.0	90.0			70.0
Storage Lanes	1	1	2			1
Taper Length (m)	7.5	7.5	60.0			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			210.4	591.9	
Travel Time (s)	12.4			15.1	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type		pm+ov	Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.0	11.0	11.0	31.0	31.0	31.0
Total Split (s)	31.0	24.0	24.0	79.0	55.0	55.0
Total Split (%)	28.2%	21.8%	21.8%	71.8%	50.0%	50.0%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	0.0	0.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Creditview Future Interim Signla Concept 1
2031 PM Peak Hour- 2 Lane C-S to Argentia



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3467	1599	3400	3574	3539	1615
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3467	1599	3400	3574	3539	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	116%	116%	118%	118%
Adj. Flow (vph)	409	526	449	530	913	288
RTOR Reduction (vph)	0	44	0	0	0	144
Lane Group Flow (vph)	409	482	449	530	913	144
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Turn Type	pm+ov		Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Actuated Green, G (s)	18.2	37.9	19.7	77.8	55.1	55.1
Effective Green, g (s)	18.2	37.9	19.7	77.8	55.1	55.1
Actuated g/C Ratio	0.17	0.34	0.18	0.71	0.50	0.50
Clearance Time (s)	7.0	3.0	3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	574	551	609	2528	1773	809
v/s Ratio Prot	0.12	c0.16	0.13	0.15	c0.26	
v/s Ratio Perm		0.14			0.09	
v/c Ratio	0.71	0.87	0.74	0.21	0.51	0.18
Uniform Delay, d1	43.4	33.8	42.7	5.5	18.5	15.0
Progression Factor	1.00	1.00	0.92	0.80	0.70	0.19
Incremental Delay, d2	4.3	16.8	3.5	0.1	1.0	0.4
Delay (s)	47.7	50.7	42.8	4.6	13.9	3.3
Level of Service	D	D	D	A	B	A
Approach Delay (s)	49.4			22.1	11.4	
Approach LOS	D			C	B	
Intersection Summary						
HCM Average Control Delay		26.2		HCM Level of Service		C
HCM Volume to Capacity ratio		0.63				
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		13.0
Intersection Capacity Utilization		67.0%		ICU Level of Service		C
Analysis Period (min)		60				
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Creditview Future Interim Signla Concept 1
2031 PM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↖	↗	↑	↘	↗
Volume (vph)	13	55	112	831	1269	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.8	153.4	
Travel Time (s)	14.6			10.7	11.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	116%	116%	118%	118%
Heavy Vehicles (%)	0%	0%	1%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview Future Interim Signla Concept 1
 7: Falconer Drive & Creditview Road

2031 PM Peak Hour- 2 Lane C-S to Argentia



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (veh/h)	13	55	112	831	1269	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	55	130	964	1497	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				390	383	
pX, platoon unblocked	0.74	0.56	0.56			
vC, conflicting volume	2740	1516	1534			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2089	1528	1561			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	35	33	46			
cM capacity (veh/h)	20	82	240			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	13	55	130	964	1534	
Volume Left	13	0	130	0	0	
Volume Right	0	55	0	0	37	
cSH	20	82	240	1700	1700	
Volume to Capacity	0.65	0.67	0.54	0.57	0.90	
Queue Length 95th (m)	24.2	36.5	26.8	0.0	0.0	
Control Delay (s)	432.2	127.9	37.5	0.0	0.0	
Lane LOS	F	F	E			
Approach Delay (s)	186.1		4.4		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			6.5			
Intersection Capacity Utilization		111.4%		ICU Level of Service		H
Analysis Period (min)		60				

Lanes, Volumes, Timings

9: Kenninghall Blvd & Creditview Road

Creditview Future Interim Signa Concept 1

2031 PM Peak Hour- 2 Lane C-S to Argentia

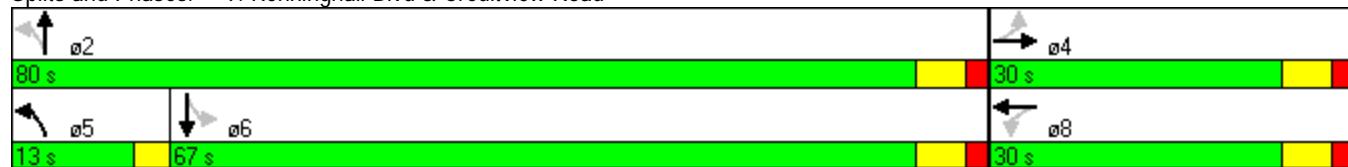


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	30.0		0.0	30.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			208.4			241.2	
Travel Time (s)		16.8			23.2			15.0			17.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%		0%		0%
Shared Lane Traffic (%)												
Turn Type	Perm		Perm		pm+pt			Perm				
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)	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	30.0	30.0	30.0	30.0		11.0	27.0		27.0	27.0		
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	13.0	80.0	0.0	67.0	67.0	0.0
Total Split (%)	27.3%	27.3%	0.0%	27.3%	27.3%	0.0%	11.8%	72.7%	0.0%	60.9%	60.9%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0		
All-Red Time (s)	2.0	2.0	2.0	2.0		0.0	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag						Lead			Lag	Lag		
Lead-Lag Optimize?						Yes			Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max		C-Max	C-Max		
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	150											
Control Type:	Actuated-Coordinated											

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

Creditview Future Interim Signla Concept 1
2031 PM Peak Hour- 2 Lane C-S to Argentia

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Creditview Future Interim Signa Concept 1
2031 PM Peak Hour- 2 Lane C-S to Argentia

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		3.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.86		1.00	0.91		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)	1805	1616		1805	1656		1787	1857		1031	1860	
Flt Permitted	0.74	1.00		0.53	1.00		0.05	1.00		0.24	1.00	
Satd. Flow (perm)	1414	1616		1013	1656		94	1857		256	1860	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	19	7	118	14	8	12	258	1064	28	17	1522	19
RTOR Reduction (vph)	0	110	0	0	11	0	0	1	0	0	0	0
Lane Group Flow (vph)	19	15	0	14	9	0	258	1091	0	17	1541	0
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.7	7.7		7.7	7.7		90.3	90.3		77.3	77.3	
Effective Green, g (s)	7.7	7.7		7.7	7.7		90.3	90.3		77.3	77.3	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.82	0.82		0.70	0.70	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	99	113		71	116		231	1524		180	1307	
v/s Ratio Prot		0.01			0.01		c0.10	0.59			c0.83	
v/s Ratio Perm	0.01			c0.01			0.82			0.07		
v/c Ratio	0.19	0.14		0.20	0.08		1.12	0.72		0.09	1.18	
Uniform Delay, d1	48.2	48.0		48.2	47.8		42.1	4.3		5.2	16.4	
Progression Factor	1.00	1.00		1.00	1.00		0.82	1.32		0.55	0.79	
Incremental Delay, d2	0.9	0.5		1.4	0.3		251.4	2.0		0.9	329.4	
Delay (s)	49.2	48.6		49.6	48.1		286.0	7.6		3.8	342.4	
Level of Service	D	D		D	D		F	A		A	F	
Approach Delay (s)		48.6			48.7			60.8			338.7	
Approach LOS		D			D			E			F	
Intersection Summary												
HCM Average Control Delay		200.4			HCM Level of Service			F				
HCM Volume to Capacity ratio		1.09										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		120.5%			ICU Level of Service			H				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

Creditview Future Interim Signa Concept 1

2031 PM Peak Hour- 2 Lane C-S to Argentia



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	25.0			0.0	25.0		0.0	55.0		0.0	55.0	150.0
Storage Lanes	1			0	1		0	1		1	1	0
Taper Length (m)	7.5			7.5	7.5		7.5	7.5		7.5	7.5	7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50				50			50			50
Link Distance (m)		140.0				141.1			172.9			113.2
Travel Time (s)		10.1				10.2			12.4			8.2
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			0%
Shared Lane Traffic (%)												
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	2	6	
Detector Phase	4	4		8	8		2	2	2	2	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	30.0	30.0		30.0	30.0		26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	77.0	77.0	77.0	77.0	77.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	70.0%	70.0%	70.0%	70.0%	70.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	110											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Creditview Future Interim Signa Concept 1
2031 PM Peak Hour- 2 Lane C-S to Argentia

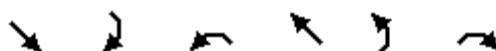
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑	↑	↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.93		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1733		1787	1635		1770	1863	1599	1787	3562	
Flt Permitted	0.31	1.00		0.74	1.00		0.13	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	583	1733		1389	1635		236	1863	1599	259	3562	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	116%	116%	116%	118%	118%	118%
Adj. Flow (vph)	20	16	13	110	58	179	82	1121	122	106	1534	37
RTOR Reduction (vph)	0	11	0	0	94	0	0	0	28	0	1	0
Lane Group Flow (vph)	20	18	0	110	143	0	82	1121	94	106	1570	0
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	14.9	14.9		14.9	14.9		82.1	82.1	82.1	82.1	82.1	
Effective Green, g (s)	14.9	14.9		14.9	14.9		82.1	82.1	82.1	82.1	82.1	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.75	0.75	0.75	0.75	0.75	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	79	235		188	221		176	1390	1193	193	2659	
v/s Ratio Prot		0.01			c0.09			c0.60			0.44	
v/s Ratio Perm	0.03			0.08			0.35		0.06	0.41		
v/c Ratio	0.25	0.08		0.59	0.65		0.47	0.81	0.08	0.55	0.59	
Uniform Delay, d1	42.6	41.5		44.6	45.1		5.4	8.9	3.8	6.0	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.46	1.69	
Incremental Delay, d2	1.7	0.1		4.7	6.5		8.8	5.3	0.1	1.0	0.1	
Delay (s)	44.3	41.7		49.3	51.6		14.3	14.2	3.9	9.8	10.8	
Level of Service	D	D		D	D		B	B	A	A	B	
Approach Delay (s)		42.7			50.9			13.3			10.7	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM Average Control Delay		16.3			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		97.3%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	1419	3	3	1162	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	208.4			341.6	105.0	
Travel Time (s)	15.0			24.6	7.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	118%	100%	100%	116%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis Creditview Future Interim Signla Concept 1
 19: Creditview Road & Velebit Court

2031 PM Peak Hour- 2 Lane C-S to Argentia



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑		↑	↑	↑	
Volume (veh/h)	1419	3	3	1162	1	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1674	3	3	1348	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	209					
pX, platoon unblocked			0.31	0.31	0.31	
vC, conflicting volume		1677		3030	1676	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		2081		6511	2076	
tC, single (s)		4.1		*5.4	*5.4	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		96		0	94	
cM capacity (veh/h)		81		0	33	
Direction, Lane #	SE 1	NW 1	NW 2	NE 1		
Volume Total	1677	3	1348	3		
Volume Left	0	3	0	1		
Volume Right	3	0	0	2		
cSH	1700	81	1700	0		
Volume to Capacity	0.99	0.04	0.79	9.15		
Queue Length 95th (m)	0.0	0.9	0.0	Err		
Control Delay (s)	0.0	51.0	0.0	Err		
Lane LOS		F		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
Intersection Summary						
Average Delay			9.9			
Intersection Capacity Utilization		98.3%		ICU Level of Service		F
Analysis Period (min)		60				

* User Entered Value

Lanes, Volumes, Timings
20: Creditview Road & Rivergate Place

Creditview Future Interim Signla Concept 1

2031 PM Peak Hour- 2 Lane C-S to Argentia



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (vph)	8	1316	940	8	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)		0%	0%		0%	
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.5			7.5	7.5	7.5
Link Speed (k/h)		50	50		50	
Link Distance (m)		148.8	241.2		127.0	
Travel Time (s)		10.7	17.4		9.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	118%	116%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Sign Control	Free	Free		Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

HCM Unsignalized Intersection Capacity Analysis Creditview Future Interim Signla Concept 1
20: Creditview Road & Rivergate Place 2031 PM Peak Hour- 2 Lane C-S to Argentia



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	8	1316	940	8	4	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1553	1090	8	4	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.22			0.22	0.22	
vC, conflicting volume	1098			2663	1094	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0			6691	0	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	98			0	99	
cM capacity (veh/h)	364			0	243	
Direction, Lane #	SE 1	SE 2	NW 1	SW 1		
Volume Total	8	1553	1098	7		
Volume Left	8	0	0	4		
Volume Right	0	0	8	3		
cSH	364	1700	1700	0		
Volume to Capacity	0.02	0.91	0.65	414.55		
Queue Length 95th (m)	0.5	0.0	0.0	Err		
Control Delay (s)	15.1	0.0	0.0	Err		
Lane LOS	C			F		
Approach Delay (s)	0.1		0.0	Err		
Approach LOS				F		
Intersection Summary						
Average Delay			26.3			
Intersection Capacity Utilization		91.7%		ICU Level of Service		F
Analysis Period (min)		60				

Alternative 2

MOVEMENT SUMMARY

 Site: Argentia two-lane 2021 AM

 Network: combined AM

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	507	0.0	503	0.0	0.498	9.9	LOS A	2.9	20.4	0.43	0.65	51.3
2	T1	788	0.0	782	0.0	0.498	4.5	LOS A	3.0	20.9	0.43	0.47	54.6
Approach		1295	0.0	1285 ^{N1}	0.0	0.498	6.6	LOS A	3.0	20.9	0.43	0.54	53.4
North: Creditview													
8	T1	623	0.0	623	0.0	0.551	6.3	LOS A	3.9	27.0	0.64	0.65	48.4
9	R2	422	0.0	422	0.0	0.436	6.2	LOS A	2.3	16.4	0.58	0.72	53.0
Approach		1045	0.0	1045	0.0	0.551	6.2	LOS A	3.9	27.0	0.62	0.68	50.7
West: Argentia													
10	L2	225	0.0	225	0.0	0.282	11.6	LOS B	1.5	10.2	0.62	0.81	50.8
12	R2	441	0.0	441	0.0	0.442	6.5	LOS A	2.9	20.0	0.70	0.77	46.2
Approach		666	0.0	666	0.0	0.442	8.2	LOS A	2.9	20.0	0.67	0.78	48.7
All Vehicles		3006	0.0	2996 ^{N1}	0.0	0.551	6.9	LOS A	3.9	27.0	0.55	0.64	51.6

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2021 AM - Conversion

 Network: combined AM

New Site

Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	36	0.0	36	0.0	0.220	27.0	LOS C	1.3	8.8	0.65	0.72	40.9
2	T1	1240	0.0	1240	0.0	0.828	8.8	LOS A	42.2	295.5	0.70	0.67	46.6
3	R2	6	0.0	6	0.0	0.828	14.4	LOS B	42.2	295.5	0.70	0.67	50.1
Approach		1282	0.0	1282	0.0	0.828	9.4	LOS A	42.2	295.5	0.70	0.67	46.3
East: Kenninghall													
4	L2	31	0.0	31	0.0	0.366	64.9	LOS E	1.7	12.2	1.00	0.72	26.9
5	T1	21	0.0	21	0.0	0.247	47.7	LOS D	3.0	20.8	0.94	0.74	30.7
6	R2	39	0.0	39	0.0	0.247	53.3	LOS D	3.0	20.8	0.94	0.74	19.0
Approach		91	0.0	91	0.0	0.366	56.0	LOS E	3.0	20.8	0.96	0.73	25.2
North: Creditview													
7	L2	13	0.0	12	0.0	0.101	32.1	LOS C	0.5	3.3	0.69	0.70	34.9
8	T1	1181	0.0	1124	0.0	0.796	7.6	LOS A	33.3	232.9	0.61	0.57	52.5
9	R2	11	0.0	10	0.0	0.796	13.2	LOS B	33.3	232.9	0.61	0.57	51.1
Approach		1205	0.0	1146 ^{N1}	0.0	0.796	8.0	LOS A	33.3	232.9	0.61	0.57	52.2
West: Kenninghall													
10	L2	30	0.0	30	0.0	0.181	56.3	LOS E	1.5	10.7	0.95	0.72	21.3
11	T1	2	0.0	2	0.0	0.774	54.5	LOS D	9.7	68.1	1.00	0.88	28.3
12	R2	172	0.0	172	0.0	0.774	60.1	LOS E	9.7	68.1	1.00	0.88	29.8
Approach		204	0.0	204	0.0	0.774	59.5	LOS E	9.7	68.1	0.99	0.86	28.9
All Vehicles		2782	0.0	2723 ^{N1}	0.0	0.828	14.1	LOS B	42.2	295.5	0.69	0.65	45.1

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2021 AM - Conversion

 Network: combined AM

New Site
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	44	0.0	44	0.0	0.120	15.2	LOS C	0.4	2.9	0.82	0.92	43.9
2	T1	1279	0.0	1279	0.0	0.649	0.1	LOSA	0.0	0.0	0.00	0.00	59.7
Approach		1323	0.0	1323	0.0	0.649	0.6	NA	0.4	2.9	0.03	0.03	58.4
North: Creditview													
8	T1	1099	0.0	1099	0.0	0.524	0.1	LOSA	0.0	0.0	0.00	0.01	59.7
9	R2	13	0.0	13	0.0	0.524	5.6	LOSA	0.0	0.0	0.00	0.01	57.7
Approach		1112	0.0	1112	0.0	0.524	0.1	NA	0.0	0.0	0.00	0.01	59.6
West: Falconer													
10	L2	15	0.0	15	0.0	2.859	3535.7	LOS F	92.3	646.1	1.00	4.59	0.4
12	R2	90	0.0	90	0.0	2.859	3535.7	LOS F	92.3	646.1	1.00	4.59	0.4
Approach		105	0.0	105	0.0	2.859	3535.7	LOS F	92.3	646.1	1.00	4.59	0.4
All Vehicles		2540	0.0	2540	0.0	2.859	146.5	NA	92.3	646.1	0.06	0.21	8.5

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Thursday, May 14, 2015 3:47:29 PM
SIDRA INTERSECTION 6.0.24.4877

Copyright © 2000-2014 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

Project: P:\60304588\400-Technical\402 Traffic analysis\Sidra models\Creditview single lane combined signal.sip6
8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Argentia two-lane 2021 PM

 Network: Combined PM

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	414	0.0	409	0.0	0.415	10.5	LOS B	2.4	17.1	0.58	0.75	50.0
2	T1	489	0.0	484	0.0	0.415	5.2	LOSA	2.5	17.8	0.58	0.52	54.0
Approach		903	0.0	893 ^{N1}	0.0	0.415	7.6	LOSA	2.5	17.8	0.58	0.63	52.2
North: Creditview													
8	T1	859	0.0	859	0.0	0.720	7.1	LOSA	7.1	50.0	0.73	0.76	47.6
9	R2	271	0.0	271	0.0	0.333	6.0	LOSA	1.5	10.6	0.51	0.68	53.1
Approach		1130	0.0	1130	0.0	0.720	6.8	LOSA	7.1	50.0	0.67	0.74	49.4
West: Argentia													
10	L2	409	0.0	409	0.0	0.639	17.6	LOS B	5.8	40.7	0.93	1.09	46.8
12	R2	526	0.0	526	0.0	0.698	13.3	LOS B	7.7	54.0	0.98	1.13	38.5
Approach		935	0.0	935	0.0	0.698	15.2	LOS B	7.7	54.0	0.95	1.11	43.5
All Vehicles		2968	0.0	2958 ^{N1}	0.0	0.720	9.7	LOSA	7.7	54.0	0.73	0.82	48.5

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2021 PM - Conversion

 Network: Combined PM

New Site

Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Vehicles veh	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	238	0.0	238	0.0	0.969	102.3	LOS F	17.7	123.8	1.00	1.31	22.1
2	T1	981	0.0	981	0.0	0.625	3.9	LOS A	19.7	137.9	0.41	0.39	53.0
3	R2	26	0.0	26	0.0	0.625	9.5	LOS A	19.7	137.9	0.41	0.39	54.2
Approach		1245	0.0	1245	0.0	0.969	22.8	LOS C	19.7	137.9	0.52	0.56	36.9
East: Kenninghall													
4	L2	14	0.0	14	0.0	0.194	66.2	LOS E	0.8	5.5	1.00	0.67	26.4
5	T1	8	0.0	8	0.0	0.144	53.7	LOS D	1.0	7.3	0.97	0.69	29.1
6	R2	12	0.0	12	0.0	0.144	59.2	LOS E	1.0	7.3	0.97	0.69	17.6
Approach		34	0.0	34	0.0	0.194	60.8	LOS E	1.0	7.3	0.98	0.68	24.7
North: Creditview													
7	L2	16	0.0	14	0.0	0.052	13.8	LOS B	0.3	2.0	0.39	0.65	44.8
8	T1	1432	0.0	1216	0.0	0.958	48.5	LOS D	83.9	587.4	0.93	1.10	31.5
9	R2	18	0.0	15	0.0	0.958	54.1	LOS D	83.9	587.4	0.93	1.10	31.0
Approach		1466	0.0	1244 ^{N1}	0.0	0.958	48.2	LOS D	83.9	587.4	0.92	1.09	31.6
West: Kenninghall													
10	L2	19	0.0	19	0.0	0.158	60.6	LOS E	1.0	7.1	0.98	0.70	20.2
11	T1	7	0.0	7	0.0	0.923	71.4	LOS E	8.1	56.7	1.00	1.09	24.7
12	R2	118	0.0	118	0.0	0.923	76.9	LOS E	8.1	56.7	1.00	1.09	26.3
Approach		144	0.0	144	0.0	0.923	74.5	LOS E	8.1	56.7	1.00	1.04	25.6
All Vehicles		2889	0.0	2667 ^{N1}	0.0	0.969	38.0	LOS D	83.9	587.4	0.74	0.84	32.7

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2021 PM - Conversion

 Network: Combined PM

New Site
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	120	0.0	120	0.0	0.989	171.0	LOS F	8.8	61.8	1.00	1.74	12.6
2	T1	889	0.0	889	0.0	0.451	0.1	LOSA	0.0	0.0	0.00	0.00	59.9
Approach		1009	0.0	1009	0.0	0.989	20.4	NA	8.8	61.8	0.12	0.21	33.5
North: Creditview													
8	T1	1409	0.0	1409	0.0	0.985	4.0	LOSA	0.0	0.0	0.00	0.01	51.0
9	R2	34	0.0	34	0.0	0.985	8.7	LOSA	0.0	0.0	0.00	0.01	50.3
Approach		1443	0.0	1443	0.0	0.985	4.2	NA	0.0	0.0	0.00	0.01	50.9
West: Falconer													
10	L2	13	0.0	13	0.0	3.665	5090.2	LOS F	70.4	492.5	1.00	2.87	0.3
12	R2	55	0.0	55	0.0	3.665	5090.7	LOS F	70.4	492.5	1.00	2.87	0.3
Approach		68	0.0	68	0.0	3.665	5090.6	LOS F	70.4	492.5	1.00	2.87	0.3
All Vehicles		2520	0.0	2520	0.0	3.665	147.9	NA	70.4	492.5	0.07	0.17	8.6

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Thursday, May 14, 2015 3:12:00 PM
SIDRA INTERSECTION 6.0.24.4877

Copyright © 2000-2014 Akcelik and Associates Pty Ltd
www.sidrasolutions.com

Project: P:\60304588\400-Technical\402 Traffic analysis\Sidra models\Creditview single lane combined signal.sip6
8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Argentia double 2031 AM

 Network: 2031 AM Combined single lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	550	0.0	546	0.0	0.540	10.0	LOS A	3.4	23.6	0.46	0.65	51.2
2	T1	854	0.0	848	0.0	0.540	4.6	LOS A	3.5	24.3	0.45	0.48	54.5
Approach		1404	0.0	1394 ^{N1}	0.0	0.540	6.7	LOS A	3.5	24.3	0.46	0.55	53.3
North: Creditview													
8	T1	662	0.0	662	0.0	0.605	7.1	LOS A	4.9	34.1	0.70	0.75	47.9
9	R2	448	0.0	448	0.0	0.480	6.8	LOS A	2.9	20.3	0.64	0.77	52.7
Approach		1110	0.0	1110	0.0	0.605	7.0	LOS A	4.9	34.1	0.68	0.76	50.3
West: Argentia													
10	L2	225	0.0	225	0.0	0.297	11.9	LOS B	1.6	11.2	0.67	0.84	50.7
12	R2	441	0.0	441	0.0	0.464	6.9	LOS A	3.3	22.8	0.75	0.81	45.9
Approach		666	0.0	666	0.0	0.464	8.6	LOS A	3.3	22.8	0.72	0.82	48.4
All Vehicles		3180	0.0	3170 ^{N1}	0.0	0.605	7.2	LOS A	4.9	34.1	0.59	0.68	51.5

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2031 AM - Conversion

 Network: 2031 AM Combined single lane

New Site
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	48	0.0	48	0.0	0.158	17.4	LOS C	0.5	3.7	0.85	0.94	42.1
2	T1	1386	0.0	1386	0.0	0.703	0.1	LOSA	0.0	0.0	0.00	0.00	59.6
Approach		1434	0.0	1434	0.0	0.703	0.7	NA	0.5	3.7	0.03	0.03	58.1
North: Creditview													
8	T1	1168	0.0	1168	0.0	0.600	0.1	LOSA	0.0	0.0	0.00	0.01	59.6
9	R2	14	0.0	14	0.0	0.600	5.6	LOSA	0.0	0.0	0.00	0.01	57.6
Approach		1182	0.0	1182	0.0	0.600	0.2	NA	0.0	0.0	0.00	0.01	59.5
West: Falconer													
10	L2	15	0.0	15	0.0	2.942	3674.0	LOS F	93.5	654.3	1.00	4.56	0.4
12	R2	90	0.0	90	0.0	2.942	3674.5	LOS F	93.5	654.3	1.00	4.56	0.4
Approach		105	0.0	105	0.0	2.942	3674.5	LOS F	93.5	654.3	1.00	4.56	0.4
All Vehicles		2721	0.0	2721	0.0	2.942	142.2	NA	93.5	654.3	0.05	0.20	8.6

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Thursday, November 05, 2015 9:33:41 AM

SIDRA INTERSECTION 6.0.24.4877

Project: C:\Users\skeltonv\Desktop\Creditview\400-Technical\402 Traffic analysis\Sidra models\Creditview single lane combined signal 2031.sip6

8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

Copyright © 2000-2014 Akcelik and Associates Pty Ltd

www.sidrasolutions.com

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2031 AM

 Network: 2031 AM Combined single lane

New Site

Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	39	0.0	39	0.0	0.281	30.0	LOS C	1.5	10.4	0.69	0.74	39.6
2	T1	1344	0.0	1344	0.0	0.888	13.1	LOS B	55.8	390.5	0.79	0.78	42.1
3	R2	7	0.0	7	0.0	0.888	18.6	LOS B	55.8	390.5	0.79	0.78	47.0
Approach		1390	0.0	1390	0.0	0.888	13.6	LOS B	55.8	390.5	0.79	0.78	42.0
East: Kenninghall													
4	L2	31	0.0	31	0.0	0.425	66.6	LOS E	1.8	12.5	1.00	0.71	26.5
5	T1	21	0.0	21	0.0	0.266	48.9	LOS D	3.0	21.1	0.95	0.74	30.3
6	R2	39	0.0	39	0.0	0.266	54.5	LOS D	3.0	21.1	0.95	0.74	18.7
Approach		91	0.0	91	0.0	0.425	57.3	LOS E	3.0	21.1	0.97	0.73	24.9
North: Creditview													
7	L2	14	0.0	13	0.0	0.137	40.0	LOS D	0.6	4.1	0.78	0.72	31.7
8	T1	1256	0.0	1198	0.0	0.838	7.8	LOS A	37.5	262.4	0.64	0.61	52.4
9	R2	12	0.0	11	0.0	0.838	13.3	LOS B	37.5	262.4	0.64	0.61	51.0
Approach		1282	0.0	1223 ^{N1}	0.0	0.838	8.2	LOS A	37.5	262.4	0.65	0.61	52.0
West: Kenninghall													
10	L2	30	0.0	30	0.0	0.195	57.5	LOS E	1.6	10.9	0.96	0.72	21.0
11	T1	2	0.0	2	0.0	0.834	58.5	LOS E	10.2	71.1	1.00	0.93	27.4
12	R2	172	0.0	172	0.0	0.834	64.0	LOS E	10.2	71.1	1.00	0.93	28.9
Approach		204	0.0	204	0.0	0.834	63.0	LOS E	10.2	71.1	0.99	0.90	28.0
All Vehicles		2967	0.0	2908 ^{N1}	0.0	0.888	16.2	LOS B	55.8	390.5	0.75	0.71	43.5

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Argentia double 2031 PM

 Network: 2031 PM Combined single lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	449	0.0	444	0.0	0.451	10.6	LOS B	2.8	19.6	0.61	0.76	50.0
2	T1	530	0.0	524	0.0	0.451	5.2	LOS A	2.9	20.4	0.61	0.52	53.9
Approach		979	0.0	969 ^{N1}	0.0	0.451	7.7	LOS A	2.9	20.4	0.61	0.63	52.2
North: Creditview													
8	T1	913	0.0	913	0.0	0.781	8.3	LOS A	9.3	65.0	0.82	0.87	47.0
9	R2	288	0.0	288	0.0	0.361	6.1	LOS A	1.7	12.0	0.55	0.70	53.1
Approach		1201	0.0	1201	0.0	0.781	7.8	LOS A	9.3	65.0	0.75	0.83	49.0
West: Argentia													
10	L2	409	0.0	409	0.0	0.715	21.2	LOS C	7.4	51.8	0.99	1.16	44.7
12	R2	526	0.0	526	0.0	0.774	17.7	LOS B	10.1	70.7	1.00	1.23	34.4
Approach		935	0.0	935	0.0	0.774	19.3	LOS B	10.1	70.7	1.00	1.20	40.4
All Vehicles		3115	0.0	3105 ^{N1}	0.0	0.781	11.2	LOS B	10.1	70.7	0.78	0.88	47.4

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2031 PM - Conversion

 Network: 2031 PM Combined single lane

New Site
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	130	0.0	130	0.0	1.668	1295.0	LOS F	70.1	490.6	1.00	4.71	2.1
2	T1	964	0.0	964	0.0	0.489	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		1094	0.0	1094	0.0	1.668	153.9	NA	70.1	490.6	0.12	0.56	8.7
North: Creditview													
8	T1	1497	0.0	1497	0.0	1.104	73.9	LOS F	0.0	0.0	0.00	0.00	14.4
9	R2	37	0.0	37	0.0	1.104	73.9	LOS F	0.0	0.0	0.00	0.00	14.4
Approach		1534	0.0	1534	0.0	1.104	73.9	NA	0.0	0.0	0.00	0.00	14.4
West: Falconer													
10	L2	13	0.0	13	0.0	4.375	6392.9	LOS F	75.5	528.2	1.00	2.66	0.2
12	R2	55	0.0	55	0.0	4.375	6393.4	LOS F	75.5	528.2	1.00	2.66	0.2
Approach		68	0.0	68	0.0	4.375	6393.3	LOS F	75.5	528.2	1.00	2.66	0.2
All Vehicles		2696	0.0	2696	0.0	4.375	265.8	NA	75.5	528.2	0.07	0.29	5.1

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Thursday, November 05, 2015 9:35:12 AM

SIDRA INTERSECTION 6.0.24.4877

Project: C:\Users\skeltonv\Desktop\Creditview\400-Technical\402 Traffic analysis\Sidra models\Creditview single lane combined signal 2031.sip6

8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

Copyright © 2000-2014 Akcelik and Associates Pty Ltd

www.sidrasolutions.com

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2031 PM

 Network: 2031 PM Combined single lane

New Site

Signals - Fixed Time Cycle Time = 110 seconds (User-Given Cycle Time)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	258	0.0	258	0.0	0.951	91.4	LOS F	18.0	126.0	1.00	1.26	23.7
2	T1	1064	0.0	1064	0.0	0.778	5.3	LOS A	28.8	201.9	0.55	0.52	51.0
3	R2	28	0.0	28	0.0	0.778	10.8	LOS B	28.8	201.9	0.55	0.52	53.0
Approach		1350	0.0	1350	0.0	0.951	21.9	LOS C	28.8	201.9	0.63	0.66	37.5
East: Kenninghall													
4	L2	14	0.0	14	0.0	0.194	66.2	LOS E	0.8	5.5	1.00	0.67	26.4
5	T1	8	0.0	8	0.0	0.157	54.0	LOS D	1.1	7.4	0.97	0.70	29.0
6	R2	12	0.0	12	0.0	0.157	59.6	LOS E	1.1	7.4	0.97	0.70	17.5
Approach		34	0.0	34	0.0	0.194	61.0	LOS E	1.1	7.4	0.98	0.68	24.7
North: Creditview													
7	L2	17	0.0	13	0.0	0.069	21.4	LOS C	0.4	2.6	0.54	0.68	39.9
8	T1	1522	0.0	1169	0.0	0.937	37.4	LOS D	71.1	497.5	0.90	1.00	35.3
9	R2	19	0.0	15	0.0	0.937	43.0	LOS D	71.1	497.5	0.90	1.00	34.7
Approach		1558	0.0	1197 ^{N1}	0.0	0.937	37.3	LOS D	71.1	497.5	0.89	0.99	35.3
West: Kenninghall													
10	L2	19	0.0	19	0.0	0.183	61.3	LOS E	1.0	7.2	0.98	0.70	20.1
11	T1	7	0.0	7	0.0	0.924	71.7	LOS E	8.1	56.8	1.00	1.09	24.7
12	R2	118	0.0	118	0.0	0.924	77.2	LOS E	8.1	56.8	1.00	1.09	26.2
Approach		144	0.0	144	0.0	0.924	74.9	LOS E	8.1	56.8	1.00	1.04	25.6
All Vehicles		3086	0.0	2725 ^{N1}	0.0	0.951	31.9	LOS C	71.1	497.5	0.77	0.83	35.1

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Alternative 3 (Preferred Alternative)

MOVEMENT SUMMARY

 Site: Argentia two-lane 2021 AM

 Network: AM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	507	0.0	507	0.0	0.490	10.0	LOS B	2.8	19.9	0.43	0.64	51.9
2	T1	788	0.0	788	0.0	0.490	4.3	LOSA	2.9	20.6	0.42	0.45	55.3
Approach		1295	0.0	1295	0.0	0.490	6.5	LOSA	2.9	20.6	0.42	0.53	54.0
North: Creditview													
8	T1	623	0.0	623	0.0	0.531	5.9	LOSA	3.6	25.2	0.63	0.60	48.6
9	R2	422	0.0	422	0.0	0.425	5.9	LOSA	2.3	15.9	0.58	0.69	53.4
Approach		1045	0.0	1045	0.0	0.531	5.9	LOSA	3.6	25.2	0.61	0.63	51.0
West: Argentia													
10	L2	225	0.0	225	0.0	0.272	11.7	LOS B	1.4	9.9	0.62	0.80	51.3
12	R2	441	0.0	441	0.0	0.423	6.1	LOSA	2.7	18.9	0.69	0.72	46.5
Approach		666	0.0	666	0.0	0.423	8.0	LOSA	2.7	18.9	0.66	0.75	49.0
All Vehicles		3006	0.0	3006	0.0	0.531	6.6	LOSA	3.6	25.2	0.54	0.61	52.1

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2021 AM

 Network: AM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	36	0.0	36	0.0	0.783	9.6	LOS A	12.2	85.7	0.40	0.36	56.8
2	T1	1240	0.0	1240	0.0	0.783	3.6	LOS A	12.2	85.7	0.40	0.36	50.8
3	R2	6	0.0	6	0.0	0.783	3.8	LOS A	12.2	85.7	0.40	0.36	54.1
Approach		1282	0.0	1282	0.0	0.783	3.8	LOS A	12.2	85.7	0.40	0.36	51.1
East: Kenninghall													
4	L2	31	0.0	31	0.0	0.206	22.2	LOS C	1.5	10.7	0.98	0.92	46.6
5	T1	21	0.0	21	0.0	0.206	16.2	LOS B	1.5	10.7	0.98	0.92	46.3
6	R2	39	0.0	39	0.0	0.206	16.4	LOS B	1.5	10.7	0.98	0.92	34.8
Approach		91	0.0	91	0.0	0.206	18.4	LOS B	1.5	10.7	0.98	0.92	42.8
North: Creditview													
7	L2	13	0.0	13	0.0	0.782	9.9	LOS A	10.4	72.8	0.52	0.41	55.2
8	T1	1181	0.0	1181	0.0	0.782	4.0	LOS A	10.4	72.8	0.52	0.41	55.3
9	R2	11	0.0	11	0.0	0.782	4.1	LOS A	10.4	72.8	0.52	0.41	53.4
Approach		1205	0.0	1205	0.0	0.782	4.0	LOS A	10.4	72.8	0.52	0.41	55.3
West: Kenninghall													
10	L2	30	0.0	30	0.0	0.433	22.7	LOS C	3.7	25.7	1.00	1.05	38.4
11	T1	2	0.0	2	0.0	0.433	16.7	LOS B	3.7	25.7	1.00	1.05	46.5
12	R2	172	0.0	172	0.0	0.433	16.9	LOS B	3.7	25.7	1.00	1.05	46.5
Approach		204	0.0	204	0.0	0.433	17.8	LOS B	3.7	25.7	1.00	1.05	45.7
All Vehicles		2782	0.0	2782	0.0	0.783	5.4	LOS A	12.2	85.7	0.52	0.45	52.3

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2021 AM

 Network: AM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	44	0.0	44	0.0	0.763	9.3	LOS A	12.8	89.4	0.21	0.33	57.2
2	T1	1279	0.0	1279	0.0	0.763	3.3	LOS A	12.8	89.4	0.21	0.33	50.6
Approach		1323	0.0	1323	0.0	0.763	3.5	LOS A	12.8	89.4	0.21	0.33	50.9
North: Creditview													
8	T1	1099	0.0	1099	0.0	0.677	3.5	LOS A	6.2	43.5	0.25	0.34	50.4
9	R2	13	0.0	13	0.0	0.677	3.6	LOS A	6.2	43.5	0.25	0.34	54.3
Approach		1112	0.0	1112	0.0	0.677	3.5	LOS A	6.2	43.5	0.25	0.34	50.5
West: Falconer													
10	L2	15	0.0	15	0.0	0.162	16.6	LOS B	1.1	7.5	0.84	0.82	40.6
12	R2	90	0.0	90	0.0	0.162	10.8	LOS B	1.1	7.5	0.84	0.82	40.6
Approach		105	0.0	105	0.0	0.162	11.7	LOS B	1.1	7.5	0.84	0.82	40.6
All Vehicles		2540	0.0	2540	0.0	0.763	3.8	LOS A	12.8	89.4	0.26	0.35	50.2

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Argentia two-lane 2021 PM

 Network: PM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	414	0.0	414	0.0	0.406	10.7	LOS B	2.4	16.7	0.57	0.74	50.5
2	T1	489	0.0	489	0.0	0.406	4.8	LOS A	2.5	17.6	0.57	0.48	54.7
Approach		903	0.0	903	0.0	0.406	7.5	LOS A	2.5	17.6	0.57	0.60	52.8
North: Creditview													
8	T1	859	0.0	859	0.0	0.693	6.4	LOS A	6.5	45.6	0.70	0.68	48.1
9	R2	271	0.0	271	0.0	0.316	5.6	LOS A	1.4	10.1	0.50	0.65	53.7
Approach		1130	0.0	1130	0.0	0.693	6.2	LOS A	6.5	45.6	0.65	0.68	49.8
West: Argentia													
10	L2	409	0.0	409	0.0	0.614	17.2	LOS B	5.5	38.2	0.91	1.07	47.8
12	R2	526	0.0	526	0.0	0.657	11.7	LOS B	7.0	48.8	0.96	1.08	40.3
Approach		935	0.0	935	0.0	0.657	14.1	LOS B	7.0	48.8	0.94	1.07	44.8
All Vehicles		2968	0.0	2968	0.0	0.693	9.1	LOS A	7.0	48.8	0.72	0.78	49.3

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2021 PM

 Network: PM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	238	0.0	238	0.0	0.755	9.5	LOS A	10.5	73.7	0.34	0.40	56.5
2	T1	981	0.0	981	0.0	0.755	3.5	LOS A	10.5	73.7	0.34	0.40	50.4
3	R2	26	0.0	26	0.0	0.755	3.7	LOS A	10.5	73.7	0.34	0.40	53.8
Approach		1245	0.0	1245	0.0	0.755	4.7	LOS A	10.5	73.7	0.34	0.40	52.2
East: Kenninghall													
4	L2	14	0.0	14	0.0	0.067	19.3	LOS B	0.5	3.2	0.91	0.80	48.3
5	T1	8	0.0	8	0.0	0.067	13.3	LOS B	0.5	3.2	0.91	0.80	48.0
6	R2	12	0.0	12	0.0	0.067	13.5	LOS B	0.5	3.2	0.91	0.80	37.1
Approach		34	0.0	34	0.0	0.067	15.8	LOS B	0.5	3.2	0.91	0.80	45.5
North: Creditview													
7	L2	16	0.0	14	0.0	0.978	28.2	LOS C	41.5	290.3	1.00	1.27	42.5
8	T1	1432	0.0	1273	0.0	0.978	22.2	LOS C	41.5	290.3	1.00	1.27	43.9
9	R2	18	0.0	16	0.0	0.978	22.4	LOS C	41.5	290.3	1.00	1.27	42.7
Approach		1466	0.0	1303 ^{N1}	0.0	0.978	22.3	LOS C	41.5	290.3	1.00	1.27	43.8
West: Kenninghall													
10	L2	19	0.0	19	0.0	0.504	31.9	LOS C	4.7	33.0	1.00	1.08	32.4
11	T1	7	0.0	7	0.0	0.504	25.9	LOS C	4.7	33.0	1.00	1.08	41.1
12	R2	118	0.0	118	0.0	0.504	26.1	LOS C	4.7	33.0	1.00	1.08	41.7
Approach		144	0.0	144	0.0	0.504	26.9	LOS C	4.7	33.0	1.00	1.08	40.8
All Vehicles		2889	0.0	2726 ^{N1}	0.0	0.978	14.4	LOS B	41.5	290.3	0.70	0.86	46.4

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2021 PM

 Network: PM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	120	0.0	120	0.0	0.583	9.2	LOS A	6.3	43.8	0.14	0.36	57.2
2	T1	889	0.0	889	0.0	0.583	3.3	LOS A	6.3	43.8	0.14	0.36	50.6
Approach		1009	0.0	1009	0.0	0.583	4.0	LOS A	6.3	43.8	0.14	0.36	51.8
North: Creditview													
8	T1	1409	0.0	1409	0.0	0.949	5.9	LOS A	24.1	169.0	0.97	0.58	43.7
9	R2	34	0.0	34	0.0	0.949	6.1	LOS A	24.1	169.0	0.97	0.58	50.0
Approach		1443	0.0	1443	0.0	0.949	5.9	LOS A	24.1	169.0	0.97	0.58	43.9
West: Falconer													
10	L2	13	0.0	13	0.0	0.301	28.9	LOS C	2.5	17.6	1.00	0.97	30.2
12	R2	55	0.0	55	0.0	0.301	23.1	LOS C	2.5	17.6	1.00	0.97	30.2
Approach		68	0.0	68	0.0	0.301	24.3	LOS C	2.5	17.6	1.00	0.97	30.2
All Vehicles		2520	0.0	2520	0.0	0.949	5.6	LOS A	24.1	169.0	0.64	0.50	46.4

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Wednesday, January 07, 2015 12:19:52 PM Copyright © 2000-2014 Akcelik and Associates Pty Ltd
SIDRA INTERSECTION 6.0.24.4877 www.sidrasolutions.com
Project: P:\60304588\400-Technical\402 Traffic analysis\Creditview single lane w no PHF.sip6
8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Argentia two-lane 2031 AM

 Network: AM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	550	0.0	461	0.0	0.458	9.8	LOS A	2.6	18.0	0.42	0.65	51.4
2	T1	854	0.0	716	0.0	0.458	4.5	LOS A	2.6	18.4	0.41	0.47	47.3
Approach		1404	0.0	1178 ^{N1}	0.0	0.458	6.6	LOS A	2.6	18.4	0.41	0.54	49.5
North: Creditview													
8	T1	662	0.0	662	0.0	0.566	6.1	LOS A	4.0	27.8	0.62	0.63	48.5
9	R2	448	0.0	448	0.0	0.448	6.0	LOS A	2.4	16.8	0.56	0.70	53.0
Approach		1110	0.0	1110	0.0	0.566	6.0	LOS A	4.0	27.8	0.59	0.65	50.8
West: Argentia													
10	L2	225	0.0	225	0.0	0.291	11.9	LOS B	1.5	10.7	0.65	0.83	41.3
12	R2	441	0.0	441	0.0	0.455	6.9	LOS A	3.1	21.5	0.72	0.80	46.1
Approach		666	0.0	666	0.0	0.455	8.6	LOS A	3.1	21.5	0.70	0.81	44.2
All Vehicles		3180	0.0	2954 ^{N1}	0.0	0.566	6.8	LOS A	4.0	27.8	0.54	0.64	49.1

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2031 AM

 Network: AM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	48	0.0	40	0.0	0.694	9.3	LOS A	9.2	64.6	0.18	0.33	57.4
2	T1	1386	0.0	1160	0.0	0.694	3.3	LOS A	9.2	64.6	0.18	0.33	50.9
Approach		1434	0.0	1200 ^{N1}	0.0	0.694	3.5	LOS A	9.2	64.6	0.18	0.33	51.2
North: Creditview													
8	T1	1168	0.0	1168	0.0	0.713	3.5	LOS A	7.2	50.5	0.25	0.34	50.4
9	R2	14	0.0	14	0.0	0.713	3.6	LOS A	7.2	50.5	0.25	0.34	54.3
Approach		1182	0.0	1182	0.0	0.713	3.5	LOS A	7.2	50.5	0.25	0.34	50.5
West: Falconer													
10	L2	15	0.0	15	0.0	0.177	18.1	LOS B	1.2	8.5	0.88	0.85	39.0
12	R2	90	0.0	90	0.0	0.177	12.3	LOS B	1.2	8.5	0.88	0.85	39.0
Approach		105	0.0	105	0.0	0.177	13.1	LOS B	1.2	8.5	0.88	0.85	39.0
All Vehicles		2721	0.0	2487 ^{N1}	0.0	0.713	3.9	LOS A	9.2	64.6	0.25	0.36	50.3

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2031 AM

 Network: AM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	39	0.0	32	0.0	0.705	9.5	LOS A	8.4	58.8	0.33	0.36	57.2
2	T1	1344	0.0	1110	0.0	0.705	3.5	LOS A	8.4	58.8	0.33	0.36	51.4
3	R2	7	0.0	6	0.0	0.705	3.7	LOS A	8.4	58.8	0.33	0.36	54.4
Approach		1390	0.0	1148 ^{N1}	0.0	0.705	3.7	LOS A	8.4	58.8	0.33	0.36	51.7
East: Kenninghall													
4	L2	31	0.0	31	0.0	0.160	18.1	LOS B	1.1	7.8	0.89	0.85	38.4
5	T1	21	0.0	21	0.0	0.160	12.1	LOS B	1.1	7.8	0.89	0.85	49.1
6	R2	39	0.0	39	0.0	0.160	12.3	LOS B	1.1	7.8	0.89	0.85	38.4
Approach		91	0.0	91	0.0	0.160	14.2	LOS B	1.1	7.8	0.89	0.85	42.0
North: Creditview													
7	L2	14	0.0	14	0.0	0.825	10.0	LOS B	12.9	90.5	0.58	0.42	54.8
8	T1	1256	0.0	1256	0.0	0.825	4.0	LOS A	12.9	90.5	0.58	0.42	47.1
9	R2	12	0.0	12	0.0	0.825	4.2	LOS A	12.9	90.5	0.58	0.42	53.1
Approach		1282	0.0	1282	0.0	0.825	4.1	LOS A	12.9	90.5	0.58	0.42	47.3
West: Kenninghall													
10	L2	30	0.0	30	0.0	0.510	30.0	LOS C	4.9	34.1	1.00	1.12	33.5
11	T1	2	0.0	2	0.0	0.510	24.0	LOS C	4.9	34.1	1.00	1.12	42.1
12	R2	172	0.0	172	0.0	0.510	24.2	LOS C	4.9	34.1	1.00	1.12	33.5
Approach		204	0.0	204	0.0	0.510	25.0	LOS C	4.9	34.1	1.00	1.12	33.6
All Vehicles		2967	0.0	2725 ^{N1}	0.0	0.825	5.8	LOS A	12.9	90.5	0.51	0.46	47.5

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Argentia two-lane 2031 PM

 Network: PM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	449	0.0	364	0.0	0.369	10.5	LOS B	2.1	14.8	0.56	0.74	50.2
2	T1	530	0.0	429	0.0	0.369	5.0	LOS A	2.2	15.4	0.56	0.51	46.3
Approach		979	0.0	793 ^{N1}	0.0	0.369	7.5	LOS A	2.2	15.4	0.56	0.61	48.7
North: Creditview													
8	T1	913	0.0	913	0.0	0.733	6.7	LOS A	7.4	51.6	0.70	0.72	47.9
9	R2	288	0.0	288	0.0	0.341	5.7	LOS A	1.5	10.8	0.48	0.65	53.3
Approach		1201	0.0	1201	0.0	0.733	6.5	LOS A	7.4	51.6	0.65	0.70	49.6
West: Argentia													
10	L2	409	0.0	409	0.0	0.680	20.0	LOS C	6.7	46.7	0.96	1.13	34.3
12	R2	526	0.0	526	0.0	0.736	15.9	LOS B	8.9	62.6	1.00	1.20	36.0
Approach		935	0.0	935	0.0	0.736	17.7	LOS B	8.9	62.6	0.98	1.17	35.2
All Vehicles		3115	0.0	2929 ^{N1}	0.0	0.736	10.4	LOS B	8.9	62.6	0.73	0.83	44.9

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Falconer single-lane 2031 PM

 Network: PM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	130	0.0	105	0.0	0.512	9.2	LOS A	4.9	34.0	0.13	0.37	57.3
2	T1	964	0.0	778	0.0	0.512	3.3	LOS A	4.9	34.0	0.13	0.37	50.8
Approach		1094	0.0	883 ^{N1}	0.0	0.512	4.0	LOS A	4.9	34.0	0.13	0.37	52.0
North: Creditview													
8	T1	1497	0.0	1497	0.0	0.991	9.9	LOS A	46.3	324.4	1.00	0.62	43.2
9	R2	37	0.0	37	0.0	0.991	10.0	LOS B	46.3	324.4	1.00	0.62	49.6
Approach		1534	0.0	1534	0.0	0.991	9.9	LOS A	46.3	324.4	1.00	0.62	43.5
West: Falconer													
10	L2	13	0.0	13	0.0	0.391	38.1	LOS D	3.0	21.0	1.00	1.04	25.4
12	R2	55	0.0	55	0.0	0.391	32.3	LOS C	3.0	21.0	1.00	1.04	25.4
Approach		68	0.0	68	0.0	0.391	33.4	LOS C	3.0	21.0	1.00	1.04	25.4
All Vehicles		2696	0.0	2485 ^{N1}	0.0	0.991	8.4	LOS A	46.3	324.4	0.69	0.54	45.5

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: Kenninghall single-lane 2031 PM

 Network: PM with Argentia 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	258	0.0	207	0.0	0.660	9.4	LOS A	6.9	48.6	0.27	0.40	56.8
2	T1	1064	0.0	853	0.0	0.660	3.4	LOS A	6.9	48.6	0.27	0.40	50.9
3	R2	28	0.0	22	0.0	0.660	3.6	LOS A	6.9	48.6	0.27	0.40	54.1
Approach		1350	0.0	1082 ^{N1}	0.0	0.660	4.6	LOS A	6.9	48.6	0.27	0.40	52.7
East: Kenninghall													
4	L2	14	0.0	14	0.0	0.052	15.8	LOS B	0.3	2.3	0.81	0.74	40.5
5	T1	8	0.0	8	0.0	0.052	9.8	LOS A	0.3	2.3	0.81	0.74	50.5
6	R2	12	0.0	12	0.0	0.052	10.0	LOS A	0.3	2.3	0.81	0.74	40.5
Approach		34	0.0	34	0.0	0.052	12.3	LOS B	0.3	2.3	0.81	0.74	44.0
North: Creditview													
7	L2	17	0.0	15	0.0	0.969	23.0	LOS C	36.2	253.4	1.00	1.07	46.0
8	T1	1522	0.0	1298	0.0	0.969	17.0	LOS B	36.2	253.4	1.00	1.07	35.9
9	R2	19	0.0	16	0.0	0.969	17.1	LOS B	36.2	253.4	1.00	1.07	45.8
Approach		1558	0.0	1329 ^{N1}	0.0	0.969	17.0	LOS B	36.2	253.4	1.00	1.07	36.3
West: Kenninghall													
10	L2	19	0.0	19	0.0	0.532	35.8	LOS D	5.1	35.7	1.00	1.10	30.4
11	T1	7	0.0	7	0.0	0.532	29.9	LOS C	5.1	35.7	1.00	1.10	39.2
12	R2	118	0.0	118	0.0	0.532	30.0	LOS C	5.1	35.7	1.00	1.10	30.4
Approach		144	0.0	144	0.0	0.532	30.8	LOS C	5.1	35.7	1.00	1.10	30.9
All Vehicles		3086	0.0	2589 ^{N1}	0.0	0.969	12.5	LOS B	36.2	253.4	0.69	0.79	42.8

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.112	1.4	1.8	2.1	2.2	2.4	2.4	2.5
2	0.442	63.1	78.2	92.2	97.4	103.0	106.4	108.8
3	0.442	59.6	73.9	87.1	92.0	97.2	100.5	102.8
4	0.160	18.3	22.8	26.8	28.3	29.9	31.0	31.7
East: Old Creditview								
1	0.658	50.6	62.8*	73.9*	78.1*	82.6*	85.4*	87.3*
2	0.309	25.9	32.2	37.9	40.1	42.3	43.8	44.8
North: Creditview								
1	0.303	13.7	17.0	20.1	21.2	22.4	23.2	23.7
2	0.822	154.2	191.3	225.4	238.2	251.7	260.2	266.1
3	0.822	176.6	219.0	258.1	272.7	288.2	298.0	304.7
West: private entrance								
1	0.012	0.7	0.9	1.1	1.1	1.2	1.2	1.3

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Old Creditview AM

Network: AM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.452	7.1	9.1	12.9	14.9	17.5	19.5	20.9
2	0.452	7.2	9.4	13.2	15.3	18.0	20.0	21.5
North: Creditview								
1	0.556	10.7	13.9	19.5	22.6	26.6	29.5	31.7
2	0.441	6.5	8.4	11.9	13.8	16.2	18.0	19.3
West: Argentia								
1	0.288	4.2	5.5	7.7	8.9	10.5	11.6	12.5
2	0.450	8.4	10.9	15.4	17.8	20.9	23.2	25.0

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Argentia two-lane 2031 AM

Network: AM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.683	24.3	31.4	44.3	51.3	60.3	66.9	72.0
North: Creditview								
1	0.655	15.9	20.7	29.1	33.7	39.6	44.0	47.3
West: Falconer								
1	0.155	2.8	3.7	5.2	6.0	7.0	7.8	8.4

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Falconer single-lane 2031 AM

Network: AM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Satn x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.696	23.0	29.8	42.0	48.6	57.2	63.5	68.2
East: Kenninghall								
1	0.157	3.0	3.9	5.5	6.4	7.5	8.4	9.0
North: Creditview								
1	0.757	26.6	34.5	48.6	56.3	66.2	73.5	79.0
West: Kenninghall								
1	0.403	9.1	11.8	16.6	19.3	22.7	25.1	27.0

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Kenninghall single-lane 2031 AM

Network: AM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.081	2.1	2.6	3.1	3.3	3.4	3.6	3.6
2	1.254	854.8	1060.0	1249.1	1319.9	1395.0	1442.3	1474.7
3	0.129	14.4	17.8	21.0	22.2	23.4	24.2	24.8
East: Bancroft								
1	0.299	18.7	23.2	27.3*	28.8*	30.5*	31.5*	32.2*
2	0.245	20.3	25.2	29.7	31.4	33.2	34.3	35.1
North: Creditview								
1	0.055	1.4	1.8	2.1	2.2	2.4	2.4	2.5
2	0.663	112.7	139.8	164.7	174.1	184.0	190.2	194.5
3	0.663	114.8	142.3	167.7*	177.2*	187.3*	193.7*	198.0*
West: Sir Monty's								
1	0.107	6.5	8.1	9.5	10.1	10.6	11.0	11.2
2	0.334	28.5	35.3	41.6	44.0	46.5	48.1	49.1

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Sir Monty's AM

Network: AM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.011	0.3	0.4	0.5	0.5	0.6	0.6	0.6
2	0.361	48.7	60.4	71.2	75.2	79.5	82.2	84.0
3	0.361	48.7	60.4	71.2	75.2	79.5	82.2	84.0
4	0.255	30.7	38.1	44.9	47.4	50.2	51.8*	53.0*
East: Old Creditview								
1	0.554	45.6	56.5	66.6*	70.3*	74.3*	76.9*	78.6*
2	0.447	43.4	53.8	63.4	67.0	70.8	73.2	74.9
North: Creditview								
1	0.344	16.5	20.5	24.2	25.5	27.0	27.9	28.5
2	0.432	61.7	76.5	90.1	95.3	100.7	104.1	106.4
3	0.432	61.7	76.5	90.1	95.2	100.6	104.0	106.4
West: private entrance								
1	0.060	3.8	4.7	5.5	5.8	6.2	6.4	6.5

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Old Creditview PM

Network: PM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.415	7.0	9.0	12.7	14.7	17.3	19.2	20.6
2	0.415	7.2	9.4	13.2	15.3	18.0	20.0	21.5
North: Creditview								
1	0.750	22.7	29.4	41.5	48.0	56.5	62.7	67.4
2	0.347	4.5	5.9	8.3	9.6	11.3	12.5	13.4
West: Argentia								
1	0.685	19.0	24.6	34.7	40.2	47.2	52.4	56.4
2	0.742	25.5	33.1	46.6	54.0	63.5	70.5	75.8

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Argentia two-lane 2031 PM

Network: PM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Satn	Deg.	Percentile Back of Queue (metres)						
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.564	16.5	21.3	30.1	34.8	40.9	45.4	48.9	
North: Creditview									
1	0.918	55.8	72.3	102.0	118.1	138.8	154.1	165.7	
West: Falconer									
1	0.244	5.6	7.2	10.2	11.8	13.9	15.4	16.6	

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Falconer single-lane 2031 PM

Network: PM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Satn	Deg.	Percentile Back of Queue (metres)						
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.704	23.7	30.6	43.2	50.0	58.8	65.3	70.2	
East: Kenninghall									
1	0.058	1.1	1.4	2.0	2.3	2.7	3.0	3.2	
North: Creditview									
1	0.979	117.3	152.0	214.3	248.1	291.8	323.8	348.1	
West: Kenninghall									
1	0.572	16.0	20.7	29.2	33.8	39.7	44.1	47.4	

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Kenninghall single-lane 2031 PM

Network: PM with Argentia 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Deg.	Percentile Back of Queue (metres)							
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.244	6.7	8.4	9.9	10.4	11.0	11.4	11.6	
2	1.192	689.7	855.3	1007.8	1065.0	1125.6	1163.7	1189.9	
3	0.109	12.0	14.9	17.6	18.6	19.7	20.3	20.8	
East: Bancroft									
1	0.327	22.4	27.8*	32.8*	34.6*	36.6*	37.8*	38.7*	
2	0.723	51.2	63.4	74.7	79.0	83.5	86.3	88.3	
North: Creditview									
1	0.433	12.9	16.0	18.9	19.9	21.1	21.8	22.3	
2	0.717	111.2	137.9	162.5	171.7	181.4	187.6	191.8	
3	0.717	129.2	160.2*	188.8*	199.5*	210.9*	218.0*	222.9*	
West: Sir Monty's									
1	0.071	3.8	4.7	5.6	5.9	6.2	6.4	6.6	
2	0.068	5.4	6.7	7.9	8.4	8.9	9.2	9.4	

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Sir Monty's PM

Network: PM with Argentia 2 lane

Alternative 4

Lanes, Volumes, Timings
3: Office Entrance & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)					0%				0%			0%
Storage Length (m)	0.0			35.0		0.0	150.0		50.0	140.0		0.0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red				Yes			Yes			Yes		Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		73.7			210.5			185.7			208.2	
Travel Time (s)		5.3			15.2			13.4			15.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	8	8	8	4	4	4	6	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	30.0	30.0	30.0	13.0	30.0	
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	63.0	63.0	63.0	14.0	77.0	0.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	57.3%	57.3%	57.3%	12.7%	70.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	4.0
Lead/Lag						Lag	Lag	Lag	Lag			
Lead-Lag Optimize?						Yes	Yes	Yes	Yes			
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	79 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	4	224	2	129	12	814	165	137	713	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1615		1775	1524	1805	3471	1495	1736	3464		
Flt Permitted	0.46	1.00		0.73	1.00	0.28	1.00	1.00	0.12	1.00		
Satd. Flow (perm)	877	1615		1354	1524	532	3471	1495	226	3464		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Adj. Flow (vph)	3	0	4	224	2	129	19	1311	266	195	1012	11
RTOR Reduction (vph)	0	0	3	0	0	103	0	0	83	0	1	0
Lane Group Flow (vph)	0	3	1	0	226	26	19	1311	183	195	1022	0
Heavy Vehicles (%)	0%	0%	0%	2%	0%	6%	0%	4%	8%	4%	4%	7%
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5	2	
Permitted Phases	8		8	4		4	6		6	2		
Actuated Green, G (s)	22.2	22.2		22.2	22.2	61.2	61.2	61.2	73.8	73.8		
Effective Green, g (s)	22.2	22.2		22.2	22.2	61.2	61.2	61.2	73.8	73.8		
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.56	0.56	0.56	0.67	0.67		
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	3.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	326		273	308	296	1931	832	283	2324		
v/s Ratio Prot							0.38		c0.06	0.30		
v/s Ratio Perm	0.00	0.00		c0.17	0.02	0.04		0.12	c0.40			
v/c Ratio	0.02	0.00		0.83	0.08	0.06	0.68	0.22	0.69	0.44		
Uniform Delay, d1	35.2	35.1		42.1	35.6	11.2	17.4	12.3	13.1	8.5		
Progression Factor	1.00	1.00		1.00	1.00	0.95	1.05	1.18	1.00	1.00		
Incremental Delay, d2	0.0	0.0		21.1	0.1	0.4	1.9	0.6	7.1	0.6		
Delay (s)	35.2	35.1		63.2	35.8	11.0	20.1	15.2	20.2	9.1		
Level of Service	D	D		E	D	B	C	B	C	A		
Approach Delay (s)	35.1			53.2			19.2			10.8		
Approach LOS	D			D			B			B		
Intersection Summary												
HCM Average Control Delay	19.8				HCM Level of Service			B				
HCM Volume to Capacity ratio	0.69											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			10.0				
Intersection Capacity Utilization	81.2%				ICU Level of Service			D				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Ultimate Signalized Design Concept

2031 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	70.0			70.0
Storage Lanes	2	1	2			1
Taper Length (m)	7.5	7.5	7.5			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			382.8	591.9	
Travel Time (s)	12.4			27.6	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	161%	161%	142%	142%
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type		pm+ov	Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0	5.0	4.0	4.0
Minimum Split (s)	26.0	12.0	12.0	31.0	31.0	31.0
Total Split (s)	29.0	32.0	32.0	81.0	49.0	49.0
Total Split (%)	26.4%	29.1%	29.1%	73.6%	44.5%	44.5%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.0	2.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	5.0	5.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Intersection Summary						
Area Type:	Other					
Cycle Length:	110					
Actuated Cycle Length:	110					
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection						
Natural Cycle:	80					
Control Type:	Actuated-Coordinated					

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	225	441	474	736	561	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	5.0	5.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1568	3433	3505	3438	1583
Flt Permitted	0.95	1.00	0.30	1.00	1.00	1.00
Satd. Flow (perm)	3335	1568	1084	3505	3438	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	161%	161%	142%	142%
Adj. Flow (vph)	225	441	763	1185	797	540
RTOR Reduction (vph)	0	41	0	0	0	281
Lane Group Flow (vph)	225	400	763	1185	797	259
Heavy Vehicles (%)	5%	3%	2%	3%	5%	2%
Turn Type	pm+ov		Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Actuated Green, G (s)	12.7	43.1	30.4	83.3	47.9	47.9
Effective Green, g (s)	12.7	43.1	30.4	83.3	47.9	47.9
Actuated g/C Ratio	0.12	0.39	0.28	0.76	0.44	0.44
Clearance Time (s)	7.0	5.0	5.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	385	614	949	2654	1497	689
v/s Ratio Prot	0.07	c0.18	c0.22	0.34	c0.23	
v/s Ratio Perm		0.08			0.16	
v/c Ratio	0.58	0.65	0.80	0.45	0.53	0.38
Uniform Delay, d1	46.1	27.3	37.0	4.9	22.8	21.0
Progression Factor	1.00	1.00	1.24	0.78	0.73	0.18
Incremental Delay, d2	2.3	2.5	4.0	0.4	1.2	1.4
Delay (s)	48.4	29.8	49.7	4.3	17.8	5.1
Level of Service	D	C	D	A	B	A
Approach Delay (s)	36.1			22.1	12.7	
Approach LOS	D			C	B	
Intersection Summary						
HCM Average Control Delay	21.3		HCM Level of Service		C	
HCM Volume to Capacity ratio	0.63					
Actuated Cycle Length (s)	110.0		Sum of lost time (s)		17.0	
Intersection Capacity Utilization	66.0%		ICU Level of Service		C	
Analysis Period (min)	60					
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↓	
Volume (vph)	15	90	41	1195	990	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			148.8	382.8	
Travel Time (s)	14.6			10.7	27.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	161%	161%	142%	142%
Heavy Vehicles (%)	7%	3%	2%	2%	3%	25%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
7: Falconer Drive & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	↑	↑	↑	↑↑	↑↑		
Volume (veh/h)	15	90	41	1195	990	12	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	15	90	66	1924	1406	17	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				390	383		
pX, platoon unblocked	0.71	0.86	0.86				
vC, conflicting volume	2508	711	1423				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1389	325	1156				
tC, single (s)	6.9	7.0	4.1				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.2				
p0 queue free %	81	84	87				
cM capacity (veh/h)	79	571	513				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	15	90	66	962	962	937	486
Volume Left	15	0	66	0	0	0	0
Volume Right	0	90	0	0	0	0	17
cSH	79	571	513	1700	1700	1700	1700
Volume to Capacity	0.19	0.16	0.13	0.57	0.57	0.55	0.29
Queue Length 95th (m)	5.5	4.5	3.5	0.0	0.0	0.0	0.0
Control Delay (s)	61.3	12.5	13.0	0.0	0.0	0.0	0.0
Lane LOS	F	B	B				
Approach Delay (s)	19.5		0.4		0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			0.8				
Intersection Capacity Utilization		63.2%		ICU Level of Service		B	
Analysis Period (min)		60					

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	25.0		0.0	25.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			200.4			241.3	
Travel Time (s)		16.8			23.2			14.4			17.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm			Perm			Perm			
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		5.0	5.0		4.0	4.0	
Minimum Split (s)	32.0	32.0		32.0	32.0		27.0	27.0		27.0	27.0	
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	29.1%	29.1%	0.0%	29.1%	29.1%	0.0%	70.9%	70.9%	0.0%	70.9%	70.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	42 (38%)	Referenced to phase 2:NBTL and 6:SBTL, Start of Green										
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour

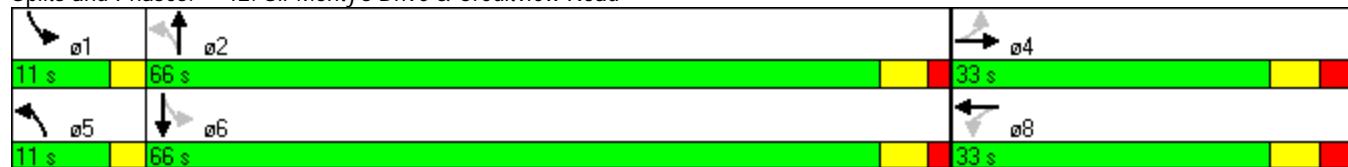
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Volume (vph)	30	2	172	31	21	39	34	1159	6	12	1064	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Fr _t	1.00	0.85		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)	1805	1618		1805	1169		1626	3526		1031	3535	
Flt Permitted	0.72	1.00		0.45	1.00		0.14	1.00		0.08	1.00	
Satd. Flow (perm)	1364	1618		858	1169		238	3526		89	3535	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Adj. Flow (vph)	30	2	172	31	21	39	55	1866	10	17	1511	14
RTOR Reduction (vph)	0	43	0	0	20	0	0	0	0	0	0	0
Lane Group Flow (vph)	30	131	0	31	40	0	55	1876	0	17	1525	0
Heavy Vehicles (%)	0%	0%	0%	0%	20%	61%	11%	2%	60%	75%	2%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.1	14.1		14.1	14.1		83.9	83.9		83.9	83.9	
Effective Green, g (s)	14.1	14.1		14.1	14.1		83.9	83.9		83.9	83.9	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.76	0.76		0.76	0.76	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	207		110	150		182	2689		68	2696	
v/s Ratio Prot	c0.08			0.03			c0.53			0.43		
v/s Ratio Perm	0.02			0.04			0.23			0.19		
v/c Ratio	0.17	0.63		0.28	0.27		0.30	0.70		0.25	0.57	
Uniform Delay, d1	42.7	45.5		43.4	43.3		4.0	6.6		3.8	5.4	
Progression Factor	1.00	1.00		1.00	1.00		0.17	0.13		0.69	0.69	
Incremental Delay, d2	0.5	6.4		1.4	1.0		3.0	1.1		8.0	0.8	
Delay (s)	43.2	51.9		44.8	44.2		3.7	2.0		10.7	4.6	
Level of Service	D	D		D	D		A	A		B	A	
Approach Delay (s)		50.6			44.4			2.0			4.6	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM Average Control Delay		6.7			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.69										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		81.0%			ICU Level of Service			D				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%				0%			0%	
Storage Length (m)	25.0		0.0	25.0		0.0	55.0		50.0	55.0		150.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm			pm+pt			pm+pt			
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		11.0	26.0		11.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	11.0	66.0	0.0	11.0	66.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	10.0%	60.0%	0.0%	10.0%	60.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag						Lead	Lag		Lead	Lag		
Lead-Lag Optimize?						Yes	Yes		Yes	Yes		
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	100											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Volume (vph)	34	79	62	92	17	86	23	1076	126	10	1252	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Fr _t	1.00	0.93		1.00	0.87		1.00	0.98		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)	1597	1674		1787	1539		1597	3484		1308	3526	
Flt Permitted	0.69	1.00		0.61	1.00		0.08	1.00		0.06	1.00	
Satd. Flow (perm)	1161	1674		1142	1539		128	3484		76	3526	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Adj. Flow (vph)	34	79	62	92	17	86	37	1732	203	14	1778	14
RTOR Reduction (vph)	0	30	0	0	76	0	0	5	0	0	0	0
Lane Group Flow (vph)	34	111	0	92	27	0	37	1930	0	14	1792	0
Heavy Vehicles (%)	13%	6%	6%	1%	13%	7%	13%	2%	2%	38%	2%	36%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.4	13.4		13.4	13.4		82.0	78.1		79.2	76.7	
Effective Green, g (s)	13.4	13.4		13.4	13.4		82.0	78.1		79.2	76.7	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.75	0.71		0.72	0.70	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	141	204		139	187		148	2474		83	2459	
v/s Ratio Prot		0.07			0.02		c0.01	c0.55		0.00	0.51	
v/s Ratio Perm	0.03			c0.08			0.18			0.12		
v/c Ratio	0.24	0.54		0.66	0.15		0.25	0.78		0.17	0.73	
Uniform Delay, d1	43.7	45.4		46.1	43.2		9.3	10.4		4.4	10.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.78	1.18	
Incremental Delay, d2	0.9	3.0		11.8	0.4		0.9	2.6		0.8	1.7	
Delay (s)	44.6	48.4		58.0	43.6		10.2	12.9		4.3	13.8	
Level of Service	D	D		E	D		B	B		A	B	
Approach Delay (s)		47.7			50.4			12.9			13.7	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM Average Control Delay		16.5			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		84.1%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
17: Creditview Road & Velebit Court

Ultimate Signalized Design Concept
2031 AM Peak Hour



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	1266	1	2	1194	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	200.4			349.5	115.2	
Travel Time (s)	14.4			25.2	8.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	142%	100%	100%	161%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
17: Creditview Road & Velebit Court

Ultimate Signalized Design Concept
2031 AM Peak Hour



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	1266	1	2	1194	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1798	1	2	1922	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	200					
pX, platoon unblocked			0.80	0.80	0.80	
vC, conflicting volume			1799	2763	899	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1489	2702	358	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			99	63	99	
cM capacity (veh/h)			356	14	507	
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NW 3	NE 1
Volume Total	1198	600	2	961	961	11
Volume Left	0	0	2	0	0	5
Volume Right	0	1	0	0	0	6
cSH	1700	1700	356	1700	1700	29
Volume to Capacity	0.70	0.35	0.01	0.57	0.57	0.38
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.0	12.6
Control Delay (s)	0.0	0.0	15.2	0.0	0.0	201.7
Lane LOS			C		F	
Approach Delay (s)	0.0		0.0		201.7	
Approach LOS					F	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		63.1%		ICU Level of Service		B
Analysis Period (min)		60				

Lanes, Volumes, Timings
20: Rivergate Place & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑		Y	↑↑
Volume (vph)	4	3	1227	8	8	1078
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	0.0		0.0	35.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5	7.5		7.5	7.5	
Link Speed (k/h)	50		50			50
Link Distance (m)	76.3		241.3			148.8
Travel Time (s)	5.5		17.4			10.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	161%	100%	100%	142%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
20: Rivergate Place & Creditview Road

Ultimate Signalized Design Concept
2031 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	3	1227	8	8	1078
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	3	1975	8	8	1531
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (m)			241			
pX, platoon unblocked	0.64	0.64			0.64	
vC, conflicting volume	2761	992			1983	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2624	0		1402		
tC, single (s)	6.8	6.9		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	67	100		97		
cM capacity (veh/h)	12	690		307		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	1317	666	8	765	765
Volume Left	4	0	0	8	0	0
Volume Right	3	0	8	0	0	0
cSH	21	1700	1700	307	1700	1700
Volume to Capacity	0.34	0.77	0.39	0.03	0.45	0.45
Queue Length 95th (m)	10.3	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	260.3	0.0	0.0	17.0	0.0	0.0
Lane LOS	F			C		
Approach Delay (s)	260.3	0.0		0.1		
Approach LOS	F					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		64.9%		ICU Level of Service		C
Analysis Period (min)		60				

Lanes, Volumes, Timings
3: Office Entrance & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	0.0		0.0	35.0		0.0	150.0		50.0	140.0		0.0
Storage Lanes	0		1	0		1	1		1	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	73.7			210.5			185.7			208.2		
Travel Time (s)	5.3			15.2			13.4			15.0		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%			0%			0%			0%		
Shared Lane Traffic (%)												
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Detector Phase	8	8	8	4	4	4	6	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	30.0	30.0	30.0	7.0	30.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	62.0	62.0	62.0	11.0	73.0	0.0
Total Split (%)	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	56.4%	56.4%	56.4%	10.0%	66.4%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	4.0
Lead/Lag						Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	None	C-Max	
Intersection Summary												
Area Type:	Other											
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	54 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green											
Natural Cycle:	80											
Control Type:	Actuated-Coordinated											

Splits and Phases: 3: Office Entrance & Creditview Road



HCM Signalized Intersection Capacity Analysis
3: Office Entrance & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	5	18	215	1	215	3	621	242	146	785	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	
Fr _t	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.96	1.00		0.95	1.00	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1750	1615		1792	1553	1805	3574	1583	1671	3569		
Flt Permitted	0.74	1.00		0.71	1.00	0.25	1.00	1.00	0.22	1.00		
Satd. Flow (perm)	1343	1615		1339	1553	482	3574	1583	378	3569		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Adj. Flow (vph)	16	5	18	215	1	215	5	1000	390	207	1115	7
RTOR Reduction (vph)	0	0	14	0	0	163	0	0	156	0	0	0
Lane Group Flow (vph)	0	21	4	0	216	52	5	1000	234	207	1122	0
Heavy Vehicles (%)	6%	0%	0%	1%	0%	4%	0%	1%	2%	8%	1%	8%
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	pm+pt		
Protected Phases		8			4			6		5		2
Permitted Phases	8		8	4		4	6		6	2		
Actuated Green, G (s)	22.6	22.6		22.6	22.6	61.4	61.4	61.4	73.4	73.4		
Effective Green, g (s)	22.6	22.6		22.6	22.6	61.4	61.4	61.4	73.4	73.4		
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.56	0.56	0.56	0.67	0.67		
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	3.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	276	332		275	319	269	1995	884	358	2381		
v/s Ratio Prot							0.28		c0.05	0.31		
v/s Ratio Perm	0.02	0.00		c0.16	0.03	0.01		0.15	c0.34			
v/c Ratio	0.08	0.01		0.79	0.16	0.02	0.50	0.27	0.58	0.47		
Uniform Delay, d1	35.3	34.8		41.4	35.9	10.8	14.9	12.6	8.9	8.9		
Progression Factor	1.00	1.00		1.00	1.00	1.55	1.56	3.92	1.00	1.00		
Incremental Delay, d2	0.1	0.0		15.0	0.2	0.1	0.9	0.7	2.3	0.7		
Delay (s)	35.4	34.8		56.4	36.2	16.9	24.1	50.2	11.2	9.6		
Level of Service	D	C		E	D	B	C	D	B	A		
Approach Delay (s)	35.1			46.3			31.4			9.8		
Approach LOS	D			D			C			A		
Intersection Summary												
HCM Average Control Delay	24.5				HCM Level of Service			C				
HCM Volume to Capacity ratio	0.60											
Actuated Cycle Length (s)	110.0				Sum of lost time (s)			10.0				
Intersection Capacity Utilization	72.8%				ICU Level of Service			C				
Analysis Period (min)	60											
c Critical Lane Group												

Lanes, Volumes, Timings

5: Argentia Road & Creditview Road

Ultimate Signalized Design Concept

2031 PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	70.0			70.0
Storage Lanes	2	1	2			1
Taper Length (m)	7.5	7.5	7.5			7.5
Right Turn on Red		Yes			Yes	
Link Speed (k/h)	50			50	50	
Link Distance (m)	172.9			382.8	591.9	
Travel Time (s)	12.4			27.6	42.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	161%	161%	142%	142%
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type		pm+ov	Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.0	11.0	11.0	31.0	31.0	31.0
Total Split (s)	31.0	30.0	30.0	79.0	49.0	49.0
Total Split (%)	28.2%	27.3%	27.3%	71.8%	44.5%	44.5%
Yellow Time (s)	4.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.0	2.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	5.0	5.0	7.0	7.0	7.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 5: Argentia Road & Creditview Road



HCM Signalized Intersection Capacity Analysis
5: Argentia Road & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Volume (vph)	409	526	387	457	774	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	5.0	5.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3467	1599	3400	3574	3539	1615
Flt Permitted	0.95	1.00	0.20	1.00	1.00	1.00
Satd. Flow (perm)	3467	1599	716	3574	3539	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	161%	161%	142%	142%
Adj. Flow (vph)	409	526	623	736	1099	346
RTOR Reduction (vph)	0	13	0	0	0	175
Lane Group Flow (vph)	409	513	623	736	1099	171
Heavy Vehicles (%)	1%	1%	3%	1%	2%	0%
Turn Type	pm+ov		Prot		Perm	
Protected Phases	4	5	5	2	6	
Permitted Phases			4			6
Actuated Green, G (s)	18.2	43.3	25.1	77.8	47.7	47.7
Effective Green, g (s)	18.2	43.3	25.1	77.8	47.7	47.7
Actuated g/C Ratio	0.17	0.39	0.23	0.71	0.43	0.43
Clearance Time (s)	7.0	5.0	5.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	574	629	776	2528	1535	700
v/s Ratio Prot	0.12	c0.19	0.18	0.21	c0.31	
v/s Ratio Perm			0.13			0.11
v/c Ratio	0.71	0.82	0.80	0.29	0.72	0.24
Uniform Delay, d1	43.4	29.8	40.1	5.9	25.6	19.7
Progression Factor	1.00	1.00	0.95	1.78	0.85	0.57
Incremental Delay, d2	4.3	8.6	5.6	0.3	2.7	0.8
Delay (s)	47.7	38.3	43.6	10.8	24.5	12.0
Level of Service	D	D	D	B	C	B
Approach Delay (s)	42.4			25.8	21.5	
Approach LOS	D			C	C	
Intersection Summary						
HCM Average Control Delay		28.3		HCM Level of Service		C
HCM Volume to Capacity ratio		0.75				
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		17.0
Intersection Capacity Utilization		75.7%		ICU Level of Service		D
Analysis Period (min)		60				
c Critical Lane Group						

Lanes, Volumes, Timings
7: Falconer Drive & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	
Volume (vph)	13	55	112	831	1269	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)	50.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5	7.5	7.5			7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	202.2			141.5	382.8	
Travel Time (s)	14.6			10.2	27.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	161%	161%	142%	142%
Heavy Vehicles (%)	0%	0%	1%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	CBD					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
7: Falconer Drive & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	↑	↑	↑	↑↑	↑↑		
Volume (veh/h)	13	55	112	831	1269	31	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	13	55	180	1338	1802	44	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				390	383		
pX, platoon unblocked	0.77	0.74	0.74				
vC, conflicting volume	2854	923	1846				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2388	185	1436				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	0	91	48				
cM capacity (veh/h)	11	614	350				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	13	55	180	669	669	1201	645
Volume Left	13	0	180	0	0	0	0
Volume Right	0	55	0	0	0	0	44
cSH	11	614	350	1700	1700	1700	1700
Volume to Capacity	1.19	0.09	0.52	0.39	0.39	0.71	0.38
Queue Length 95th (m)	39.8	2.4	24.7	0.0	0.0	0.0	0.0
Control Delay (s)	1367.2	11.4	26.1	0.0	0.0	0.0	0.0
Lane LOS	F	B	D				
Approach Delay (s)	270.6		3.1		0.0		
Approach LOS	F						
Intersection Summary							
Average Delay			6.7				
Intersection Capacity Utilization		81.3%		ICU Level of Service		D	
Analysis Period (min)		60					

Lanes, Volumes, Timings
9: Kenninghall Blvd & Creditview Road

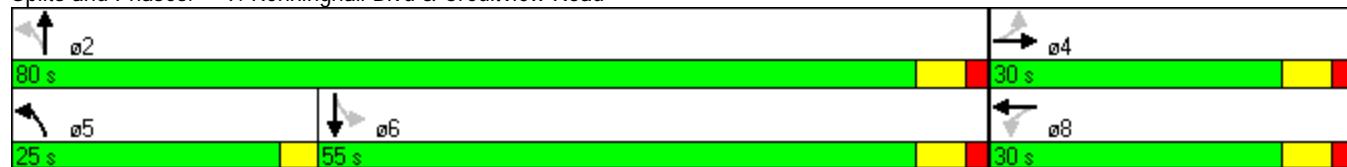
Ultimate Signalized Design Concept

2031 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%			0%		0%		0%	
Storage Length (m)	25.0		0.0	25.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		233.2			322.1			250.9			248.5	
Travel Time (s)		16.8			23.2			18.1			17.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm			pm+pt			Perm			
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)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		11.0	27.0		27.0	27.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	25.0	80.0	0.0	55.0	55.0	0.0
Total Split (%)	27.3%	27.3%	0.0%	27.3%	27.3%	0.0%	22.7%	72.7%	0.0%	50.0%	50.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	3.0	6.0	4.0	6.0	6.0	4.0
Lead/Lag						Lead			Lag		Lag	
Lead-Lag Optimize?						Yes			Yes		Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	32 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	120											
Control Type:	Actuated-Coordinated											

Splits and Phases: 9: Kenninghall Blvd & Creditview Road



HCM Signalized Intersection Capacity Analysis
9: Kenninghall Blvd & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Volume (vph)	19	7	118	14	8	12	222	917	24	14	1290	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Fr _t	1.00	0.86		1.00	0.91		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)	1805	1616		1805	1656		1787	3527		1031	3533	
Flt Permitted	0.74	1.00		0.53	1.00		0.06	1.00		0.17	1.00	
Satd. Flow (perm)	1414	1616		1013	1656		106	3527		185	3533	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Adj. Flow (vph)	19	7	118	14	8	12	357	1476	39	20	1832	23
RTOR Reduction (vph)	0	110	0	0	11	0	0	1	0	0	0	0
Lane Group Flow (vph)	19	15	0	14	9	0	357	1514	0	20	1855	0
Heavy Vehicles (%)	0%	0%	1%	0%	11%	0%	1%	2%	0%	75%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2				6	
Actuated Green, G (s)	7.7	7.7		7.7	7.7		90.3	90.3		68.0	68.0	
Effective Green, g (s)	7.7	7.7		7.7	7.7		90.3	90.3		68.0	68.0	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.82	0.82		0.62	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		3.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	99	113		71	116		382	2895		114	2184	
v/s Ratio Prot		0.01			0.01		c0.16	0.43			0.52	
v/s Ratio Perm	0.01			c0.01			c0.60				0.11	
v/c Ratio	0.19	0.14		0.20	0.08		0.93	0.52		0.18	0.85	
Uniform Delay, d1	48.2	48.0		48.2	47.8		36.8	3.1		9.0	16.9	
Progression Factor	1.00	1.00		1.00	1.00		0.65	2.20		1.01	0.79	
Incremental Delay, d2	0.9	0.5		1.4	0.3		33.5	0.5		2.7	3.7	
Delay (s)	49.2	48.6		49.6	48.1		57.6	7.3		11.7	17.1	
Level of Service	D	D		D	D		E	A		B	B	
Approach Delay (s)		48.6			48.7			16.9			17.0	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM Average Control Delay		18.4			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		96.1%			ICU Level of Service			F				
Analysis Period (min)		60										
c Critical Lane Group												

Lanes, Volumes, Timings
12: Sir Monty's Drive & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%				0%			0%	
Storage Length (m)	25.0		0.0	25.0		0.0	55.0		50.0	55.0		150.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5		7.5	7.5		7.5	7.5		7.5	7.5		7.5
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.0			141.1			172.9			113.2	
Travel Time (s)		10.1			10.2			12.4			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm		Perm			pm+pt			pm+pt			
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	30.0	30.0		30.0	30.0		7.0	26.0		7.0	26.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	0.0	10.0	67.0	0.0	10.0	67.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	9.1%	60.9%	0.0%	9.1%	60.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	7.0	4.0	3.0	6.0	4.0	3.0	6.0	4.0
Lead/Lag						Lead	Lag		Lead	Lag		
Lead-Lag Optimize?						Yes	Yes		Yes	Yes		
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Intersection Summary												
Area Type:		Other										
Cycle Length:	110											
Actuated Cycle Length:	110											
Offset:	21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											

Splits and Phases: 12: Sir Monty's Drive & Creditview Road



HCM Signalized Intersection Capacity Analysis
12: Sir Monty's Drive & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

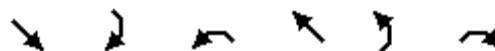
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Volume (vph)	20	16	13	110	58	179	71	966	105	90	1300	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Fr _t	1.00	0.93		1.00	0.89		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1733		1787	1635		1770	3491		1787	3563	
Flt Permitted	0.29	1.00		0.74	1.00		0.06	1.00		0.07	1.00	
Satd. Flow (perm)	546	1733		1389	1635		105	3491		133	3563	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	161%	161%	161%	142%	142%	142%
Adj. Flow (vph)	20	16	13	110	58	179	114	1555	169	128	1846	44
RTOR Reduction (vph)	0	11	0	0	115	0	0	6	0	0	1	0
Lane Group Flow (vph)	20	18	0	110	122	0	114	1718	0	128	1889	0
Heavy Vehicles (%)	0%	0%	5%	1%	0%	4%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		79.0	70.7		80.6	71.5	
Effective Green, g (s)	14.2	14.2		14.2	14.2		79.0	70.7		80.6	71.5	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.72	0.64		0.73	0.65	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	70	224		179	211		201	2244		234	2316	
v/s Ratio Prot		0.01			0.07		0.04	0.49		c0.05	c0.53	
v/s Ratio Perm	0.04			c0.08			0.36			0.35		
v/c Ratio	0.29	0.08		0.61	0.58		0.57	0.77		0.55	0.82	
Uniform Delay, d1	43.3	42.1		45.3	45.1		20.1	13.8		15.1	14.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.06	1.48	
Incremental Delay, d2	2.3	0.2		6.3	3.9		3.7	2.6		1.6	2.0	
Delay (s)	45.6	42.3		51.6	48.9		23.8	16.4		17.5	23.3	
Level of Service	D	D		D	D		C	B		B	C	
Approach Delay (s)		43.6			49.8			16.9			22.9	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM Average Control Delay		22.8			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		89.5%			ICU Level of Service			E				
Analysis Period (min)		60										
c Critical Lane Group												



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (vph)	1419	1	2	1162	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	20.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)		7.5	7.5		7.5	7.5
Link Speed (k/h)	50			50	50	
Link Distance (m)	250.9			299.0	114.0	
Travel Time (s)	18.1			21.5	8.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	142%	100%	100%	161%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
17: Creditview Road &

Ultimate Signalized Design Concept
2031 PM Peak Hour



Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	1419	1	2	1162	5	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2015	1	2	1871	5	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	251					
pX, platoon unblocked			0.49	0.49	0.49	
vC, conflicting volume			2016	2955	1008	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1003	2908	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 %			99	17	99	
cM capacity (veh/h)			338	6	534	
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NW 3	NE 1
Volume Total	1343	673	2	935	935	11
Volume Left	0	0	2	0	0	5
Volume Right	0	1	0	0	0	6
cSH	1700	1700	338	1700	1700	13
Volume to Capacity	0.79	0.40	0.01	0.55	0.55	0.84
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.0	28.6
Control Delay (s)	0.0	0.0	15.7	0.0	0.0	798.8
Lane LOS			C		F	
Approach Delay (s)	0.0		0.0		798.8	
Approach LOS					F	
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization	65.7%			ICU Level of Service		C
Analysis Period (min)	60					

Lanes, Volumes, Timings
20: Rivergate Place & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑		Y	↑↑
Volume (vph)	4	3	940	8	8	1316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	0.0		0.0	35.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5	7.5		7.5	7.5	
Link Speed (k/h)	50		50			50
Link Distance (m)	104.6		248.5			141.5
Travel Time (s)	7.5		17.9			10.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	161%	100%	100%	142%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM Unsignalized Intersection Capacity Analysis
20: Rivergate Place & Creditview Road

Ultimate Signalized Design Concept
2031 PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	3	940	8	8	1316
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	3	1513	8	8	1869
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (m)			248			
pX, platoon unblocked	0.85	0.85			0.85	
vC, conflicting volume	2468	761			1521	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2374	366			1261	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	99			98	
cM capacity (veh/h)	24	536			465	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	7	1009	512	8	934	934
Volume Left	4	0	0	8	0	0
Volume Right	3	0	8	0	0	0
cSH	41	1700	1700	465	1700	1700
Volume to Capacity	0.17	0.59	0.30	0.02	0.55	0.55
Queue Length 95th (m)	4.8	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	110.9	0.0	0.0	12.9	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	110.9	0.0		0.1		
Approach LOS	F					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		61.7%		ICU Level of Service		B
Analysis Period (min)			60			

Alternative 5 (Ultimate Solution)

MOVEMENT SUMMARY

 Site: Argentia two-lane 2031 AM

 Network: Creditview AM 2031 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	763	0.0	763	0.0	0.741	11.1	LOS B	7.6	53.0	0.66	0.71	50.3
2	T1	1185	0.0	1185	0.0	0.741	5.5	LOSA	7.6	53.0	0.63	0.57	45.3
Approach		1948	0.0	1948	0.0	0.741	7.7	LOSA	7.6	53.0	0.64	0.63	48.0
North: Creditview													
8	T1	797	0.0	797	0.0	0.800	14.9	LOS B	11.2	78.4	0.98	1.20	41.0
9	R2	540	0.0	540	0.0	0.800	14.3	LOS B	11.2	78.4	0.99	1.19	47.0
Approach		1337	0.0	1337	0.0	0.800	14.7	LOS B	11.2	78.4	0.98	1.20	44.0
West: Argentia													
10	L2	225	0.0	225	0.0	0.293	11.1	LOS B	1.4	9.7	0.64	0.81	41.4
12	R2	441	0.0	441	0.0	0.450	6.1	LOSA	2.7	19.0	0.71	0.74	46.1
Approach		666	0.0	666	0.0	0.450	7.8	LOSA	2.7	19.0	0.68	0.76	44.3
All Vehicles		3951	0.0	3951	0.0	0.800	10.1	LOS B	11.2	78.4	0.77	0.84	45.9

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Falconer two-lane 2031 AM

 Network: Creditview AM 2031 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	66	0.0	66	0.0	0.617	9.1	LOS A	5.2	36.4	0.13	0.39	56.1
2	T1	1924	0.0	1924	0.0	0.617	3.9	LOS A	5.2	36.5	0.13	0.37	50.5
Approach		1990	0.0	1990	0.0	0.617	4.1	LOS A	5.2	36.5	0.13	0.37	50.8
North: Creditview													
8	T1	1406	0.0	1406	0.0	0.477	4.1	LOS A	2.5	17.4	0.19	0.39	50.0
9	R2	17	0.0	17	0.0	0.477	4.2	LOS A	2.5	17.4	0.19	0.39	53.7
Approach		1423	0.0	1423	0.0	0.477	4.1	LOS A	2.5	17.4	0.19	0.39	50.1
West: Falconer													
10	L2	15	0.0	15	0.0	0.138	12.0	LOS B	0.5	3.4	0.58	0.79	45.8
12	R2	90	0.0	90	0.0	0.138	6.7	LOS A	0.5	3.4	0.58	0.79	45.8
Approach		105	0.0	105	0.0	0.138	7.5	LOS A	0.5	3.4	0.58	0.79	45.8
All Vehicles		3518	0.0	3518	0.0	0.617	4.2	LOS A	5.2	36.5	0.17	0.39	50.4

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Wednesday, November 04, 2015 4:07:16 PM Copyright © 2000-2014 Akcelik and Associates Pty Ltd
SIDRA INTERSECTION 6.0.24.4877 www.sidrasolutions.com
Project: C:\Users\skeltonv\Desktop\Creditview\400-Technical\402 Traffic analysis\Sidra models\Creditview two
lane.sip6
8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Kenninghall two lane 2031 AM

 Network: Creditview AM 2031 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	55	0.0	55	0.0	0.630	9.2	LOS A	4.6	32.3	0.23	0.40	56.4
2	T1	1866	0.0	1866	0.0	0.630	4.0	LOS A	4.6	32.5	0.22	0.39	51.5
3	R2	10	0.0	10	0.0	0.630	4.2	LOS A	4.6	32.5	0.22	0.38	54.3
Approach		1931	0.0	1931	0.0	0.630	4.2	LOS A	4.6	32.5	0.22	0.39	51.8
East: Kenninghall													
4	L2	31	0.0	31	0.0	0.152	14.1	LOS B	0.6	4.3	0.70	0.86	42.1
5	T1	21	0.0	21	0.0	0.152	9.0	LOS A	0.6	4.3	0.70	0.86	51.4
6	R2	39	0.0	39	0.0	0.152	8.9	LOS A	0.6	4.3	0.70	0.86	42.1
Approach		91	0.0	91	0.0	0.152	10.7	LOS B	0.6	4.3	0.70	0.86	45.3
North: Creditview													
7	L2	17	0.0	17	0.0	0.539	9.5	LOS A	3.3	23.3	0.31	0.43	55.1
8	T1	1511	0.0	1511	0.0	0.539	4.3	LOS A	3.4	23.6	0.30	0.42	48.9
9	R2	14	0.0	14	0.0	0.539	4.4	LOS A	3.4	23.6	0.29	0.42	53.8
Approach		1542	0.0	1542	0.0	0.539	4.3	LOS A	3.4	23.6	0.30	0.42	49.1
West: Kenninghall													
10	L2	30	0.0	30	0.0	0.298	12.9	LOS B	1.2	8.4	0.67	0.84	47.4
11	T1	2	0.0	2	0.0	0.298	7.7	LOS A	1.2	8.4	0.67	0.84	53.2
12	R2	172	0.0	172	0.0	0.298	7.5	LOS A	1.2	8.4	0.67	0.84	47.4
Approach		204	0.0	204	0.0	0.298	8.3	LOS A	1.2	8.4	0.67	0.84	47.5
All Vehicles		3768	0.0	3768	0.0	0.630	4.6	LOS A	4.6	32.5	0.29	0.44	50.4

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Argentia two-lane 2031 PM

 Network: Creditview PM 2031 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	623	0.0	623	0.0	0.614	11.8	LOS B	5.1	35.6	0.71	0.83	49.4
2	T1	736	0.0	736	0.0	0.614	6.2	LOS A	5.2	36.7	0.70	0.64	45.1
Approach		1359	0.0	1359	0.0	0.614	8.7	LOS A	5.2	36.7	0.70	0.73	47.7
North: Creditview													
8	T1	1099	0.0	1099	0.0	0.761	10.7	LOS B	9.2	64.4	0.91	1.04	45.0
9	R2	346	0.0	346	0.0	0.761	10.4	LOS B	9.2	64.4	0.91	1.02	50.0
Approach		1445	0.0	1445	0.0	0.761	10.6	LOS B	9.2	64.4	0.91	1.04	46.6
West: Argentia													
10	L2	409	0.0	409	0.0	0.604	13.5	LOS B	3.8	26.8	0.82	1.00	39.8
12	R2	526	0.0	526	0.0	0.624	7.8	LOS A	4.5	31.2	0.84	0.98	45.1
Approach		935	0.0	935	0.0	0.624	10.3	LOS B	4.5	31.2	0.83	0.99	42.5
All Vehicles		3739	0.0	3739	0.0	0.761	9.9	LOS A	9.2	64.4	0.81	0.91	46.2

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Wednesday, November 04, 2015 4:10:09 PM Copyright © 2000-2014 Akcelik and Associates Pty Ltd
SIDRA INTERSECTION 6.0.24.4877 www.sidrasolutions.com
Project: C:\Users\skeltonv\Desktop\Creditview\400-Technical\402 Traffic analysis\Sidra models\Creditview two lane.sip6
8000481, 6017809, AECOM CANADA LTD (ONTARIO), NETWORK / 1PC

**SIDRA
INTERSECTION 6**

MOVEMENT SUMMARY

 Site: Falconer two-lane 2031 PM

 Network: Creditview PM 2031 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	180	0.0	180	0.0	0.471	9.0	LOS A	3.2	22.5	0.10	0.45	55.4
2	T1	1338	0.0	1338	0.0	0.471	3.9	LOS A	3.3	23.0	0.10	0.40	50.3
Approach		1518	0.0	1518	0.0	0.471	4.5	LOS A	3.3	23.0	0.10	0.40	51.2
North: Creditview													
8	T1	1802	0.0	1802	0.0	0.674	4.8	LOS A	4.8	33.4	0.45	0.48	47.5
9	R2	44	0.0	44	0.0	0.674	4.9	LOS A	4.8	33.4	0.44	0.47	52.2
Approach		1846	0.0	1846	0.0	0.674	4.8	LOS A	4.8	33.4	0.45	0.48	47.7
West: Falconer													
10	L2	13	0.0	13	0.0	0.120	13.3	LOS B	0.5	3.5	0.71	0.85	43.8
12	R2	55	0.0	55	0.0	0.120	8.0	LOS A	0.5	3.5	0.71	0.85	43.8
Approach		68	0.0	68	0.0	0.120	9.0	LOS A	0.5	3.5	0.71	0.85	43.8
All Vehicles		3432	0.0	3432	0.0	0.674	4.8	LOS A	4.8	33.4	0.30	0.45	49.2

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: Kenninghall two lane 2031 PM

 Network: Creditview PM 2031 2 lane

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Arrival Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Creditview													
1	L2	357	0.0	357	0.0	0.609	9.2	LOS A	4.3	30.3	0.22	0.50	55.3
2	T1	1476	0.0	1476	0.0	0.609	4.0	LOS A	4.4	30.5	0.21	0.42	51.0
3	R2	39	0.0	39	0.0	0.609	4.2	LOS A	4.4	30.5	0.20	0.38	54.3
Approach		1872	0.0	1872	0.0	0.609	5.0	LOS A	4.4	30.5	0.21	0.44	52.3
East: Kenninghall													
4	L2	14	0.0	14	0.0	0.054	13.3	LOS B	0.2	1.4	0.65	0.83	42.7
5	T1	8	0.0	8	0.0	0.054	8.1	LOS A	0.2	1.4	0.65	0.83	51.7
6	R2	12	0.0	12	0.0	0.054	8.0	LOS A	0.2	1.4	0.65	0.83	42.7
Approach		34	0.0	34	0.0	0.054	10.2	LOS B	0.2	1.4	0.65	0.83	45.9
North: Creditview													
7	L2	20	0.0	20	0.0	0.788	14.0	LOS B	9.2	64.2	0.76	0.85	52.1
8	T1	1832	0.0	1832	0.0	0.788	8.5	LOS A	9.3	65.2	0.75	0.82	44.6
9	R2	23	0.0	23	0.0	0.788	8.4	LOS A	9.3	65.2	0.74	0.81	51.5
Approach		1875	0.0	1875	0.0	0.788	8.5	LOS A	9.3	65.2	0.75	0.82	44.9
West: Kenninghall													
10	L2	19	0.0	19	0.0	0.324	14.3	LOS B	1.6	11.0	0.82	0.92	45.9
11	T1	7	0.0	7	0.0	0.324	9.1	LOS A	1.6	11.0	0.82	0.92	52.1
12	R2	118	0.0	118	0.0	0.324	9.0	LOS A	1.6	11.0	0.82	0.92	45.9
Approach		144	0.0	144	0.0	0.324	9.7	LOS A	1.6	11.0	0.82	0.92	46.3
All Vehicles		3925	0.0	3925	0.0	0.788	6.9	LOS A	9.3	65.2	0.50	0.64	48.9

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movements - Old Creditview AM [N] Detailed Output - Old Creditview AM [N]

West: private entrance
 1 0.012 0.1 0.1 0.2 0.2 0.2 0.2 0.2

* Short lane queue distance includes vehicles queued into the adjacent lane.

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Satn	Deg.	Percentile Back of Queue (metres)						
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.078	2.4	3.0	3.5	3.7	3.9	4.1	4.2	
2	0.773	141.7	175.8	207.1	218.9	231.3	239.2	244.5	
3	0.773	99.8	123.7	145.8	154.1	162.8	168.4	172.1	
4	0.296	36.8	45.6	53.7*	56.7*	60.0*	62.0*	63.4*	
East: Old Creditview									
1	0.737	50.6*	62.8*	73.9*	78.1*	82.6*	85.4*	87.3*	
2	0.309	25.9	32.2	37.9	40.1	42.3	43.8	44.8	
North: Creditview									
1	0.613	20.4	25.3	29.8	31.4	33.2	34.4	35.1	
2	0.434	61.2	75.9	89.4	94.5	99.9	103.3	105.6	
3	0.434	61.1	75.8	89.3	94.4	99.8	103.2	105.5	
West: private entrance									
1	0.012	0.7	0.9	1.1	1.1	1.2	1.2	1.3	

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Satn	Deg.	Percentile Back of Queue (metres)						
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.741	21.3	27.6	38.9	45.0	53.0	58.8	63.2	
2	0.741	21.1	27.3	38.5	44.6	52.4	58.2	62.5	
North: Creditview									
1	0.800	28.7	37.1	52.4	60.6	71.3	79.1	85.1	
2	0.800	31.5	40.8	57.6	66.6	78.4	87.0	93.5	
West: Argentia									
1	0.293	3.9	5.0	7.1	8.2	9.7	10.7	11.5	
2	0.450	7.6	9.9	13.9	16.2	19.0	21.1	22.7	

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Argentia two-lane 2031 AM

Network: Creditview AM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. Satn x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.617	14.6	19.0	26.7	31.0	36.4	40.4	43.4
2	0.617	14.7	19.0	26.8	31.1	36.5	40.5	43.6
North: Creditview								
1	0.477	7.0	9.0	12.7	14.7	17.3	19.2	20.7
2	0.477	7.0	9.0	12.7	14.8	17.4	19.3	20.7
West: Falconer								
1	0.138	1.4	1.8	2.5	2.9	3.4	3.8	4.1

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Falconer two-lane 2031 AM

Network: Creditview AM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane No.	Deg. Satn x	Percentile Back of Queue (metres)						
		50%	70%	85%	90%	95%	98%	100%
South: Creditview								
1	0.630	13.0	16.8	23.7	27.5	32.3	35.9	38.6
2	0.630	13.1	16.9	23.8	27.6	32.5	36.0	38.7
East: Kenninghall								
1	0.152	1.7	2.2	3.1	3.6	4.3	4.7	5.1
North: Creditview								
1	0.539	9.4	12.2	17.1	19.8	23.3	25.9	27.8
2	0.539	9.5	12.3	17.3	20.1	23.6	26.2	28.1
West: Kenninghall								
1	0.298	3.4	4.4	6.2	7.2	8.4	9.4	10.1

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Kenninghall two lane 2031 AM

Network: Creditview AM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Deg.	Satn	Percentile Back of Queue (metres)							
			No.	x	50%	70%	85%	90%	95%	98%
South: Creditview										
1	0.170	3.4	4.3	5.0	5.3	5.6	5.8	5.9		
2	0.961	277.3	343.9	405.2	428.2	452.6	467.9	478.4		
3	0.961	290.2	359.9	424.1	448.1	473.7	489.7	500.7		
East: Bancroft										
1	0.299	18.7	23.2	27.3*	28.8*	30.5*	31.5*	32.2*		
2	0.245	20.3	25.2	29.7	31.4	33.2	34.3	35.1		
North: Creditview										
1	0.068	1.3	1.6	1.9	2.0	2.1	2.1	2.2		
2	0.878	194.6	241.3	284.4	300.5	317.6	328.3	335.7		
3	0.878	199.1	246.9	290.9	307.4	324.9	335.9	343.4		
West: Sir Monty's										
1	0.107	6.5	8.1	9.5	10.1	10.6	11.0	11.2		
2	0.334	28.5	35.3	41.6	44.0	46.5	48.1	49.1		

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Sir Monty's AM

Network: Creditview AM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Deg.	Satn	Percentile Back of Queue (metres)							
			No.	x	50%	70%	85%	90%	95%	98%
South: Creditview										
1	0.023	0.6	0.8	0.9	1.0	1.0	1.1	1.1		
2	0.605	96.4	119.6	140.9	148.9	157.4	162.7	166.3		
3	0.605	68.9	85.5	100.7	106.4	112.5	116.3	118.9		
4	0.516	60.0*	74.4*	87.7*	92.6*	97.9*	101.2*	103.5*		
East: Old Creditview										
1	0.635	45.6*	56.5*	66.6*	70.3*	74.3*	76.9*	78.6*		
2	0.530	43.4	53.8	63.4	67.0	70.8	73.2	74.9		
North: Creditview										
1	0.679	24.5	30.4	35.8	37.8	39.9	41.3	42.2		
2	0.505	76.8	95.2	112.2	118.6	125.3	129.6	132.5		
3	0.505	76.8	95.2	112.2	118.5	125.3	129.5	132.4		
West: private entrance										
1	0.060	3.8	4.7	5.5	5.8	6.2	6.4	6.5		

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Old Creditview PM

Network: Creditview PM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Deg. Satn	Percentile Back of Queue (metres)							
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.614	14.3	18.5	26.1	30.3	35.6	39.5	42.5	
2	0.614	14.7	19.1	26.9	31.2	36.7	40.7	43.7	
North: Creditview									
1	0.761	24.2	31.4	44.2	51.2	60.2	66.8	71.8	
2	0.761	25.9	33.6	47.3	54.8	64.4	71.5	76.8	
West: Argentia									
1	0.604	10.8	14.0	19.7	22.8	26.8	29.8	32.0	
2	0.624	12.6	16.3	22.9	26.6	31.2	34.7	37.3	

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Argentia two-lane 2031 PM

Network: Creditview PM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Deg. Satn	Percentile Back of Queue (metres)							
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.471	9.0	11.7	16.5	19.1	22.5	24.9	26.8	
2	0.471	9.3	12.0	16.9	19.6	23.0	25.6	27.5	
North: Creditview									
1	0.674	13.3	17.3	24.4	28.2	33.2	36.8	39.6	
2	0.674	13.4	17.4	24.5	28.4	33.4	37.1	39.8	
West: Falconer									
1	0.120	1.4	1.8	2.5	2.9	3.5	3.8	4.1	

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Falconer two-lane 2031 PM

Network: Creditview PM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Satn	Deg.	Percentile Back of Queue (metres)						
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.609	12.2	15.8	22.3	25.8	30.3	33.6	36.2	
2	0.609	12.3	15.9	22.4	26.0	30.5	33.9	36.4	
East: Kenninghall									
1	0.054	0.6	0.7	1.0	1.2	1.4	1.6	1.7	
North: Creditview									
1	0.788	25.8	33.5	47.2	54.6	64.2	71.3	76.6	
2	0.788	26.2	34.0	47.9	55.4	65.2	72.3	77.8	
West: Kenninghall									
1	0.324	4.4	5.7	8.1	9.3	11.0	12.2	13.1	

[Go to Table Links \(Top\)](#)

Lane Stops

Site: Kenninghall two lane 2031 PM

Network: Creditview PM 2031 2 lane

LANE QUEUE PERCENTILES (DISTANCE)

Lane	Satn	Deg.	Percentile Back of Queue (metres)						
		No.	x	50%	70%	85%	90%	95%	98%
South: Creditview									
1	0.513	11.2	13.9	16.3	17.3	18.3	18.9	19.3	
2	0.901	180.1	223.4	263.2	278.1	294.0	303.9	310.8	
3	0.901	213.9	265.3	312.6	330.3	349.1	360.9	369.1	
East: Bancroft									
1	0.327	22.4	27.8*	32.8*	34.6*	36.6*	37.8*	38.7*	
2	0.723	51.2	63.4	74.7	79.0	83.5	86.3	88.3	
North: Creditview									
1	0.537	12.7	15.7	18.5	19.6	20.7	21.4	21.9	
2	0.985	273.2	338.8	399.2	421.8	445.8	460.9	471.3	
3	0.985	326.2	404.5	476.6	503.6	532.3	550.3	562.7	
West: Sir Monty's									
1	0.071	3.8	4.7	5.6	5.9	6.2	6.4	6.6	
2	0.068	5.4	6.7	7.9	8.4	8.9	9.2	9.4	

* Short lane queue distance includes vehicles queued into the adjacent lane.

[Go to Table Links \(Top\)](#)

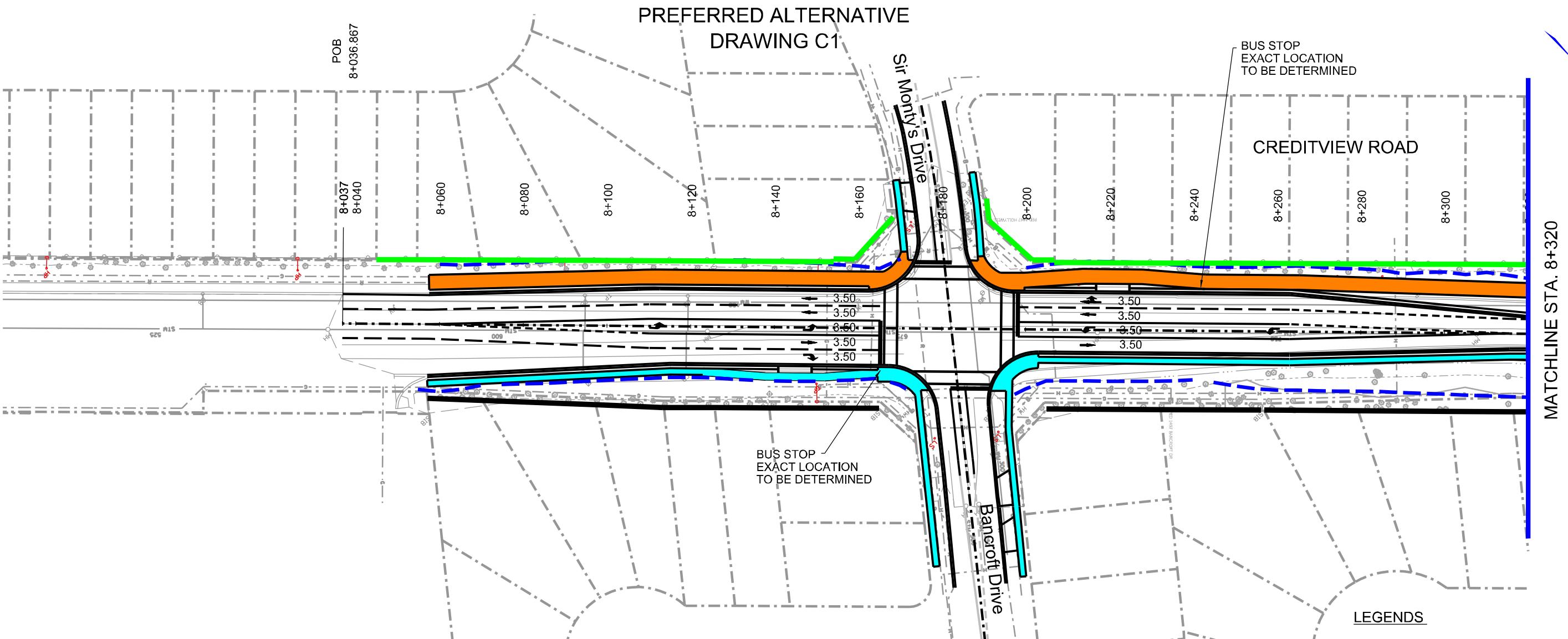
Lane Stops

Site: Sir Monty's PM

Network: Creditview PM 2031 2 lane

APPENDIX F

Preferred Alternative



LEGENDS

- Existing Right of Way
- Existing Property Line
- Proposed Right of Way
- Grading
- Existing Noise Barrier
- 2015 Proposed Noise Barrier
- New Noise Barrier
- Proposed Sidewalk
- Proposed Multi-use Trail
- Proposed Median

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



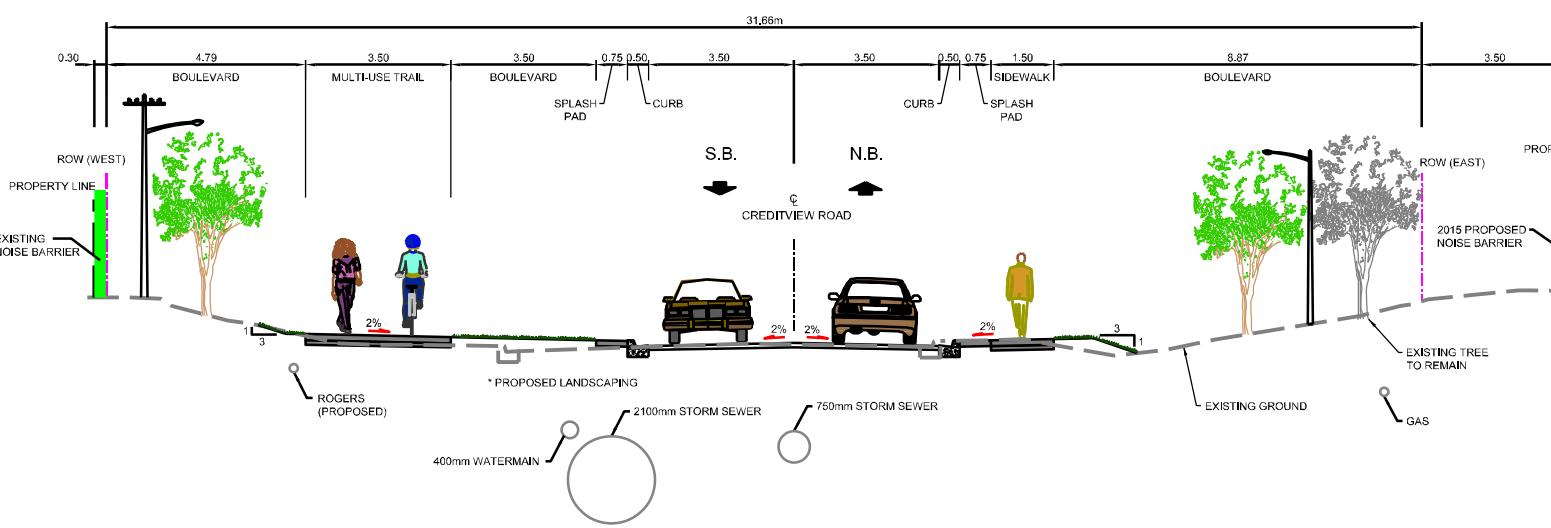
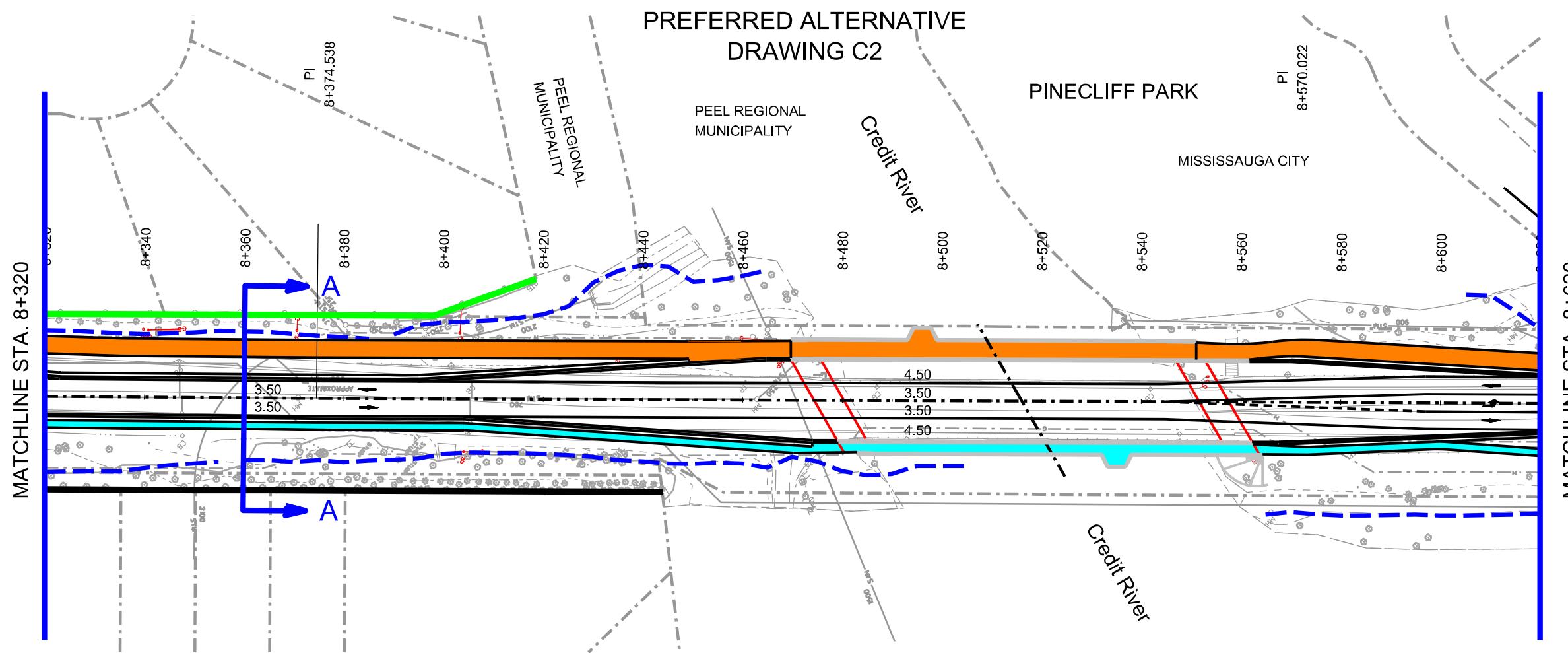
MISSISSAUGA

CONSULTANTS

AECOM

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 8+037 TO STA. 8+320

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		SHEET



NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

LEGENDS

- Existing Right of Way
- Existing Property Line
- Proposed Right of Way
- Grading
- Existing Noise Barrier
- 2015 Proposed Noise Barrier
- New Noise Barrier
- Proposed Sidewalk
- Proposed Multi-Use Trail
- Proposed Median

MISSISSAUGA

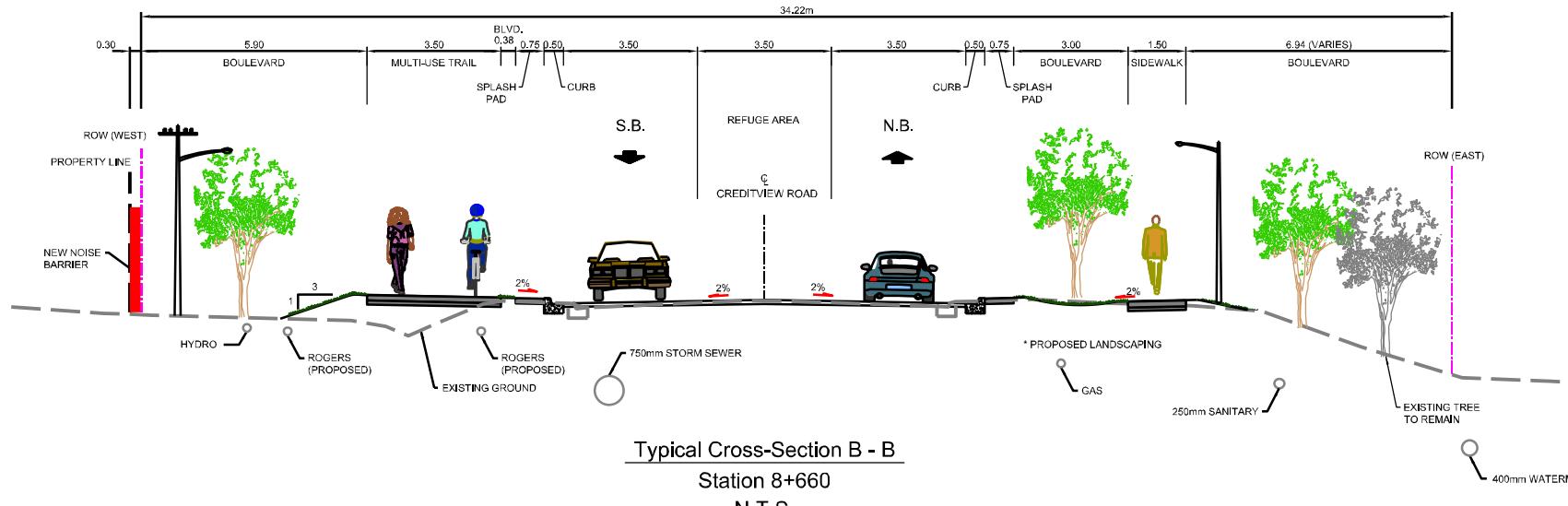
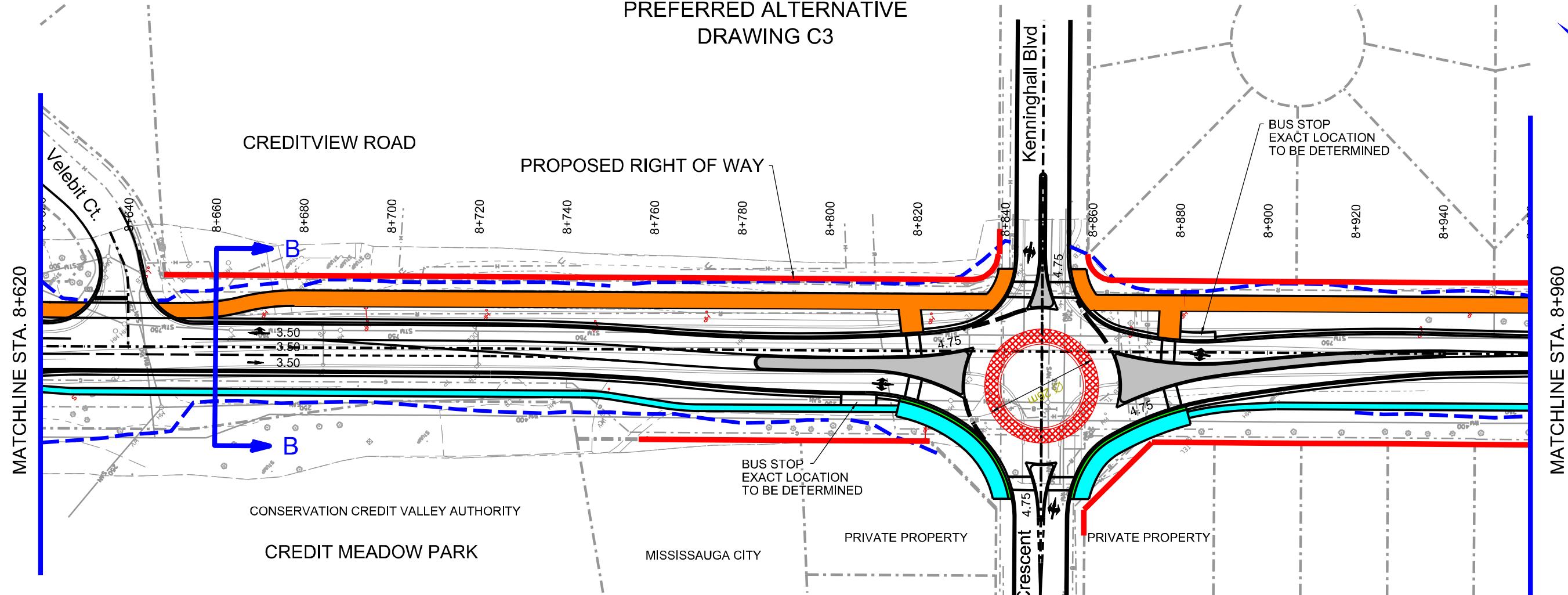
AECOM

CONSULTANTS

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 8+320 TO STA. 8+620

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		SHEET

PREFERRED ALTERNATIVE
DRAWING C3



NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



AECOM

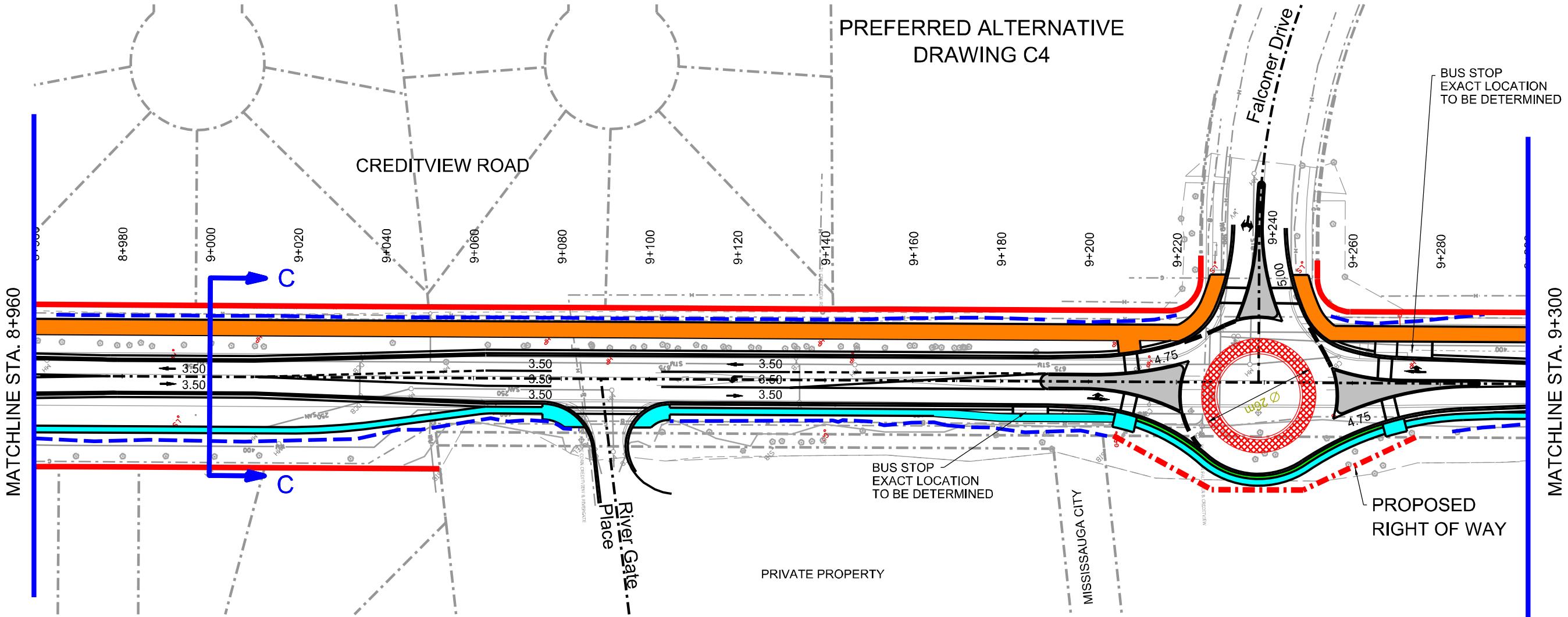
CONSULTANTS

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 8+620 TO STA. 8+960

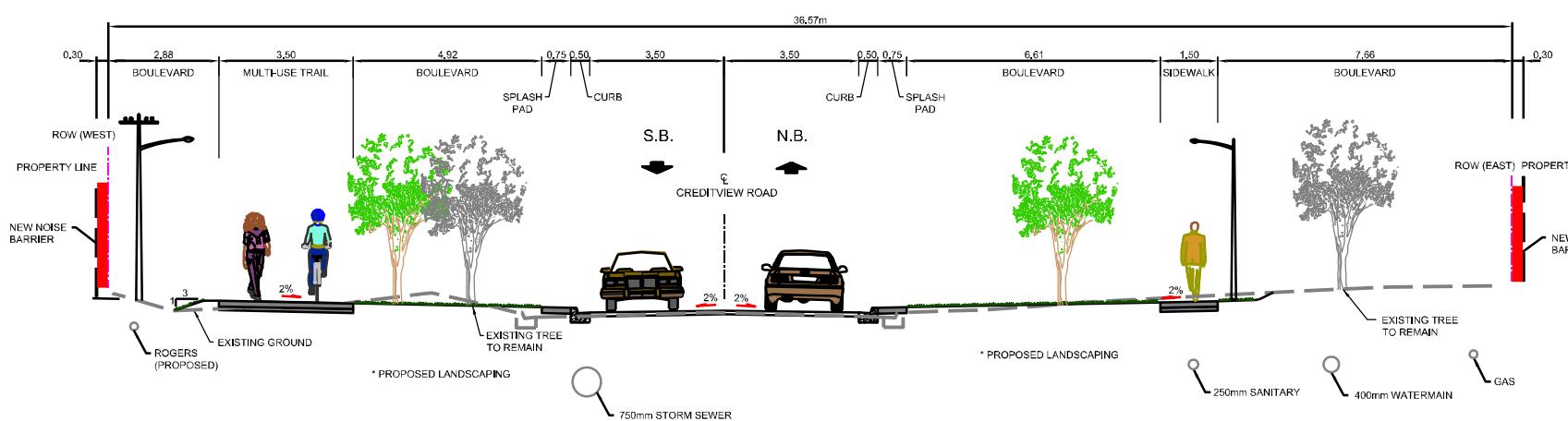
DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		

SHEET

PREFERRED ALTERNATIVE
DRAWING C4



MATCHLINE STA. 9+300



Typical Cross-Section C - C
Station 9+000
N.T.S.

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

LEGENDS

- EXISTING RIGHT OF WAY
- EXISTING PROPERTY LINE
- PROPOSED RIGHT OF WAY
- GRADING
- EXISTING NOISE BARRIER
- 2015 PROPOSED NOISE BARRIER
- NEW NOISE BARRIER
- PROPOSED SIDEWALK
- PROPOSED MULTI-USE TRAIL
- PROPOSED MEDIAN



CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 8+960 TO STA. 9+300

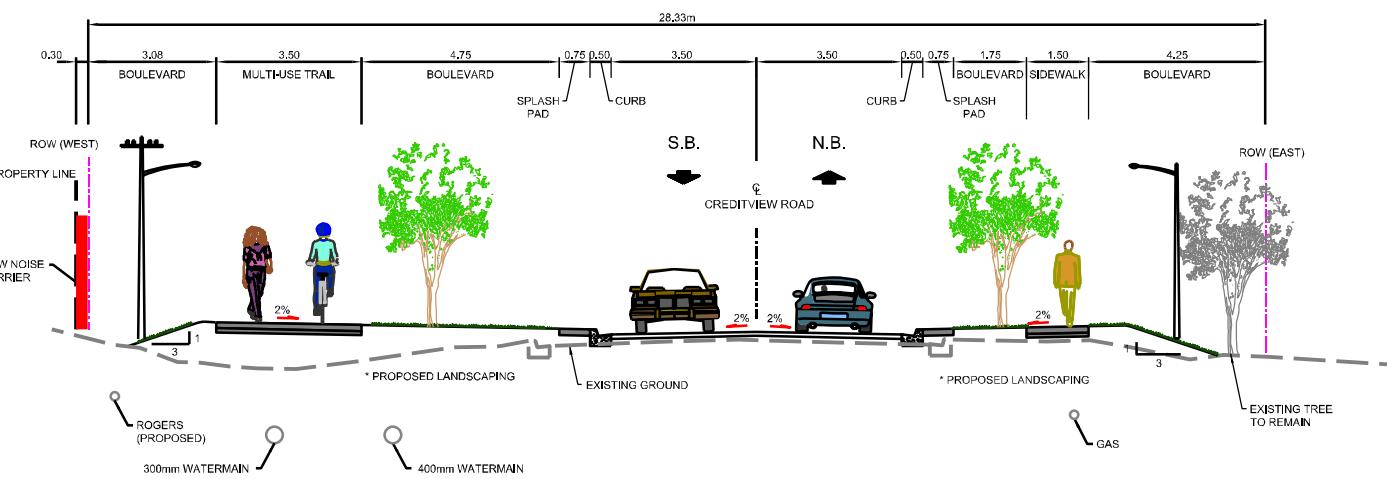
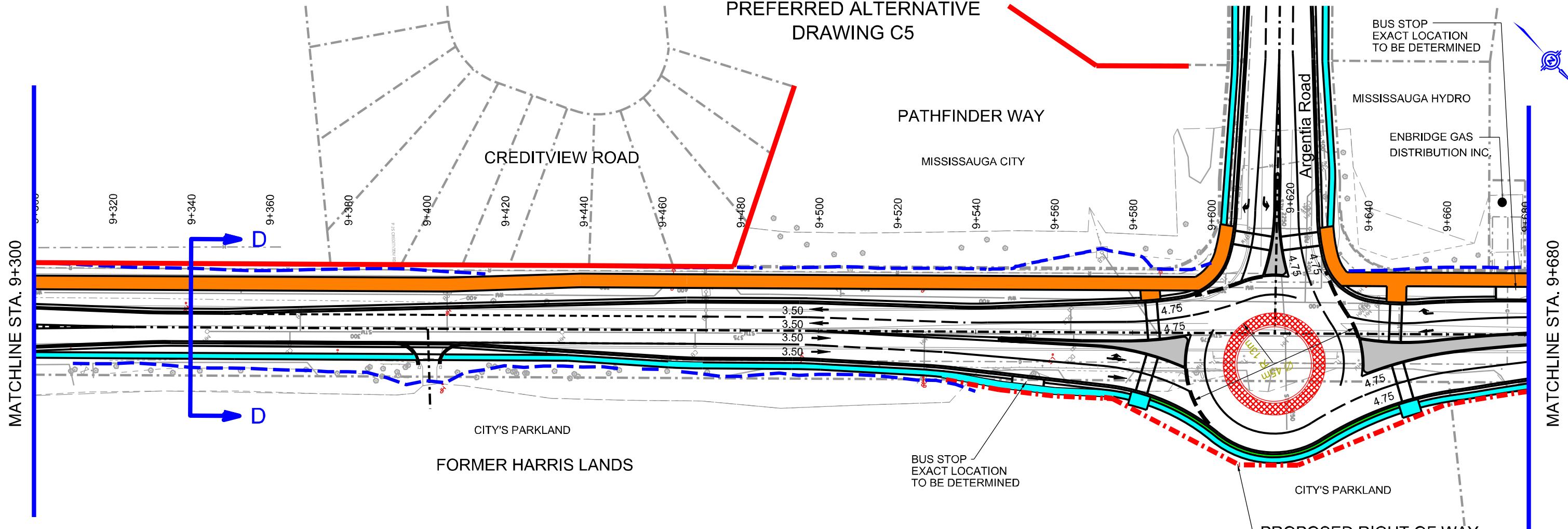
AECOM

CONSULTANTS

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		

SHEET

PREFERRED ALTERNATIVE
DRAWING C5



Typical Cross-Section D - D
Station 9+340
N.T.S.

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

LEGENDS

- Existing Right of Way
- Existing Property Line
- Proposed Right of Way
- Grading
- Existing Noise Barrier
- 2015 Proposed Noise Barrier
- New Noise Barrier
- Proposed Sidewalk
- Proposed Multi-use Trail
- Proposed Median

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 9+300 TO STA. 9+680

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		

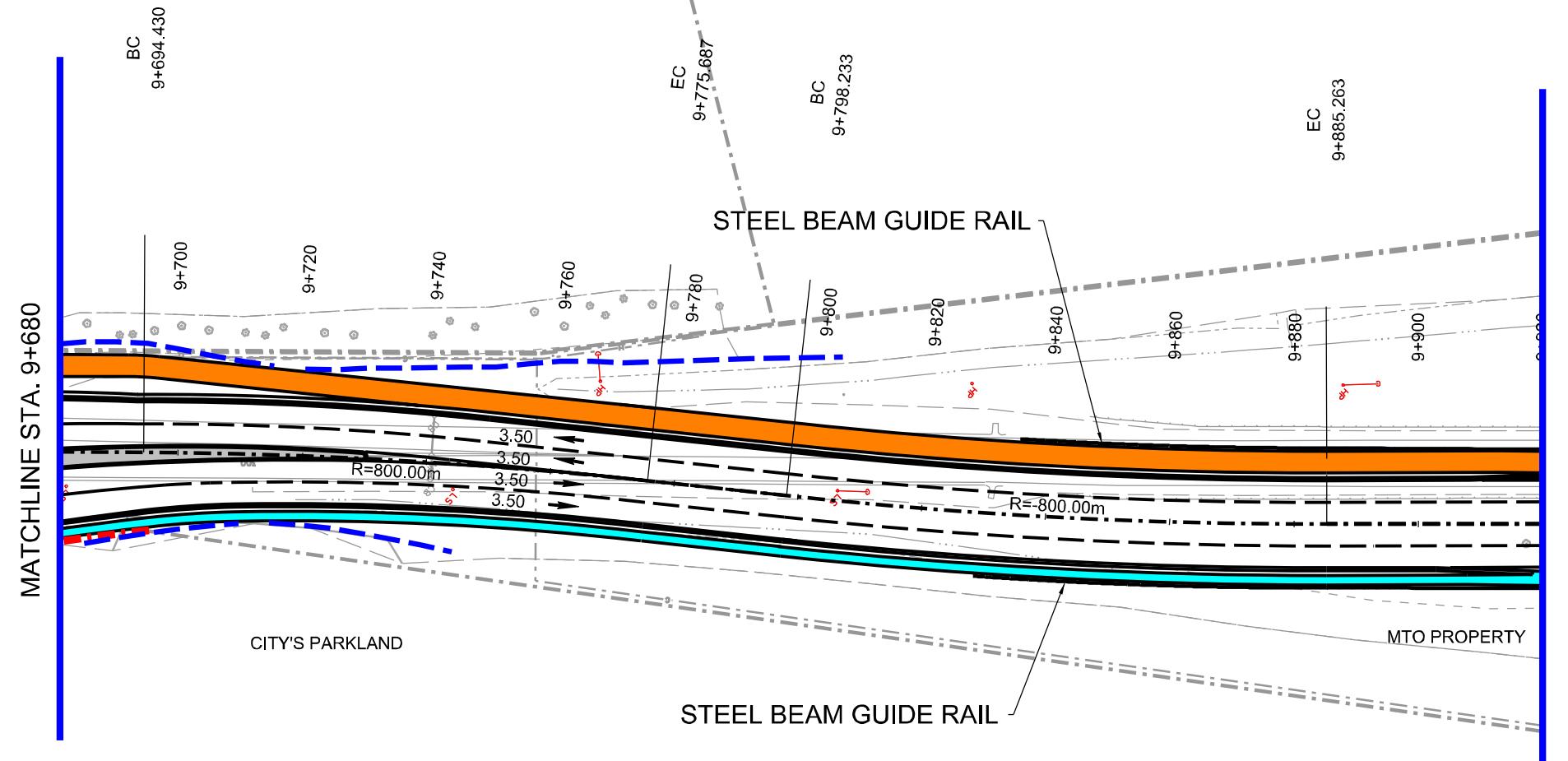
MISSISSAUGA

AECOM

CONSULTANTS

SHEET

PREFERRED ALTERNATIVE
DRAWING C6



LEGENDS

-----	EXISTING RIGHT OF WAY
-----	EXISTING PROPERTY LINE
-----	PROPOSED RIGHT OF WAY
-----	GRADING
-----	EXISTING NOISE BARRIER
-----	2015 PROPOSED NOISE BARRIER
-----	NEW NOISE BARRIER
-----	PROPOSED SIDEWALK
-----	PROPOSED MULTI-USE TRAIL
-----	PROPOSED MEDIAN

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



MISSISSAUGA

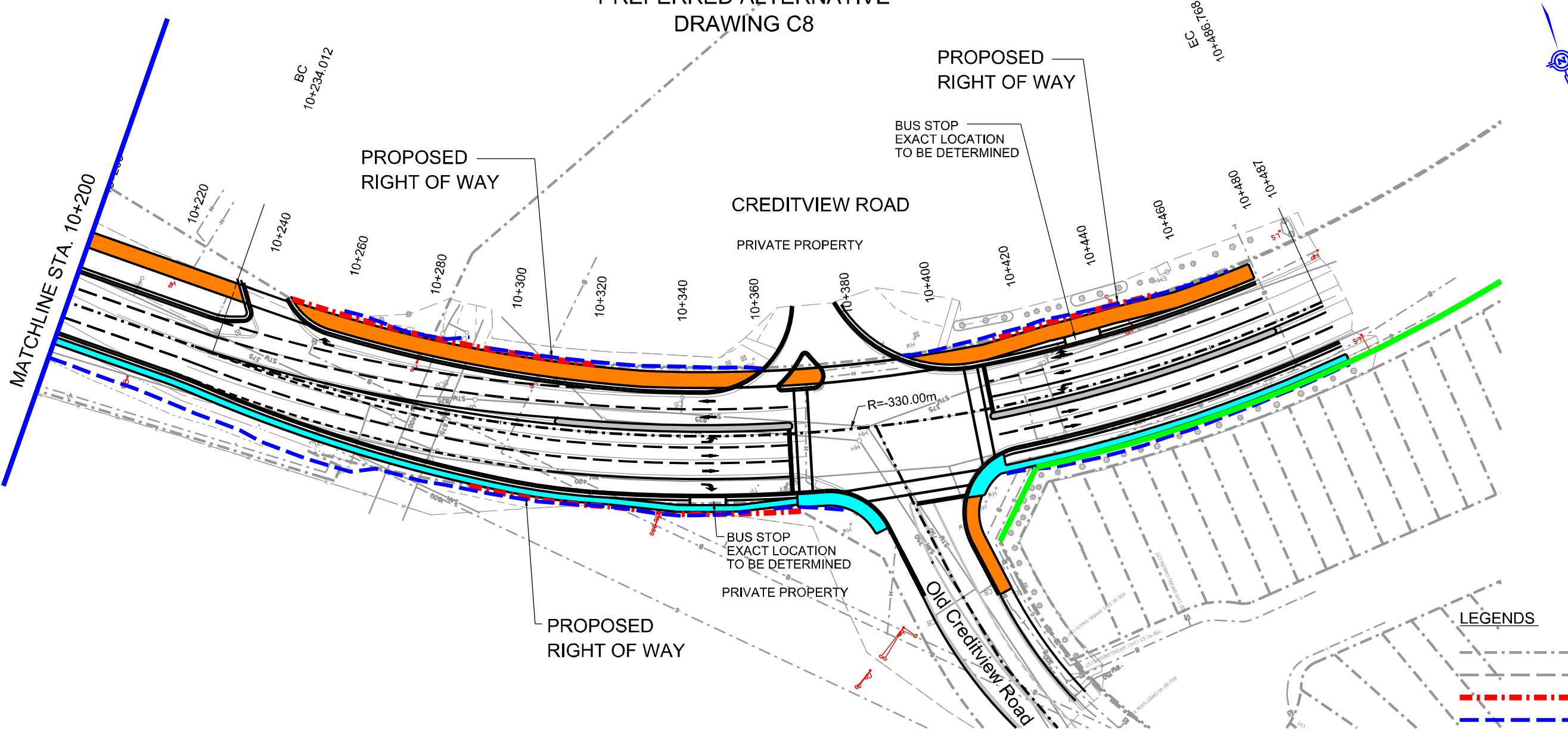
AECOM

CONSULTANTS

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 9+680 TO STA. 9+920

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		SHEET

PREFERRED ALTERNATIVE
DRAWING C8



NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



CONSULTANTS

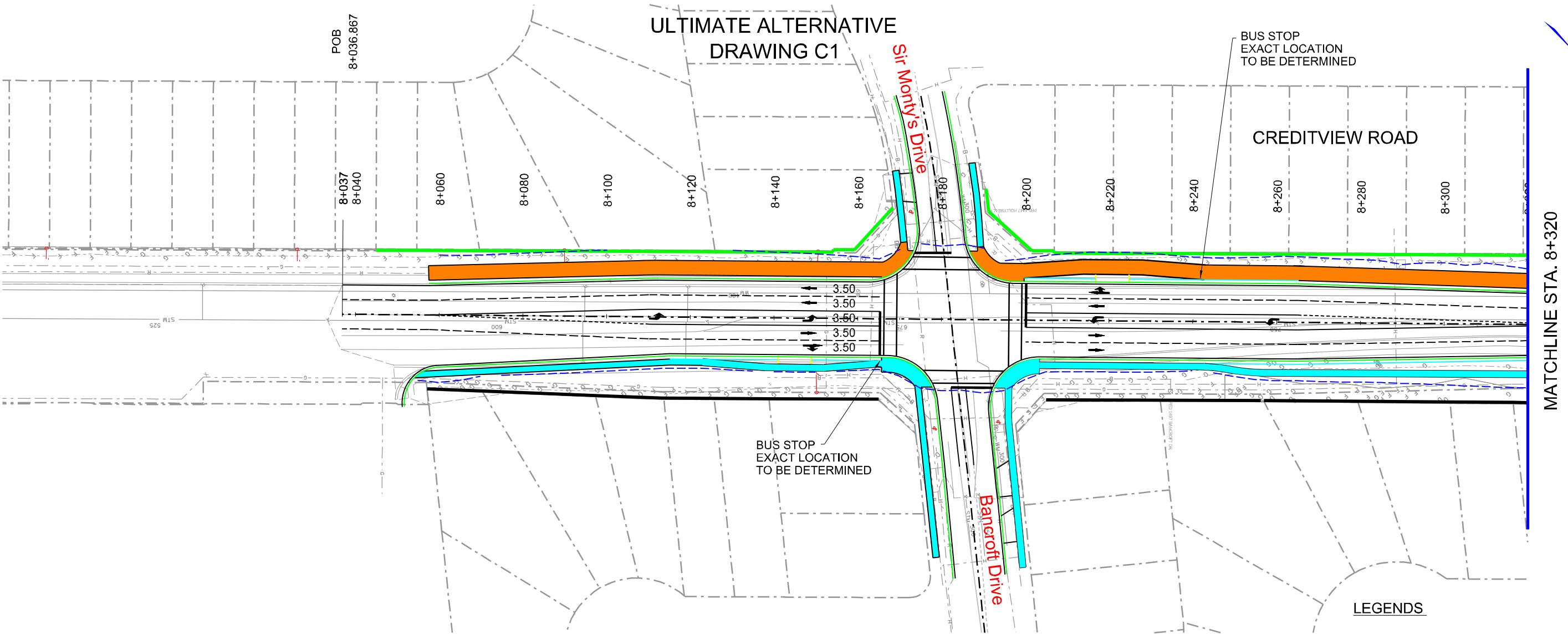
AECOM

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
PREFERRED ALTERNATIVE
PLAN - STA. 10+200 TO STA. 10+487

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE:	15	0	30			
DATE:				DRAWING NUMBER		SHEET

APPENDIX G

Long-term Solution



BUS STOP
EXACT LOCATION
TO BE DETERMINED

LEGENDS

-----	EXISTING RIGHT OF WAY
-----	EXISTING PROPERTY LINE
- - - - -	PROPOSED RIGHT OF WAY
- - - - -	GRADING
—	EXISTING NOISE BARRIER
—	2015 PROPOSED NOISE BARRIER
—	NEW NOISE BARRIER
—	PROPOSED SIDEWALK
—	PROPOSED MULTI-USE TRAIL
—	PROPOSED MEDIAN

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



MISSISSAUGA

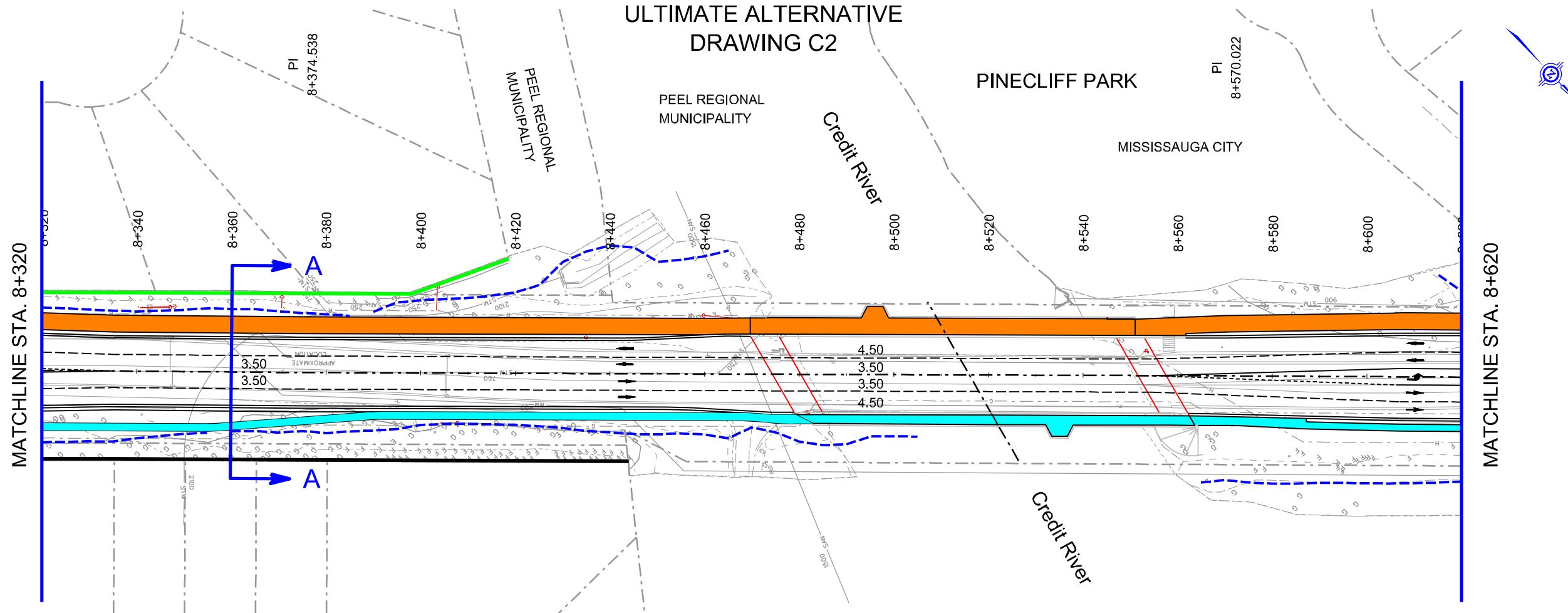
AECOM

CONSULTANTS

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 8+037 TO STA. 8+320

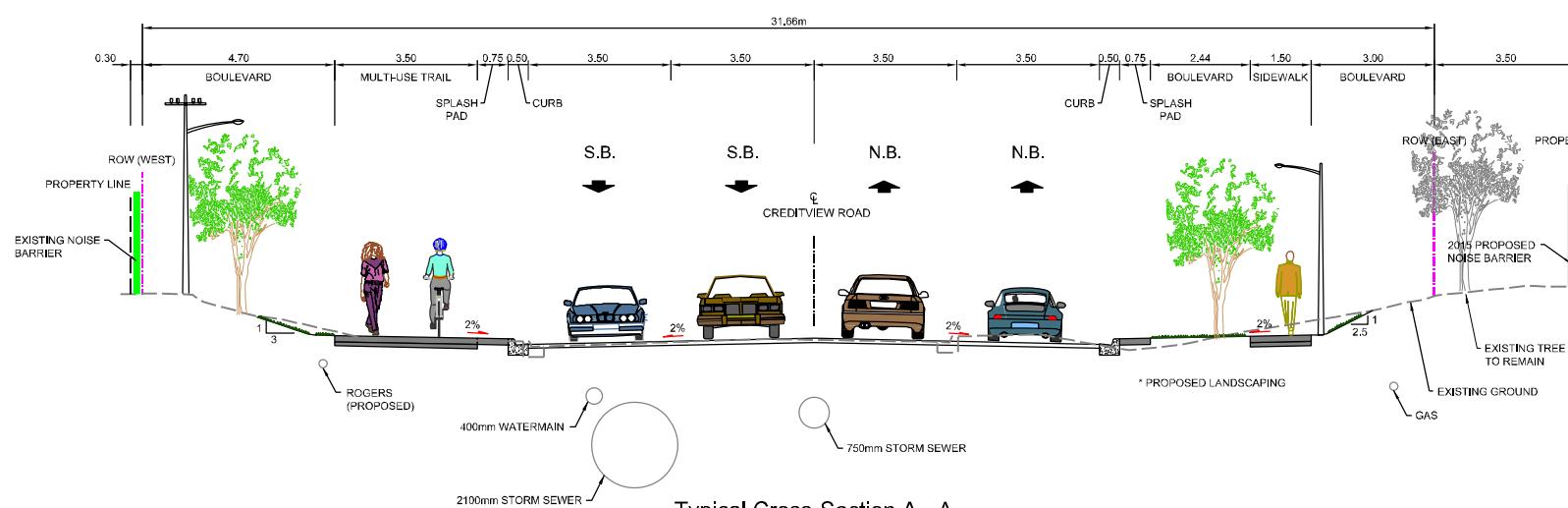
DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE :	5 0	20			DRAWING NUMBER	
DATE :						

SHEET



CONSERVATION CREDIT VALLEY AUTHORITY

CREDIT MEADOW PARK



Typical Cross-Section A - A
Station 8+360
N.T.S.

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

LEGENDS

-----	EXISTING RIGHT OF WAY
-----	EXISTING PROPERTY LINE
- - - - -	PROPOSED RIGHT OF WAY
- - - - -	GRADING
—	EXISTING NOISE BARRIER
—	2015 PROPOSED NOISE BARRIER
—	NEW NOISE BARRIER
—	PROPOSED SIDEWALK
—	PROPOSED MULTI-USE TRAIL
—	PROPOSED MEDIAN

MISSISSAUGA

AECOM

CONSULTANTS

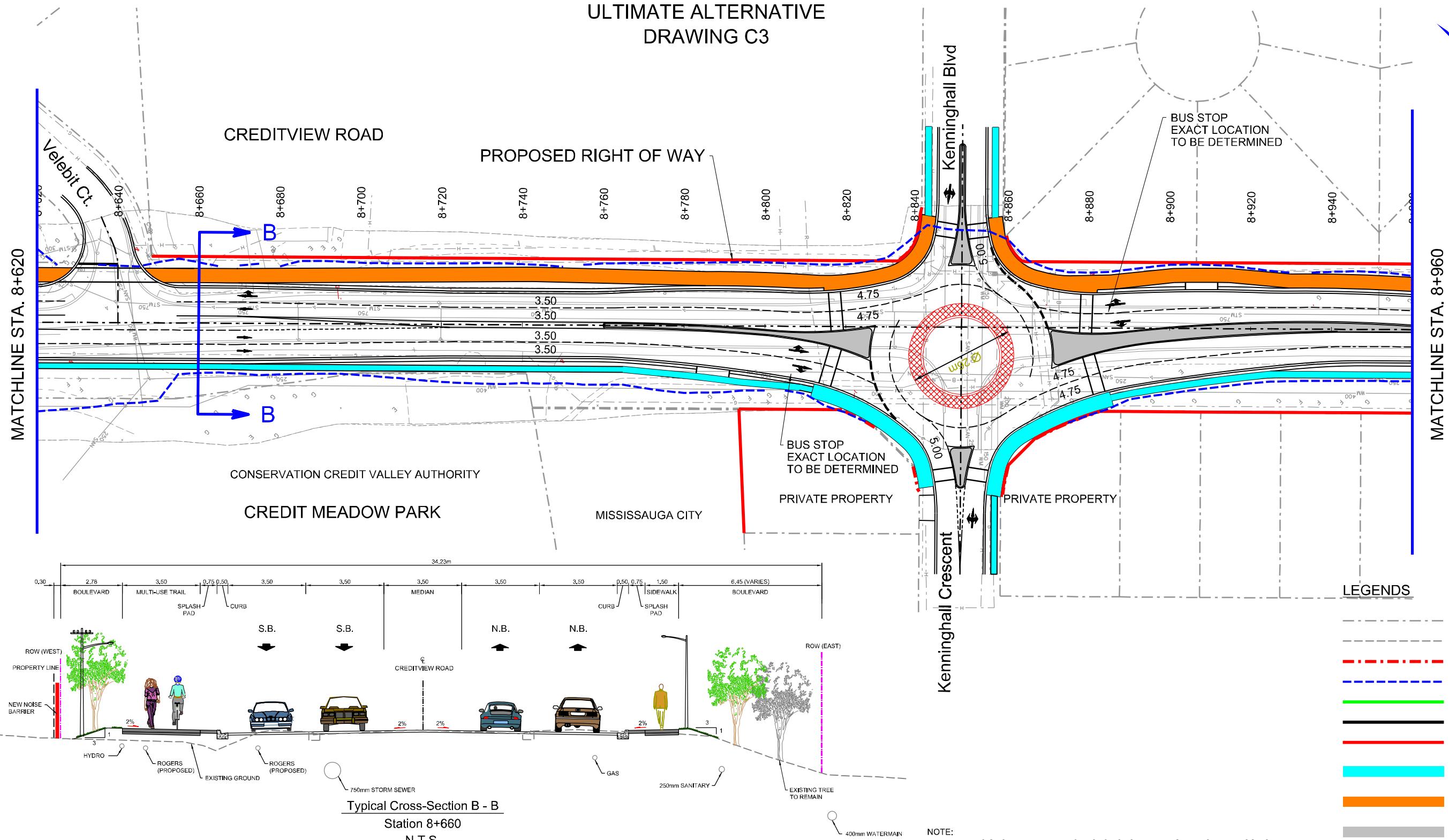
CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 8+320 TO STA. 8+620

	DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE :	5	0	20				
DATE :							

DRAWING
NUMBER

SHEET

**ULTIMATE ALTERNATIVE
DRAWING C3**



MISSISSAUGA

AECOM

CONSULTANTS

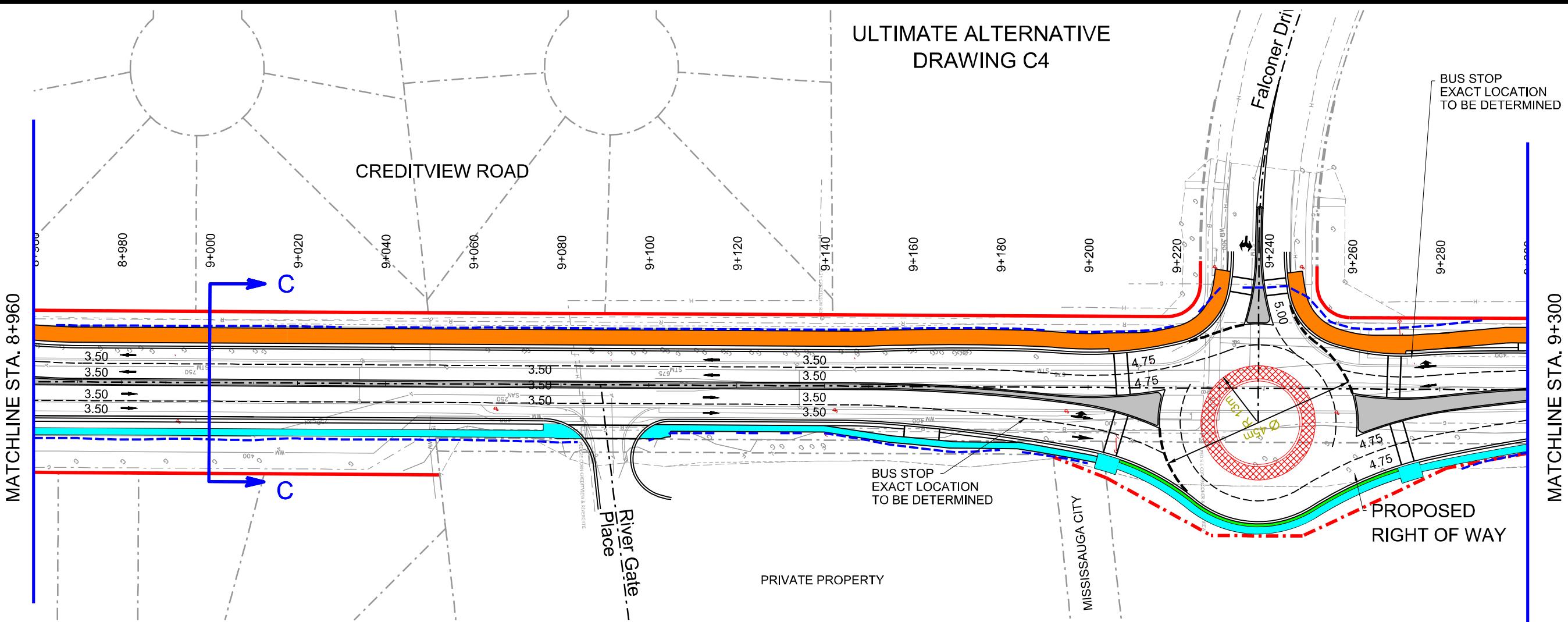
**CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 8+620 TO STA. 8+960**

	DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE :	5	0	20				
DATE :							

DRAWING
NUMBER

SHEET

ULTIMATE ALTERNATIVE
DRAWING C4



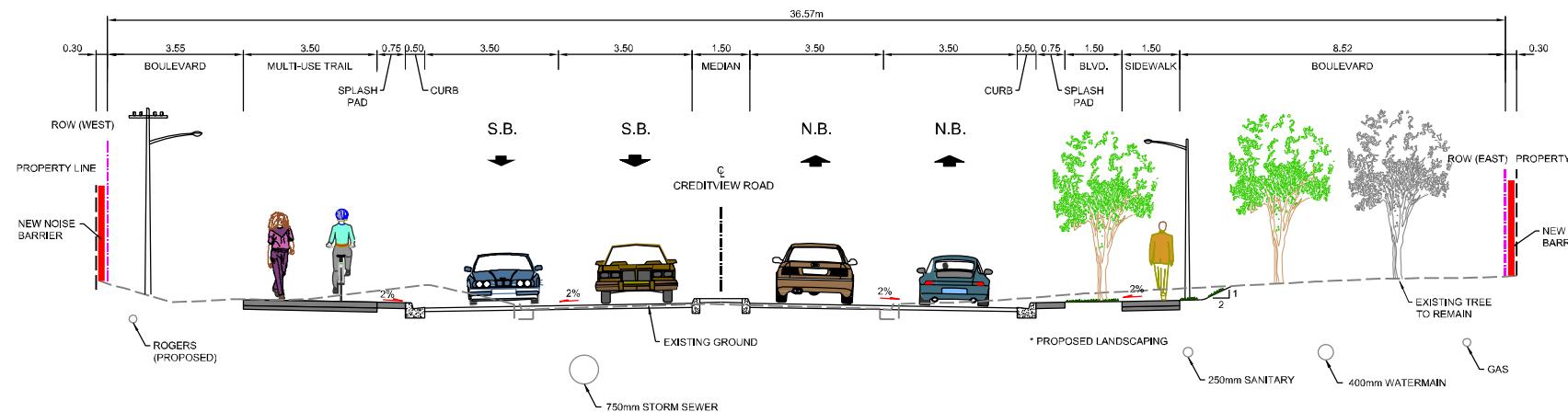
MATCHLINE STA. 8+960

BUS STOP
EXACT LOCATION
TO BE DETERMINED

MATCHLINE STA. 9+300

BUS STOP
EXACT LOCATION
TO BE DETERMINED

PROPOSED
RIGHT OF WAY



Typical Cross-Section C-C

Station 9+000
N.T.S.

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

LEGENDS

- Existing Right of Way
- Existing Property Line
- - - Proposed Right of Way
- - - Grading
- Existing Noise Barrier
- 2015 Proposed Noise Barrier
- New Noise Barrier
- Proposed Sidewalk
- Proposed Multi-Use Trail
- Proposed Median

MISSISSAUGA

AECOM
CONSULTANTS

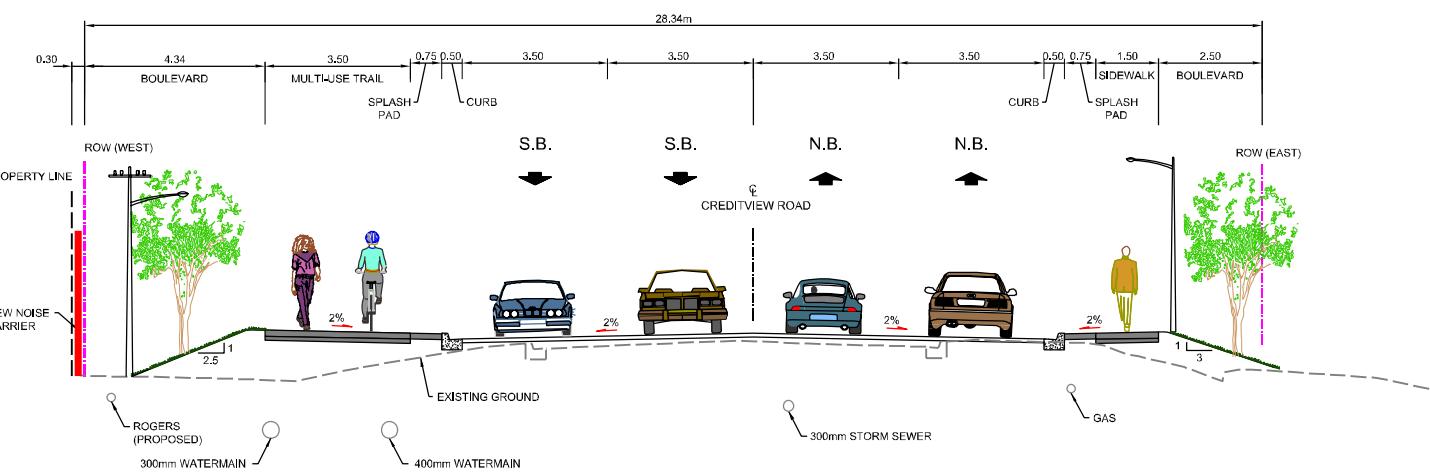
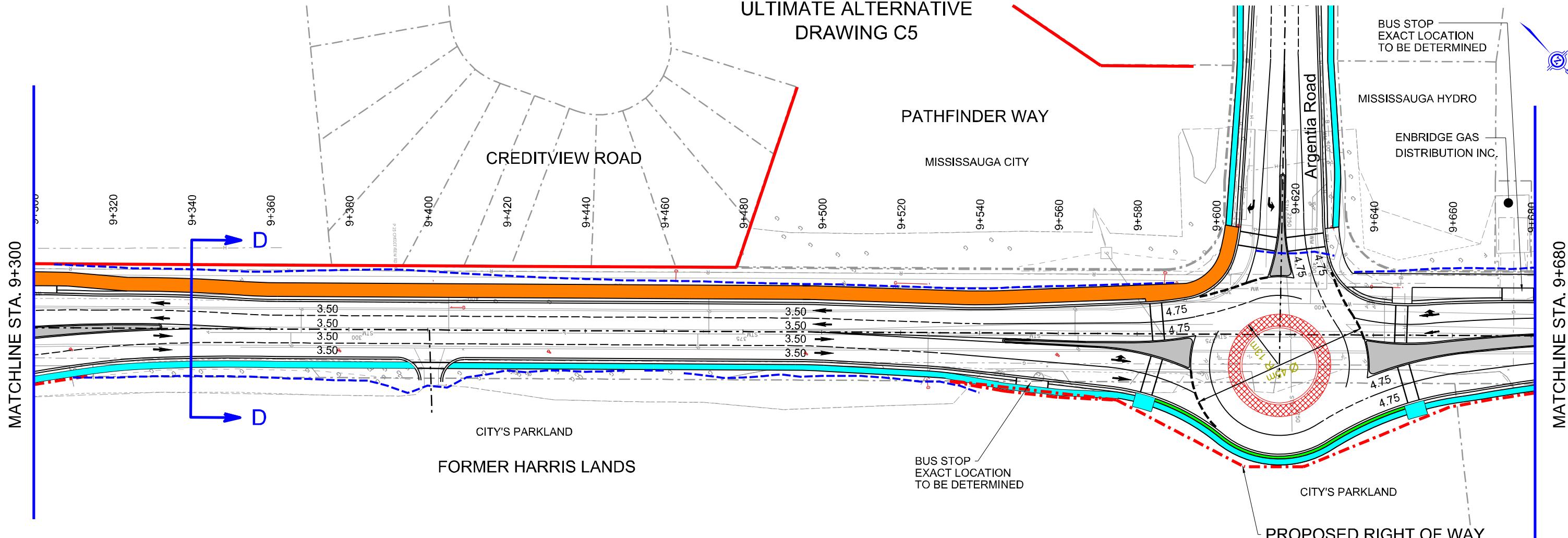
CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 8+960 TO STA. 9+300

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE :	5 0	20				
DATE :						

DRAWING
NUMBER

SHEET

ULTIMATE ALTERNATIVE DRAWING C5



Typical Cross-Section D - D

Station 9+380
N.T.S.

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



AECOM

CONSULTANTS

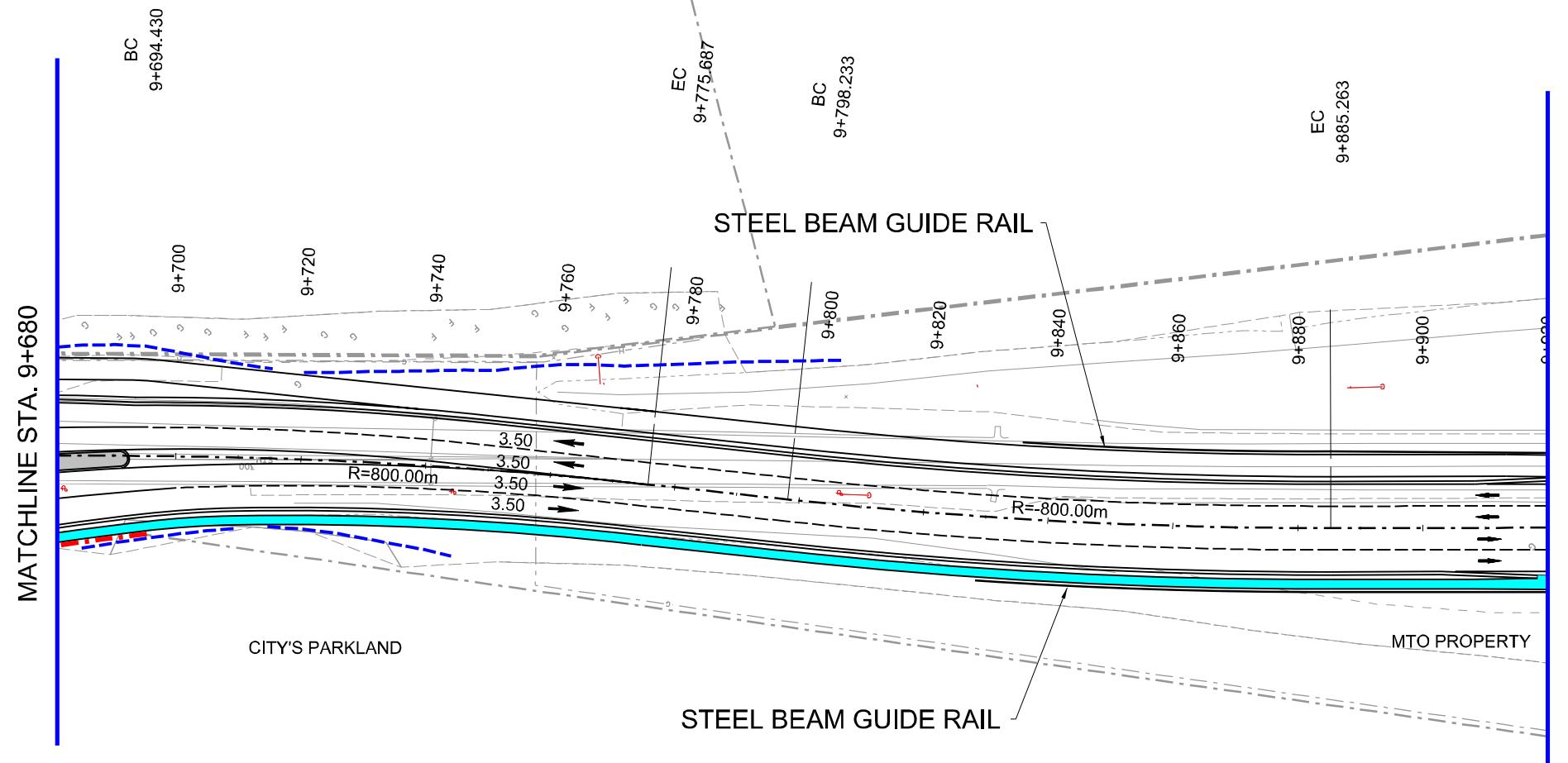
CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 9+300 TO STA. 9+680

DESIGN S. M. DRAWN B. S. CHECKED S. M. CONTRACT No.

SCALE : 5 0 20 DRAWING NUMBER

DATE : SHEET

ULTIMATE ALTERNATIVE
DRAWING C6



NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

LEGENDS

-----	EXISTING RIGHT OF WAY
- - - - -	EXISTING PROPERTY LINE
-----	PROPOSED RIGHT OF WAY
- - - - -	GRADING
-----	EXISTING NOISE BARRIER
-----	2015 PROPOSED NOISE BARRIER
-----	NEW NOISE BARRIER
-----	PROPOSED SIDEWALK
-----	PROPOSED MULTI-USE TRAIL
-----	PROPOSED MEDIAN



MISSISSAUGA

AECOM

CONSULTANTS

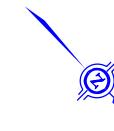
CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 9+680 TO STA. 9+920

	DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE :	5	0	20				DRAWING NUMBER
DATE :							SHEET

ULTIMATE ALTERNATIVE DRAWING C7

PRIVATE PROPERTY

EC



10+20

MATCHLINE STA. 9+920

MTO PROPER

-94-

1. 

10 of 10

— — — / / / — —

— — — / /

1 / 4

11

1 / 1

WEST

RIOT

1

Page 1 of 1

**ULTIMATE ALTERNATIVE
DRAWING C7**

PRIVATE PROPERTY

EC 10+169.320

STEEL BEAM GUIDE RAIL

STEEL BEAM GUIDE RAIL

TY

9+960

14+850

10+000

10+020

10+040

10+060

10+080

10+100

10+120

10+140

10+160

10+180

35.0m

44.2m

35.0m

14+800

14+900

16°

Highway 401

BC 10+076.845

R=1000.00m

0001 NWS

3.50

3.50

3.50

3.50

3.50

3.50

3.50

3.50

The diagram illustrates a cross-section of Creditview Road, transitioning from its current state ('EX.') to its proposed state ('PRO.'). The road is 22.10 meters wide, divided into four lanes: two northbound (NB) lanes and two southbound (SB) lanes. A multi-use trail for cyclists and pedestrians is located on the west side, separated by a 1.00-meter side clearance from the SB lanes. The NB lanes have a 3.50-meter width each. The east side features a 2.00-meter sidewalk and a 0.30-meter side clearance. The diagram shows a 2% grade change between the SB and NB sections. A person walking and a person on a bicycle are shown on the multi-use trail.

Typical Cross-Section E - 1

Station 10+00

N.T.

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.

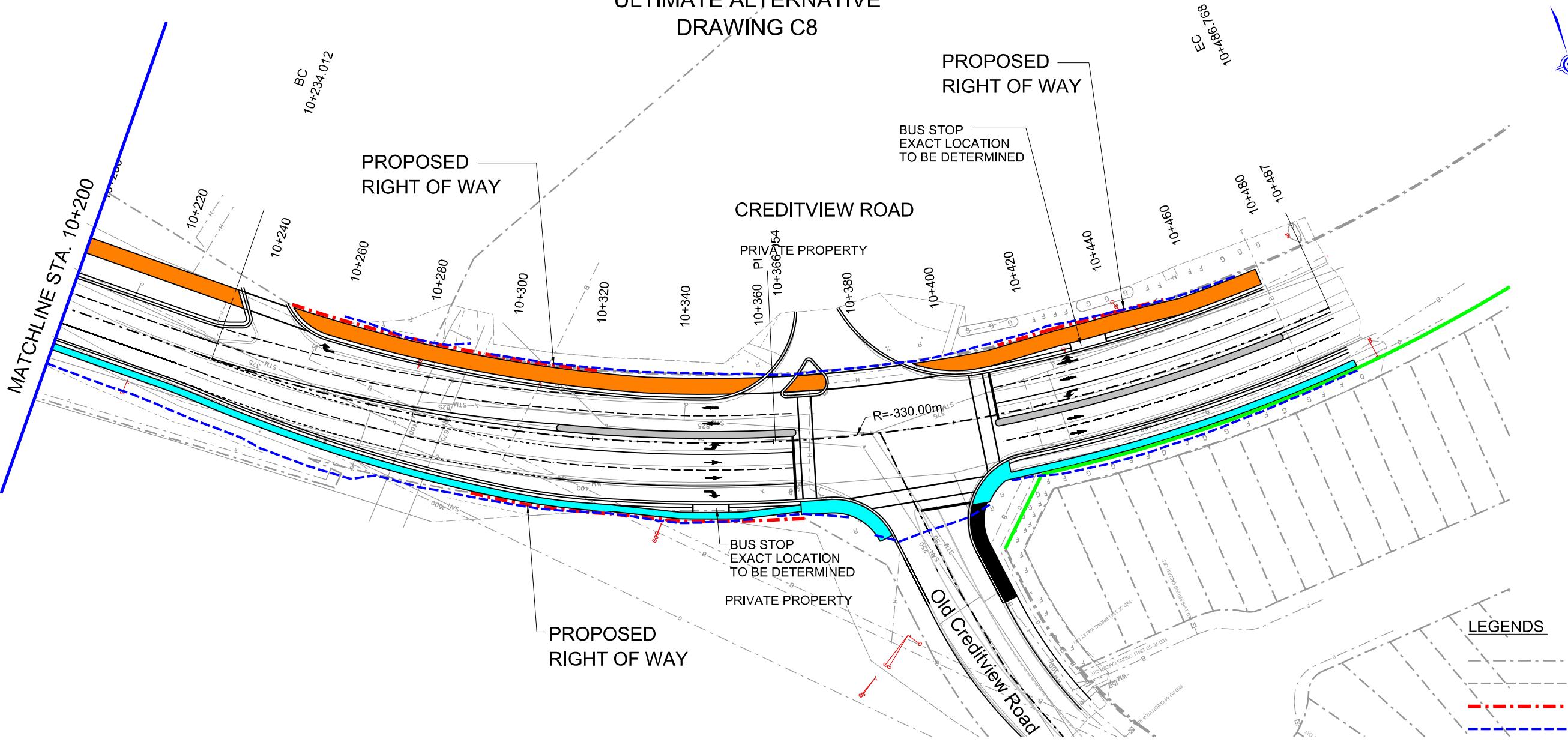
MISSISSAUGA

AECOM

CONS

				CREDITVIEW ROAD CLASS EA PLAN / CROSS SECTIONS ULTIMATE ALTERNATIVE PLAN - STA. 9+920 TO STA. 10+200						
				DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
				SCALE :	5 0	20		DRAWING NUMBER		
				DATE :						

ULTIMATE ALTERNATIVE
DRAWING C8



- EXISTING RIGHT OF WAY
- EXISTING PROPERTY LINE
- PROPOSED RIGHT OF WAY
- GRADING
- EXISTING NOISE BARRIER
- 2015 PROPOSED NOISE BARRIER
- NEW NOISE BARRIER
- PROPOSED SIDEWALK
- PROPOSED MULTI-USE TRAIL
- PROPOSED MEDIAN

NOTE:
THE UTILITIES SHOWN IN THE TYPICAL SECTIONS ARE ILLUSTRATION PURPOSE ONLY;
THE ACCURACY WILL BE VERIFIED DURING DETAIL DESIGN.



AECOM

CONSULTANTS

CREDITVIEW ROAD CLASS EA
PLAN / CROSS SECTIONS
ULTIMATE ALTERNATIVE
PLAN - STA. 10+200 TO STA. 10+487

DESIGN	S. M.	DRAWN	B. S.	CHECKED	S. M.	CONTRACT No.
SCALE :	5 0	20				
DATE :						

DRAWING NUMBER

SHEET