Memo

Date:	Wednesday, October 23, 2019
Project:	Promenade Centre Secondary Plan
To:	City of Vaughan
From:	Lynn Machacek, HDR
Subject:	Existing and 2041 Base Case Vehicular Traffic Analysis

Introduction

This memo summarizes the traffic analysis that has been completed for the Existing and 2041 Base Case horizons for the *Promenade Centre Secondary Plan Background Transportation Discussion Paper* drafted by HDR. A brief summary of this memo is include the paper.

The specific parameters used for this analysis were agreed to with the City of Vaughan, and are summarized in the memo attached in **Appendix A**.

Data Sources

Existing traffic operations were assessed using turning movement count (TMC) data and existing signal timing plans provided to HDR by the City of Vaughan and from counts conducted by HDR.

A summary of the count dates is provided in **Table 1**.

Table 1: Turning Movement Count Dates

Intersection	Weekday AM / PM Count Date	Weekend Peak Hour Count Date
New Westminster Drive & Bathurst Street	Tuesday, May 28, 2019	Saturday, September 14, 2019
Atkinson Avenue & Highcliffe Drive	Tuesday, May 28, 2019	
Beverley Glen Boulevard & New Westminster Drive	Tuesday, May 28, 2019	
Beverley Glen Boulevard & Bathurst Street	Wednesday, June 26, 2019	
New West Minster & No Frills East Access	Thursday, September 12, 2019	
Smart Centres Access & Disera Drive	Thursday, September 12, 2019	
Bathurst & SmartCentres East Access	Thursday, September 12, 2019	
Edmond Seager Drive & Atkinson Avenue	Tuesday, May 28, 2019	
Centre Street & Vaughan Boulevard	Wednesday, May 29, 2019	
Centre Street & Taiga Drive	Thursday, September 12, 2019	

Intersection	Weekday AM / PM Count Date	Weekend Peak Hour Count Date
Centre Street & New Westminster Drive	Wednesday, May 29, 2019	
Centre Street & York Region Transit Access	Thursday, January 25, 2018	
Centre Street & North Promenade	Thursday, June 13, 2019	
Centre & Promenade Village Access	Thursday, January 25, 2018	
Centre Street & Bathurst Street	Wednesday, June 26, 2019	
Centre Street & Atkinson Avenue	Tuesday, May 28, 2019	
West Promenade & New Westminster Drive	Wednesday, May 29, 2019	
Bathurst Street & Promenade Circle	Thursday, June 13, 2019	
East Promenade & Bathurst Street	Wednesday, May 29, 2019	
Bathurst Street & SE Apartment Access	Thursday, January 25, 2018	
Campbell Avenue & Atkinson Avenue	Thursday, May 30, 2019	
Arnold Avenue & Atkinson Avenue	Thursday, May 30, 2019	
Spring Gate Boulevard & Atkinson Avenue	Tuesday, May 28, 2019	
Clark Avenue & New Westminster Drive	Thursday, January 25, 2018	
Clark Avenue & South Promenade	Thursday, January 25, 2018	Saturday, September 14, 2019
Clark & SE Apartment Access	Thursday, January 25, 2018	
Clark Avenue & Bathurst Street	Wednesday, May 29, 2019	
Clark Avenue & York Hill Boulevard	Tuesday, June 6, 2017	
Clark Avenue & Atkinson Avenue	Tuesday, June 6, 2017	
N Promenade and Promenade Circle	Friday, November 20, 2015	
W Promenade and Promenade Circle	Friday, November 20, 2015	
E Promenade and Promenade Circle	Friday, November 20, 2015	
S Promenade and Promenade Circle	Friday, November 20, 2015	
Promenade Circle and Promenade Circle	Thursday, January 25, 2018	

Intersection Analysis Methodology

The analysis, conducted using Synchro 9, with results calculated based on HCM 2010, considered three separate measures of performance:

- The volume to capacity (V/C) ratio for each movement. This ratio reflects peak hour traffic demand measured against roadway capacity;

- The level of service (LOS) for each for each movement and overall intersection. LOS is based on the average control delay per vehicle; and
- The 50th and 95th percentile queue length (measured in 7.2m vehicles) of each movement/lane group.

LOS definitions are shown in **Table 2** and are based on the Highway Capacity Manual (HCM) 2010. The HCM defines LOS for signalized and unsignalized intersections as a function of the average vehicle control delay. LOS may be calculated per movement or per approach for any intersection configuration, but LOS for the intersection as a whole is only defined for signalized and all-way stop configurations.

Table 2: Highway Capacity Manual Level of Service Definitions for Intersections

LOS	Signalized Intersection Average Vehicle Control Delay	Unsignalized Intersection Average Vehicle Control Delay	LOS Recommendation
A	≤10 sec	≤10 sec	Acceptable
B	10-20 sec	10-15 sec	Acceptable
C	20-35 sec	15-25 sec	Acceptable
D	35-55 sec	25-35 sec	Somewhat undesirable
E	55-80 sec	35-50 sec	Undesirable
F	≥80 sec	≥50 sec	Unacceptable

It is noted that the analysis may indicate that certain movements at an intersection operate with volume-capacity ratios greater than 1.00. Theoretically, a maximum volume-capacity ratio for existing conditions cannot be greater than 1.00, since the observed volumes used in the analysis represent volumes that were actually served at the intersection. Thus, a volume-capacity ratio exceeding 1.00 under existing conditions is a result of conservative parameters used in the Synchro analysis. For future conditions, V/C ratios exceeding 1.00 may either be a result of these conservative parameters, but may also indicate a likelihood that traffic will divert to other routes. Volume inputs in Synchro are static and any diversion would have to be manually accounted for and assigned to different intersections.

On the other hand, LOS F indicates average delays in excess of 80 seconds. While this is generally characterized as “poor” operation, it does not necessarily imply that the movement, approach, or intersection is experiencing demand in excess of capacity. When cycle lengths are in the range of 120 seconds (or longer), it is possible to have delays in the range of 80 seconds even in low-demand situations.

In addition to V/C ratio and LOS, 50th and 95th percentile queue lengths (presented in vehicle lengths, based on 7.2m per vehicle [HCM 2010 default]) are also reported to identify any storage length deficiencies.

Existing Traffic Operations

Existing traffic volumes were assembled and balanced to represent “typical” existing conditions. Traffic volumes at adjacent intersections were balanced if the volumes were different by more than 10% (except if there were significant accesses / driveways in between), and intersections that were counted during construction periods were balanced up to match typical conditions.

Existing laning and signal timing were used at all intersections, except for the portion of Centre Street west of Bathurst Street, and the portion of Bathurst Street north of Centre. For these street segments, and the intersection of both streets, future laning and signal timing were used to take into consideration the imminent implementation of the Viva Orange BRT. The primary differences in laning and signal timing include median BRT lanes, the replacement of dedicated right turn lanes with shared through/rights, and a dedicated BRT phase at the intersection of Centre and Bathurst Street. Existing signal timing, and the future BRT laning and signal timing are included in **Appendix A**.

Table 4 shows the performance results for signalized intersections in the AM, PM and Saturday peak hours. **Table 5** shows the results for un-signalized intersections.

The parameters that exceed the performance thresholds (i.e., critical turning movements) have been highlighted, based on the metrics shown in the **Table 3** below. Critical turning movements are illustrated in Figure 1 Figure 3.

Table 3: Performance Thresholds for Critical Turning Movements

Metric	Threshold
LOS	E or F
v/c	> 0.90
50th / 95th Percentile Queue	Queue greater than available storage length (presented in # number of vehicle lengths)

As noted earlier, the reported results are based on HCM 2010 methodology. However this methodology cannot be applied to certain intersection types (such as those that have exclusive hold phases or non-NEMA phasing) and the results for the following intersections is based on Synchro methodology (which is similar to HCM 2000):

- Bathurst Street & Centre Street (Signalized)
- Bathurst Street & East Promenade (Signalized)
- Promenade Circle & East Promenade (Un-signalized)
- Promenade Circle & South Promenade (Un-signalized)

Detailed printout reports for all intersections are included in **Appendix B**.

Table 4: Existing Intersection Operations – Signalized Intersections

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
New Westminster Drive & Bathurst Street	Total		E	-	-	-	D	-	-	-	D	-	-	-
	EBL	1	F	1.03	11	20	E	0.86	7	11	D	0.63	8	12
	EBTR	2	D	0.48	5	9	D	0.37	4	8	D	0.20	3	5
	WBL	1	D	0.34	3	5	D	0.23	2	44	D	0.13	1	3
	WBT	2	D	0.50	6	9	D	0.34	4	50	D	0.29	3	5
	WBR	1	E	0.82	9	14	F	0.92	12	90	E	0.82	9	14
	NBL	1	E	0.48	1	2	E	0.45	1	69	E	0.68	2	4
	NBTR	2	A	0.66	4	7	B	0.82	11	15	D	0.51	5	9
	SBL	1	E	0.82	5	9	F	0.89	8	102	F	0.86	7	10
	SBTR	2	E	1.02	40	50	D	0.91	33	45	D	0.84	24	32
Atkinson Avenue & Highcliffe Drive / Rosedale Heights	Total		B	-	-	-	A	-	-	-	A	-	-	-
	EBL	1	B	0.13	1	20	A	0.22	1	2	A	0.12	1	1
	EBTR	2	B	0.23	2	9	A	0.16	1	2	A	0.13	1	2
	WBL	1	B	0.05	0	5	A	0.10	0	0	A	0.01	0	0
	WBTR	2	B	0.25	2	14	A	0.26	2	4	A	0.14	1	2
	NBTL	1	B	0.41	3	2	B	0.18	1	2	B	0.22	1	2
	NBR	1	A	0.14	1	7	A	0.08	0	1	A	0.01	0	0
	SBL	1	B	0.18	1	9	B	0.05	0	0	B	0.03	0	0
	SBTR	1	A	0.30	2	77	A	0.25	1	2	A	0.28	1	0
New Westminster Drive & Beverley Glen Boulevard	Total		B	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	C	0.55	4	7	C	0.33	2	3	C	0.26	2	3
	EBTR	1	A	0.72	7	11	A	0.63	6	9	A	0.58	5	0
	WBL	1	C	0.14	1	1	C	0.10	0	1	C	0.15	1	1
	WBTR	1	A	0.29	2	4	A	0.44	4	7	A	0.39	3	0
	NBL	1	B	0.25	2	3	B	0.45	3	6	B	0.22	1	3
	NBTR	2	B	0.22	2	4	B	0.29	3	5	A	0.21	2	4
	SBL	1	B	0.07	0	1	B	0.06	0	1	B	0.06	0	1
	SBTR	2	B	0.39	4	8	B	0.37	4	7	A	0.24	2	4
Bathurst Street & Beverley Glen Boulevard	Total		A	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	E	0.76	4	8	E	0.76	5	8	E	0.82	6	11
	EBR	1	E	0.61	3	6	E	0.58	3	5	E	0.30	2	4
	NBL	1	E	0.63	2	3	F	1.02	8	14	F	0.80	3	6
	NBT	2	A	0.36	5	9	A	0.43	7	11	A	0.25	4	7
	SBTR	2	A	0.58	0	0	A	0.60	0	1	A	0.41	0	0
Disera Drive & Smart	Total		B	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	C	0.21	1	2	C	0.27	2	3	B	0.08	1	1

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Centres Access	EBTR	1	A	0.33	2	4	A	0.38	3	5	A	0.09	1	1
	WBL	1	C	0.21	1	2	C	0.27	2	3	B	0.35	3	5
	WBTR	1	A	0.33	2	4	A	0.38	3	5	A	0.16	1	2
	NBL	1	B	0.14	1	2	B	0.21	1	3	B	0.07	1	1
	NBTR	1	A	0.30	3	6	A	0.45	5	8	A	0.47	5	8
	SBL	1	B	0.14	1	2	B	0.24	2	3	B	0.03	0	0
	SBTR	1	A	0.31	3	5	A	0.37	4	7	A	0.21	2	3
Atkinson Avenue & Rosedale Heights Drive / Edmund Seager Drive	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBL	1	B	0.04	0	0	B	0.02	0	0	B	0.02	0	0
	EBTR	1	A	0.42	2	3	A	0.31	1	2	A	0.20	1	1
	WBL	1	B	0.12	1	1	B	0.08	0	1	B	0.08	0	1
	WBTR	1	A	0.14	1	1	A	0.09	0	1	A	0.08	0	0
	NBL	1	A	0.11	1	1	A	0.16	1	2	A	0.08	0	1
	NBTR	2	A	0.28	2	4	A	0.33	2	4	A	0.15	1	2
	SBL	1	A	0.04	0	0	A	0.07	0	1	A	0.04	0	0
	SBTR	2	A	0.31	3	5	A	0.16	1	2	A	0.12	1	1
Carl Tennen Street / Vaughan Boulevard & Centre Street	Total		B	-	-	-	B	-	-	-	C	-	-	-
	EBL	1	E	0.33	0	1	E	0.31	0	0	F	0.29	0	0
	EBTR	2	B	0.32	6	9	B	0.58	14	20	B	0.22	4	7
	WBL	1	E	0.56	1	2	E	0.76	3	5	E	0.74	3	5
	WBTR	2	A	0.28	2	3	A	0.36	0	0	C	0.21	7	12
	NBL	1	D	0.26	2	3	D	0.19	1	3	D	0.12	1	2
	NBTR	1	A	0.46	4	7	A	0.54	6	9	A	0.38	2	6
	SBL	1	E	0.24	1	2	E	0.23	1	2	E	0.16	1	2
	SBTR	1	A	0.19	2	3	A	0.17	2	3	A	0.12	1	2
Centre Street & No Frills Access	Total		A	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	E	0.79	3	6	E	0.83	6	10	E	0.88	8	13
	EBT	2	A	0.22	0	0	C	0.43	17	23	A	0.13	0	0
	WBTR	2	A	0.26	0	0	C	0.41	12	16	A	0.23	0	0
	SBL	1	E	0.58	3	5	E	0.73	6	10	E	0.45	2	4
	SBR	1	E	0.65	3	5	E	0.81	6	10	E	0.35	2	3
New Westminster Drive & Centre Street	Total		C	-	-	-	D	-	-	-	D	-	-	-
	EBL	1	E	0.80	2	4	F	0.86	7	11	E	0.80	4	7
	EBTR	2	B	0.57	6	10	E	0.92	24	31	B	0.27	2	3
	WBL	1	E	0.71	2	4	F	0.76	3	5	E	0.65	2	4
	WBTR	2	C	0.40	3	6	D	0.57	10	11	D	0.33	7	11
	NBL	1	C	0.55	4	6	E	0.93	9	14	C	0.39	3	6

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
	NBTR	2	C	0.38	6	10	D	0.53	9	14	D	0.35	5	9
	SBL	1	C	0.27	2	4	C	0.33	2	4	C	0.35	3	6
	SBTR	2	D	0.69	12	18	D	0.56	10	15	D	0.48	7	12
North Promenade / Disera Drive & Centre Street	Total		C	-	-	-	D	-	-	-	D	-	-	-
	EBL	1	E	0.80	3	6	A	0.84	5	9	E	0.78	4	7
	EBTR	2	A	0.34	1	1	E	0.61	14	9	D	0.25	6	10
	WBL	1	F	0.84	4	8	C	0.85	5	9	E	0.82	4	8
	WBTR	2	C	0.29	5	9	F	0.35	6	11	C	0.19	3	6
	NBL	1	D	0.25	2	3	F	1.14	12	21	D	0.54	4	7
	NBT	1	D	0.57	8	12	D	0.46	6	11	D	0.45	7	12
	NBR	1	D	0.20	2	4	D	0.41	5	9	D	0.36	4	8
	SBL	1	D	0.45	3	5	D	0.42	3	5	D	0.38	3	5
	SBTR	1	D	0.64	9	14	D	0.68	11	16	A	0.55	8	13
Bathurst Street & Centre Street	Total		F	-	-	-	F	-	-	-	E	-	-	-
	EBL	1	F	1.19	5	11	F	0.96	5	11	F	0.66	3	6
	EBT	2	D	0.50	7	9	E	0.67	10	13	D	0.24	4	6
	EBR	1	A	0.28	0	0	A	0.47	0	3	A	0.20	0	0
	WBL	1	F	0.88	5	10	F	0.81	5	9	F	0.61	3	6
	WBTR	2	E	0.68	9	12	E	0.66	10	12	D	0.30	6	8
	NBL	2	F	0.60	3	5	E	0.57	6	10	F	0.66	4	6
	NBT	2	D	0.76	19	25	F	1.19	31	36	E	0.71	12	15
	NBR	1	A	0.16	0	0	A	0.18	0	0	A	0.17	0	0
	SBL	1	F	0.75	5	9	E	0.64	9	15	F	0.65	5	10
	SBT	2	F	1.05	36	41	F	1.08	30	36	E	0.88	17	22
	SBR	1	A	0.15	0	0	A	0.19	0	0	A	0.13	0	0
Atkinson Avenue & Centre Street	Total		C	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	B	0.14	1	2	B	0.19	1	3	A	0.09	1	1
	EBTR	2	A	0.27	3	6	B	0.35	5	8	A	0.19	2	4
	WBL	1	B	0.09	1	1	B	0.11	1	1	A	0.05	0	1
	WBTR	2	A	0.25	3	5	A	0.26	3	6	A	0.19	2	4
	NBL	1	F	0.91	6	10	D	0.64	5	8	C	0.28	2	3
	NBTR	2	C	0.43	4	8	C	0.65	7	11	C	0.26	2	4
	SBL	1	D	0.56	4	7	D	0.43	2	4	C	0.22	1	3
	SBTR	2	C	0.66	7	12	C	0.35	3	6	C	0.24	2	4
New Westminster Drive &	Total		C	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	C	0.26	2	3	C	0.22	1	3	C	0.18	1	2
	EBTR	1	A	0.73	9	13	A	0.47	5	8	A	0.39	4	7

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Brownridge Drive / West Promenade	WB	2	C	0.33	3	5	C	0.53	4	7	C	0.49	4	7
	NBL	1	B	0.32	2	3	B	0.28	2	3	B	0.10	1	1
	NBTR	2	B	0.27	3	6	B	0.49	7	11	B	0.28	3	6
	SBL	1	B	0.22	2	3	C	0.50	3	6	B	0.28	2	4
	SBTR	2	C	0.59	8	13	C	0.52	7	11	B	0.31	4	6
Bathurst Street & East Promenade	Total		B	-	-	-	B	-	-	-	B	-	-	-
	EBL	2	D	0.12	1	1	E	0.54	3	4	D	0.33	2	3
	EBR	1	B	0.28	0	1	B	0.71	0	4	C	0.72	1	4
	NBL	1	B	0.41	1	3	B	0.64	4	6	A	0.43	1	3
	NBT	2	A	0.38	0	20	B	0.48	25	24	A	0.30	3	5
	SBT	2	B	0.68	13	36	B	0.60	14	21	B	0.44	7	11
	SBR	1	A	0.02	1	1	A	0.05	0	1	A	0.04	0	1
Atkinson Avenue & Campbell Avenue / Manor Gate	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EB	1	B	0.39	1	2	B	0.22	1	1	B	0.18	1	1
	WB	1	B	0.42	1	2	B	0.30	1	2	B	0.16	1	1
	NB	2	A	0.23	2	3	A	0.38	3	6	B	0.15	1	2
	SB	2	A	0.39	3	5	A	0.36	3	5	B	0.17	1	2
Atkinson Avenue & Arnold Avenue	Total		A	-	-	-	B	-	-	-	A	-	-	-
	EB	1	B	0.23	1	1	B	0.09	0	1	B	0.07	0	0
	WB	1	B	0.53	2	3	B	0.61	3	5	B	0.27	1	2
	NB	2	A	0.33	2	4	B	0.49	4	7	A	0.15	1	2
	SB	2	A	0.50	4	7	A	0.41	3	5	A	0.16	1	2
Atkinson Avenue & Spring Gate Boulevard	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EB	1	B	0.41	2	3	B	0.21	1	2	B	0.07	0	1
	WB	1	B	0.28	1	2	B	0.18	1	1	B	0.12	1	1
	NB	2	A	0.34	4	7	B	0.52	5	8	A	0.17	1	2
	SB	2	A	0.46	7	11	A	0.33	3	5	A	0.16	1	2
New Westminster Drive & Clark Avenue	Total		C	-	-	-	C	-	-	-	C	-	-	-
	EBL	1	C	0.39	3	5	C	0.40	3	6	B	0.35	3	5
	EBT	2	C	0.38	6	10	C	0.49	8	12	C	0.33	5	9
	EBR	1	C	0.10	1	2	C	0.11	1	2	C	0.05	1	1
	WBL	1	C	0.45	4	6	C	0.32	2	4	B	0.20	2	3
	WBT	2	D	0.43	8	13	D	0.30	6	10	C	0.26	5	9
	WBR	1	C	0.18	3	5	D	0.24	4	7	C	0.19	3	6
	NBL	1	C	0.25	1	2	C	0.19	1	3	C	0.09	1	1
	NBTR	2	C	0.35	5	8	C	0.68	11	17	C	0.31	4	7
	SBL	1	C	0.37	3	6	C	0.63	4	7	C	0.26	2	4

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
	SBTR	2	C	0.64	10	15	C	0.42	6	10	C	0.43	6	10
Clark Avenue & South Promenade	Total		A	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	A	0.10	0	1	A	0.11	1	1	A	0.11	1	1
	EBT	2	A	0.26	3	5	A	0.36	0	0	A	0.21	0	0
	WBT	2	A	0.33	5	9	A	0.25	4	7	A	0.21	3	5
	WBR	1	A	0.13	2	3	A	0.26	4	7	A	0.21	3	5
	SBL	1	D	0.63	4	7	D	0.83	8	13	D	0.78	6	9
	SBR	1	D	0.13	1	2	D	0.21	3	6	D	0.30	3	6
Bathurst Street & Clark Avenue	Total		D	-	-	-	E	-	-	-	D	-	-	-
	EBL	1	C	0.30	2	3	C	0.25	2	3	C	0.17	1	3
	EBT	2	D	0.60	11	16	D	0.73	15	21	C	0.42	7	11
	EBR	1	D	0.45	7	11	D	0.58	10	15	C	0.36	5	9
	WBL	1	D	0.64	2	4	D	0.74	3	5	C	0.40	3	6
	WBT	2	D	0.55	10	15	D	0.48	9	13	C	0.35	6	10
	WBR	1	D	0.35	5	8	C	0.29	4	7	C	0.25	4	6
	NBL	1	F	1.33	13	23	F	1.53	18	33	D	0.81	5	8
	NBT	2	D	0.66	15	21	E	1.00	31	56	D	0.67	13	19
	NBR	1	C	0.31	5	9	C	0.27	5	8	C	0.23	3	6
	SBL	1	D	0.73	3	6	F	1.18	11	21	D	0.73	3	6
	SBT	2	E	0.89	25	33	E	0.96	28	37	D	0.69	14	20
	SBR	1	D	0.21	4	8	D	0.11	2	4	C	0.14	2	3
York Hill Boulevard & Clark Avenue	Total		B	-	-	-	A	-	-	-	A	-	-	-
	EBTR	2	A	0.40	6	9	A	0.44	6	9	A	0.29	4	6
	WBTL	2	A	0.48	7	11	A	0.44	5	9	B	0.27	10	15
	NBL	1	D	0.36	3	5	D	0.28	2	3	D	0.22	2	4
	NBR	1	D	0.83	6	11	D	0.77	4	8	D	0.25	3	5
Clark Avenue & Atkinson Avenue	Total		D	-	-	-	C	-	-	-	C	-	-	-
	EBL	1	D	0.80	7	11	C	0.78	5	9	B	0.17	1	2
	EBTR	2	D	0.59	14	20	C	0.51	10	15	C	0.32	9	14
	WBL	1	D	0.13	1	1	C	0.07	0	1	B	0.02	0	0
	WBT	2	C	0.51	7	12	C	0.54	7	12	B	0.30	5	8
	WBR	1	D	0.07	8	12	F	1.01	21	37	B	0.21	3	5
	NBL	1	C	0.04	1	1	C	0.09	1	1	D	0.11	1	2
	NBTR	1	A	0.04	1	1	B	0.04	0	1	C	0.05	1	1
	SBL	1	C	0.81	17	22	C	0.67	9	14	C	0.40	4	8
	SBTR	1	A	0.56	9	14	C	0.40	4	8	C	0.35	3	6

Note: Red highlighted cells are critical turning movements as indicated in **Table 3**

Table 5: Existing Intersection Operation - Unsignalized Intersections

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
New Westminster Drive & No Frills East Access	Total		A	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	E	0.48	-	2	F	1.24	-	10	F	0.86	-	6
	EBR	1	B	0.14	-	1	B	0.25	-	1	B	0.31	-	1
	NBL	1	B	0.10	-	0	B	0.18	-	1	A	0.20	-	1
	NBT	2	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	2	-	-	-	-	-	-	-	-	-	-	-	-
Bathurst Street & SmartCentres East Access	Total		A	-	-	-	A	-	-	-		-	-	-
	EBLR	1	C	0.22	-	1	C	0.42	-	2	B	0.27		1
	NBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	SBTR	2	A	-	-	-	A	-	-	-	A	-	-	-
York Region Transit Access & Centre Street	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBTR	2	A	-	-	-	A	-	-	-	A	-	-	-
	WBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	NBR	1	B	0.05	-	0	C	0.07	-	0	B	0.06	-	0
Promenade Village Access & Centre Street	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBTR	2	A	-	-	-	A	-	-	-	A	-	-	-
	WBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	NBR	1	B	0.01	-	0	B	0.02	-	0	A	0.01	-	0
Bathurst Street & Promenade Circle	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBR	1	C	0.10	-	0	C	0.22	-	1	C	0.25	-	1
	NBT	3	A	-	-	-	A	-	-	-	A	-	-	-
	SBTR	3	A	-	-	-	A	-	-	-	A	-	-	-
Bathurst Street & SE Apartment Access	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBR	1	C	0.05	-	0	C	0.02	-	0	B	0.02	-	0
	NBL	1	C	0.02	-	-	A	0.01	-	-	C	0.01	-	0
	NBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	SBTR	3	A	-	-	-	A	-	-	-	A	-	-	-
Clark Avenue & SE Apartment Access	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBL	1	B	0.02	-	0	A	0.05	-	0	A	0.03	-	0
	EBT	2	A	-	-	0	A	-	-	-	A	-	-	-
	WBT	2	A	-	-	0	A	-	-	-	A	-	-	-
	WBR	1	A	-	-	0	A	-	-	-	A	-	-	-
	SBL	1	F	0.43	-	2	E	0.27	-	1	D	0.15	-	1
	SBR	1	B	0.09	-	0	B	0.06	-	0	B	0.07	-	0
Promenade Circle & North Promenade	Total		B	-	-	-	C	-	-	-	C	-	-	-
	EBTR	2	B	0.43	-	2	C	0.68	-	5	C	0.65	-	5
	WBT	1	A	0.15	-	1	B	0.24	-	1	B	0.23	-	1
	WBR	1	B	0.23	-	1	C	0.55	-	3	B	0.36	-	2
	SBL	1	A	0.35	-	2	C	0.56	-	3	B	0.36	-	2
	SBR	1	B	0.35	-	2	C	0.62	-	4	B	0.45	-	2

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Promenade Circle & West Promenade	Total		A	-	-	-	B	-	-	-	B	-	-	-
	EBL	1		0.30	-	1	C	0.51	-	3	C	0.57	-	4
	EBR	1		0.25	-	1	B	0.34	-	2	A	0.22	-	1
	NBTL	2	B	0.20	-	1	C	0.57	-	4	B	0.37	-	2
	SBTR	2	A	0.27	-	1	B	0.32	-	1	B	0.48	-	3
Promenade Circle & East Promenade	Total		A	-	-	-	B	-	-	-	A	-	-	-
	WBL	1	A	0.03	-	0	A	0.07	-	0	A	0.04	-	0
	WBR	1	A	0.06	-	0	A	0.12	-	0	A	0.13	-	0
	NBT	1	B	0.05	-	0	B	0.16	-	1	B	0.14	-	0
	NBR	1	A	0.02	-	0	A	0.15	-	1	A	0.07	-	0
	SBL	1	B	0.10	-	0	C	0.57	-	4	C	0.49	-	3
	SBT	1	B	0.05	-	0	B	0.15	-	1	B	0.10	-	0
Promenade Circle & South Promenade	Total		A	-	-	-	B	-	-	-	A	-	-	-
	EBT	1	B	0.04	-	0	C	0.21	-	1	B	0.08	-	0
	EBR	1	A	0.11	-	0	A	0.18	-	1	A	0.16	-	1
	WBL	1	B	0.04	-	0	C	0.37	-	2	C	0.16	-	1
	WBT	1	B	0.04	-	0	C	0.23	-	1	B	0.10	-	0
	NBL	1	A	0.09	-	0	A	0.14	-	0	A	0.13	-	0
	NBR	1	A	0.02	-	0	A	0.07	-	0	A	0.05	-	0
Promenade Circle & Promenade Circle	Total		A	-	-	-	B	-	-	-	A	-	-	-
	WBL	1	A	0.13	-	0	B	0.36	-	2	A	0.25	-	1
	NBTR	2	A	0.09	-	0	B	0.28	-	1	A	0.22	-	1
	SBL	1	A	0.04	-	0	A	0.08	-	0	A	0.14	-	1
	SBT	1	A	0.07	-	0	B	0.40	-	2	A	0.25	-	1

Note: Red highlighted cells are critical turning movements as indicated in **Table 3**

Figure 1: Existing AM Peak Hour - Intersection and Critical Movement LOS

Figure 2: Existing PM Peak Hour - Intersection and Critical Movement LOS

Figure 3: Existing Weekend Peak Hour - Intersection and Critical Movement LO

There are a number of movements and intersections that exceed the performance thresholds. Intersections with movements that exceed the v/c and LOS thresholds are listed below:

- New Westminster Drive & Bathurst Street
- Bathurst Street & Beverly Glen Boulevard
- Carl Tennen Street / Vaughan Boulevard & Centre Street
- Centre Street & No Frills Access
- New Westminster Drive & Centre Street
- North Promenade / Disera Drive & Centre Street
- Bathurst Street & Centre Street
- Atkinson Avenue & Centre Street
- Bathurst Street & East Promenade
- Bathurst Street & Clark Avenue
- Clark Avenue & Atkinson Avenue
- New Westminster Drive & No Frills Est Access
- Clark Avenue & SE Apartment Access

The following intersections operate within the v/c and LOS thresholds, but have queues that exceed the available storage during one of the peak hours:

- Atkinson Avenue & Highcliffe Drive / Rosedale Heights
- New Westminster Drive & Beverley Glen Boulevard
- Disera Drive & Smart Centres Access
- New Westminster Drive & Brownridge Drive / West Promenade
- New Westminster Drive & Clark Avenue
- Clark Avenue & York Hill Boulevard

Existing SimTraffic Analysis

SimTraffic is a micro-simulation add-on to Synchro, and select corridor performance was analyzed in SimTraffic to better understand coordination and progression dynamics between intersections along the major corridors. A total of five, 60 minute runs were completed for each peak period, with a 10 minute seeding time. SimTraffic analysis was conducted for Centre Street and Bathurst Street, and the results are shown in **Table 6** through **Table 9** for Bathurst Street Northbound, Bathurst Southbound, Centre Street Eastbound, and Centre Street Westbound, respectively.

Table 6: SimTraffic Arterial Report – Bathurst Street - Northbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
Clark Avenue	36.1	63.4	27	170.6	324.4	9	37.4	65.0	26

SE Apartment Access	4.7	14.8	39	6.4	16.5	35	4.3	14.5	40
East Promenade	3.4	17.4	51	15.0	28.8	31	7.3	21.4	41
Promenade Circle	0.8	12.8	55	3.0	14.7	48	1.4	13.3	53
Centre Street	42.0	54.7	15	59.4	72.0	11	45.5	57.6	14
SmartCentres Access	4.3	16.7	41	5.3	17.6	39	4.5	16.6	42
Beverly Glen Boulevard	8.7	22.5	39	8.8	22.5	39	10.0	23.6	37
Atkinson Avenue	26.7	43.8	24	30.4	47.3	22	24.2	40.6	25
Total	**126.8**	**246.1**	**30**	**299.0**	**543.8**	**17**	**134.7**	**252.4**	**29**

Table 7: SimTraffic Arterial Report – Bathurst Street - Southbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
New Westminster Boulevard	117.9	212.9	9	42.4	62.9	20	45.5	65.5	19
Beverly Glen Boulevard	8.2	25.4	41	9.7	26.9	38	8.2	25.6	40
SmartCentres Access	5.0	19.6	44	5.9	20.7	42	3.2	17.9	48
Centre Street	56.1	66.8	10	54.8	65.5	11	57.6	68.0	10
Promenade Circle	5.3	18.8	43	5.2	19.1	43	4.9	18.8	43
East Promenade	6.0	15.8	45	17.6	28.4	25	12.4	23.3	30
SE Apartment Access	4.6	18.0	49	13.1	27.9	32	3.2	18.6	48
Clark Avenue	51.4	61.1	10	46.0	57.7	11	35.7	44.8	13
Total	**254.5**	**438.4**	**19**	**194.7**	**309.0**	**22**	**171.0**	**282.5**	**24**

Ta42ble 8: SimTraffic Arterial Report – Centre Street - Eastbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
Vaughan B43oulevard	10.2	31.3	41	20.1	41.4	31	10.9	32.0	41
Taiga Drive	4.2	21.4	49	33.6	51.1	21	4.2	21.5	49

New Westminster Drive	40.8	57.8	18	107.5	124.4	9	27.5	44.2	24
York Region Transit	3.7	14.4	48	5.1	16.8	41	3.1	14.8	47
North Promenade	11.5	17.1	22	19.1	24.8	15	23.8	29.2	13
Promenade Village Access	2.0	12.8	49	2.7	13.3	47	2.8	13.3	47
Bathurst Street	41.6	49.3	11	47.5	55.1	9	43.0	50.6	10
Atkinson Avenue	13.9	45.0	44	16.8	48.1	41	11.5	43.9	45
Total	**127.8**	**249.1**	**31**	**252.3**	**375.1**	**20**	**126.8**	**249.5**	**30**

Table 9: SimTraffic Arterial Report – Centre Street - Westbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
Atkinson Avenue	9.4	33.9	44	8.9	32.5	45	8.0	31.2	46
Bathurst Street	50.1	78.9	25	53.8	85.2	23	43.7	74.5	26
Promenade Village Access	3.7	13.0	40	3.7	12.8	41	3.0	11.3	46
Disera Drive	21.7	31.8	20	22.5	32.0	19	21.5	30.8	20
York Region Transit	2.1	8.4	45	2.4	9.0	42	2.2	8.5	44
New Westminster Drive	23.2	33.4	21	26.6	37.1	19	34.4	45.3	15
Taiga Drive	3.6	21.0	51	4.8	21.6	50	5.6	23.1	46
Vaughan Boulevard	3.4	20.8	50	6.1	22.7	46	3.8	20.3	51
Total	**117.2**	**240.2**	**32**	**19.0**	**253.0**	**31**	**122.2**	**245.2**	**31**

EXISTING SIMTRAFFIC ANALYSIS SUMMARY

Based on the above results, and a visual inspection of the SimTraffic analysis, the following is a summary of the existing horizon corridor review:

Overall

- The varied cycle length and operation (due to future BRT preemption) at Centre Street and Bathurst Street is inconsistent with the signal timing regimes on the Centre Street (130s cycle lengths) and Bathurst Street corridors (140s cycle lengths), and limits the opportunity for consistent coordination

Centre Street

- Eastbound travel speeds are hampered by less than optimal coordination between Vaughan Boulevard and New Westminster Drive.
- Westbound progression is generally fine on the segment west of Bathurst Street

Bathurst Street

- Southbound travel is inhibited at Centre Street due to a lack of southbound through capacity (AM), and this is clearly shown by the low travel speeds at the intersection
- Progression north of Centre Street is generally good (both directions), while progression south of Centre Street could be improved

The intersections and coordination will be optimized for the 2041 future base case scenario.

2041 Base Case Traffic Operations

The 2041 future base case traffic volumes were developed by factoring up the existing traffic volumes based on the EMME growth rates between the existing and 2041 base case scenario. As done for the existing horizon, if traffic volumes at adjacent intersections were different by more than 10%, they were balanced to within 10% (except if there were significant accesses / driveways in between).

Existing laning and signal timing were used as a base, with the exception of Bathurst Street south of Centre Street, which is planned to be widened to include an HOV through lane in each direction (north-south), for a total of three core through lanes in each direction. To account for the fact that HOV lanes are less utilized that general purpose lanes, a combined lane utilization factor of 0.85 was used for the northbound and southbound through lane groups. The lane utilization factor is based on the lane capacity in the 2041 York Region model.

Signal timings were optimized at intersections where turning movements were beyond capacity, and the network coordination was optimized.

The intersection of New Westminster Drive and the No Frills Access was signalized due to a non-signalized v/c ratio greater than 1.0 and LOS F in the Weekend peak hour.

Table 10 shows the performance results for signalized intersections in the AM, PM and Weekend peak hours. **Table 11** shows the results for un-signalized intersections. The parameters that exceed the performance thresholds (as indicated in **Table 3**) have been highlighted.

Critical turning movements are illustrated in Figure 4 through Figure 6.

Table 10: Background Intersection Operation – Signalized Intersections

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
New Westminster Drive & Bathurst Street	Total		E	-	-	-	F	-	-	-	F	-	-	-
	EBL	1	F	1.11	12	21	F	1.13	7	12	F	1.03	5	9
	EBTR	2	D	0.55	7	11	D	0.45	5	10	D	0.30	4	7
	WBL	1	D	0.33	3	4	D	0.34	3	6	D	0.17	2	3
	WBT	2	D	0.48	5	12	D	0.53	6	10	D	0.34	4	7
	WBR	1	E	0.78	8	2	F	1.41	27	48	F	0.96	14	20
	NBL	1	E	0.47	1	10	E	0.47	1	2	F	0.77	3	5
	NBTR	2	A	0.69	6	10	E	0.95	30	38	B	0.61	7	11
	SBL	1	F	0.84	6	10	F	0.95	9	14	F	1.14	13	23
	SBTR	2	F	1.13	43	85	F	1.02	41	74	F	1.25	56	101
Atkinson Avenue & Highcliffe	Total		B	-	-	-	A	-	-	-	A	-	-	-
	EBL	1	B	0.16	1	2	B	0.39	2	4	A	0.20	1	2
	EBTR	2	A	0.27	2	4	A	0.20	1	3	A	0.19	1	2

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Drive / Rosedale Heights	WBL	1	B	0.10	1	1	A	0.02	0	0	A	0.01	0	0
	WBTR	2	A	0.27	2	4	A	0.45	4	7	A	0.21	2	3
	NBTL	1	B	0.28	2	3	B	0.18	1	2	B	0.23	1	2
	NBR	1	A	0.19	1	2	A	0.08	0	1	B	0.01	0	0
	SBL	1	B	0.20	1	2	B	0.05	0	0	B	0.03	1	0
	SBTR	1	A	0.24	2	3	A	0.25	1	2	B	0.29	1	2
New Westminster Drive & Beverley Glen Boulevard	Total		B	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	C	0.58	4	8	C	0.57	3	5	C	0.29	2	3
	EBTR	1	C	0.69	7	11	A	0.70	7	12	C	0.61	5	9
	WBL	1	C	0.17	1	1	C	0.20	1	2	C	0.17	1	1
	WBTR	1	B	0.67	3	6	A	0.70	8	12	B	0.41	3	6
	NBL	1	C	0.30	2	3	D	0.77	6	9	B	0.36	2	4
	NBTR	2	B	0.22	2	4	B	0.33	4	6	B	0.28	3	5
	SBL	1	B	0.09	1	1	B	0.23	2	3	B	0.10	1	1
	SBTR	2	B	0.50	6	10	B	0.57	7	12	B	0.36	4	7
Bathurst Street & Beverley Glen Boulevard	Total		A	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	E	0.76	5	8	E	0.74	4	7	E	0.82	6	11
	EBR	1	E	0.61	3	6	E	0.56	2	4	E	0.30	2	4
	NBL	1	E	0.64	2	3	F	1.10	9	16	F	0.81	4	8
	NBT	2	A	0.37	5	9	A	0.46	7	12	A	0.29	4	8
	SBTR	2	A	0.54	0	0	A	0.63	4	5	A	0.64	0	0
Disera Drive & Smart Centres Access	Total		A	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	B	0.02	0	0	B	0.07	0	1	B	0.09	1	1
	EBTR	1	B	0.11	0	1	A	0.08	1	1	B	0.09	1	1
	WBL	1	B	0.17	1	2	B	0.44	4	6	B	0.36	3	5
	WBTR	1	A	0.07	0	0	A	0.23	2	3	B	0.16	1	2
	NBL	1	A	0.14	1	2	B	0.13	1	2	B	0.08	1	1
	NBTR	1	A	0.40	3	6	A	0.61	7	11	B	0.49	5	9
	SBL	1	A	0.10	0	0	B	0.06	0	1	B	0.04	0	0
	SBTR	1	A	0.26	2	4	A	0.27	2	4	B	0.25	2	4
Atkinson Avenue & Rosedale Heights Drive / Edmund Seager Drive	Total		A	-	-	-	B	-	-	-	A	-	-	-
	EBL	1	B	0.04	0	0	B	0.02	0	0	B	0.02	0	0
	EBTR	1	B	0.39	2	3	A	0.44	2	4	B	0.20	1	1
	WBL	1	B	0.12	1	1	C	0.17	1	1	B	0.07	0	1
	WBTR	1	B	0.16	1	1	A	0.09	0	1	B	0.08	0	0
	NBL	1	A	0.13	1	1	A	0.21	1	2	A	0.12	1	2
	NBTR	2	A	0.27	2	4	A	0.39	3	6	A	0.18	1	2
	SBL	1	A	0.05	0	0	B	0.07	2	1	A	0.10	1	1

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
	SBTR	2	A	0.37	3	6	A	0.19	2	3	A	0.24	2	3
Carl Tennen Street / Vaughan Boulevard & Centre Street	Total		B	-	-	-	C	-	-	-	C	-	-	-
	EBL	1	E	0.36	1	1	E	0.31	0	0	F	0.29	0	0
	EBTR	2	B	0.52	10	15	C	0.75	21	29	B	0.35	7	11
	WBL	1	E	0.62	2	3	F	0.91	5	8	E	0.78	3	6
	WBTR	2	B	0.34	9	14	D	0.56	20	27	B	0.29	5	9
	NBL	1	E	0.17	1	2	D	0.18	1	2	D	0.17	1	3
	NBTR	1	E	0.34	2	4	D	0.44	4	8	D	0.47	5	8
	SBL	1	E	0.19	1	2	E	0.33	2	4	E	0.24	2	3
	SBTR	1	D	0.20	1	2	D	0.28	3	5	D	0.15	2	3
Centre Street & No Frills Access	Total		A	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	E	0.81	4	6	E	0.84	6	9	E	0.94	13	19
	EBT	2	A	0.40	0	0	A	0.56	11	15	C	0.19	0	0
	WBTR	2	B	0.35	1	13	D	0.58	20	23	A	0.35	0	0
	SBL	1	E	0.22	1	2	E	0.81	6	10	E	0.42	2	4
	SBR	1	E	0.35	1	2	E	0.57	3	6	E	0.32	1	2
New Westminster Drive & Centre Street	Total		D	-	-	-	F	-	-	-	C	-	-	-
	EBL	1	E	0.81	4	7	F	0.88	8	12	E	0.84	5	9
	EBTR	2	E	0.88	19	26	F	1.24	40	72	B	0.39	4	6
	WBL	1	F	0.80	4	6	F	0.86	5	8	E	0.75	3	5
	WBTR	2	C	0.58	6	11	D	0.83	13	19	C	0.51	6	10
	NBL	1	C	0.60	4	8	F	1.02	11	19	C	0.55	3	6
	NBTR	2	C	0.46	8	12	D	0.53	9	14	C	0.36	5	9
	SBL	1	C	0.24	2	3	C	0.32	2	4	C	0.48	1	3
	SBTR	2	D	0.64	12	17	D	0.61	10	15	D	0.73	13	19
North Promenade / Disera Drive & Centre Street	Total		C	-	-	-	D	-	-	-	C	-	-	-
	EBL	1	F	0.85	6	10	E	0.84	5	9	E	0.81	4	8
	EBTR	2	A	0.58	4	6	C	0.85	15	22	B	0.32	3	6
	WBL	1	F	0.85	5	9	F	0.89	8	15	E	0.84	55	9
	WBTR	2	C	0.36	7	11	C	0.51	10	15	C	0.29	5	9
	NBL	1	D	0.23	2	3	F	0.51	10	16	E	0.54	4	7
	NBT	1	D	0.64	9	15	D	0.99	6	10	D	0.43	7	11
	NBR	1	D	0.26	3	5	D	0.43	5	92	D	0.39	5	9
	SBL	1	E	0.47	3	5	D	0.43	3	6	D	0.45	4	7
	SBTR	1	D	0.52	7	12	D	0.64	10	15	D	0.58	9	14
Bathurst Street & Centre Street	Total		F	-	-	-	F	-	-	-	E	-	-	-
	EBL	1	F	1.18	5	11	F	1.39	8	14	F	1.09	4	10
	EBT	2	E	0.70	10	13	E	0.85	14	17	D	0.39	5	7

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
	EBR	1	B	0.63	3	7	B	0.57	1	5	A	0.29	0	0
	WBL	1	F	1.34	10	17	F	1.53	11	18	F	0.92	4	9
	WBTR	2	E	0.74	10	13	F	1.12	21	27	E	0.58	9	11
	NBL	2	E	0.52	4	8	E	0.62	8	13	E	0.64	7	12
	NBT	2	F	1.04	23	35	F	1.49	42	48	D	0.73	15	22
	NBR	1	A	0.21	0	0	A	0.22	0	0	A	0.20	0	0
	SBL	1	F	0.71	5	11	E	0.69	19	19	F	0.70	6	8
	SBT	2	F	1.24	33	43	F	1.31	45	45	F	1.00	22	31
	SBR	1	A	0.17	0	0	A	0.22	0	0	A	0.21	0	0
Atkinson Avenue & Centre Street	Total		C	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	B	0.20	2	3	C	0.40	3	5	B	0.14	1	2
	EBTR	2	B	0.36	5	8	B	0.45	7	11	A	0.25	3	6
	WBL	1	B	0.13	1	2	B	0.20	1	2	B	0.08	1	1
	WBTR	2	A	0.30	4	7	B	0.50	7	12	A	0.30	4	7
	NBL	1	F	1.02	6	11	D	0.74	5	9	C	0.38	2	4
	NBTR	2	C	0.38	4	7	C	0.61	7	11	C	0.27	2	5
	SBL	1	D	0.63	5	8	D	0.55	3	5	C	0.40	3	5
	SBTR	2	D	0.79	10	15	C	0.48	5	9	C	0.41	4	7
New Westminster Drive & Brownridge Drive / West Promenade	Total		C	-	-	-	C	-	-	-	B	-	-	-
	EBL	1	C	0.36	3	5	C	0.27	2	3	C	0.22	1	3
	EBTR	1	E	0.96	16	23	C	0.56	6	10	C	0.50	5	9
	WB	2	D	0.93	4	7	D	0.62	5	7	C	0.52	4	7
	NBL	1	B	0.34	3	3	B	0.31	8	3	B	0.14	1	6
	NBTR	2	B	0.32	4	7	B	0.53	8	12	B	0.33	4	1
	SBL	1	B	0.23	2	3	C	..60	4	8	C	0.47	4	8
	SBTR	2	C	0.57	7	12	C	0.58	8	12	C	0.50	6	10
Bathurst Street & East Promenade	Total		C	-	-	-	C	-	-	-	B	-	-	-
	EBL	2	D	0.18	1	1	E	0.46	2	4	E	0.30	1	2
	EBR	1	B	0.36	0	2	B	0.67	0	3	B	0.62	0	3
	NBL	1	C	0.58	2	5	C	0.71	11	10	C	0.55	6	11
	NBT	**3**	C	0.36	16	19	B	0.44	12	11	A	0.31	3	4
	SBTR	**3**	C	0.72	14	34	C	0.68	15	15	C	0.65	12	13
Atkinson Avenue & Campbell Avenue / Manor Gate	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EB	1	B	0.42	1	2	B	0.36	1	3	B	0.18	1	1
	WB	1	B	0.22	1	1	B	0.39	2	3	B	0.16	1	1
	NB	2	A	0.24	2	3	A	0.34	3	5	A	0.17	1	2
	SB	2	A	0.47	4	7	A	0.48	4	8	A	0.28	2	4

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Atkinson Avenue & Arnold Avenue	Total		B	-	-	-	B	-	-	-	A	-	-	-
	EB	1	B	0.68	5	8	B	0.09	0	1	B	0.11	0	1
	WB	1	B	0.33	2	3	B	0.66	4	7	B	0.21	1	1
	NB	2	B	0.46	4	7	B	0.56	5	9	A	0.20	1	2
	SB	2	B	0.39	3	6	B	0.43	3	6	A	0.33	2	4
Atkinson Avenue & Spring Gate Boulevard	Total		B	-	-	-	B	-	-	-	A	-	-	-
	EB	1	B	0.22	1	2	B	0.22	1	2	B	0.06	0	1
	WB	1	B	0.46	2	4	B	0.31	5	3	B	0.13	1	1
	NB	2	A	0.39	3	5	B	0.56	6	9	A	0.25	2	4
	SB	2	A	0.39	3	6	B	0.33	3	5	A	0.33	3	5
New Westminster Drive & Clark Avenue	Total		C	-	-	-	D	-	-	-	C	-	-	-
	EBL	1	D	0.79	6	10	C	0.67	3	6	C	0.62	3	5
	EBT	2	C	0.77	14	20	D	0.74	13	19	C	0.55	9	14
	EBR	1	C	0.20	3	5	C	0.16	2	4	C	0.08	1	2
	WBL	1	D	0.78	3	6	C	0.58	3	5	C	0.38	2	4
	WBT	2	D	0.43	8	13	D	0.41	7	12	D	0.37	7	12
	WBR	1	C	0.18	3	5	D	0.32	5	9	C	0.28	5	8
	NBL	1	C	0.28	2	3	C	0.22	2	3	C	0.11	1	1
	NBTR	2	C	0.46	7	11	D	0.81	15	22	C	0.31	4	7
	SBL	1	C	0.39	3	5	C	0.71	4	7	C	0.31	3	5
	SBTR	2	C	0.59	9	14	C	0.40	6	10	C	0.51	7	12
Clark Avenue & South Promenade	Total		B	-	-	-	A	-	-	-	B	-	-	-
	EBL	1	A	0.15	1	1	A	0.17	1	1	A	0.19	1	1
	EBT	2	B	0.46	12	18	A	0.46	0	0	B	0.33	11	17
	WBT	2	A	0.35	5	9	A	0.32	5	8	A	0.32	5	9
	WBR	1	A	0.14	2	3	A	0.34	5	9	A	0.32	4	8
	SBL	1	D	0.54	3	6	D	0.80	6	10	D	0.80	6	10
	SBR	1	D	0.11	1	2	D	0.21	3	4	D	0.31	4	7
Bathurst Street & Clark Avenue	Total		E	-	-	-	E	-	-	-	E	-	-	-
	EBL	1	C	0.41	3	5	C	0.32	2	4	C	0.30	2	4
	EBT	2	D	0.83	17	24	D	0.85	19	26	D	0.58	11	16
	EBR	1	D	0.63	11	16	D	0.68	12	18	C	0.50	7	12
	WBL	1	E	0.90	5	9	F	0.98	7	10	D	0.75	4	7
	WBT	2	D	0.54	10	14	D	0.57	11	15	C	0.50	9	14
	WBR	1	D	0.34	5	8	D	0.34	5	8	C	0.36	5	9
	NBL	1	F	1.29	19	35	F	1.19	19	34	F	1.31	15	27
	NBTR	3	E	0.84	19	26	F	1.05	30	54	E	0.95	23	31
	SBL	1	E	0.90	11	16	F	1.31	15	26	F	1.17	14	26

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
York Hill Boulevard & Clark Avenue	SBTR	3	F	1.02	30	54	F	1.02	29	53	D	0.78	16	23
	Total		B	-	-	-	C	-	-	-	A	-	-	-
	EBTR	2	A	0.53	9	12	B	0.69	13	15	A	0.40	5	8
	WBTL	2	B	0.59	9	14	C	0.76	10	15	A	0.40	0	1
	NBL	1	D	0.36	28	5	C	0.35	4	7	D	0.24	1	2
	NBR	1	D	0.83	7	11	E	0.96	15	21	D	0.28	1	2
Clark Avenue & Atkinson Avenue	Total		C	-	-	-	D	-	-	-	B	-	-	-
	EBL	1	D	0.87	9	14	F	1.18	20	36	B	0.32	2	3
	EBTR	2	B	0.68	12	18	C	0.78	18	25	A	0.47	0	1
	WBL	1	C	0.14	1	1	D	0.12	0	1	B	0.04	0	0
	WBT	2	C	0.58	8	14	C	0.54	7	12	B	0.47	9	13
	WBR	1	D	0.62	9	1	F	1.01	21	37	B	0.33	5	9
	NBL	1	D	0.09	1	1	C	0.09	1	1	D	0.15	1	2
	NBTR	1	B	0.05	1	1	B	0.04	0	1	C	0.05	1	1
	SBL	1	D	0.86	17	24	C	0.72	10	15	D	0.68	9	13
	SBTR	1	C	0.60	10	14	C	0.44	5	8	C	0.59	7	11
New Westminster Drive & No Frills East Access	Total		A	-	-	-	B	-	-	-	B	-	-	-
	EBL	1	C	0.17	0	1	C	0.36	2	4	C	0.42	2	5
	EBR	1	C	0.16	0	1	C	0.75	4	8	D	0.86	4	12
	NBL	1	A	0.12	0	1	A	0.26	1	3	B	0.52	1	6
	NBT	2	A	0.21	1	2	A	0.36	3	6	A	0.19	3	3
	SBT	2	A	0.35	3	5	A	0.31	3	5	A	0.40	3	8

Note: Red highlighted cells are critical turning movements as indicated in **Table 3**

Table 11: Background Intersection Operation - Unsignalized Intersections

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Bathurst Street & SmartCentres East Access	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBLR	1	C	0.05	-	0	C	0.26	-	1	C	0.34	-	2
	NBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	SBTR	2	A	-	-	-	A	-	-	-	A	-	-	-
York Region Transit Access & Centre Street	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBTR	2	C	0.07	-	0	A	-	-	-	A	-	-	-
	WBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	NBR	1	A	-	-	-	C	0.09	-	0	B	0.07	-	0
Promenade Village	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBTR	2	A	-	-	-	A	-	-	-	A	-	-	-

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Access & Centre Street	WBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	NBR	1	A	0.00	-	0	B	0.02	-	0	B	0.01	-	0
Bathurst Street & Promenade Circle	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBR	1	D	0.14	-	1	D	0.29	-	1	C	0.29	-	1
	NBT	3	A	-	-	-	A	-	-	-	A	-	-	-
	SBTR	3	A	-	-	-	A	-	-	-	A	-	-	-
Bathurst Street & SE Apartment Access	Total		A	-	-	-	A	-	-	-	A	-	-	-
	EBR	1	C	0.10	-	0	C	0.05	-	0	C	0.02	-	0
	NBL	1	D	0.05	-	0	A	0.03	-	-	C	0.01	-	0
	NBT	3	A	-	-	-	A	-	-	-	A	-	-	-
	SBTR	3	A	-	-	-	A	-	-	-	A	-	-	-
Clark Avenue & SE Apartment Access	Total		A	-	-	-	A		-		A		-	
	EBL	1	B	0.03	-	0	B	0.08	-	0	B	0.07	-	0
	EBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	WBT	2	A	-	-	-	A	-	-	-	A	-	-	-
	WBR	1	A	-	-	-	A	-	-	-	A	-	-	-
	SBL	1	F	0.77	-	4	F	0.54	-	2	F	0.37	-	2
	SBR	1	B	0.09	-	0	B	0.07	-	0	B	0.09	-	0
Promenade Circle & North Promenade	Total		B	-	-	-	C	-	-	-	C	-	-	-
	EBTR	2	C	0.58	-	4	D	0.74	-	6	D	0.75	-	7
	WBT	1	B	0.19	-	1	B	0.25	-	1	B	0.19	-	1
	WBR	1	B	0.30	-	1	C	0.59	-	4	B	0.29	-	1
	SBL	1	B	0.39	-	2	C	0.65	-	5	C	0.41	-	2
	SBR	1	B	0.40	-	2	D	0.73	-	6	C	0.52	-	3
Promenade Circle & West Promenade	Total		B	-	-	-	B	-	-	-	C	-	-	-
	EBL	1	B	0.33	-	1	C	0.56	-	3	C	0.70	-	5
	EBR	1	A	0.28	-	1	B	0.38	-	2	B	0.27	-	1
	NBTL	2	B	0.29	-	1	C	0.50	-	3	B	0.35	-	2
	SBTR	2	A	0.20	-	1	B	0.41	-	2	B	0.50	-	3
Promenade Circle & East Promenade	Total		A	-	-	-	A	-	-	-	A	-	-	-
	WBL	1	A	0.03	-	0	A	0.08	-	0	A	0.06	-	0
	WBR	1	A	0.07	-	0	A	0.15	-	0	A	0.19	-	0
	NBT	1	B	0.03	-	0	C	0.15	-	1	B	0.06	-	0
	NBR	1	A	0.01	-	0	A	0.11	-	0	A	0.02	-	0
	SBL	1	B	0.17	-	1	C	0.44	-	2	B	0.40	-	2
	SBT	1	B	0.06	-	0	B	0.15	-	1	B	0.11	-	0
	Total		A	-	-	-	B	-	-	-	B	-	-	-

Intersection	Movement / Lanes		Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Peak Hour			
			LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q	LOS	v/c	50th % Q	95th % Q
Promenade Circle & South Promenade	EBT	1	B	0.01	-	0	C	0.14	-	0	C	0.12	-	0
	EBR	1	A	0.06	-	0	A	0.09	-	0	A	0.18	-	1
	WBL	1	B	0.11	-	0	D	0.52	-	3	D	0.39	-	2
	WBT	1	B	0.07	-	0	C	0.39	-	2	C	0.23	-	1
	NBL	1	A	0.11	-	0	A	0.18	-	1	A	0.18	-	1
	NBR	1	A	0.02	-	0	A	0.08	-	0	A	0.07	-	0
Promenade Circle & Promenade Circle	Total		A	-	-	-	B	-	-	-	A	-	-	-
	WBL	1	A	0.17	-	1	B	0.40	-	2	B	0.35	-	2
	NBTR	2	A	0.12	-	0	B	0.27	-	1	A	0.17	-	1
	SBL	1	A	0.04	-	0	A	0.06	-	0	A	0.14	-	1
	SBT	1	A	0.11	-	0	B	0.24	-	1	A	0.22	-	1

Note: Red highlighted cells are critical turning movements as indicated in **Table 3**

Figure 4: 2041 Base Case AM Peak Hour - Intersection and Critical Movement LOS

Figure 5: 2041 Base Case PM Peak Hour - Intersection and Critical Movement LOS

Figure 6: 2041 Base Case Weekend Peak Hour - Intersection and Critical Movement LOS

2041 BASE CASE TRAFFIC OPERATIONS SUMMARY

Similar to the existing conditions, a number of movements and intersections continue to exceed the performance thresholds. Intersections with movements that exceed the v/c and LOS thresholds are listed below, with the new intersections added to the list (those that exceed the thresholds only in the 2041 base case scenario) are bolded:

- New Westminster Drive & Bathurst Street
- Bathurst Street & Beverly Glen Boulevard
- Carl Tennen Street / Vaughan Boulevard & Centre Street
- Centre Street & No Frills Access
- New Westminster Drive & Centre Street
- North Promenade / Disera Drive & Centre Street
- Bathurst Street & Centre Street
- Atkinson Avenue & Centre Street
- Bathurst Street & East Promenade
- Bathurst Street & Clark Avenue
- **Clark Avenue & York Hill Boulevard**
- Clark Avenue & Atkinson Avenue
- Clark Avenue & SE Apartment Access

The following intersections operate within the v/c and LOS thresholds, but have queues that exceed the available storage during one of the peak hours. The new additions are bolded:

- Atkinson Avenue & Highcliffe Drive / Rosedale Heights
- New Westminster Drive & Beverley Glen Boulevard
- Disera Drive & Smart Centres Access
- **Atkinson Avenue & Rosedale Heights / Edmond Seager**
- New Westminster Drive & Brownridge Drive / West Promenade
- New Westminster Drive & Clark Avenue
- **New Westminster Drive & No Frills East Access**

2041 Base Case SimTraffic Analysis

SimTraffic analysis was conducted for Centre Street and Bathurst Street, and the results are shown in **Table 12** through **Table 15** for Bathurst Street Northbound, Bathurst Southbound, Centre Street Eastbound, and Centre Street Westbound, respectively.

Table 12: SimTraffic Arterial Report – Bathurst Street - Northbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
Clark Avenue	56.3	122.7	20	130.5	157.9	11	81.6	156.1	16
SE Apartment Access	4.4	14.5	40	7.9	18.1	32	4.6	14.7	39

East Promenade	11.5	25.5	35	50.2	65.6	14	5.5	19.7	45
Promenade Circle	5.1	16.8	42	69.3	89.5	9	1.8	13.2	53
Centre Street	57.1	69.9	12	121.5	156.7	6	39.0	51.4	16
SmartCentres Access	5.2	17.5	40	5.7	17.7	39	4.8	17.1	40
Beverly Glen Boulevard	6.6	19.2	45	7.1	20.3	43	9.1	22.4	39
Atkinson Avenue	28.3	45.3	23	36.4	53.1	19	27.5	44.4	23
Total	**174.4**	**331.2**	**25**	**428.6**	**579.0**	**13**	**173.9**	**338.9**	**25**

Table 13: SimTraffic Arterial Report – Bathurst Street - Southbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
New Westminster Drive	138.1	348.5	8	116.7	169.8	9	142.5	556.4	8
Beverly Glen Boulevard	5.8	22.5	46	14.7	31.8	33	7.5	24.9	41
SmartCentres Access	5.6	19.6	45	41.5	58.5	16	3.0	16.6	52
Centre Street	58.7	69.7	10	81.9	93.1	7	44.7	55.2	13
Promenade Circle	3.9	16.7	49	4.4	17.8	46	4.0	17.8	46
East Promenade	8.9	18.5	38	23.7	34.4	20	11.6	220	32
SE Apartment Access	4.9	18.2	49	26.4	42.7	22	5.2	20.1	44
Clark Avenue	47.3	56.7	10	47.2	96.0	10	39.5	53.6	12
Total	**273.3**	**570.3**	**18**	**356.5**	**544.1**	**15**	**258.1**	**766.7**	**19**

Table 14: SimTraffic Arterial Report – Centre Street - Eastbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)
Vaughan Boulevard	10.8	31.9	41	178.5	435.1	6	14.7	35.8	36
Taiga Drive	5.8	23.1	45	162	178.8	6	8.5	25.6	41
New Westminster Drive	54.1	70.9	15	186.7	205.0	5	24.9	41.8	26

York Region Transit	4.5	15.0	47	5.1	16.7	42	3.4	15.4	45
North Promenade	19.2	25.0	15	21.8	27.5	14	16.7	21.9	17
Promenade Village Access	3.3	14.1	44	3.1	13.6	46	2.7	13.4	47
Bathurst Street	51.3	58.6	9	51.0	58.5	9	44.4	51.7	10
Atkinson Avenue	15.5	46.4	43	16.6	46.2	43	14.5	47.6	41
Total	**164.6**	**285.0**	**27**	**624.7**	**981.3**	**10**	**129.7**	**253.2**	**30**

Table 15: SimTraffic Arterial Report – Centre Street - Westbound

Cross Street	Peak Period								
	AM			PM			SAT		
	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km/h)	Delay (s)	Travel Time (s)	Speed (km43 /h)
Atkinson Avenue	10.5	34.3	42	43.2	73.9	22	9.7	33.4	43
Bathurst Street	69.4	101.5	20	271.6	303.9	7	45.9	76.3	26
Promenade Village Access	3.5	12.8	40	4.0	12.7	41	3.4	12.0	43
Disera Drive	23.4	33.6	19	26.9	36.5	17	24.8	34.7	18
York Region Transit	2.3	8.5	44	2.6	8.9	42	2.3	8.7	43
New Westminster Drive	31.4	41.9	17	37.8	48.4	14	28.9	39.5	18
Taiga Drive	9.0	26.5	40	16.3	33.0	32	4.8	22.1	48
Vaughan Boulevard	4.7	21.7	48	6.9	23.0	46	7.0	23.9	44
Total	**154.1**	**281.0**	**28**	**409.3**	**540.2**	**15**	**126.9**	**250.7**	**31**

2041 SIMTRAFFIC ANALYSIS SUMMARY

Based on the above results, and a visual inspection of the SimTraffic analysis, the following is a summary of the 2041 base case scenario:

Overall

- The varied cycle length and operation (due to future BRT preemption) at Centre Street and Bathurst Street is inconsistent with the signal timing regimes on the Centre Street (130s cycle lengths) and Bathurst Street corridors (140s cycle lengths), and limits the opportunity for consistent coordination
- Delay and travel time did not increase linearly across the network, and have instead increased for select movements and intersection along the corridors

- In some cases, an increase in traffic and congestion at one intersection creates a filtering effect that reduces the number of vehicles passing a certain location, and this then improves the travel time and speeds on the downstream sections of the street
- The PM peak hour operation generally decreased significantly more than the AM and Saturday peak hours

Centre Street

- Eastbound travel time significantly increased due to limited capacity at the intersections with Vaughan Boulevard and New Westminster Drive.
- Westbound travel is restricted at the intersection with Bathurst Street

Bathurst Street

- The introduction of a third through lane at Bathurst Street and Clark Avenue reduced the northbound delay and travel time in the PM peak hour, but had less of an impact during the other peak hours
- The third lane had little to no impact on southbound travel on Bathurst Street
- Southbound travel on Bathurst is restricted based on the capacity of the intersection with New Westminster / Atkinson Avenue

Appendix A: Traffic Analysis Parameters Memo

Memorandum

Project:	Promenade Mall Secondary Plan
Subject:	Syncho & SimTraffic Traffic Analysis Parameters – Version 3
Date:	Friday, August 23, 2019

HDR will be conducting Synchro and SimTraffic traffic analysis for the Promenade Mall Secondary Plan Comprehensive Transportation Study. **Figure 1** shows the locations for intersections to be analyzed, including signalized intersections in the original scope, new unsignalized intersections (8 intersections), and new right-in/right-out (RIRO) intersections (4 intersections).

Figure 1: Intersection Locations

The City of Vaughan has requested confirmation of the Synchro parameters that will be used in the traffic analysis. **Table 1** show the proposed values to be used for the analysis. The values are based on the City of Vaughan's TIA guidelines and industry best practices.

Table 1: Analysis Parameters / Assumptions

Category	Parameter	Value
Traffic Volumes Adjustments	Balancing	Balance volumes when traffic volume differs more than 10% between adjacent intersections
	Peak Hour Factor	PHFs are not available at all study area intersections. The average network PHF was 0.91 in the AM and 0.93 in the PM, but significantly higher (0.95 – 0.97) at the major intersections on Centre Street and Bathurst Street. **Propose to use network wide PHF of 0.95 in the AM, PM and Saturday peak hours.**
Synchro – General Parameters	Link Speeds	Posted speed limit
	Turning Speed	15 km/h for right turns and 25 km/h for left turns
	Lane Widths	3.3 m (Use the IFC drawing for Center and Bathurst Street)
	Storage Length	Measured off from aerial maps and IFC drawing for Center and Bathurst Street
	Right Turn on Red	Based on existing traffic control
	Saturation Flow Rate	1900 pcuphplg (CoV TIS Guidelines / Synchro default)
	Lane Utilization Factors	Synchro defaults
	Conflicting Pedestrians	Based on available count data
	Pedestrian Walk Speed	1.0 m/s (CoV TIS Guidelines)
	Conflicting Bicycles	Not used (volumes were not always available in counts, and when available, were generally <5 bicycles per hour)
	Heavy Vehicle (%)	Based on existing count data by movement
	Passenger Car Equivalent for HV	2.0 (CoV TIS Guidelines)
	Bus Blockages	Zero bus blockages by approach for transit only lane (i.e. buses stop in transit only lane and don't affect traffic flow)
	Parking Maneuvers	Not used (standard industry practice)
Synchro – Signal Timing	General	Based on existing signal timing plan when available, and following CoV TIS Guidelines for new signalized intersections.
	Intergreen Time	Based on existing signal timing plan for existing intersections, and 6.0 s for future intersections. (CoV TIS Guidelines)
	Lost Time	Based on existing signal timing plans for existing intersections. For new signalized intersections, will be consistent with CoV TIS Guidelines.
	Pedestrian Calls	Volume of conflicting pedestrian traffic divided by 3 (standard industry practice)
Synchro - Reporting	Reporting / Intersection Capacity Analysis Methodology	Synchro Performance Report - Synchro results should be intersection report based on HCM 2010 methodology with the following MOE for each intersection approach and movement: traffic

Category	Parameter	Value
		volume, level of service, V/C ratios, average delay, 50th percentile queue length, 95th percentile queue length, and signal timing information Synchro files will be provided along with the report
SimTraffic Parameters	Corridors	Centre Street and Bathurst Street
	Seeding Time	10 minutes
	Run Time	60 minutes
	Runs	5
	Calibration	Adjust mandatory distance and positioning distance to control lane change behaviors
	Outputs	Corridor reports, intersection delay per vehicle; Synchro files will be provided. Synchro files should be able to run Sim-traffic without any error

We trust that this summary of the parameters are sufficient for your needs at this time. Please reach out if you wish to discuss specific values or if you have questions the traffic analysis.

Appendix B: Signal Timing & Viva BRT Drawings

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	Atkinson @ Rosedale Heights	NUMBER
CONTROLLER MAKE	MODEL EPAC - 300	TYPE OF OPERATION

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY

ø1		ø5		TURN ON DATE	Y M D
ø2		ø6		TIME	: A.M. P.M.
ø3		ø7		FINAL	
ø4		ø8		TEMPORARY	

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

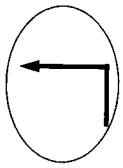
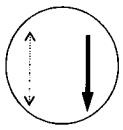
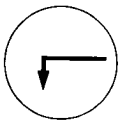
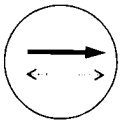
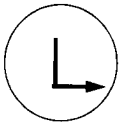
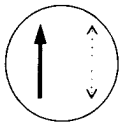
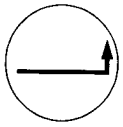
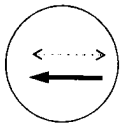
		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green		12		8				
	Passage		50		50				
	Maximum No. 1		28		20				
	Maximum No. 2		28		20				
	Yellow Change		40		40				
	Red Clearance		20		20				
Density Times	Seconds/Actuation								
	Maximum Initial								
	Time B4 Reduction								
	Cars B4 REduction								
	Time To Reduce								
	Minimum Gap								

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	15	0	19	0	15	0	19
	Pedest. Clearance	0	8	0	11	0	8	0	11
Ped. Cont.	Flashing Walk								
	Ext Ped Clear								
	Act Rest In Walk								
Veh. Cont.	Non-Lock Memory				1		1		
	Dual Entry				1		1		
	Last Car Passage								
	Conditional Serv								

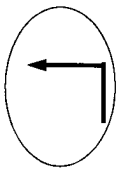
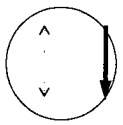
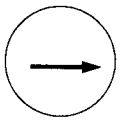
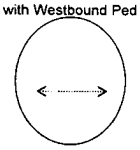
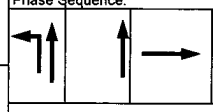
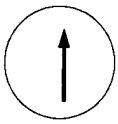
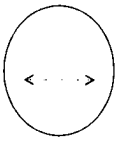
Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

LOCATION:	Bathurst St (YR 38) & Clark Ave	**MUNICIPALITY:**	Vaughan
CTCS:	157	**COMPUTER SYSTEM:**	Centracs
MODE/COMMENT:	SA	**CONTROLLER/CABINET TYPE:**	Econolite Cobalt / TS2T1
PREPARED/CHECKED BY:	M.L.	**CONFLICT FLASH:**	Red & Red
PREPARATION DATE:		**DESIGN WALK SPEED:**	1.0 m/s (FDW based on full crossing at 1.2 m/s)
IMPLEMENTATION DATE:	Apr. 9,2019	**CHANNEL/DROP:**	

NEMA Phase (York)		AM	PM	OFF	Jewish Plan	Free	Phase Mode (Fixed/Demanded/Callable)	Remarks
		6:00-10:00 M-F	16:00-19:00 Mon-Thu,	10:00-16:00 M-F, 19:00-22:00 Mon-Thu & 8:00-	Friday 16:00-22:00 Saturday	22:00-6:00 Mon-Thu & 22:00-8:00 Sat		
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 99		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 99		
1. N/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 20 MAX2 0 AMB 3 ALR 1 SPLIT	12	12	12	12	0	Callable/Extendable by Setback Loop	Pedestrian Minimums: NSWK = 7 sec., NSFD = 29 sec. EWWK = 7 sec., EWFD = 33 sec **Emergency vehicle pre-emption 3:** Serve NSG/NSDW min 20 secs and up to 100 secs if there are continuous emergency calls in NS direction.
2. Southbound  Bathurst St	WLK 7 FDW 35 MIN 36 EXT 0 MAX1 36 MAX2 0 AMB 4.5 ALR 3.0 SPLIT	61	61	51	51	0	Fixed	EW phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum EWG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the EWG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 40 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The EWWK & EWFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the NSG.
3. W/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 20 MAX2 0 AMB 3 ALR 1 SPLIT	12	12	12	12	0	Callable/Extendable by Setback Loop	
4. Eastbound  Clark Ave	WLK 7 FDW 39 MIN 10 EXT 3 MAX1 40 MAX2 0 AMB 4.0 ALR 3.5 SPLIT	55	55	55	55	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop. **Ped recall on Pattern 4 Jewish plans**	During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand. During free plan, signal rests in NSWK and does not cycle through NSFD unless there is side street vehicle or pedestrian demand.
5. S/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 20 MAX2 0 AMB 3 ALR 1 SPLIT	12	12	12	12	0	Callable/Extendable by Setback Loop	NSFD reverts to NSWK if there is no side street demand at the end of the NSFD. **Please see reverse for Holy Holiday Schedule**
6. Northbound  Bathurst St	WLK 7 FDW 35 MIN 36 EXT 0 MAX1 36 MAX2 0 AMB 4.5 ALR 3.0 SPLIT	61	61	51	51	0	Fixed	
7. E/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 20 MAX2 0 AMB 3 ALR 1 SPLIT	12	12	12	12	0	Callable/Extendable by Setback Loop	**LEGEND:** SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR -All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
8. Westbound  Clark Ave	WLK 7 FDW 39 MIN 10 EXT 3 MAX1 40 MAX2 0 AMB 4.0 ALR 3.5 SPLIT	55	55	55	55	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop. **Ped recall on PM/OFF Jewish plans**	
	CL	140	140	130	130	0 (FREE)		
	OF	0	0	66	40	0 (FREE)		
	VP	35	35	35	35	0 (FREE)		

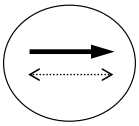
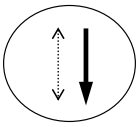
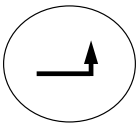
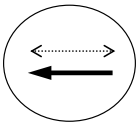
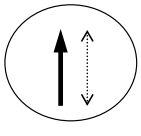
NOTES:

LOCATION:	Bathurst St / & The Promenade Mall Entrance	MUNI[CIPALI]TY:	Vaughan
CTCS:	158	COMPUTE[R]:	Centracs
MODE/COMMENT:	SA	CONTROLLER/CABINE[T] TYPE:	Econolite Cobalt / TS2T1
PREPARED/CHECKED BY:	M.L.	CONFLICT FLASH:	Red & Red
PREPARATION DATE:		DESIGN WALK SPEED:	1.0 m/s (FDW based on full crossing at 1.2 m/s)
IMPLEMENTATION DATE:	Apr. 9,2019	CHANNEL/DROP:	

NEMA Phase (York)		AM 6:00-10:00 M-F	PM 16:00-19:00 Mon-Thu,	OFF 10:00-16:00 M-F, 19:00-22:00 Mon-Thu & 8:00-	Jewish Plan Friday 16:00-22:00 Saturday	Free 22:00-6:00 Mon-Thu & 22:00-	Phase Mode (Fixed/Demanded/Callable)	Remarks
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 99		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 99		
1. N/B Left Turn Arrow 	WLK						Callable/Extendable by Setback Loop	Pedestrian Minimums: NSWK = 7 sec., NSFD = 31 sec. EWWK = 7 sec., EWFD = 32 sec.
	FDW							
	MIN 7							
	EXT 3							
	MAX1 20							
	MAX2 0							
	AMB 3							
	ALR 1							
	SPLIT	12	25	25	12	0		
2. Southbound  Bathurst St	WLK 7						Fixed	EW phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum EWG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the EWG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 19 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The EWWK & EWFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the NSG.
	FDW 31							
	MIN 38							
	EXT 0							
	MAX1 38							
	MAX2 0							
	AMB 4.5							
	ALR 2.5							
	SPLIT	63	50	50	48	0		
3. Eastbound Vehicle Only  The Promenade Mall Entr	WLK						Callable by stopbar loop Extendable by stopbar loop. Split Phase	During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand
	FDW							
	MIN 10							
	EXT 3							
	MAX1 19							
	MAX2 0							
	AMB 3.5							
	ALR 3.5							
	SPLIT	18	18	18	18	0		During free plan, signal rests in NSWK and does not cycle through NSFD unless there is side street vehicle or pedestrian demand.
4. EW Ped (South Side) Tied with Westbound Ped  The Promenade Mall Entr	WLK 7						Split Phase Callable by pushbutton Concurrent with Westbound Ped PM/OFF Jewish plans **Ped recall on Pattern 4 Jewish plans**	NSFD reverts to NSWK if there is no side street demand at the end of the NSFD.
	FDW 32							
	MIN 10							
	EXT 3							
	MAX1 40							
	MAX2 0							
	AMB 3.5							
	ALR 3.5							
	SPLIT	47	47	47	47	0		Phase Sequence: 
5. NOT USED	WLK							**Please see reverse for Holy Holiday Schedule**
	FDW							
	MIN							
	EXT							
	MAX1							
	MAX2							
	AMB							
	ALR							
	SPLIT							
6. Northbound  Bathurst St	WLK 7						Fixed	
	FDW 31							
	MIN 38							
	EXT 0							
	MAX1 38							
	MAX2 0							
	AMB 4.5							
	ALR 2.5							
	SPLIT	75	75	75	60	0		
7. NOT USED	WLK							**LEGEND:** SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR -All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
	FDW							
	MIN							
	EXT							
	MAX1							
	MAX2							
	AMB							
	ALR							
	SPLIT							
4. EW Ped (North Side) Tied with Eastbound Ped  The Promenade Mall Entr	WLK 7						Callable by pushbutton Concurrent with Eastbound Ped PM/OFF Jewish plans **Ped recall on PM/OFF Jewish plans**	
	FDW 32							
	MIN 10							
	EXT 3							
	MAX1 40							
	MAX2 0							
	AMB 3.5							
	ALR 3.5							
	SPLIT	65	65	65	65			
	CL	140	140	140	125	0 (FREE)		
	OF	0	0	0	0	0 (FREE)		
	VP	31	31	31	31	0 (FREE)		

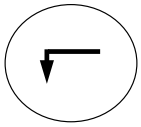
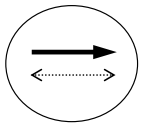
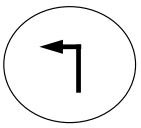
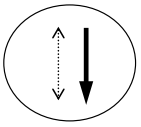
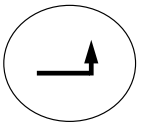
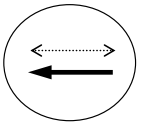
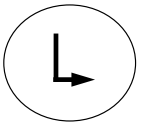
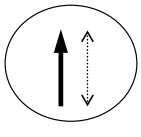
NOTES:

LOCATION:	**Clark Ave & Atkinson Ave**			*MUNICIPALITY:*	**Vaughan**	N ↑
CTCS:				*COMPUTER SYSTEM:*	**Centracs**	
MODE/COMMENT:	**SA**			*CONTROLLER/CABINET TYPE:*	**Econolite Cobalt / TS2T1**	
PREPARED/CHECKED BY:				*CONFLICT FLASH:*	**Red & Red**	
PREPARATION DATE:	**November 15, 2017**			*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.0 m/s)**	
IMPLEMENTATION DATE:				*CHANNEL/DROP:*		

NEMA Phase (Vaughan)		AM 6:30-9:30 M-F; (Jewish)	OFF 9:30-15:00, 19:00-22:00 M-F; (Jewish)	PM 15:00-19:00 M-F; (Jewish)	Weekend 8:00-22:00 Sat & Sun; (Jewish)	Free 22:00-6:30 M-F, 22:00-8:00 Sat & Sun; (Jewish)	Phase Mode (Fixed/Demanded /Callable)	Remarks
	Local Plan	Pattern 21 (25)	Pattern 31 (35)	Pattern 41 (45)	Pattern 22&23 (5&15)	Pattern 254 (55)		
	System Plan	Plan 21 (25)	Plan 31 (35)	Plan 41 (45)	Plan 22&23 (5&15)	Plan 99 (55)		
1 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							Pedestrian Minimums: EWWK = 7 sec., EWFD = 26 sec. NSWK = 7 sec., NSFD = 26 sec.
2. Eastbound  Clark Ave	WLK 19 FDW 26 MIN 45 EXT 3.0 MAX1 45 MAX2 45 AMB 4.0 ALR 2.0 SPLIT **51**	**53**	**51**	**51**	**61**	**0**	Fixed	NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 12 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 18 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.
3 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							
4. Southbound  Atkinson Ave	WLK 7 FDW 26 MIN 12 EXT 3.0 MAX1 33 MAX2 33 AMB 4.0 ALR 2.0 SPLIT **39**	**57**	**39**	**39**	**49**	**0**	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.
5. E/B Left Turn Arrow 	WLK 0 FDW 0 MIN 7 EXT 2.5 MAX1 7 MAX2 7 AMB 3.0 ALR 0.0 SPLIT **10**	**13**	**10**	**12**	**12**	**0**	Callable/Extendable by Setback Loop	During free plan, signal rests in EWWK and does not cycle through EWFD unless there is side street vehicle or pedestrian demand. EWFD reverts to EWWK if there is no side street demand at the end of the EWFD.
6. Westbound  Clark Ave	WLK 7 FDW 26 MIN 35 EXT 3.0 MAX1 35 MAX2 35 AMB 4.0 ALR 2.0 SPLIT **41**	**40**	**41**	**39**	**49**	**0**	Fixed	
7 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							**LEGEND:** SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR -All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
8. Northbound  Atkinson Ave	WLK 7 FDW 26 MIN 12 EXT 3.0 MAX1 33 MAX2 33 AMB 4.0 ALR 2.0 SPLIT **39**	**57**	**39**	**39**	**49**	**0**	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	
	CL **90** OF **10** VP 26	**110** **78** 26	**90** **75** 26	**90** **22** 26	**110** **22** 26	**0 (Free)** **0 (Free)** **0 (Free)**		

NOTES:

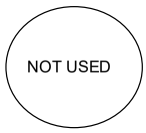
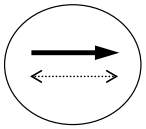
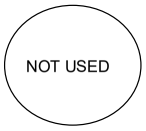
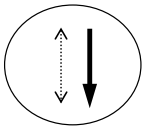
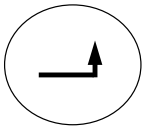
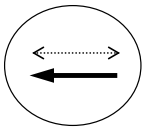
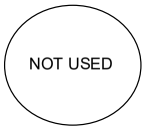
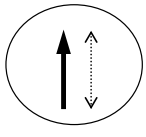
LOCATION:	**Clark Ave & New Westminster Dr**					*MUNICIPALITY:*	**Vaughan**	N
CTCS:						*COMPUTER SYSTEM:*	**Centracs**	
MODE/COMMENT:	**SA**					*CONTROLLER/CABINET TYPE:*	**Econolite Cobalt / TS2T1**	
PREPARED/CHECKED BY:						*CONFLICT FLASH:*	**Red & Red**	
PREPARATION DATE:	**May 15, 2019**					*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.0 m/s)**	
IMPLEMENTATION DATE:						*CHANNEL/DROP:*		

NEMA Phase (Vaughan)		AM 6:30-9:30 M-F; (Jewish)	OFF 9:30-15:00, 19:00-22:00 M-F; (Jewish)	PM 15:00-19:00 M-F; (Jewish)	Weekend 8:00-22:00 Sat & Sun; (Jewish)	Free 22:00-6:30 M-F, 22:00-8:00 Sat & Sun; (Jewish)	Phase Mode (Fixed/Demanded/Callable)	Remarks
	Local Plan	Pattern 21 (25)	Pattern 31 (35)	Pattern 41 (45)	Pattern 22&23 (5&15)	Pattern 254 (55)		
	System Plan	Plan 21 (25)	Plan 31 (35)	Plan 41 (45)	Plan 22&23 (5&15)	Plan 99 (55)		
1. W/B Left Turn Arrow 	WLK 0 FDW 0 MIN 7 EXT 2.5 MAX1 7 MAX2 7 AMB 3.0 ALR 0 SPLIT **10**	**10**	**10**	**10**	**10**	**0**		Pedestrian Minimums: EWWK = 7 sec., EWFD = 31 sec. NSWK = 7 sec., NSFD = 32 sec.
2. Eastbound  Clark Ave	WLK 7 FDW 31 MIN 38 EXT 3.0 MAX1 38 MAX2 38 AMB 4.0 ALR 2.0 SPLIT **44**	**44**	**45**	**45**	**45**	**0**	Fixed	NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 12 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 40 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.
3. N/B Left Turn Arrow 	WLK 0 FDW 0 MIN 7 EXT 2.5 MAX1 7 MAX2 7 AMB 3.0 ALR 0 SPLIT **10**	**10**	**10**	**10**	**10**	**0**		
4. Southbound  New Westminster Dr	WLK 7 FDW 32 MIN 12 EXT 3.0 MAX1 40 MAX2 40 AMB 4.0 ALR 2.0 SPLIT **46**	**46**	**45**	**45**	**45**	**0**	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.
5. E/B Left Turn Arrow 	WLK 0 FDW 0 MIN 7 EXT 2.5 MAX1 7 MAX2 7 AMB 3.0 ALR 0.0 SPLIT **10**	**10**	**10**	**10**	**10**	**0**	Callable/Extendable by Setback Loop	During free plan, signal rests in EWWK and does not cycle through EWFD unless there is side street vehicle or pedestrian demand.
6. Westbound  Clark Ave	WLK 7 FDW 31 MIN 38 EXT 3 MAX1 38 MAX2 38 AMB 4.0 ALR 2.0 SPLIT **44**	**44**	**45**	**45**	**45**	**0**	Fixed	EWFD reverts to EWWK if there is no side street demand at the end of the EWFD. Jewish Holiday, pushing buttons do not need to be pushed for minor street (East/West sides)
7. S/B Left Turn Arrow 	WLK 0 FDW 0 MIN 7 EXT 2.5 MAX1 7 MAX2 7 AMB 3.0 ALR 0 SPLIT **10**	**10**	**10**	**10**	**10**	**0**		**LEGEND:** SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR -All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
8. Northbound  New Westminster Dr	WLK 7 FDW 32 MIN 12 EXT 3 MAX1 40 MAX2 40 AMB 4.0 ALR 2.0 SPLIT **46**	**46**	**45**	**45**	**45**	**0**	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	
	CL **110** OF VP	**110** **72** 31	**110** **10** 31	**110** **40** 31	**110** **96** 31	**0 (Free)** **0 (Free)** **0 (Free)**		

NOTES:

LOCATION:	**Clark Ave & South Promenade**	*MUNICIPALITY:*	**Vaughan**
CTCS:		*COMPUTER SYSTEM:*	**Centracs**
MODE/COMMENT:	**SA**	*CONTROLLER/CABINET TYPE:*	**Econolite Cobalt / TS2T1**
PREPARED/CHECKED BY:		*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**November 10, 2017**	*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.0 m/s)**
IMPLEMENTATION DATE:		*CHANNEL/DROP:*	

N

NEMA Phase (Vaughan)		AM 6:30-9:30 M-F	OFF 9:30-15:00, 19:00-22:00 M-F	PM 15:00-19:00 M-F	Weekend 8:00-22:00 Sat & Sun	Free 22:00-6:30 M-F, 22:00-8:00 Sat & Sun	Phase Mode (Fixed/Demanded/Callable)	Remarks
	Local Plan	Pattern 21	Pattern 31	Pattern 41	Pattern 22&23	Pattern 254		
	System Plan	Plan 21	Plan 31	Plan 41	Plan 22&23	Plan 99		
1	WLK							Pedestrian Minimums: EWWK = 7 sec., EWFD = 27 sec. NSWK = 7 sec., NSFD = 26 sec.
 NOT USED	FDW							
	MIN							
	EXT							
	MAX1							
	MAX2							
	AMB							
	ALR							
	SPLIT							
2. Eastbound	WLK 30						Fixed	
	FDW 27							
	MIN 57							
	EXT 3.0							
	MAX1 57							
	MAX2 57							
	AMB 4.0							
	ALR 2.0							
Clark Ave	SPLIT **63**	**65**	**65**	**63**	**63**	**0**		NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 12 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 18 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.
3	WLK							
 NOT USED	FDW							
	MIN							
	EXT							
	MAX1							
	MAX2							
	AMB							
	ALR							
	SPLIT							
4. Southbound	WLK 7						Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	
	FDW 26							
	MIN 12							
	EXT 3.0							
	MAX1 41							
	MAX2 41							
	AMB 4.0							
	ALR 2.0							
South Promenade	SPLIT **47**	**45**	**45**	**47**	**47**	**0**		During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.
5. E/B Left Turn Arrow	WLK 0						Callable/Extendable by Setback Loop	During free plan, signal rests in EWWK and does not cycle through EWFD unless there is side street vehicle or pedestrian demand.
	FDW 0							
	MIN 7							
	EXT 2.5							
	MAX1 9							
	MAX2 9							EWFD reverts to EWWK if there is no side street demand at the end of the EWFD.
	AMB 3.0							
	ALR 0.0							
	SPLIT **12**	**10**	**12**	**10**	**10**	**0**		
6. Westbound	WLK 18						Fixed	
	FDW 27							
	MIN 45							
	EXT 3.0							
	MAX1 45							
	MAX2 45							
	AMB 4.0							
	ALR 2.0							
Clark Ave	SPLIT **51**	**55**	**53**	**53**	**53**	**0**		
7	WLK							**LEGEND:**
 NOT USED	FDW							SA - Semi-Actuated signal
	MIN							WLK - Walk time
	EXT							FDW - Flashing Don't Walk time
	MAX1							MIN - Minimum green time
	MAX2							EXT - Extension time
	AMB							MAX1 - Maximum green time 1
	ALR							MAX2 - Maximum green time 2
	SPLIT							AMB - Amber
8. Northbound	WLK 7						This Phase is for pedestrian pushbuttons. (Peds Phase 8)	ALR -All Red
	FDW 26							CL - Cycle Length
	MIN 12							OF - Offset
	EXT 3.0							VP - Vehicle Permissive
	MAX1 41							NSWK - North/South Walk
	MAX2 41							EWWK - East/West Walk
	AMB 4.0							NSG - North/South Green
	ALR 2.0							EWG - East/West Green
South Promenade	SPLIT **47**	**45**	**45**	**47**	**47**	**0**		NSFD - North/South Flashing Don't Walk
	CL **110**	**110**	**110**	**110**	**110**	**0 (Free)**		EWFD - East/West Flashing Don't Walk
	OF	**11**	**49**	**81**	**27**	**0 (Free)**		TSP - Transit Priority
	VP	27	27	27	27	**0 (Free)**		APS - Audible Pedestrian Signal
								RLC - Red Light Camera

NOTES:

LOCATION:	**Clark Ave at York Hill Blvd (W)**	*MUNICIPALITY:*	**Vaughan**
CTCS:		*COMPUTER SYSTEM:*	**Centracs**
MODE/COMMENT:	**SA**	*CONTROLLER/CABINET TYPE:*	**Econolite Cobalt / TS2T1**
PREPARED/CHECKED BY:		*CONFLICT FLASH:*	**Red & Red**
PREPARATION DATE:	**November 15, 2017**	*DESIGN WALK SPEED:*	**1.0 m/s (FDW based on full crossing at 1.0 m/s)**
IMPLEMENTATION DATE:		*CHANNEL/DROP:*	

N

NEMA Phase (Vaughan)		AM 6:30-9:30 M-F; (Jewish)	OFF 9:30-15:00, 19:00-22:00 M-F; (Jewish)	PM 15:00-19:00 M-F; (Jewish)	Weekend 8:00-22:00 Sat & Sun; (Jewish)	Free 22:00-6:30 M-F, 22:00-8:00 Sat & Sun; (Jewish)	Phase Mode (Fixed/Demanded /Callable)	Remarks
	Local Plan	Pattern 21 (25)	Pattern 31 (35)	Pattern 41 (45)	Pattern 22&23 (5&15)	Pattern 254 (55)		
	System Plan	Plan 21 (25)	Plan 31 (35)	Plan 41 (45)	Plan 22&23 (5&15)	Plan 99 (55)		
1 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							Pedestrian Minimums: EWWK = 7 sec., EWFD = 18 sec. NSWK = 7 sec., NSFD = 19 sec.
2. Eastbound Clark Ave	WLK 31 FDW 18 MIN 49 EXT 3.0 MAX1 49 MAX2 49 AMB 4.0 ALR 2.0 SPLIT **55**	**78**	**57**	**58**	**73**	**0**	Fixed	NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 12 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 18 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.
3 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							
4. Southbound York Hill Blvd (W)	WLK 7 FDW 19 MIN 12 EXT 3.0 MAX1 29 MAX2 29 AMB 4.0 ALR 2.0 SPLIT **35**	**32**	**33**	**32**	**37**	**0**	This Phase is for pedestrian pushbuttons (Peds Phase 4)	During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.
5 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							During free plan, signal rests in EWWK and does not cycle through EWFD unless there is side street vehicle or pedestrian demand.
6. Westbound Clark Ave	WLK 31 FDW 18 MIN 49 EXT 3.0 MAX1 49 MAX2 49 AMB 4.0 ALR 2.0 SPLIT **55**	**78**	**57**	**58**	**73**	**0**	Fixed	EWFD reverts to EWWK if there is no side street demand at the end of the EWFD. Jewish Holiday, pushing buttons do not need to be pushed for minor street (East/West sides)
7 NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							**LEGEND:** SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR -All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal
8. Northbound York Hill Blvd (W)	WLK 7 FDW 19 MIN 12 EXT 3.0 MAX1 29 MAX2 29 AMB 4.0 ALR 2.0 SPLIT **35**	**32**	**33**	**32**	**37**	**0**	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	
	CL **110** OF VP	**110** **43** 18	**90** **32** 18	**90** **30** 18	**110** **74** 18	**0 (Free)** **0 (Free)** **0 (Free)**		

NOTES:

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	Disera Drive at "Street B"	NUMBER
CONTROLLER MAKE: Eagle Genesis	MODEL: EPAC	TYPE OF OPERATION

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
				signal activation		

ø1	not in use	ø5	not in use	TURN ON DATE	Y M D
ø2	northbound Disera	ø6	southbound Disera	TIME :	A.M. P.M.
ø3	not in use	ø7	not in use	FINAL	
ø4	eastbound "Street B"	ø8	westbound "Street B"	TEMPORARY	

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green	0	10	0	8	0	10	0	8
	Passage	0	0	0	5	0	0	0	5
	Maximum No. 1	0	30	0	24	0	30	0	24
	Maximum No. 2	0	30	0	24	0	30	0	24
	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
	Red Clearance	0	2.0	0	2.0	0	2.0	0	2.0
Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial								
	Time B4 Reduction								
	Cars B4 REduction								
	Time To Reduce								
	Minimum Gap								

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	14	0	16	0	14	0	16
	Pedest. Clearance		8		10		8		10
Ped. Cont.	Flashing Walk		0		0		0		0
	Ext Ped Clear		0		0		0		0
	Act Rest In Walk		0		0		0		0
Veh. Cont.	Non-Lock Memory		0		0		0		0
	Dual Entry		0		0		0		0
	Last Car Passage		0		0		0		0
	Conditional Serv		0		0		0		0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME				New Westminster Dr @ Beverley Glen Blvd	NUMBER	
CONTROLLER MAKE				Eagle Gen(SI) MODEL EPAC 3000	TYPE OF OPERATION 4 @ semi	
NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
	11	06	22	Signal Timing Review	IAT	

ø1	Not In use	ø5	Not In Use	TURN ON DATE	Y 99	M 02	D 22
ø2	N-S New Westminster	ø6	N-S New Westminster	TIME	10 : 00	A.M. P.M.	
ø3	Not in use	ø7	Not in use	FINAL			
ø4	E-W Beverley Glen Blvd	ø8	E-W Beverley Glen Blvd	TEMPORARY			

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green	0	12	0	10	0	12	0	10
	Passage	0	0	0	0	0	0	0	0
	Maximum No. 1	0	34	0	24	0	34	0	24
	Maximum No. 2	0	34	0	24	0	34	0	24
	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
	Red Clearance	0	2.0	0	2.0	0	2.0	0	2.0
Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial	0	0	0	0	0	0	0	0
	Time B4 Reduction	0	0	0	0	0	0	0	0
	Cars B4 REduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	28	0	14	0	23	0	14
	Pedest. Clearance	0	6	0	8	0	6	0	8
Ped. Cont.	Flashing Walk	0	0	0	0	0	0	0	0
	Ext Ped Clear	0	0	0	0	0	0	0	0
	Act Rest In Walk	0	0	0	0	0	0	0	0
Veh. Cont.	Non-Lock Memory	0	1	0	1	0	1	0	1
	Dual Entry	0	0	0	0	0	0	0	0
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Serv	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	New Westminster Dr @ Brownridge Dr	NUMBER	
CONTROLLER MAKE: Eagle	MODEL: EPAC 300	TYPE OF OPERATION: 4 Ø SEMI	

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
	93	11	23	turn on signals	MD	

Ø1	NB Left Turn Arrow	Ø5	not in use	TURN ON DATE	Y 93	M 11	D 23
Ø2	SB - New Westminster	Ø6	NB - New Westminster	TIME	13 : 30	A.M. (P.M.)	
Ø3	not in use	Ø7	not in use	FINAL	✓		
Ø4	WB - Brownridge	Ø8	EB - Brownridge	TEMPORARY			

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green	6	20	0	8	0	20	0	8
	Passage	2.0	0	0	5.0	0	6	0	5.0
	Maximum No. 1	8	22	0	25	0	22	0	25
	Maximum No. 2	8	22	0	25	0	22	0	25
	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
	Red Clearance	0	2.0	0	2.0	0	2.0	0	2.0
Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial	0	0	0	0	0	0	0	0
	Time B4 Reduction	0	0	0	0	0	0	0	0
	Cars B4 REduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	13	0	16	0	13	0	16
	Pedest. Clearance	0	9	0	11	0	9	0	11
Ped. Cont.	Flashing Walk	0	0	0	0	0	0	0	0
	Ext Ped Clear	0	0	0	0	0	0	0	0
	Act Rest In Walk	0	0	0	0	0	0	0	0
Veh. Cont.	Non-Lock Memory	1	1	1	1	1	1	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Serv	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

Ø2 + Ø6 True Max = Max 1 + Ped CL.

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	Atkinson Ave @ Spring Gate Blvd	NUMBER	
CONTROLLER MAKE: Eagle Genesis	MODEL: EPAC 300	TYPE OF OPERATION: 2 ⊖ semi	

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
				turn on		

ϕ1	not in use	ϕ5		TURN ON DATE	Y 94 M 08 D 17
ϕ2	N-S Atkinson Ave	ϕ6		TIME	: A.M. P.M.
ϕ3	not in use	ϕ7		FINAL	
ϕ4	E-W Spring Gate Blvd	ϕ8		TEMPORARY	

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green	0	8	0	12				
	Passage	0	0	0	5.0				
	Maximum No. 1	0	28	0	20				
	Maximum No. 2	0	28	0	20				
	Yellow Change	3.0	4.0	3.0	4.0				
	Red Clearance	0	2.0	0	2.0				
Density Times	Seconds/Actuation	0	0	0	0				
	Maximum Initial	0	0	0	0				
	Time B4 Reduction	0	0	0	0				
	Cars B4 REduction	0	0	0	0				
	Time To Reduce	0	0	0	0				
	Minimum Gap	0	0	0	0				

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	7	0	14				
	Pedest. Clearance	0	5	0	9				
Ped. Cont.	Flashing Walk	0	0	0	0				
	Ext Ped Clear	0	0	0	0				
	Act Rest In Walk	0	0	0	0				
Veh. Cont.	Non-Lock Memory	0	1	0	1				
	Dual Entry	0	0	0	0				
	Last Car Passage	0	0	0	0				
	Conditional Serv	0	0	0	0				

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME					NUMBER
Atkinson Ave @ Rosedale Heights Dr / Edmund Seager Dr.					
CONTROLLER MAKE		MODEL		TYPE OF OPERATION	
Eagle Genesys		EPAC 300		4 Osem.	

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
	01	01		turn on signals (Fellmore Hd)		

ϕ1		ϕ5		TURN ON DATE	Y M D
ϕ2	Northbound Atkinson	ϕ6	Southbound Atkinson	TIME	: A.M. P.M.
ϕ3		ϕ7		FINAL	
ϕ4	Westbound Rosedale Heights	ϕ8	Eastbound Edmund Seager.	TEMPORARY	

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green	0	14	0	8	0	14	0	8
	Passage	0	0	0	50	0	0	0	5.0
	Maximum No. 1	0	28	0	20	0	28	0	20
	Maximum No. 2	0	28	0	20	0	28	0	20
	Yellow Change	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Red Clearance	0	2.0	0	2.0	0	2.0	0	2.0
Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial	0	0	0	0	0	0	0	0
	Time B4 Reduction	0	0	0	0	0	0	0	0
	Cars B4 REduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	16	0	20	0	16	0	20
	Pedest. Clearance	0	12	0	8	0	12	0	8
Ped. Cont.	Flashing Walk	0	0	0	0	0	0	0	0
	Ext Ped Clear	0	0	0	0	0	0	0	0
	Act Rest In Walk	0	0	0	0	0	0	0	0
Veh. Cont.	Non-Lock Memory	1	1	1	1	1	1	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Serv	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	Centre Street @ Atkinson Ave	NUMBER
CONTROLLER MAKE: LFE	MODEL: 314	TYPE OF OPERATION: 2 ø Full

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
1	92	01	06	existing timings to date, supercedes card dated August 13/87		

ø1	not in use	ø5		TURN ON DATE	Y M D
ø2	E/W Green Phase	ø6		TIME	: A.M. P.M.
ø3	not in use	ø7		FINAL	
ø4	N/S Green Phase	ø8		TEMPORARY	

	MIN.	PASS.	PED. WALK	PED. CL.	MAX I	MAX II	AMBER	ALL RED	ADDED INIT.	MIN. GAP	TIME BEF. RED.	TIME TO RED.	DET. DELAY
ø1													
ø2	29	5.5	18	16	50	50	4.0	2.0	0	0	99	99	0
ø3													
ø4	10	5	10	14	20	20	4.0	2.0	0	0	99	99	0
ø5													
ø6													
ø7													
ø8													

1167 86/4

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	Atkinson Ave @ Campbell Ave/Manor Gt	NUMBER
CONTROLLER MAKE: Eagle Traffic	MODEL: EPAC 300	TYPE OF OPERATION: 4 0 Semi

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
	01	01		turn on signals (Ellmine Ltd)		

ø1		ø5		TURN ON DATE	Y M D
ø2	Northbound Atkinson	ø6	Southbound Atkinson	TIME :	A.M. P.M.
ø3		ø7		FINAL	
ø4	Westbound Campbell	ø8	Eastbound Manor Gt	TEMPORARY	

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

		PHASE 1	2	3	4	5	6	7	8
Basic Times	Minimum Green	0	16	0	8	0	16	0	8
	Passage	0	0	0	5.0	0	0	0	5.0
	Maximum No. 1	0	30	0	18	0	30	0	18
	Maximum No. 2	0	30	0	18	0	30	0	18
	Yellow Change	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Red Clearance	0	2.0	0	2.0	0	2.0	0	2.0
Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial	0	0	0	0	0	0	0	0
	Time B4 Reduction	0	0	0	0	0	0	0	0
	Cars B4 REduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

		PHASE 1	2	3	4	5	6	7	8
Ped. Times	Walk	0	12	0	20	0	12	0	20
	Pedest. Clearance	0	8	0	8	0	8	0	8
Ped. Cont.	Flashing Walk	0	0	0	0	0	0	0	0
	Ext Ped Clear	0	0	0	0	0	0	0	0
	Act Rest In Walk	0	0	0	0	0	0	0	0
Veh. Cont.	Non-Lock Memory	1	1	1	1	1	1	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Serv	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

TIMING CHART/PROGRAMMING DATA

INTERSECTION NAME	Arnold Ave @ Atkinson Avenue			NUMBER	
CONTROLLER MAKE	EAGLE	MODEL	EPAC	TYPE OF OPERATION	2 ~~0~~ semi

NO	DATE Y	M	D	REVISION DESCRIPTION	CHECKED BY	APPROVED BY
	02	11		turn on signals. (Fellmore Electrical)		

ϕ1	not in use	ϕ5	not in use	TURN ON DATE	Y 02	M 11	D
ϕ2	northbound Atkinson	ϕ6	southbound Atkinson	TIME	:		A.M. P.M.
ϕ3	not in use	ϕ7	not in use	FINAL			
ϕ4	eastbound Arnold	ϕ8	westbound Arnold	TEMPORARY			

UTILITIES - ACCESS

CODE .....: ____ CODES: Four Digits (0000-9999)

PHASE DATA - VEHICLE TIMINGS

	PHASE	1	2	3	4	5	6	7	8
Basic Times	Minimum Green	0	8	0	8	0	8	0	8
	Passage	0	0	0	5.0	0	0	0	5.0
	Maximum No. 1	0	22	0	16	0	22	0	16
	Maximum No. 2	0	22	0	16	0	22	0	16
	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
	Red Clearance	0	2.0	0	2.0	0	2.0	0	2.0
Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial								
	Time B4 Reduction								
	Cars B4 REduction								
	Time To Reduce								
	Minimum Gap								

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

	PHASE	1	2	3	4	5	6	7	8
Ped. Times	Walk	0	9	0	15	0	9	0	15
	Pedest. Clearance.	0	6	0	10	0	6	0	10.
Ped. Cont.	Flashing Walk	0	0	0	0	0	0	0	0
	Ext Ped Clear	0	0	0	0	0	0	0	0
	Act Rest In Walk	0	0	0	0	0	0	0	0
Veh. Cont.	Non-Lock Memory	0	1	0	1	0	1	0	1
	Dual Entry	0	0	0	0	0	0	0	0
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Serv	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

	Stage/ Phase Number	Cycle Length AM (PM) [OFF] {WKND}	130 (130) [130] {130}							
Centre St 7 New Westminster Dr	Permanent	**Offset AM (PM) [OFF] {WKND}**	67 (114) [122] {63}							
		Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
		Direction	**EBL**	**WB**	**NBL**	**SB**	**WBL**	**EB**	**SBL**	**NB**
		Mode of Operation	protected		protected/ permissive		protected		protected/ permissive	
		Minimum Green	7	30	7	10	7	30	7	10
		Minimum Split	14	39	12	51	14	39	12	51
		Maximum Split AM	19	44	16	51	14	49	12	55
		Maximum Split PM	22	44	13	51	14	52	13	51
		Maximum Spilt Off	21	46	12	51	14	53	12	51
		Maximum Split WKND	24	42	13	51	16	50	12	52
		Amber	3.0	4.5	3.0	4.0	3.0	4.5	3.0	4.0
		Red Clearance	3.0	3.5	1.0	4.5	3.0	3.5	1.0	4.5
		Walk	-	7	-	7	-	7	-	7
		Pedestrian Clearance	-	19	-	34	-	19	-	34
		Bicycle Minimum	-	30	-	16	-	30	-	16

TSP Parameters: max extension is 15 seconds on phases 2/6
Transit phases (overlaps E for WB and G for EB) to overlap with concurrent Phases 2 and 6.

The need for an additional 1 second of red clearance extension to accommodate bicyclists, as outlined in OTM Book 12A, should be periodically re-evaluated by the operator based on the actual future bicycle volumes.
Main street bicycle timings will be equal to main street vehicular traffic timings.
Side street bicycle clearance times to match side street general vehicular clearance times.

August 20, 2019

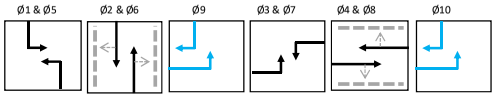
	Stage/ Phase Number	Cycle Length AM (PM / PM JEWISH) [Off / Off JEWISH] {WKND}	140 (140) [140] {140}							
Bathurst St & Beverley Glen Blvd	Permanent	Offset AM (PM / PM JEWISH) [Off / Off JEWISH] {WKND}	54 (11) [4] {121}							
		Phase	1	2	3	4	5	6	7	8
		Direction	NBL	SB	-	EB	-	NBT	-	Ghost
		Mode of Operation	protected							
		Minimum Green	7	30	-	10	-	30	-	10
		Minimum Split	14	39	-	43	-	39	-	43
		Maximum Split AM	14	83	-	43	-	97	-	43
		Maximum Split PM / PM JEWISH	16	81	-	43	-	97	-	43
		Maximum Spilt OFF / OFF JEWISH	17	80	-	43	-	97	-	43
		Maximum Spilt WKND	17	80	-	43	-	97	-	43
		Amber	3.0	4.5	-	3.5	-	4.5	-	3.5
		Red Clearance	3.0	3.0	-	5.0	-	3.0	-	5.0
		Walk	-	7	-	7	-	7	-	7
		Pedestrian Clearance	-	17	-	26	-	17	-	26

TSP Parameters: max extension is 15 seconds on phases 2/6

December 10, 2018

	Stage/ Phase Number	Cycle Length AM (PM / PM JEWISH) [Off / Off JEWISH] {WKND}	175 (180) [170] {175}									
Centre St & Bathurst St	Permanent-Interim	Offset AM (PM / PM JEWISH) [Off / Off JEWISH] {WKND}	0 (0) [0] {0}									
		Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
		Direction	**NBL**	**SB**	**WBL**	**EB**	**SBL**	**NB**	**EBL**	**WB**	**Transit SBR & EBL**	**Transit SBR & EBL**
		Mode of Operation	Protected		Protected		Protected		Protected		Protected	Protected
		Minimum Green	7	30	7	10	7	30	7	10	7	7
		Minimum Split	19	40	14	45	19	40	14	45	20	20
		Maximum Split AM	19	53	18	45	27	45	18	45	20	20
		Maximum Split PM / PM JEWISH	19	56	20	45	24	51	20	45	20	20
		Maximum Split OFF / OFF JEWISH	21	45	19	45	20	46	19	45	20	20
		Maximum Split WKND	21	49	20	45	22	48	20	45	20	20
		Amber	3.0	4.5	3.0	4.5	3.0	4.5	3.0	4.5	3.0	3.0
		Red Clearance	7.5	4.5	3.0	4.0	7.5	4.5	3.0	4.0	9.0	9.0
		Walk	-	7	-	7	-	7	-	7	-	-
		Pedestrian Clearance	-	19	-	28	-	19	-	28	-	-
		Bicycle Minimum	-	30	-	20	-	30	-	18	-	-

Transit phases 9 & 10 are phase inserts for the concurrent EBL/SBR movements from the BRT lanes.
Transit phases 9 & 10 are each callable one time in one cycle and would increase the cycle length of that cycle. Please see phase diagram below.
Transit phases 9 & 10 are included in the computation of the total cycle lengths noted in the table above.



Main street bicycle timings will be equal to main street vehicular traffic timings.
Side street bicycle clearance times to match side street general vehicular clearance times.
August 1, 2019

	Stage/ Phase Number	Cycle Length AM (PM / PM JEWISH) [Off / Off JEWISH] {WKND}	140 (140) [140] {140}							
Bathurst St & New Westminster Dr/Atkinson Ave		Offset AM (PM / PM JEWISH) [Off / Off JEWISH] {WKND}	60 (4) [129] {127}							
		Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
		Direction	**NBL**	**SB**	**WBL**	**EB**	**SBL**	**NB**	**EBL**	**WB**
		Mode of Operation	protected		protected/ permissive		protected		protected/ permissive	
		Minimum Green	7	30	7	10	7	30	7	10
		Minimum Split	14	39	17	34	14	39	17	34
	Permanent	**Maximum Split AM**	14	75	17	34	29	60	17	34
		Maximum Split PM / PM JEWISH	14	75	17	34	20	69	17	34
		Maximum Spilt OFF / OFF JEWISH	15	74	17	34	16	73	17	34
		Maximum Spilt WKND	17	63	17	43	21	59	26	34
		Amber	3.0	4.5	3.0	4.0	3.0	4.5	3.0	4.0
		Red Clearance	3.0	3.5	6.0	4.0	3.0	3.5	6.0	4.0
		Walk	-	7	-	7	-	7	-	7
		Pedestrian Clearance	-	19	-	18	-	19	-	18
		Bicycle Minimum	-	30	-	16	-	30	-	16

TSP Parameters: max extension is 20 seconds on phases 2/6
Transit phases (overlaps E for SB and G for NB) to overlap with concurrent Phases 2 and 6.

The need for an additional 1 second of red clearance extension to accommodate bicyclists, as outlined in OTM Book 12A, should be periodically re-evaluated by the operator based on the actual future bicycle volumes.
Main street bicycle timings will be equal to main street vehicular traffic timings.
Side street bicycle clearance times to match side street general vehicular clearance times.

August 20, 2019

	Stage/ Phase Number	Cycle Length AM (PM) [OFF] {WKND}	130 (130) [130] {130}							
Centre St & Disera Dr/North Promenade	Permanent	**Offset AM (PM) [OFF] {WKND}**	64 (116) [7] {117}							
		Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
		Direction	**EBL**	**WB**	**-**	**SB**	**WBL**	**EB**	**-**	**NB**
		Mode of Operation	protected				protected			
		Minimum Green	7	30	-	10	7	30	-	10
		Minimum Split	14	39	-	47	14	39	-	47
		Maximum Split AM	18	65	-	47	18	65	-	47
		Maximum Split PM	19	64	-	47	23	60	-	47
		Maximum Spilt Off	22	61	-	47	22	61	-	47
		Maximum Split WKND	27	55	-	48	27	55	-	48
		Amber	3.0	4.5	-	3.5	3.0	4.5	-	3.5
		Red Clearance	3.0	3.5	-	5.5	3.0	3.5	-	5.5
		Walk	-	7	-	7	-	7	-	7
		Pedestrian Clearance	-	18	-	30	-	18	-	30
		Bicycle Minimum	-	30	-	17	-	30	-	17

TSP Parameters: max extension is 5 seconds on phases 2/6
Transit phases (overlaps E for WB and G for EB) to overlap with concurrent Phases 2 and 6.

The need for an additional 1 second of red clearance extension to accommodate bicyclists, as outlined in OTM Book 12A, should be periodically re-evaluated by the operator based on the actual future bicycle volumes.
Main street bicycle timings will be equal to main street vehicular traffic timings.
Side street bicycle clearance times to match side street general vehicular clearance times.

August 20, 2019

	Stage/ Phase Number	Cycle Length AM (PM) [OFF] {WKND}	130 (130) [130] {130}							
Centre St & Taiga Dr	Permanent	Offset AM (PM) [OFF] {WKND}	82 (1) [32] {86}							
		Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
		Direction	**EBL**	**WB**	**-**	**SB**	**-**	**EBT**	**-**	**-**
		Mode of Operation	protected							
		Minimum Green	7	30	-	10	-	30	-	-
		Minimum Split	14	39	-	34	-	39	-	-
		Maximum Split AM	18	78	-	34	-	96	-	-
		Maximum Split PM	28	68	-	34	-	96	-	-
		Maximum Spilt Off	28	68	-	34	-	96	-	-
		Maximum Split WKND	30	66	-	34	-	96	-	-
		Amber	3.0	4.5	-	3.5	-	4.5	-	-
		Red Clearance	3.0	3.0	-	5.5	-	3.0	-	-
		Walk	-	7	-	7	-	7	-	-
		Pedestrian Clearance	-	20	-	17	-	20	-	-

TSP Parameters: max extension is 20 seconds on phases 2/6
Transit phases (overlaps E for WB and G for EB) to overlap with concurrent Phases 2 and 6.

August 20, 2019

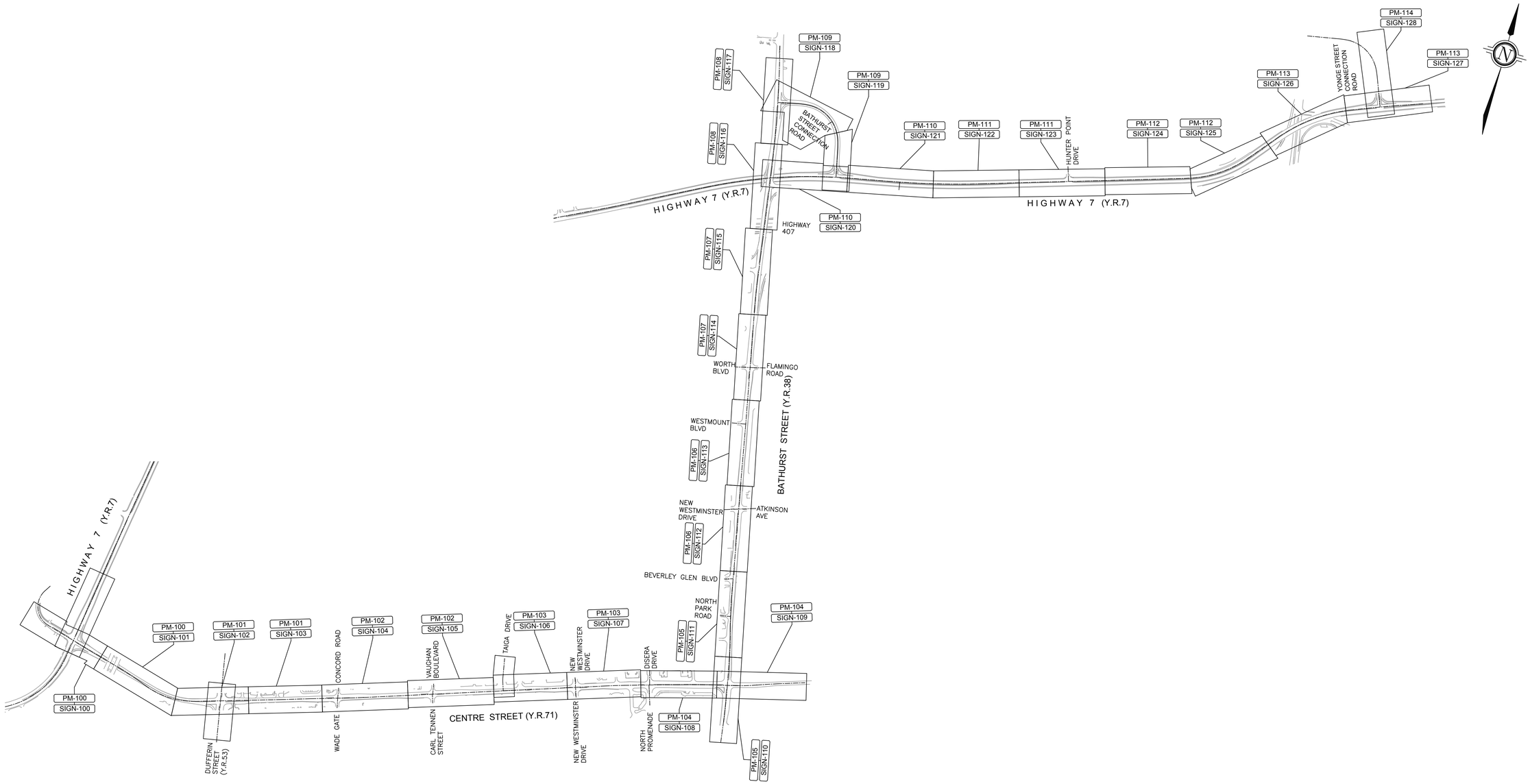
	Stage/ Phase Number	Cycle Length AM (PM) [OFF] {WKND}	130 (130) [130] {130}							
Centre St & Vaughan Blvd/Carl Tennen St	Permanent	**Offset AM (PM) [OFF] {WKND}**	103 (46) [82] {117}							
		Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
		Direction	**EBL**	**WB**	**-**	**SB**	**WBL**	**EB**	**-**	**NB**
		Mode of Operation	Protected				Protected			
		Minimum Green	7	30	-	10	7	30	-	10
		Minimum Split	14	39	-	44	14	39	-	44
		Maximum Split AM	14	72	-	44	18	68	-	44
		Maximum Split PM	14	72	-	44	22	64	-	44
		Maximum Spilt Off	14	72	-	44	22	64	-	44
		Maximum Split WKND	14	72	-	44	25	61	-	44
		Amber	3.0	4.5	-	3.5	3.0	4.5	-	3.5
		Red Clearance	3.0	3.0	-	5.0	3.0	3.0	-	5.0
		Walk	-	7	-	7	-	7	-	7
		Pedestrian Clearance	-	13	-	27	-	13	-	27
		Bicycle Minimum	-	30	-	15	-	30	-	15

TSP Parameters: max extension is 15 seconds on phases 2/6
Transit phases (overlaps E for WB and G for EB) to overlap with concurrent Phases 2 and 6.

The need for an additional 1 second of red clearance extension to accommodate bicyclists, as outlined in OTM Book 12A, should be periodically re-evaluated by the operator based on the actual future bicycle volumes.
Main street bicycle timings will be equal to main street vehicular traffic timings.
Side street bicycle clearance times to match side street general vehicular clearance times.

August 20, 2019

METRIC



KEY PLAN

REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR: YORK REGION RAPID TRANSIT CORPORATION

PROJECT TITLE: VIVAnext BRT H2-West & H2-East

DESIGN BUILDER: EDCO EllisDon & Coco JV

ENGINEERS: IBI, LEA, amec foster wheeler, PML

H2E

PAVEMENT MARKINGS AND SIGNAGE

KEY PLAN

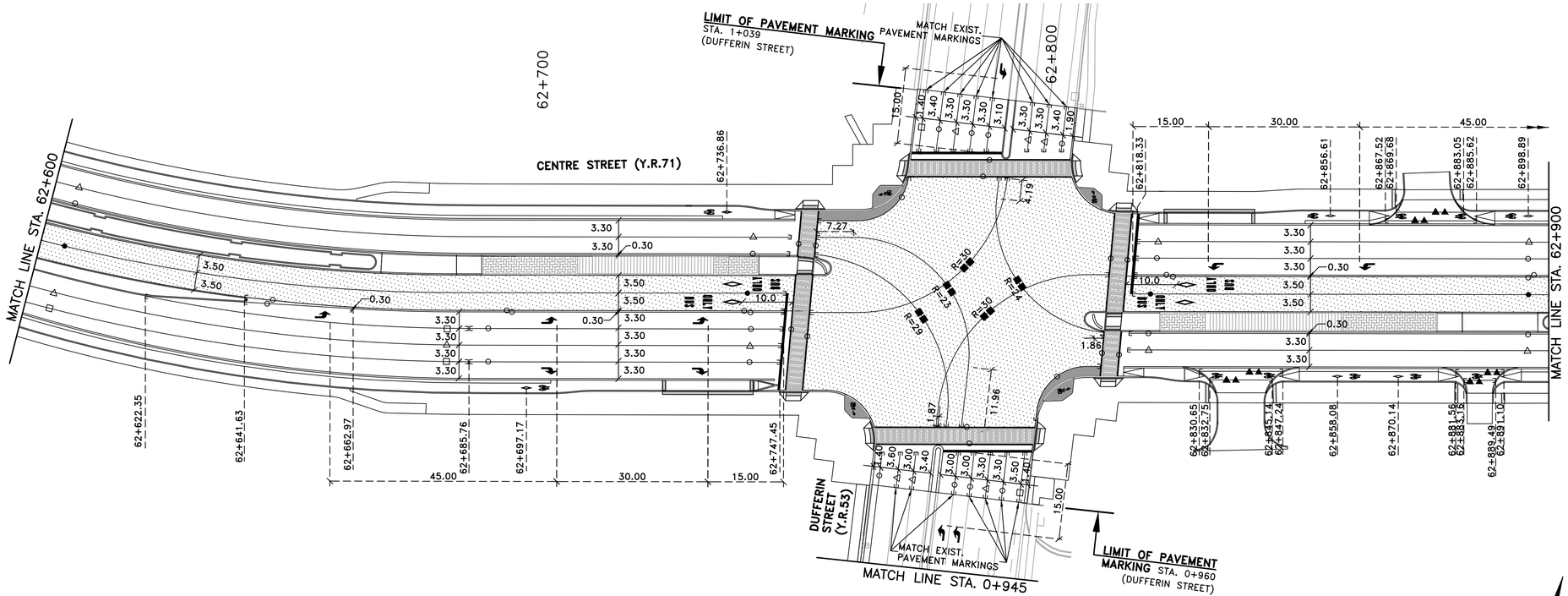
DESIGNED	DRAWN
RH	AY

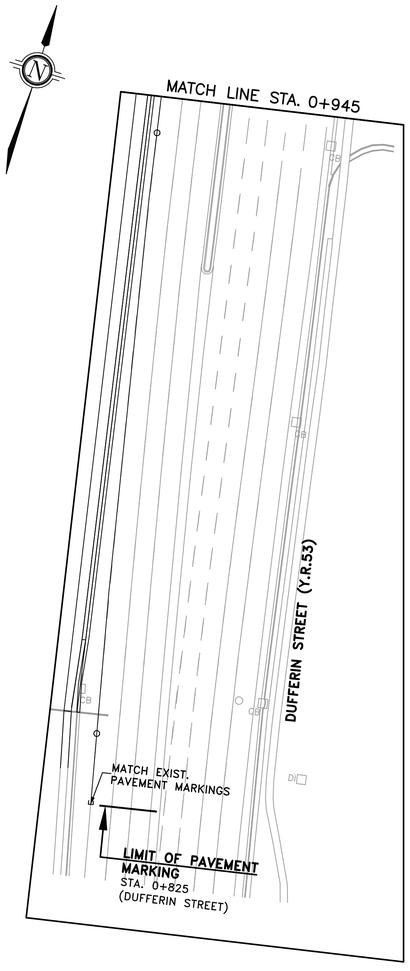
PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-001

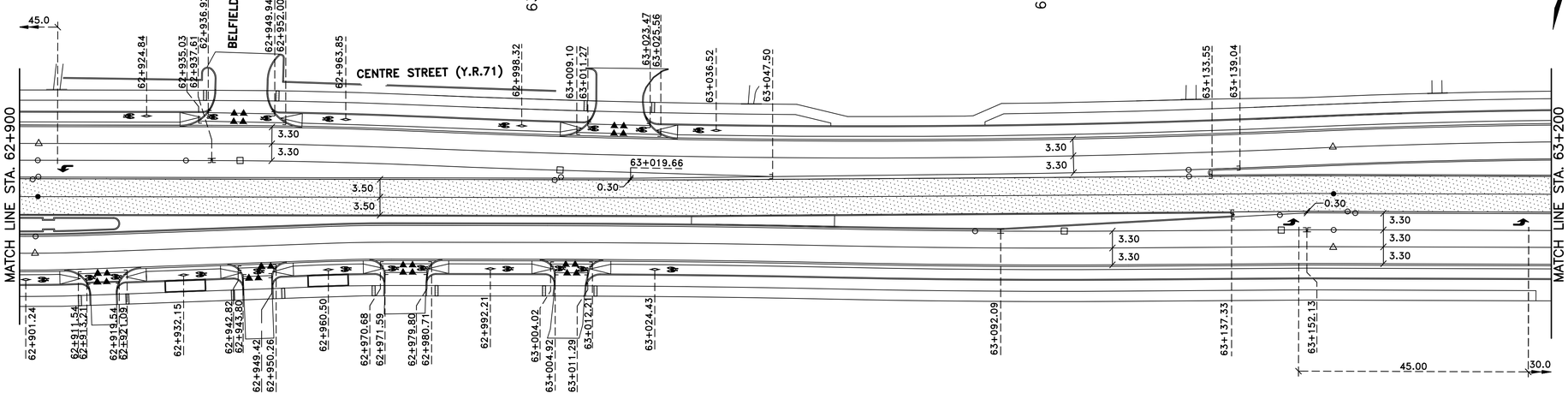
SHEET:

REVISION: 00

METRIC







SCALE

5m 0 10m

Horizontal

REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENCED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR

YORK REGION RAPID TRANSIT CORPORATION

PROJECT TITLE

VIVAnext BRT H2-West & H2-East

DESIGN BUILDER

EDCO
EllisDon & Coco JV

ENGINEERS

IBI · LEA · amec foster wheeler · PML

H2E-CENTRE STREET
PAVEMENT MARKINGS AND SIGNAGE
PAVEMENT MARKINGS
62+600 TO 63+200

DESIGNED: RH

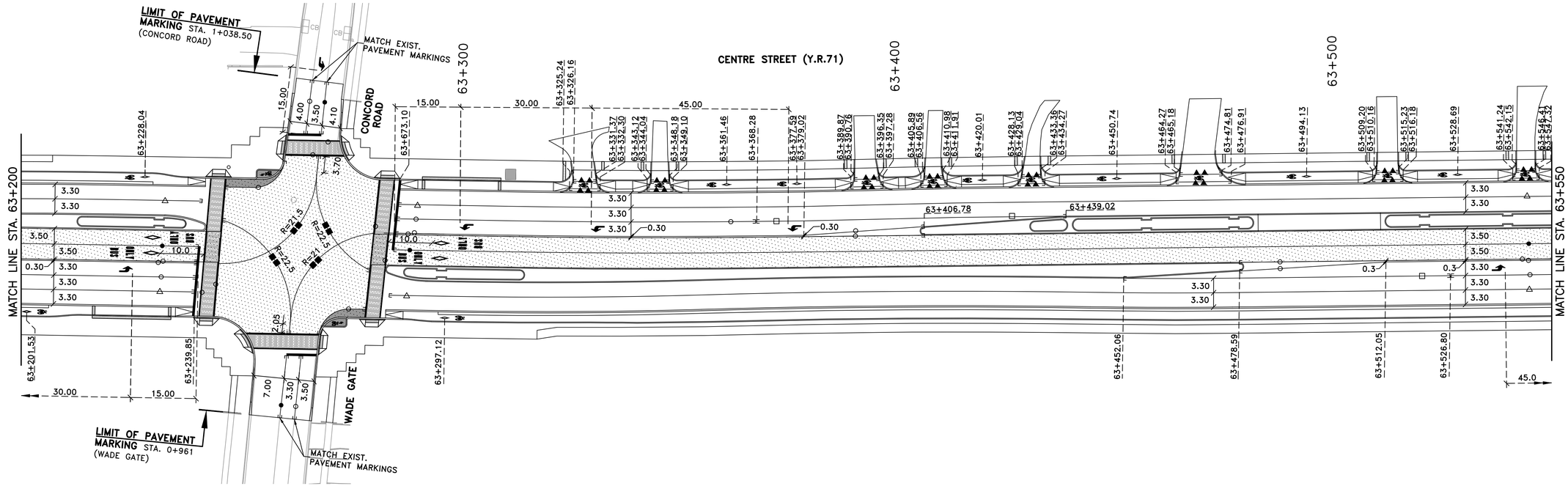
DRAWN: AY

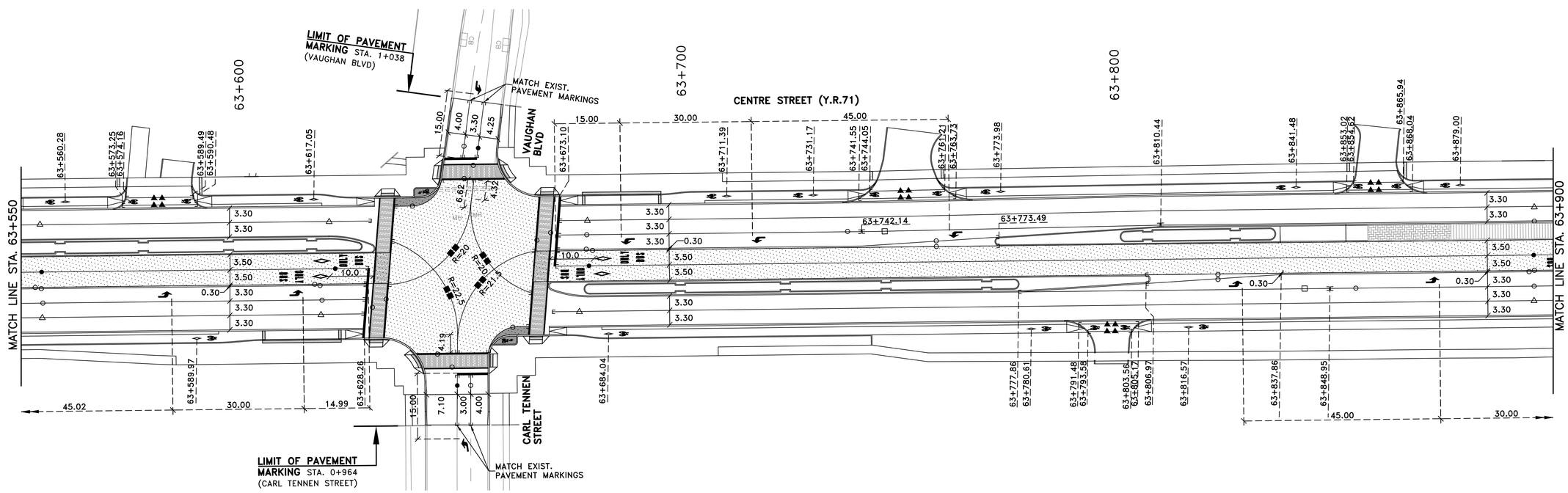
PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-101

SHEET:

REVISION: 00

METRIC





REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR
YORK REGION RAPID TRANSIT CORPORATION

PROJECT TITLE
VIVAnext BRT H2-West & H2-East

DESIGN BUILDER
EDCO
EllisDon & Coco JV

ENGINEERS
IBI · LEA · amec foster wheeler · PML

H2E-CENTRE STREET

PAVEMENT MARKINGS AND SIGNAGE

PAVEMENT MARKINGS

63+200 TO 63+900

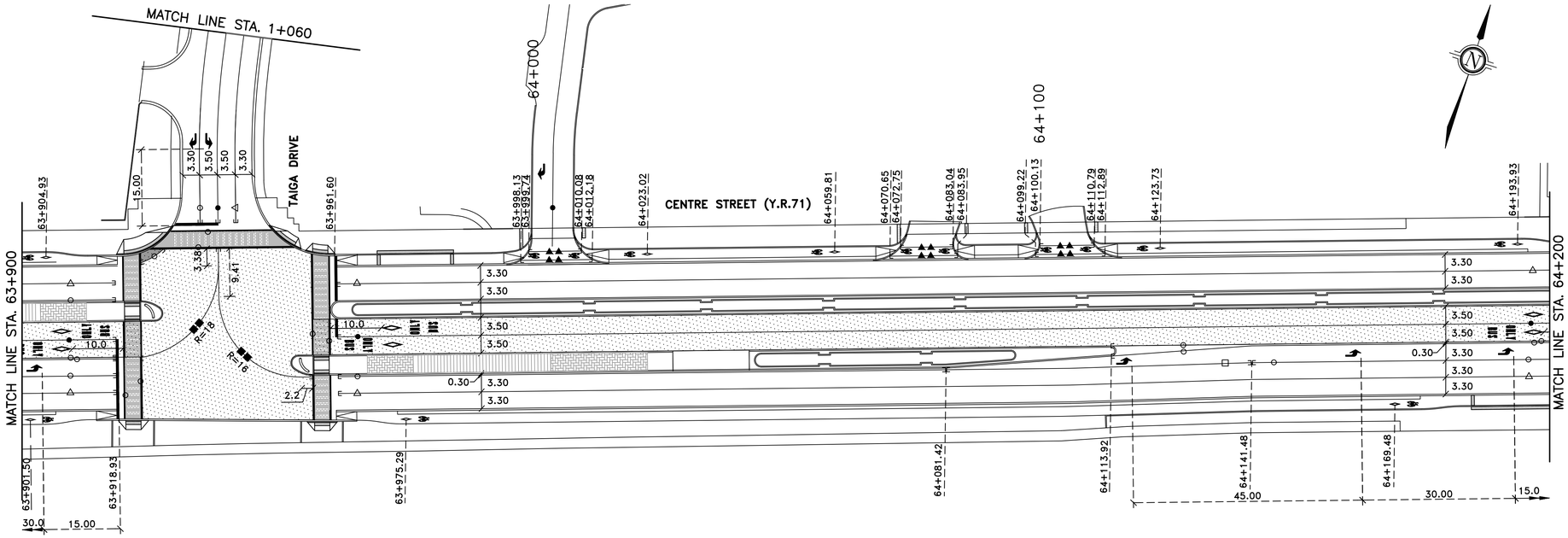
DESIGNED: RH
DRAWN: AY

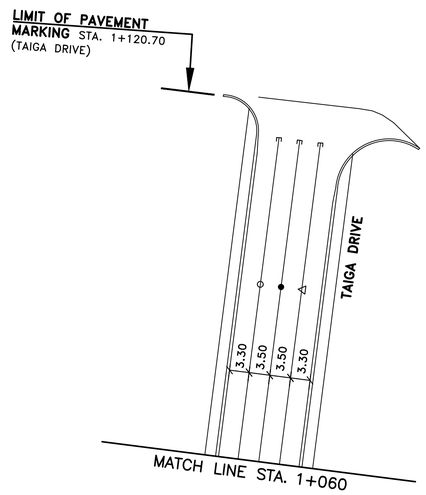
PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER
H2E-CIV-PM-102

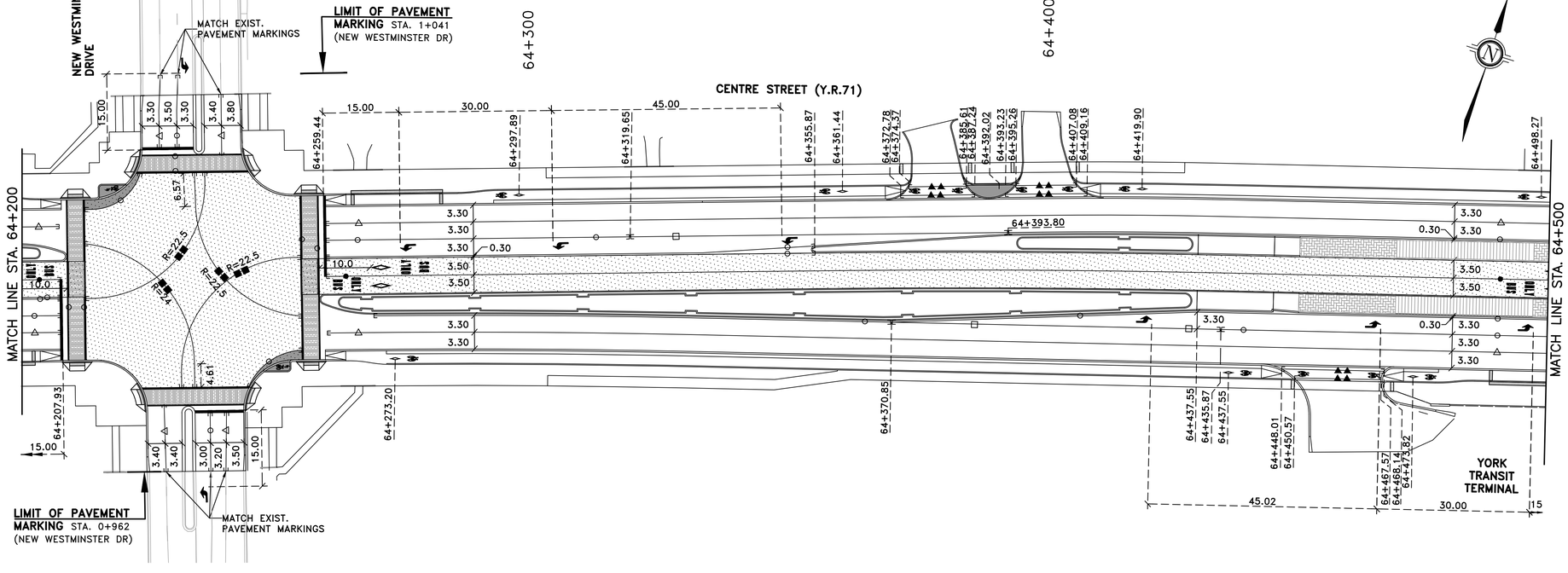
SHEET:

REVISION: 00

METRIC







SCALE

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Horizontal

REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20 17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR: YORK REGION RAPID TRANSIT CORPORATION

DESIGN BUILDER: EDCO EllisDon & Coco JV

PROJECT TITLE: VIVAnext BRT H2-West & H2-East

ENGINEERS: IBI, LEA, amec foster wheeler, PML

H2E-CENTRE STREET

PAVEMENT MARKINGS AND SIGNAGE

PAVEMENT MARKINGS

63+900 TO 64+500

DESIGNED: RH

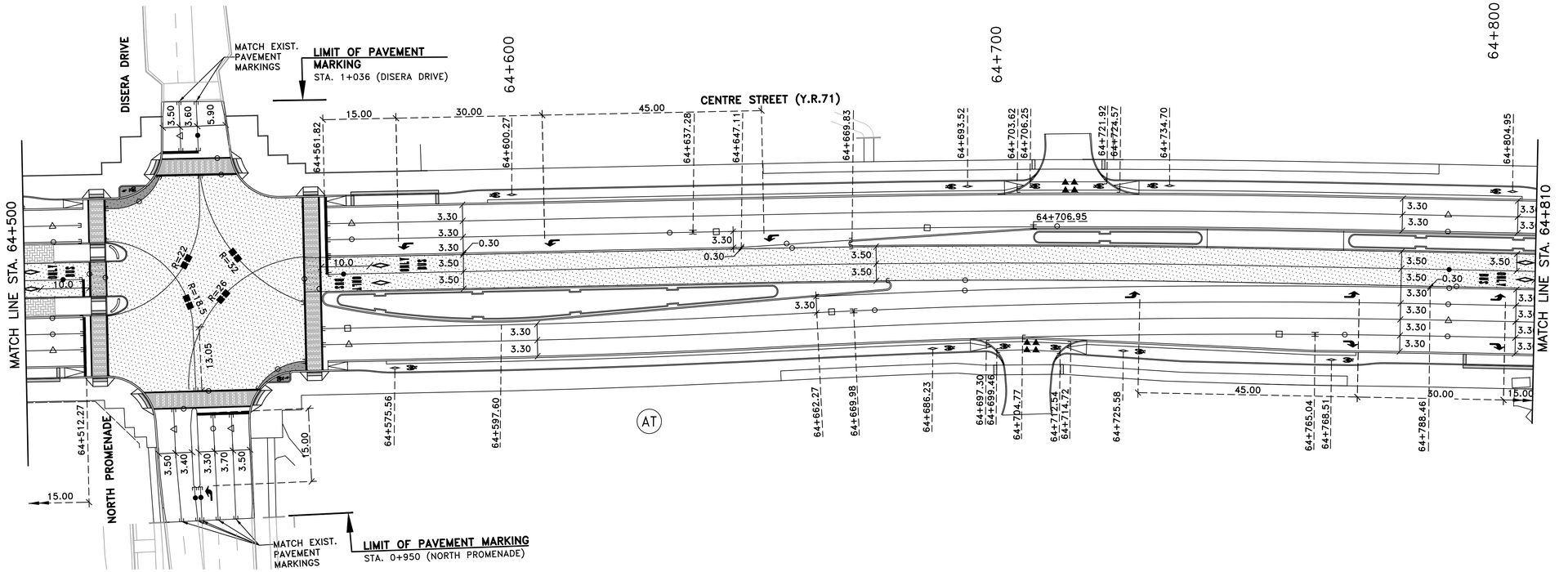
DRAWN: AY

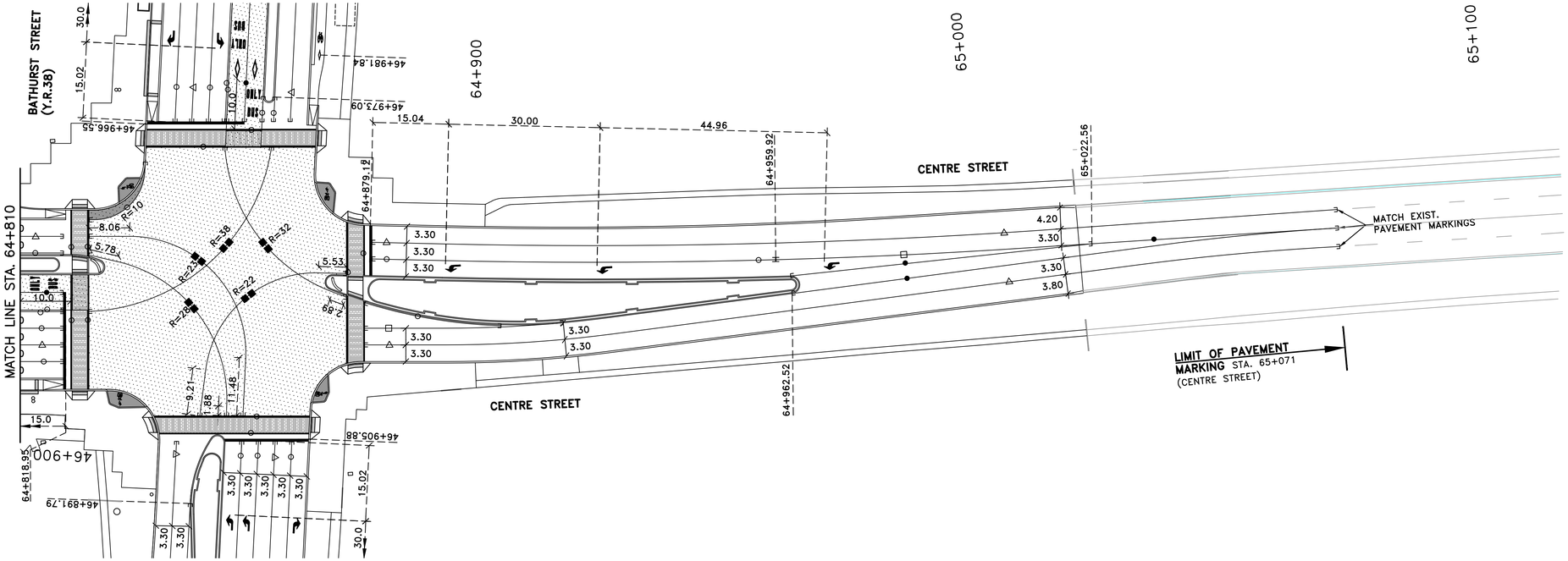
PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-103

SHEET:

REVISION: 00

METRIC





SCALE
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Horizontal

REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1
LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR
YORK REGION RAPID TRANSIT CORPORATION

DESIGN BUILDER
EDCO
EllisDon & Coco JV

PROJECT TITLE
VIVAnext BRT H2-West & H2-East

ENGINEERS
IBI · LEA · amec foster wheeler · PML

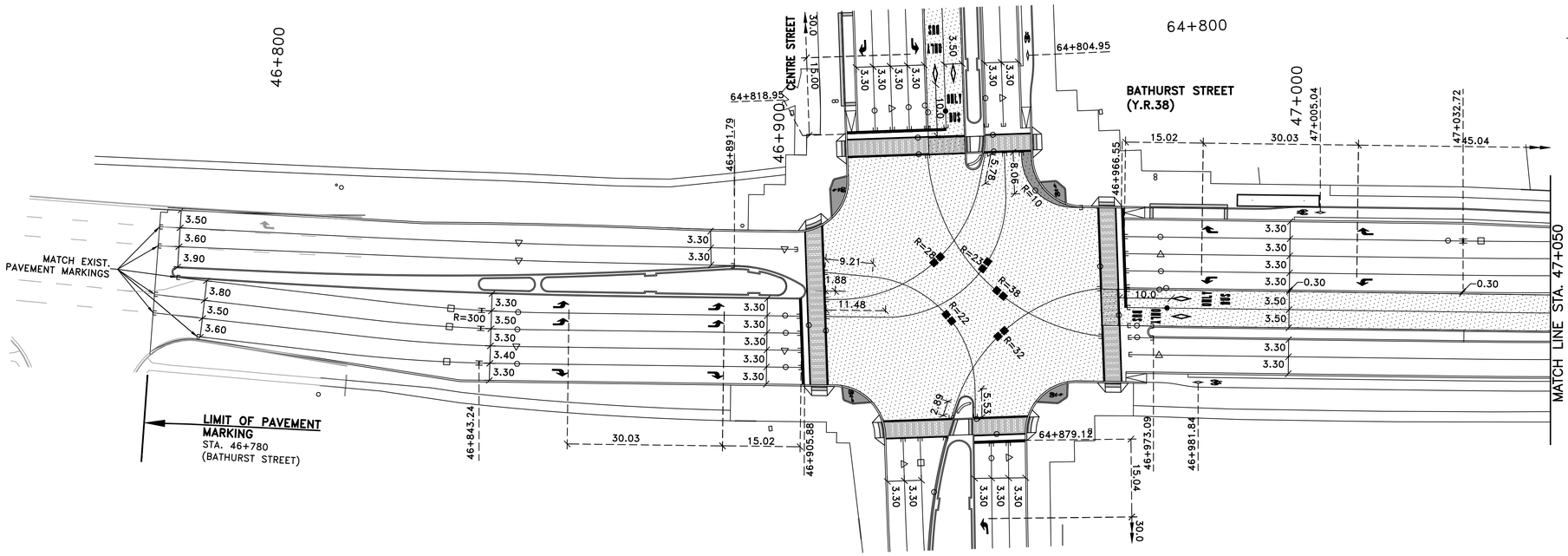
H2E-CENTRE STREET
PAVEMENT MARKINGS AND SIGNAGE
PAVEMENT MARKINGS
64+500 TO 65+071

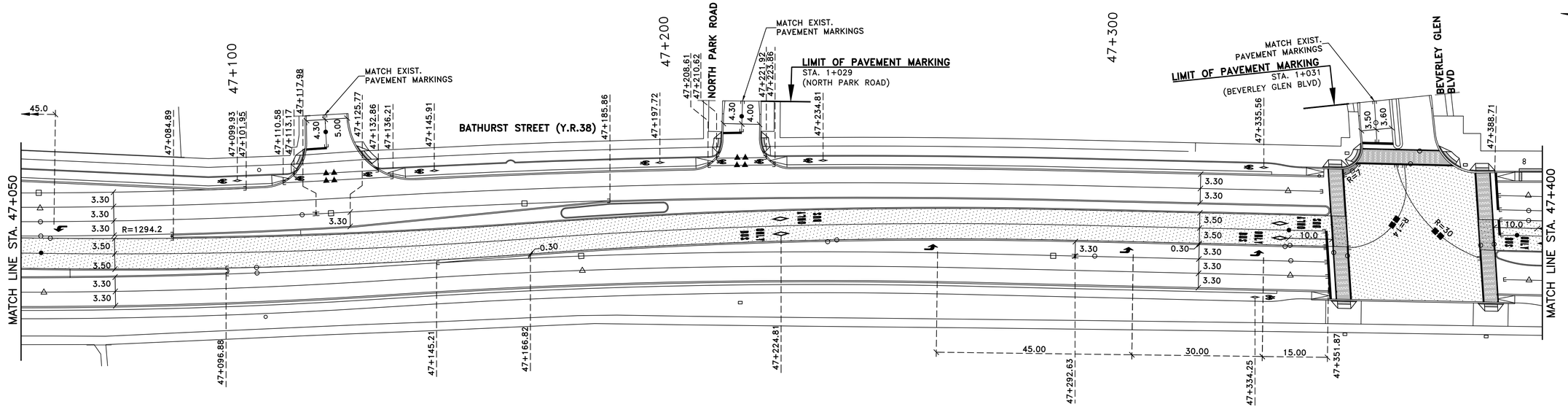
PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER
H2E-CIV-PM-104

SHEET

DESIGNED RH
DRAWN AY
REVISION 00

METRIC





SCALE

5m 0 10m

Horizontal

REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENCED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR: YORK REGION RAPID TRANSIT CORPORATION

DESIGN BUILDER: EDCO EllisDon & Coco JV

PROJECT TITLE: VIVAnext BRT H2-West & H2-East

ENGINEERS: IBI, LEA, amec foster wheeler, PML

H2E-BATHURST STREET
PAVEMENT MARKINGS AND SIGNAGE
PAVEMENT MARKINGS
46+778 TO 47+400

DESIGNED: RH

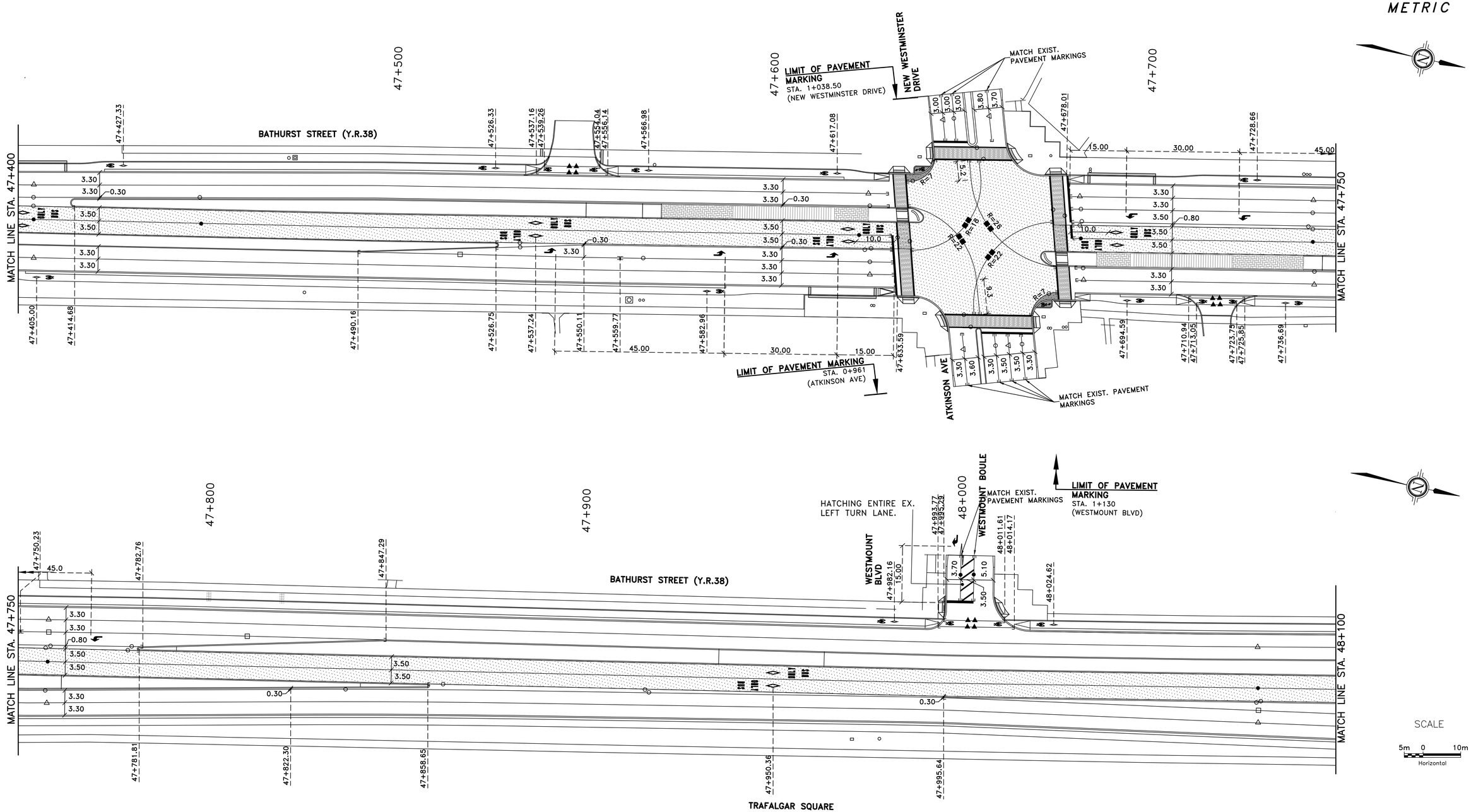
DRAWN: AY

PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-105

SHEET:

REVISION: 00

METRIC



REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR: YORK REGION RAPID TRANSIT CORPORATION

PROJECT TITLE: VIVAnext BRT H2-West & H2-East

DESIGN BUILDER: EDCO EllisDon & Coco JV

ENGINEERS: IBI, LEA, amec foster wheeler, PML

H2E-BATHURST STREET

PAVEMENT MARKINGS AND SIGNAGE

PAVEMENT MARKINGS

47+400 TO 48+100

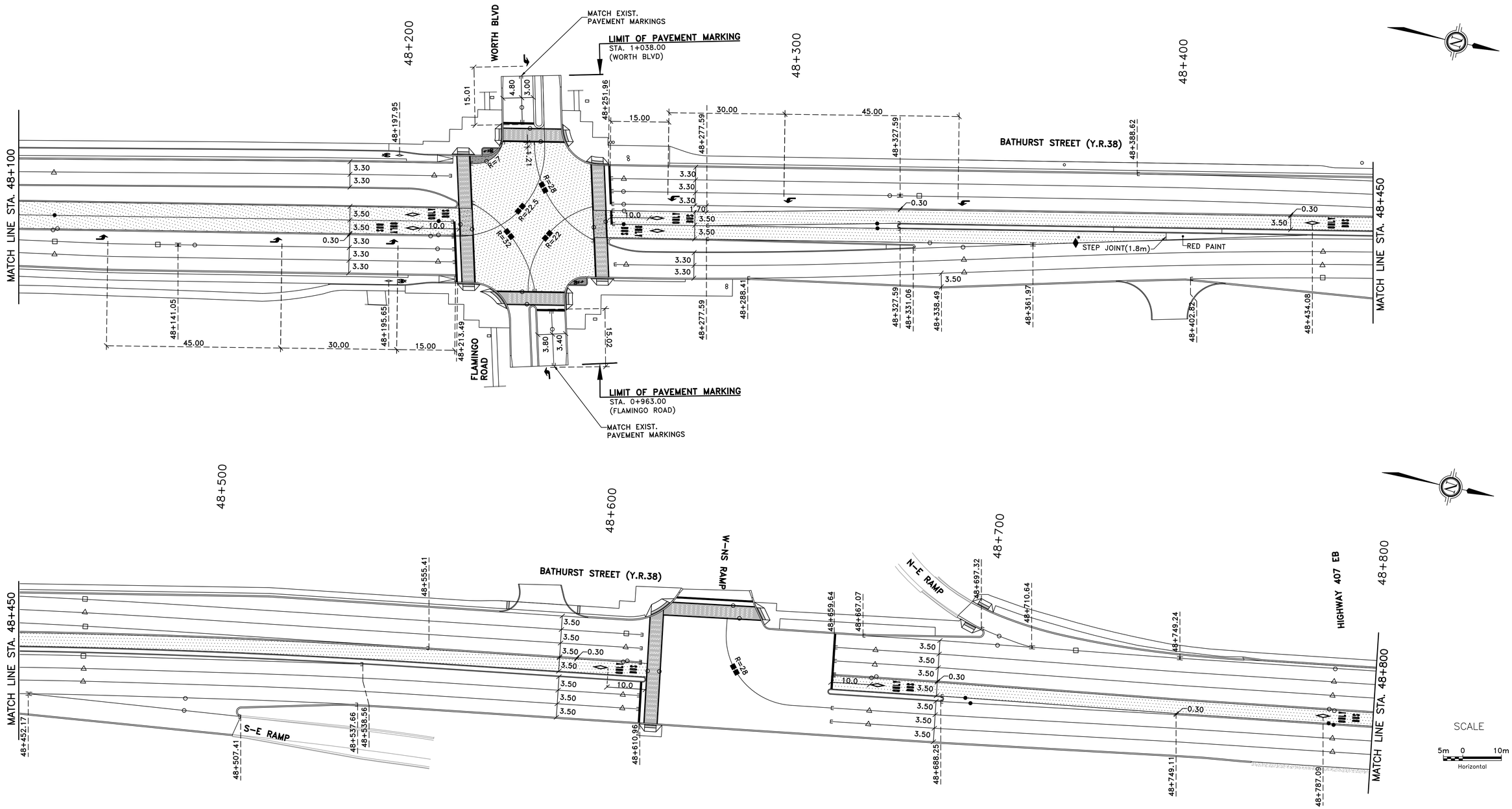
DESIGNED	DRAWN
RH	AY

PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-106

SHEET:

REVISION: 00

METRIC



REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR: YORK REGION RAPID TRANSIT CORPORATION

DESIGN BUILDER: EDCO EllisDon & Coco JV

PROJECT TITLE: VIVAnext BRT H2-West & H2-East

ENGINEERS: IBI, LEA, amec foster wheeler, PML

H2E-BATHURST STREET

PAVEMENT MARKINGS AND SIGNAGE

PAVEMENT MARKINGS

48+100 TO 48+800

PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-107

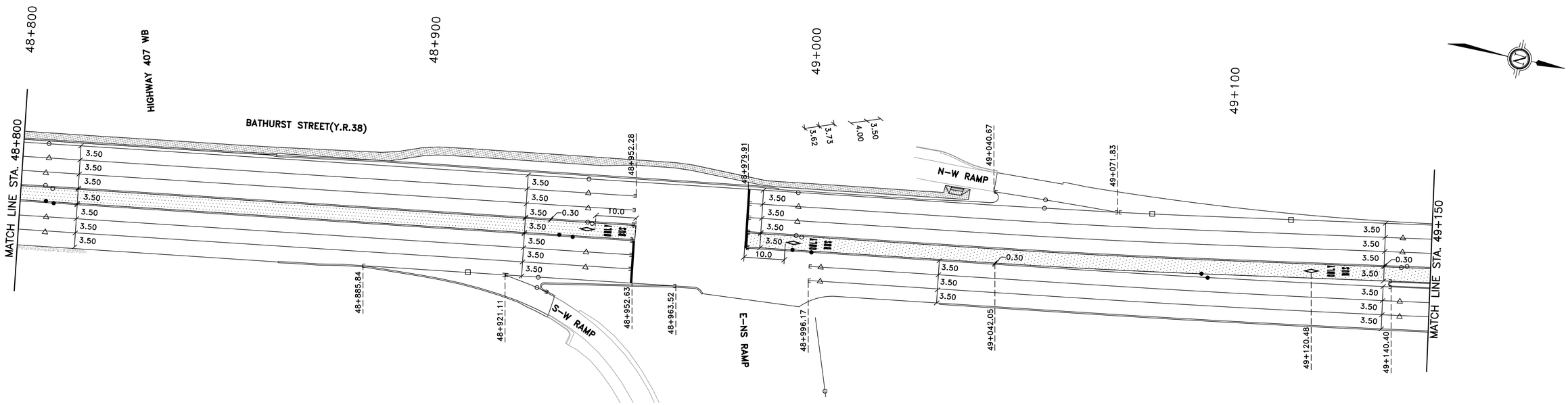
SHEET:

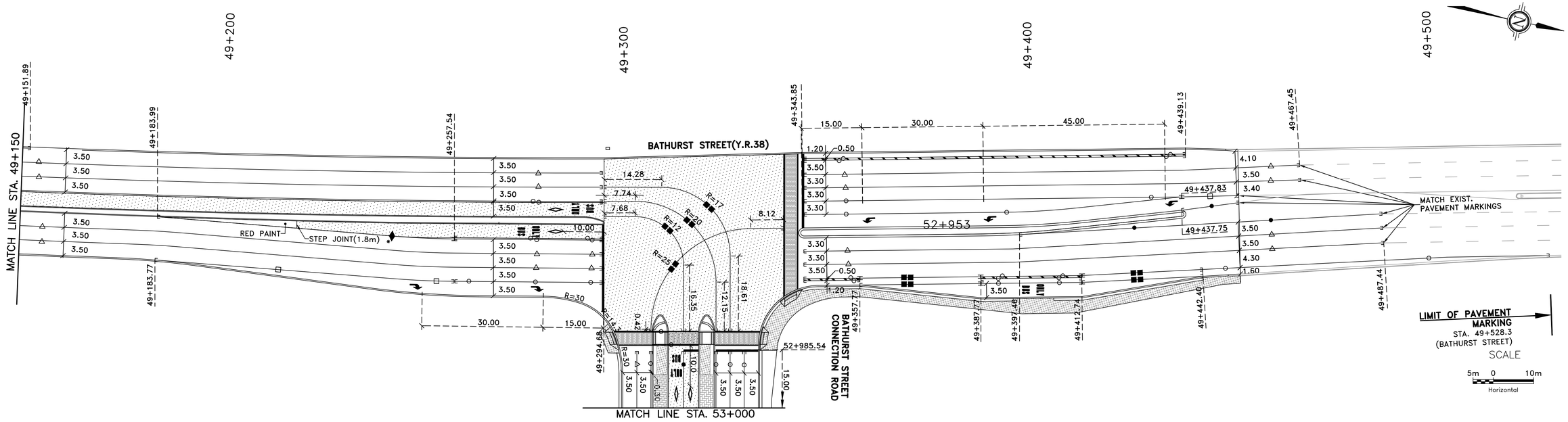
DESIGNED: RH

DRAWN: AY

REVISION: 00

METRIC





REVISION	YYYY-MMM-DD	DESCRIPTION	CHECKED
00	2017-09-20	ISSUED FOR CONSTRUCTION	RB

SEAL 1

LICENSED PROFESSIONAL ENGINEER
S. E. KADERDINA
Sept 20/17
PROVINCE OF ONTARIO

SEAL 2

SPONSOR
YORK REGION RAPID TRANSIT CORPORATION

DESIGN BUILDER
EDCO
EllisDon & Coco JV

PROJECT TITLE
VIVAnext BRT H2-West & H2-East

ENGINEERS
IBI · LEA · amec foster wheeler · PML

H2E-BATHURST STREET

PAVEMENT MARKINGS AND SIGNAGE

PAVEMENT MARKINGS

48+800 TO 49+528

DESIGNED	DRAWN
RH	AY

PHASE ID - DISCIPLINE ID - DRAWING TYPE ID - DRAWING SEQUENCE NUMBER: H2E-CIV-PM-108

SHEET:

REVISION: 00

Appendix C: Synchro and SimTraffic Reports

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	258	18	79	300	193	28	930	36	110	1249	391
Future Volume (veh/h)	219	258	18	79	300	193	28	930	36	110	1249	391
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.90	0.95		0.90	1.00		0.93	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1715	1900	1845	1863	1827	1900	1728	1900	1810	1792	1900
Adj Flow Rate, veh/h	231	272	19	83	316	203	29	979	38	116	1315	412
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	3	2	4	0	10	10	5	7	7
Cap, veh/h	225	567	39	247	631	249	61	1481	57	142	1294	388
Arrive On Green	0.06	0.18	0.18	0.05	0.18	0.18	0.07	0.92	0.92	0.08	0.51	0.51
Sat Flow, veh/h	1670	3068	212	1757	3539	1394	1810	3213	125	1723	2540	761
Grp Volume(v), veh/h	231	143	148	83	316	203	29	500	517	116	862	865
Grp Sat Flow(s),veh/h/ln	1670	1630	1651	1757	1770	1394	1810	1642	1696	1723	1702	1599
Q Serve(g_s), s	8.0	11.0	11.2	5.4	11.3	19.6	2.2	8.5	8.5	9.3	70.4	71.3
Cycle Q Clear(g_c), s	8.0	11.0	11.2	5.4	11.3	19.6	2.2	8.5	8.5	9.3	70.4	71.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.07	1.00		0.48
Lane Grp Cap(c), veh/h	225	301	305	247	631	249	61	757	782	142	867	815
V/C Ratio(X)	1.03	0.48	0.48	0.34	0.50	0.82	0.47	0.66	0.66	0.82	0.99	1.06
Avail Cap(c_a), veh/h	225	303	307	258	657	259	103	757	782	283	867	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	51.0	51.1	44.1	51.9	55.3	64.1	3.3	3.3	63.2	34.1	34.4
Incr Delay (d2), s/veh	67.6	1.2	1.2	0.8	0.6	17.0	5.2	4.2	4.0	11.0	29.1	49.4
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	5.1	5.2	2.6	5.6	8.7	1.2	4.2	4.3	4.8	40.0	42.6
LnGrp Delay(d),s/veh	123.0	52.1	52.3	44.9	52.5	72.3	69.2	7.4	7.3	74.2	63.3	83.8
LnGrp LOS	F	D	D	D	D	E	E	A	A	E	E	F
Approach Vol, veh/h		522			602			1046			1843	
Approach Delay, s/veh		83.5			58.1			9.1			73.6	
Approach LOS		F			E			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	79.3	16.1	33.9	17.5	72.5	17.0	33.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	67.0	8.0	26.0	23.0	52.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	4.2	73.3	7.4	13.2	11.3	10.5	10.0	21.6
Green Ext Time (p_c), s	0.0	0.0	0.0	7.4	0.4	41.0	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.8
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	227	95	24	334	33	171	50	31	89	64	101
Future Volume (veh/h)	54	227	95	24	334	33	171	50	31	89	64	101
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.96	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1597	1779	1900	1759	1792	1900	1827	1835	1900	1863	1800	1900
Adj Flow Rate, veh/h	57	239	100	25	352	35	180	53	33	94	67	106
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	19	8	8	8	6	6	4	2	2	2	8	8
Cap, veh/h	434	1048	423	486	1406	139	443	375	233	532	222	351
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	835	2324	937	960	3119	308	1173	1054	656	1292	624	987
Grp Volume(v), veh/h	57	171	168	25	191	196	180	0	86	94	0	173
Grp Sat Flow(s),veh/h/ln	835	1690	1571	960	1703	1724	1173	0	1709	1292	0	1611
Q Serve(g_s), s	2.8	3.8	4.1	1.0	4.3	4.4	8.1	0.0	2.1	3.3	0.0	4.8
Cycle Q Clear(g_c), s	7.2	3.8	4.1	5.1	4.3	4.4	12.9	0.0	2.1	5.4	0.0	4.8
Prop In Lane	1.00		0.60	1.00		0.18	1.00		0.38	1.00		0.61
Lane Grp Cap(c), veh/h	434	762	708	486	768	777	443	0	608	532	0	573
V/C Ratio(X)	0.13	0.22	0.24	0.05	0.25	0.25	0.41	0.00	0.14	0.18	0.00	0.30
Avail Cap(c_a), veh/h	434	762	708	486	768	777	592	0	826	696	0	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	10.4	10.5	12.0	10.5	10.6	19.1	0.0	13.6	15.4	0.0	14.4
Incr Delay (d2), s/veh	0.6	0.7	0.8	0.2	0.8	0.8	0.6	0.0	0.1	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	1.9	0.3	2.2	2.2	2.7	0.0	1.0	1.2	0.0	2.2
LnGrp Delay(d),s/veh	13.4	11.1	11.3	12.2	11.3	11.3	19.7	0.0	13.7	15.6	0.0	14.7
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		396			412			266			267	
Approach Delay, s/veh		11.5			11.4			17.7			15.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		28.1		34.0		28.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		7.1		14.9		9.2		7.4
Green Ext Time (p_c), s		11.4		4.8		10.6		5.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	119	241	29	97	55	94	336	25	36	434	189
Future Volume (veh/h)	217	119	241	29	97	55	94	336	25	36	434	189
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1838	1900	1845	1832	1900	1881	1795	1900	1900	1832	1900
Adj Flow Rate, veh/h	228	125	254	31	102	58	99	354	26	38	457	199
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	3	3	3	1	6	6	0	4	4
Cap, veh/h	418	175	355	224	354	202	399	1608	117	546	1175	507
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1227	539	1096	987	1094	622	776	3217	235	1006	2352	1015
Grp Volume(v), veh/h	228	0	379	31	0	160	99	187	193	38	337	319
Grp Sat Flow(s),veh/h/ln	1227	0	1635	987	0	1716	776	1705	1747	1006	1741	1626
Q Serve(g_s), s	11.6	0.0	13.9	1.9	0.0	4.7	6.2	4.2	4.2	1.5	8.2	8.3
Cycle Q Clear(g_c), s	16.3	0.0	13.9	15.8	0.0	4.7	14.5	4.2	4.2	5.7	8.2	8.3
Prop In Lane	1.00		0.67	1.00		0.36	1.00		0.13	1.00		0.62
Lane Grp Cap(c), veh/h	418	0	530	224	0	556	399	852	873	546	870	813
V/C Ratio(X)	0.55	0.00	0.72	0.14	0.00	0.29	0.25	0.22	0.22	0.07	0.39	0.39
Avail Cap(c_a), veh/h	453	0	577	253	0	606	399	852	873	546	870	813
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	20.2	27.2	0.0	17.1	15.1	9.6	9.6	11.2	10.6	10.6
Incr Delay (d2), s/veh	1.1	0.0	3.8	0.3	0.0	0.3	1.5	0.6	0.6	0.2	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	6.8	0.5	0.0	2.3	1.5	2.1	2.2	0.4	4.2	4.0
LnGrp Delay(d),s/veh	24.4	0.0	24.1	27.5	0.0	17.4	16.6	10.2	10.2	11.4	11.9	12.0
LnGrp LOS	C		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		607			191			479			694	
Approach Delay, s/veh		24.2			19.1			11.5			11.9	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		28.0		40.0		28.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		16.5		18.3		10.3		17.8
Green Ext Time (p_c), s		15.4		3.7		20.2		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	74	32	891	1304	42
Future Volume (veh/h)	103	74	32	891	1304	42
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1557	1727	1744	1900
Adj Flow Rate, veh/h	108	78	34	938	1373	44
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	22	10	9	9
Cap, veh/h	143	129	54	2637	2373	76
Arrive On Green	0.08	0.08	0.04	0.80	1.00	1.00
Sat Flow, veh/h	1740	1568	1483	3368	3364	105
Grp Volume(v), veh/h	108	78	34	938	693	724
Grp Sat Flow(s),veh/h/ln	1740	1568	1483	1641	1657	1725
Q Serve(g_s), s	8.5	6.7	3.2	11.0	0.0	0.0
Cycle Q Clear(g_c), s	8.5	6.7	3.2	11.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	143	129	54	2637	1200	1249
V/C Ratio(X)	0.76	0.61	0.63	0.36	0.58	0.58
Avail Cap(c_a), veh/h	429	386	85	2637	1200	1249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.12	0.12
Uniform Delay (d), s/veh	62.9	62.1	66.5	3.8	0.0	0.0
Incr Delay (d2), s/veh	7.9	4.5	11.2	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	3.1	1.5	5.1	0.1	0.1
LnGrp Delay(d),s/veh	70.7	66.6	77.7	4.2	0.2	0.2
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	186			972	1417	
Approach Delay, s/veh	69.0			6.7	0.2	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.1	108.9		20.0		120.0		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	8.0	75.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	5.2	2.0		10.5		13.0		
Green Ext Time (p_c), s	0.0	69.3		1.0		72.0		

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	5	35	76	7	10	72	202	94	5	233	31
Future Volume (veh/h)	7	5	35	76	7	10	72	202	94	5	233	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1667	1600	1900	1863	1615	1900	1827	1809	1900	1863	1836	1900
Adj Flow Rate, veh/h	7	5	37	80	7	11	76	213	99	5	245	33
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	14	2	2	2	14	14	4	6	6	2	3	3
Cap, veh/h	364	32	235	365	110	173	657	660	307	633	903	122
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1204	160	1184	1320	555	872	1052	1153	536	1041	1576	212
Grp Volume(v), veh/h	7	0	42	80	0	18	76	0	312	5	0	278
Grp Sat Flow(s),veh/h/ln	1204	0	1344	1320	0	1426	1052	0	1689	1041	0	1789
Q Serve(g_s), s	0.2	0.0	1.4	2.8	0.0	0.5	2.1	0.0	5.1	0.1	0.0	4.1
Cycle Q Clear(g_c), s	0.8	0.0	1.4	4.2	0.0	0.5	6.2	0.0	5.1	5.2	0.0	4.1
Prop In Lane	1.00		0.88	1.00		0.61	1.00		0.32	1.00		0.12
Lane Grp Cap(c), veh/h	364	0	266	365	0	283	657	0	967	633	0	1024
V/C Ratio(X)	0.02	0.00	0.16	0.22	0.00	0.06	0.12	0.00	0.32	0.01	0.00	0.27
Avail Cap(c_a), veh/h	723	0	667	758	0	708	657	0	967	633	0	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	17.4	19.1	0.0	17.1	7.2	0.0	5.9	7.2	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.6	0.0	0.2	0.4	0.0	0.9	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.5	1.1	0.0	0.2	0.7	0.0	2.6	0.0	0.0	2.2
LnGrp Delay(d),s/veh	17.4	0.0	18.0	19.7	0.0	17.3	7.6	0.0	6.7	7.3	0.0	6.3
LnGrp LOS	B		B	B		B	A		A	A		A
Approach Vol, veh/h		49			98			388			283	
Approach Delay, s/veh		17.9			19.3			6.9			6.3	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		16.4		36.0		16.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		8.2		3.4		7.2		6.2
Green Ext Time (p_c), s		13.3		2.0		13.7		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	139	35	8	41	54	495	12	21	570	9
Future Volume (veh/h)	15	4	139	35	8	41	54	495	12	21	570	9
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1882	1900	1845	1868	1900	1827	1839	1900	1900	1845	1900
Adj Flow Rate, veh/h	16	4	146	37	8	43	57	521	13	22	600	9
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	3	0	0	4	3	3	0	3	3
Cap, veh/h	392	9	346	312	56	304	498	1897	47	550	1926	29
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1281	43	1557	1217	254	1367	793	3483	87	884	3536	53
Grp Volume(v), veh/h	16	0	150	37	0	51	57	261	273	22	297	312
Grp Sat Flow(s),veh/h/ln	1281	0	1599	1217	0	1621	793	1747	1823	884	1753	1836
Q Serve(g_s), s	0.5	0.0	4.1	1.4	0.0	1.3	2.2	4.1	4.1	0.7	4.8	4.8
Cycle Q Clear(g_c), s	1.8	0.0	4.1	5.5	0.0	1.3	7.0	4.1	4.1	4.8	4.8	4.8
Prop In Lane	1.00		0.97	1.00		0.84	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	392	0	355	312	0	360	498	951	993	550	955	1000
V/C Ratio(X)	0.04	0.00	0.42	0.12	0.00	0.14	0.11	0.27	0.27	0.04	0.31	0.31
Avail Cap(c_a), veh/h	880	0	964	776	0	977	498	951	993	550	955	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	17.2	19.5	0.0	16.1	8.3	6.3	6.3	7.6	6.4	6.4
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.2	0.0	0.2	0.5	0.7	0.7	0.1	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.9	0.5	0.0	0.6	0.5	2.1	2.2	0.2	2.5	2.6
LnGrp Delay(d),s/veh	16.8	0.0	18.0	19.7	0.0	16.2	8.8	7.0	7.0	7.7	7.3	7.2
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		166			88			591			631	
Approach Delay, s/veh		17.9			17.7			7.1			7.3	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		17.4		34.0		17.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		9.0		7.5		6.8		6.1
Green Ext Time (p_c), s		14.7		3.4		16.0		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	643	39	28	530	62	51	71	41	34	41	7
Future Volume (veh/h)	8	643	39	28	530	62	51	71	41	34	41	7
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1660	1900	1570	1697	1900	1827	1941	1900	1652	1895	1900
Adj Flow Rate, veh/h	8	677	41	29	558	65	54	75	43	36	43	7
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	15	15	21	13	13	4	0	0	15	5	5
Cap, veh/h	24	1976	120	52	1966	228	211	164	94	148	225	37
Arrive On Green	0.01	0.65	0.65	0.05	0.90	0.90	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3022	183	1495	2910	338	1316	1156	663	1121	1588	259
Grp Volume(v), veh/h	8	353	365	29	308	315	54	0	118	36	0	50
Grp Sat Flow(s),veh/h/ln	1810	1577	1627	1495	1612	1636	1316	0	1819	1121	0	1847
Q Serve(g_s), s	0.6	13.0	13.0	2.5	3.4	3.4	4.9	0.0	7.7	4.0	0.0	3.1
Cycle Q Clear(g_c), s	0.6	13.0	13.0	2.5	3.4	3.4	8.0	0.0	7.7	11.7	0.0	3.1
Prop In Lane	1.00		0.11	1.00		0.21	1.00		0.36	1.00		0.14
Lane Grp Cap(c), veh/h	24	1031	1064	52	1089	1105	211	0	258	148	0	262
V/C Ratio(X)	0.33	0.34	0.34	0.55	0.28	0.28	0.26	0.00	0.46	0.24	0.00	0.19
Avail Cap(c_a), veh/h	111	1031	1064	138	1089	1105	383	0	497	295	0	504
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.5	10.0	10.0	61.0	2.3	2.3	52.7	0.0	51.2	56.6	0.0	49.2
Incr Delay (d2), s/veh	7.5	0.9	0.9	8.6	0.6	0.6	0.6	0.0	1.3	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.9	6.0	1.1	1.6	1.7	1.8	0.0	4.0	1.3	0.0	1.6
LnGrp Delay(d),s/veh	71.1	10.9	10.9	69.6	2.9	2.9	53.4	0.0	52.4	57.4	0.0	49.5
LnGrp LOS	E	B	B	E	A	A	D		D	E		D
Approach Vol, veh/h		726			652			172			86	
Approach Delay, s/veh		11.6			5.9			52.7			52.8	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	95.3		26.9	10.5	92.5		26.9
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	12.0	60.5		35.5
Max Q Clear Time (g_c+I1), s	2.6	5.4		13.7	4.5	15.0		10.0
Green Ext Time (p_c), s	0.0	36.6		2.9	0.0	30.8		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	640	585	22	25	35
Future Volume (veh/h)	78	640	585	22	25	35
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1667	1686	1900	1827	1792
Adj Flow Rate, veh/h	82	674	616	23	26	37
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	14	13	13	4	6
Cap, veh/h	102	2546	2197	82	120	105
Arrive On Green	0.12	1.00	1.00	1.00	0.07	0.07
Sat Flow, veh/h	1691	3250	3233	117	1740	1524
Grp Volume(v), veh/h	82	674	313	326	26	37
Grp Sat Flow(s),veh/h/ln	1691	1583	1601	1665	1740	1524
Q Serve(g_s), s	6.1	0.0	0.0	0.0	1.8	3.0
Cycle Q Clear(g_c), s	6.1	0.0	0.0	0.0	1.8	3.0
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	102	2546	1118	1162	120	105
V/C Ratio(X)	0.81	0.26	0.28	0.28	0.22	0.35
Avail Cap(c_a), veh/h	156	2546	1118	1162	335	293
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.89	0.89	1.00	1.00
Uniform Delay (d), s/veh	56.5	0.0	0.0	0.0	57.2	57.7
Incr Delay (d2), s/veh	15.3	0.2	0.6	0.5	0.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.1	0.2	0.2	0.9	1.3
LnGrp Delay(d),s/veh	71.8	0.2	0.6	0.5	58.1	59.7
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		756	639		63	
Approach Delay, s/veh		8.0	0.5		59.1	
Approach LOS		A	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.8	98.2		18.0		112.0		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	12.0	70.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	8.1	2.0		5.0		2.0		
Green Ext Time (p_c), s	0.1	39.7		0.2		44.8		

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	496	113	55	404	43	134	345	68	91	650	69
Future Volume (veh/h)	56	496	113	55	404	43	134	345	68	91	650	69
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1638	1635	1900	1827	1649	1900	1771	1818	1900	1792	1861	1900
Adj Flow Rate, veh/h	59	522	119	58	425	45	141	363	72	96	684	73
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	16	19	19	4	15	15	3	4	4	6	2	2
Cap, veh/h	74	924	210	82	1051	111	259	945	185	353	994	106
Arrive On Green	0.09	0.74	0.74	0.09	0.74	0.74	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	1560	2512	570	1740	2859	301	1687	2872	563	1707	3218	343
Grp Volume(v), veh/h	59	322	319	58	232	238	141	217	218	96	375	382
Grp Sat Flow(s),veh/h/ln	1560	1553	1529	1740	1567	1593	1687	1727	1708	1707	1768	1793
Q Serve(g_s), s	4.8	12.2	12.3	4.2	7.2	7.3	7.3	12.5	12.8	4.9	24.2	24.3
Cycle Q Clear(g_c), s	4.8	12.2	12.3	4.2	7.2	7.3	7.3	12.5	12.8	4.9	24.2	24.3
Prop In Lane	1.00		0.37	1.00		0.19	1.00		0.33	1.00		0.19
Lane Grp Cap(c), veh/h	74	571	562	82	576	586	259	568	562	353	546	554
V/C Ratio(X)	0.80	0.56	0.57	0.71	0.40	0.41	0.55	0.38	0.39	0.27	0.69	0.69
Avail Cap(c_a), veh/h	156	571	562	107	576	586	293	618	611	369	578	586
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	12.5	12.5	58.0	11.8	11.9	29.8	33.5	33.6	28.6	39.4	39.4
Incr Delay (d2), s/veh	17.0	3.9	4.0	13.4	2.1	2.1	1.8	0.4	0.4	0.4	3.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	5.6	5.6	2.3	3.4	3.5	3.5	6.0	6.1	2.4	12.3	12.5
LnGrp Delay(d),s/veh	75.2	16.4	16.5	71.4	13.9	13.9	31.6	33.9	34.0	29.0	42.6	42.6
LnGrp LOS	E	B	B	E	B	B	C	C	C	C	D	D
Approach Vol, veh/h		700			528			576			853	
Approach Delay, s/veh		21.4			20.3			33.4			41.1	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	55.8	13.4	48.7	12.1	55.8	10.8	51.3				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	13.0	36.0	12.0	42.5	8.0	41.0	8.0	46.5				
Max Q Clear Time (g_c+I1), s	6.8	9.3	9.3	26.3	6.2	14.3	6.9	14.8				
Green Ext Time (p_c), s	0.1	18.0	0.2	13.1	0.0	18.0	0.0	22.6				
Intersection Summary												
HCM 2010 Ctrl Delay			30.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	449	83	90	415	57	43	230	74	72	228	44
Future Volume (veh/h)	81	449	83	90	415	57	43	230	74	72	228	44
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1854	1900	1557	1828	1900	1863	1597	1696	1473	1708	1900
Adj Flow Rate, veh/h	85	473	87	95	437	60	45	242	78	76	240	46
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	106	1412	258	113	1514	207	182	429	387	170	374	72
Arrive On Green	0.12	0.96	0.96	0.08	0.49	0.49	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	2952	539	1483	3060	417	1089	1597	1442	834	1394	267
Grp Volume(v), veh/h	85	281	279	95	247	250	45	242	78	76	0	286
Grp Sat Flow(s),veh/h/ln	1774	1762	1730	1483	1736	1741	1089	1597	1442	834	0	1661
Q Serve(g_s), s	6.1	1.3	1.4	8.2	10.9	11.0	5.0	17.0	5.4	11.2	0.0	19.8
Cycle Q Clear(g_c), s	6.1	1.3	1.4	8.2	10.9	11.0	24.7	17.0	5.4	28.2	0.0	19.8
Prop In Lane	1.00		0.31	1.00		0.24	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	106	842	827	113	859	861	182	429	387	170	0	446
V/C Ratio(X)	0.80	0.33	0.34	0.84	0.29	0.29	0.25	0.56	0.20	0.45	0.00	0.64
Avail Cap(c_a), veh/h	164	842	827	137	859	861	208	467	421	190	0	486
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	56.5	1.5	1.5	59.2	19.3	19.4	52.9	41.0	36.8	53.2	0.0	42.0
Incr Delay (d2), s/veh	14.4	1.1	1.1	30.1	0.8	0.9	0.7	1.3	0.3	1.8	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.7	0.7	4.3	5.4	5.5	1.5	7.6	2.2	2.7	0.0	9.4
LnGrp Delay(d),s/veh	70.9	2.6	2.6	89.4	20.2	20.2	53.6	42.3	37.0	55.0	0.0	44.5
LnGrp LOS	E	A	A	F	C	C	D	D	D	D		D
Approach Vol, veh/h		645			592			365			362	
Approach Delay, s/veh		11.6			31.3			42.6			46.7	
Approach LOS		B			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.8	72.3		43.9	15.9	70.2		43.9				
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0				
Max Green Setting (Gmax), s	12.0	57.0		38.0	12.0	57.0		38.0				
Max Q Clear Time (g_c+I1), s	8.1	13.0		30.2	10.2	3.4		26.7				
Green Ext Time (p_c), s	0.1	23.0		4.7	0.1	25.4		6.3				
Intersection Summary												
HCM 2010 Ctrl Delay			29.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	342	156	44	334	121	146	365	33	136	523	89
Future Volume (veh/h)	71	342	156	44	334	121	146	365	33	136	523	89
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1787	1900	1776	1791	1900	1759	1833	1900	1827	1850	1900
Adj Flow Rate, veh/h	75	360	164	46	352	127	154	384	35	143	551	94
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	7	5	5	8	4	4	4	3	3
Cap, veh/h	540	1326	594	501	1432	508	169	900	82	254	837	142
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	894	2280	1022	833	2462	875	736	3226	292	940	3000	510
Grp Volume(v), veh/h	75	267	257	46	242	237	154	206	213	143	322	323
Grp Sat Flow(s),veh/h/ln	894	1698	1604	833	1702	1635	736	1741	1777	940	1757	1753
Q Serve(g_s), s	3.9	6.7	6.9	2.5	6.0	6.1	10.0	8.3	8.4	12.6	13.9	14.0
Cycle Q Clear(g_c), s	10.0	6.7	6.9	9.4	6.0	6.1	24.0	8.3	8.4	21.1	13.9	14.0
Prop In Lane	1.00		0.64	1.00		0.53	1.00		0.16	1.00		0.29
Lane Grp Cap(c), veh/h	540	987	933	501	989	951	169	486	496	254	490	489
V/C Ratio(X)	0.14	0.27	0.28	0.09	0.24	0.25	0.91	0.42	0.43	0.56	0.66	0.66
Avail Cap(c_a), veh/h	540	987	933	501	989	951	169	486	496	254	490	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	8.9	9.0	11.3	8.8	8.8	40.2	25.4	25.4	34.0	27.4	27.4
Incr Delay (d2), s/veh	0.5	0.7	0.7	0.4	0.6	0.6	45.6	1.3	1.3	4.7	4.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.3	3.2	0.6	2.9	2.9	5.8	4.2	4.3	3.6	7.3	7.3
LnGrp Delay(d),s/veh	11.8	9.6	9.7	11.7	9.4	9.4	85.9	26.6	26.6	38.7	31.7	31.8
LnGrp LOS	B	A	A	B	A	A	F	C	C	D	C	C
Approach Vol, veh/h		599			525			573			788	
Approach Delay, s/veh		9.9			9.6			42.6			33.0	
Approach LOS		A			A			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		11.4		26.0		12.0		23.1
Green Ext Time (p_c), s		33.9		0.0		33.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	169	211	90	91	67	120	358	89	89	685	75
Future Volume (veh/h)	96	169	211	90	91	67	120	358	89	89	685	75
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1829	1900	1900	1785	1900	1845	1806	1900	1776	1845	1900
Adj Flow Rate, veh/h	101	178	222	95	96	71	126	377	94	94	721	79
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	8	8	8	3	5	5	7	3	3
Cap, veh/h	385	245	305	188	288	228	397	1412	348	421	1217	133
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1154	734	916	314	864	685	1757	2723	671	868	3180	348
Grp Volume(v), veh/h	101	0	400	108	0	154	126	236	235	94	397	403
Grp Sat Flow(s),veh/h/ln	1154	0	1650	374	0	1490	1757	1716	1678	868	1752	1776
Q Serve(g_s), s	5.8	0.0	17.3	8.2	0.0	6.2	3.1	6.2	6.4	6.1	14.6	14.7
Cycle Q Clear(g_c), s	12.0	0.0	17.3	25.5	0.0	6.2	3.1	6.2	6.4	6.1	14.6	14.7
Prop In Lane	1.00		0.56	0.88		0.46	1.00		0.40	1.00		0.20
Lane Grp Cap(c), veh/h	385	0	550	208	0	497	397	890	870	421	671	680
V/C Ratio(X)	0.26	0.00	0.73	0.52	0.00	0.31	0.32	0.27	0.27	0.22	0.59	0.59
Avail Cap(c_a), veh/h	385	0	550	208	0	497	397	890	870	421	671	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	23.8	33.8	0.0	20.1	12.8	10.9	10.9	17.3	20.0	20.0
Incr Delay (d2), s/veh	0.4	0.0	4.8	2.2	0.0	0.4	2.1	0.7	0.8	1.2	3.8	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	8.5	2.5	0.0	2.6	1.7	3.1	3.1	1.6	7.8	7.9
LnGrp Delay(d),s/veh	24.9	0.0	28.6	36.0	0.0	20.4	14.8	11.6	11.7	18.5	23.8	23.7
LnGrp LOS	C		C	D		C	B	B	B	B	C	C
Approach Vol, veh/h		501			262			597			894	
Approach Delay, s/veh		27.8			26.8			12.3			23.2	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.1	16.7		27.5		8.4		19.3
Green Ext Time (p_c), s	0.1	12.6		0.0		26.6		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	3	43	26	4	69	15	426	15	51	656	16
Future Volume (veh/h)	49	3	43	26	4	69	15	426	15	51	656	16
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1839	1900	1900	1760	1900	1900	1811	1900	1900	1814	1900
Adj Flow Rate, veh/h	52	3	45	27	4	73	16	448	16	54	691	17
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	25	25	25	5	5	5	4	4	4
Cap, veh/h	211	39	116	128	36	176	100	1913	67	164	1837	44
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	611	229	687	226	216	1041	41	3221	113	140	3093	74
Grp Volume(v), veh/h	100	0	0	104	0	0	250	0	230	388	0	374
Grp Sat Flow(s),veh/h/ln	1528	0	0	1483	0	0	1749	0	1627	1671	0	1636
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	6.1
Cycle Q Clear(g_c), s	2.6	0.0	0.0	3.0	0.0	0.0	3.3	0.0	3.4	5.6	0.0	6.1
Prop In Lane	0.52		0.45	0.26		0.70	0.06		0.07	0.14		0.05
Lane Grp Cap(c), veh/h	366	0	0	340	0	0	1114	0	966	1073	0	972
V/C Ratio(X)	0.27	0.00	0.00	0.31	0.00	0.00	0.22	0.00	0.24	0.36	0.00	0.39
Avail Cap(c_a), veh/h	911	0	0	892	0	0	1114	0	966	1073	0	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	0.0	18.7	0.0	0.0	4.8	0.0	4.9	5.3	0.0	5.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.6	0.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	1.3	0.0	0.0	1.7	0.0	1.6	3.0	0.0	3.0
LnGrp Delay(d),s/veh	18.9	0.0	0.0	19.2	0.0	0.0	5.3	0.0	5.4	6.2	0.0	6.6
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		100			104			480			762	
Approach Delay, s/veh		18.9			19.2			5.4			6.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		14.5		36.0		14.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		5.4		5.0		8.1		4.6
Green Ext Time (p_c), s		18.8		3.1		17.1		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	12	40	60	11	87	8	513	31	39	770	11
Future Volume (veh/h)	17	12	40	60	11	87	8	513	31	39	770	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1725	1900	1900	1788	1900	1900	1816	1900	1900	1808	1900
Adj Flow Rate, veh/h	18	13	42	63	12	92	8	540	33	41	811	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	8	18	18	18	4	4	4	5	5	5
Cap, veh/h	142	96	181	199	57	173	91	1639	99	130	1650	24
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	180	454	859	398	271	820	11	3209	194	75	3231	47
Grp Volume(v), veh/h	73	0	0	167	0	0	306	0	275	444	0	420
Grp Sat Flow(s),veh/h/ln	1493	0	0	1489	0	0	1796	0	1618	1716	0	1637
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	4.3	0.0	0.0	7.3
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.1	0.0	0.0	4.3	0.0	4.3	6.9	0.0	7.3
Prop In Lane	0.25		0.58	0.38		0.55	0.03		0.12	0.09		0.03
Lane Grp Cap(c), veh/h	419	0	0	429	0	0	1003	0	827	968	0	836
V/C Ratio(X)	0.17	0.00	0.00	0.39	0.00	0.00	0.30	0.00	0.33	0.46	0.00	0.50
Avail Cap(c_a), veh/h	978	0	0	994	0	0	1003	0	827	968	0	836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	0.0	15.0	0.0	0.0	6.2	0.0	6.2	6.8	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	0.8	0.0	1.1	1.6	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.8	0.0	0.0	2.3	0.0	2.2	3.8	0.0	3.8
LnGrp Delay(d),s/veh	14.3	0.0	0.0	15.6	0.0	0.0	7.0	0.0	7.3	8.4	0.0	9.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		73			167			581			864	
Approach Delay, s/veh		14.3			15.6			7.1			8.7	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		15.1		28.0		15.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		6.3		3.7		9.3		6.1
Green Ext Time (p_c), s		13.8		3.7		11.4		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	18	70	61	6	24	45	481	34	17	767	27
Future Volume (veh/h)	47	18	70	61	6	24	45	481	34	17	767	27
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1793	1900	1900	1855	1900	1900	1798	1900	1900	1818	1900
Adj Flow Rate, veh/h	49	19	74	64	6	25	47	506	36	18	807	28
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	6	6	6	4	4	4
Cap, veh/h	175	84	180	326	44	91	160	1507	105	86	1776	61
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	358	371	794	923	194	399	147	2787	194	25	3284	113
Grp Volume(v), veh/h	142	0	0	95	0	0	293	0	296	447	0	406
Grp Sat Flow(s),veh/h/ln	1523	0	0	1515	0	0	1527	0	1600	1789	0	1633
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	7.9
Cycle Q Clear(g_c), s	3.8	0.0	0.0	2.2	0.0	0.0	4.6	0.0	5.4	7.7	0.0	7.9
Prop In Lane	0.35		0.52	0.67		0.26	0.16		0.12	0.04		0.07
Lane Grp Cap(c), veh/h	440	0	0	461	0	0	907	0	866	1040	0	883
V/C Ratio(X)	0.32	0.00	0.00	0.21	0.00	0.00	0.32	0.00	0.34	0.43	0.00	0.46
Avail Cap(c_a), veh/h	816	0	0	815	0	0	907	0	866	1040	0	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	0.0	16.3	0.0	0.0	6.5	0.0	6.7	7.2	0.0	7.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.9	0.0	1.1	1.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	1.1	0.0	0.0	2.5	0.0	2.6	4.2	0.0	3.9
LnGrp Delay(d),s/veh	17.3	0.0	0.0	16.5	0.0	0.0	7.5	0.0	7.8	8.5	0.0	9.0
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		142			95			589			853	
Approach Delay, s/veh		17.3			16.5			7.6			8.7	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.8		34.0		17.8		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		4.2		7.4		5.8		9.9
Green Ext Time (p_c), s		3.4		17.7		3.3		15.8

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	475	55	175	539	100	65	260	120	145	625	105
Future Volume (veh/h)	130	475	55	175	539	100	65	260	120	145	625	105
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1845	1863	1827	1900	1863	1900	1881	1876	1900
Adj Flow Rate, veh/h	137	500	58	184	567	105	68	274	126	153	658	111
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	0	3	2	4	0	2	2	1	1	1
Cap, veh/h	353	1322	602	406	1335	579	278	786	351	417	1035	174
Arrive On Green	0.06	0.38	0.38	0.02	0.12	0.12	0.06	0.33	0.33	0.06	0.34	0.34
Sat Flow, veh/h	1774	3505	1596	1757	3539	1534	1810	2370	1059	1792	3046	513
Grp Volume(v), veh/h	137	500	58	184	567	105	68	203	197	153	385	384
Grp Sat Flow(s),veh/h/ln	1774	1752	1596	1757	1770	1534	1810	1770	1659	1792	1782	1777
Q Serve(g_s), s	5.1	11.4	2.6	7.0	16.3	6.7	2.6	9.5	9.9	6.2	20.0	20.0
Cycle Q Clear(g_c), s	5.1	11.4	2.6	7.0	16.3	6.7	2.6	9.5	9.9	6.2	20.0	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		0.29
Lane Grp Cap(c), veh/h	353	1322	602	406	1335	579	278	587	550	417	605	604
V/C Ratio(X)	0.39	0.38	0.10	0.45	0.42	0.18	0.24	0.35	0.36	0.37	0.64	0.64
Avail Cap(c_a), veh/h	353	1322	602	406	1335	579	292	643	603	417	648	646
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	24.9	22.1	20.8	37.1	32.9	23.3	27.7	27.9	22.5	30.6	30.6
Incr Delay (d2), s/veh	0.7	0.8	0.3	0.8	1.0	0.7	0.5	0.3	0.4	0.5	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	5.6	1.2	3.5	8.2	3.0	1.3	4.7	4.6	3.1	10.1	10.1
LnGrp Delay(d),s/veh	20.8	25.7	22.4	21.6	38.1	33.6	23.7	28.1	28.3	23.1	32.4	32.5
LnGrp LOS	C	C	C	C	D	C	C	C	C	C	C	C
Approach Vol, veh/h		695			856			468			922	
Approach Delay, s/veh		24.5			34.0			27.5			30.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	47.5	9.1	43.4	10.0	47.5	10.0	42.5
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	7.0	40.0
Max Q Clear Time (g_c+I1), s	9.0	13.4	4.6	22.0	7.1	18.3	8.2	11.9
Green Ext Time (p_c), s	0.0	17.9	0.0	14.4	0.0	15.0	0.0	20.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	45	685	794	135	115	20		
Future Volume (veh/h)	45	685	794	135	115	20		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1827	1845	1863	1827	1863	1792		
Adj Flow Rate, veh/h	47	721	836	142	121	21		
Adj No. of Lanes	1	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	3	2	4	2	6		
Cap, veh/h	496	2745	2504	1087	191	164		
Arrive On Green	0.05	0.78	0.71	0.71	0.11	0.11		
Sat Flow, veh/h	1740	3597	3632	1536	1774	1524		
Grp Volume(v), veh/h	47	721	836	142	121	21		
Grp Sat Flow(s),veh/h/ln	1740	1752	1770	1536	1774	1524		
Q Serve(g_s), s	0.7	6.2	10.0	3.3	7.2	1.4		
Cycle Q Clear(g_c), s	0.7	6.2	10.0	3.3	7.2	1.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	496	2745	2504	1087	191	164		
V/C Ratio(X)	0.09	0.26	0.33	0.13	0.63	0.13		
Avail Cap(c_a), veh/h	522	2745	2504	1087	629	540		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.6	3.3	6.2	5.2	47.0	44.4		
Incr Delay (d2), s/veh	0.1	0.2	0.4	0.2	3.4	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.3	3.0	4.9	1.5	3.7	1.2		
LnGrp Delay(d),s/veh	3.7	3.5	6.5	5.4	50.4	44.8		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		768	978		142			
Approach Delay, s/veh		3.5	6.4		49.6			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		92.2		17.8	8.3	83.8		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		59.0		39.0	7.0	49.0		
Max Q Clear Time (g_c+I1), s		8.2		9.2	2.7	12.0		
Green Ext Time (p_c), s		41.3		0.8	0.0	31.6		
Intersection Summary								
HCM 2010 Ctrl Delay			8.5					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	624	216	146	588	163	214	853	175	166	1142	117
Future Volume (veh/h)	69	624	216	146	588	163	214	853	175	166	1142	117
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1696	1792	1863	1743	1776	1792	1792	1792	1792	1792	1792	1810
Adj Flow Rate, veh/h	73	657	227	154	619	172	225	898	184	175	1202	123
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	6	2	9	7	6	6	6	6	6	6	5
Cap, veh/h	241	1102	501	241	1126	497	169	1355	590	240	1355	596
Arrive On Green	0.05	0.32	0.32	0.06	0.33	0.33	0.06	0.40	0.40	0.02	0.13	0.13
Sat Flow, veh/h	1616	3406	1548	1660	3374	1491	1707	3406	1483	1707	3406	1497
Grp Volume(v), veh/h	73	657	227	154	619	172	225	898	184	175	1202	123
Grp Sat Flow(s),veh/h/ln	1616	1703	1548	1660	1687	1491	1707	1703	1483	1707	1703	1497
Q Serve(g_s), s	4.2	22.6	16.3	8.0	21.0	12.2	8.0	30.2	11.9	8.0	48.6	10.3
Cycle Q Clear(g_c), s	4.2	22.6	16.3	8.0	21.0	12.2	8.0	30.2	11.9	8.0	48.6	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	1102	501	241	1126	497	169	1355	590	240	1355	596
V/C Ratio(X)	0.30	0.60	0.45	0.64	0.55	0.35	1.33	0.66	0.31	0.73	0.89	0.21
Avail Cap(c_a), veh/h	257	1155	525	241	1145	506	169	1355	590	240	1355	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	39.7	37.5	34.0	38.1	35.1	35.1	34.5	29.0	30.8	57.7	41.1
Incr Delay (d2), s/veh	0.7	0.8	0.6	4.6	0.4	0.3	183.4	2.6	1.4	10.7	8.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	10.8	7.1	2.1	9.9	5.1	12.5	14.7	5.1	3.4	24.6	4.4
LnGrp Delay(d),s/veh	31.3	40.5	38.2	38.6	38.5	35.5	218.6	37.0	30.4	41.5	66.6	41.9
LnGrp LOS	C	D	D	D	D	D	F	D	C	D	E	D
Approach Vol, veh/h		957			945			1307			1500	
Approach Delay, s/veh		39.2			38.0			67.4			61.7	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	63.2	12.0	52.8	12.0	63.2	10.6	54.2				
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5				
Max Green Setting (Gmax), s	8.0	53.5	8.0	47.5	8.0	53.5	8.0	47.5				
Max Q Clear Time (g_c+I1), s	10.0	50.6	10.0	24.6	10.0	32.2	6.2	23.0				
Green Ext Time (p_c), s	0.0	2.9	0.0	19.6	0.0	20.7	0.0	20.8				
Intersection Summary												
HCM 2010 Ctrl Delay			53.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	907	80	107	803	94	188
Future Volume (veh/h)	907	80	107	803	94	188
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1847	1881	1845
Adj Flow Rate, veh/h	955	84	113	845	99	198
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	1	3
Cap, veh/h	2407	212	236	1763	272	238
Arrive On Green	0.74	0.74	0.74	0.74	0.15	0.15
Sat Flow, veh/h	3350	287	262	2469	1792	1568
Grp Volume(v), veh/h	514	525	403	555	99	198
Grp Sat Flow(s),veh/h/ln	1752	1792	1051	1597	1792	1568
Q Serve(g_s), s	11.9	11.9	10.0	15.3	5.5	13.5
Cycle Q Clear(g_c), s	11.9	11.9	21.9	15.3	5.5	13.5
Prop In Lane		0.16	0.28		1.00	1.00
Lane Grp Cap(c), veh/h	1295	1324	818	1180	272	238
V/C Ratio(X)	0.40	0.40	0.49	0.47	0.36	0.83
Avail Cap(c_a), veh/h	1295	1324	818	1180	423	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.3	5.3	6.3	5.7	41.9	45.3
Incr Delay (d2), s/veh	0.7	0.7	2.1	1.3	0.8	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	6.1	6.1	7.1	2.8	6.4
LnGrp Delay(d),s/veh	6.0	6.0	8.4	7.1	42.7	54.3
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1039			958	297	
Approach Delay, s/veh	6.0			7.6	50.4	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		87.3				87.3		22.7
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		72.0				72.0		26.0
Max Q Clear Time (g_c+I1), s		13.9				23.9		15.5
Green Ext Time (p_c), s		52.8				44.4		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
86: Clark Avenue & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	825	44	23	525	260	24	14	16	534	35	361
Future Volume (veh/h)	263	825	44	23	525	260	24	14	16	534	35	361
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1865	1900	1900	1845	1863	1900	1900	1900	1881	1866	1900
Adj Flow Rate, veh/h	277	868	46	24	553	274	25	15	17	562	37	380
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	3	2	0	0	0	1	0	0
Cap, veh/h	345	1461	77	182	1083	484	336	377	427	691	66	676
Arrive On Green	0.03	0.14	0.14	0.31	0.31	0.31	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1774	3420	181	618	3505	1565	984	812	920	1379	142	1459
Grp Volume(v), veh/h	277	450	464	24	553	274	25	0	32	562	0	417
Grp Sat Flow(s),veh/h/ln	1774	1771	1830	618	1752	1565	984	0	1733	1379	0	1601
Q Serve(g_s), s	10.0	26.2	26.2	3.6	14.2	16.1	2.1	0.0	1.1	41.3	0.0	20.8
Cycle Q Clear(g_c), s	10.0	26.2	26.2	16.8	14.2	16.1	22.9	0.0	1.1	42.4	0.0	20.8
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.53	1.00		0.91
Lane Grp Cap(c), veh/h	345	757	782	182	1083	484	336	0	803	691	0	742
V/C Ratio(X)	0.80	0.59	0.59	0.13	0.51	0.57	0.07	0.00	0.04	0.81	0.00	0.56
Avail Cap(c_a), veh/h	345	757	782	182	1083	484	336	0	803	691	0	742
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	27.9	38.3	38.3	37.6	31.2	31.8	29.7	0.0	16.1	27.7	0.0	21.4
Incr Delay (d2), s/veh	12.8	3.4	3.3	1.5	1.7	4.7	0.4	0.0	0.1	6.7	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	13.6	14.0	0.7	7.2	7.6	0.6	0.0	0.6	16.9	0.0	9.3
LnGrp Delay(d),s/veh	40.7	41.7	41.6	39.1	32.9	36.6	30.1	0.0	16.2	34.4	0.0	22.3
LnGrp LOS	D	D	D	D	C	D	C		B	C		C
Approach Vol, veh/h		1191			851			57			979	
Approach Delay, s/veh		41.4			34.3			22.3			29.2	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		53.0		57.0	13.0	40.0		57.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		47.0		51.0	10.0	34.0		51.0
Max Q Clear Time (g_c+I1), s		28.2		44.4	12.0	18.8		24.9
Green Ext Time (p_c), s		17.0		4.6	0.0	14.0		12.6

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	258	18	79	300	193	28	930	36	110	1249	391
Future Volume (veh/h)	219	258	18	79	300	193	28	930	36	110	1249	391
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.90	0.95		0.90	1.00		0.93	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1715	1900	1845	1863	1827	1900	1728	1900	1810	1792	1900
Adj Flow Rate, veh/h	231	272	19	83	316	203	29	979	38	116	1315	412
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	3	2	4	0	10	10	5	7	7
Cap, veh/h	225	567	39	247	631	249	61	1481	57	142	1294	388
Arrive On Green	0.06	0.18	0.18	0.05	0.18	0.18	0.07	0.92	0.92	0.08	0.51	0.51
Sat Flow, veh/h	1670	3068	212	1757	3539	1394	1810	3213	125	1723	2540	761
Grp Volume(v), veh/h	231	143	148	83	316	203	29	500	517	116	862	865
Grp Sat Flow(s),veh/h/ln	1670	1630	1651	1757	1770	1394	1810	1642	1696	1723	1702	1599
Q Serve(g_s), s	8.0	11.0	11.2	5.4	11.3	19.6	2.2	8.5	8.5	9.3	70.4	71.3
Cycle Q Clear(g_c), s	8.0	11.0	11.2	5.4	11.3	19.6	2.2	8.5	8.5	9.3	70.4	71.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.07	1.00		0.48
Lane Grp Cap(c), veh/h	225	301	305	247	631	249	61	757	782	142	867	815
V/C Ratio(X)	1.03	0.48	0.48	0.34	0.50	0.82	0.47	0.66	0.66	0.82	0.99	1.06
Avail Cap(c_a), veh/h	225	303	307	258	657	259	103	757	782	283	867	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	51.0	51.1	44.1	51.9	55.3	64.1	3.3	3.3	63.2	34.1	34.4
Incr Delay (d2), s/veh	67.6	1.2	1.2	0.8	0.6	17.0	5.2	4.2	4.0	11.0	29.1	49.4
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.3	8.8	9.0	4.7	9.4	13.5	2.1	7.4	7.6	8.5	50.4	76.8
LnGrp Delay(d),s/veh	123.0	52.1	52.3	44.9	52.5	72.3	69.2	7.4	7.3	74.2	63.3	83.8
LnGrp LOS	F	D	D	D	D	E	E	A	A	E	E	F
Approach Vol, veh/h		522			602			1046			1843	
Approach Delay, s/veh		83.5			58.1			9.1			73.6	
Approach LOS		F			E			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	79.3	16.1	33.9	17.5	72.5	17.0	33.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	67.0	8.0	26.0	23.0	52.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	4.2	73.3	7.4	13.2	11.3	10.5	10.0	21.6
Green Ext Time (p_c), s	0.0	0.0	0.0	7.4	0.4	41.0	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.8
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	227	95	24	334	33	171	50	31	89	64	101
Future Volume (veh/h)	54	227	95	24	334	33	171	50	31	89	64	101
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.96	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1597	1779	1900	1759	1792	1900	1827	1835	1900	1863	1800	1900
Adj Flow Rate, veh/h	57	239	100	25	352	35	180	53	33	94	67	106
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	19	8	8	8	6	6	4	2	2	2	8	8
Cap, veh/h	434	1048	423	486	1406	139	443	375	233	532	222	351
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	835	2324	937	960	3119	308	1173	1054	656	1292	624	987
Grp Volume(v), veh/h	57	171	168	25	191	196	180	0	86	94	0	173
Grp Sat Flow(s),veh/h/ln	835	1690	1571	960	1703	1724	1173	0	1709	1292	0	1611
Q Serve(g_s), s	2.8	3.8	4.1	1.0	4.3	4.4	8.1	0.0	2.1	3.3	0.0	4.8
Cycle Q Clear(g_c), s	7.2	3.8	4.1	5.1	4.3	4.4	12.9	0.0	2.1	5.4	0.0	4.8
Prop In Lane	1.00		0.60	1.00		0.18	1.00		0.38	1.00		0.61
Lane Grp Cap(c), veh/h	434	762	708	486	768	777	443	0	608	532	0	573
V/C Ratio(X)	0.13	0.22	0.24	0.05	0.25	0.25	0.41	0.00	0.14	0.18	0.00	0.30
Avail Cap(c_a), veh/h	434	762	708	486	768	777	592	0	826	696	0	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	10.4	10.5	12.0	10.5	10.6	19.1	0.0	13.6	15.4	0.0	14.4
Incr Delay (d2), s/veh	0.6	0.7	0.8	0.2	0.8	0.8	0.6	0.0	0.1	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	3.4	3.5	0.5	3.9	4.0	4.8	0.0	1.8	2.2	0.0	3.9
LnGrp Delay(d),s/veh	13.4	11.1	11.3	12.2	11.3	11.3	19.7	0.0	13.7	15.6	0.0	14.7
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		396			412			266			267	
Approach Delay, s/veh		11.5			11.4			17.7			15.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		28.1		34.0		28.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		7.1		14.9		9.2		7.4
Green Ext Time (p_c), s		11.4		4.8		10.6		5.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	119	241	29	97	55	94	336	25	36	434	189
Future Volume (veh/h)	217	119	241	29	97	55	94	336	25	36	434	189
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1838	1900	1845	1832	1900	1881	1795	1900	1900	1832	1900
Adj Flow Rate, veh/h	228	125	254	31	102	58	99	354	26	38	457	199
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	3	3	3	1	6	6	0	4	4
Cap, veh/h	418	175	355	224	354	202	399	1608	117	546	1175	507
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1227	539	1096	987	1094	622	776	3217	235	1006	2352	1015
Grp Volume(v), veh/h	228	0	379	31	0	160	99	187	193	38	337	319
Grp Sat Flow(s),veh/h/ln	1227	0	1635	987	0	1716	776	1705	1747	1006	1741	1626
Q Serve(g_s), s	11.6	0.0	13.9	1.9	0.0	4.7	6.2	4.2	4.2	1.5	8.2	8.3
Cycle Q Clear(g_c), s	16.3	0.0	13.9	15.8	0.0	4.7	14.5	4.2	4.2	5.7	8.2	8.3
Prop In Lane	1.00		0.67	1.00		0.36	1.00		0.13	1.00		0.62
Lane Grp Cap(c), veh/h	418	0	530	224	0	556	399	852	873	546	870	813
V/C Ratio(X)	0.55	0.00	0.72	0.14	0.00	0.29	0.25	0.22	0.22	0.07	0.39	0.39
Avail Cap(c_a), veh/h	453	0	577	253	0	606	399	852	873	546	870	813
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	20.2	27.2	0.0	17.1	15.1	9.6	9.6	11.2	10.6	10.6
Incr Delay (d2), s/veh	1.1	0.0	3.8	0.3	0.0	0.3	1.5	0.6	0.6	0.2	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	0.0	11.0	1.0	0.0	4.1	2.7	3.8	3.9	0.8	7.6	7.3
LnGrp Delay(d),s/veh	24.4	0.0	24.1	27.5	0.0	17.4	16.6	10.2	10.2	11.4	11.9	12.0
LnGrp LOS	C		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		607			191			479			694	
Approach Delay, s/veh		24.2			19.1			11.5			11.9	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		28.0		40.0		28.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		16.5		18.3		10.3		17.8
Green Ext Time (p_c), s		15.4		3.7		20.2		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	74	32	891	1304	42
Future Volume (veh/h)	103	74	32	891	1304	42
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1557	1727	1744	1900
Adj Flow Rate, veh/h	108	78	34	938	1373	44
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	22	10	9	9
Cap, veh/h	143	129	54	2637	2373	76
Arrive On Green	0.08	0.08	0.04	0.80	1.00	1.00
Sat Flow, veh/h	1740	1568	1483	3368	3364	105
Grp Volume(v), veh/h	108	78	34	938	693	724
Grp Sat Flow(s),veh/h/ln	1740	1568	1483	1641	1657	1725
Q Serve(g_s), s	8.5	6.7	3.2	11.0	0.0	0.0
Cycle Q Clear(g_c), s	8.5	6.7	3.2	11.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	143	129	54	2637	1200	1249
V/C Ratio(X)	0.76	0.61	0.63	0.36	0.58	0.58
Avail Cap(c_a), veh/h	429	386	85	2637	1200	1249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.12	0.12
Uniform Delay (d), s/veh	62.9	62.1	66.5	3.8	0.0	0.0
Incr Delay (d2), s/veh	7.9	4.5	11.2	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.9	5.6	2.7	8.8	0.1	0.1
LnGrp Delay(d),s/veh	70.7	66.6	77.7	4.2	0.2	0.2
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	186			972	1417	
Approach Delay, s/veh	69.0			6.7	0.2	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.1	108.9		20.0		120.0		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	8.0	75.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	5.2	2.0		10.5		13.0		
Green Ext Time (p_c), s	0.0	69.3		1.0		72.0		

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	5	35	76	7	10	72	202	94	5	233	31
Future Volume (veh/h)	7	5	35	76	7	10	72	202	94	5	233	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1667	1600	1900	1863	1615	1900	1827	1809	1900	1863	1836	1900
Adj Flow Rate, veh/h	7	5	37	80	7	11	76	213	99	5	245	33
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	14	2	2	2	14	14	4	6	6	2	3	3
Cap, veh/h	364	32	235	365	110	173	657	660	307	633	903	122
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1204	160	1184	1320	555	872	1052	1153	536	1041	1576	212
Grp Volume(v), veh/h	7	0	42	80	0	18	76	0	312	5	0	278
Grp Sat Flow(s),veh/h/ln	1204	0	1344	1320	0	1426	1052	0	1689	1041	0	1789
Q Serve(g_s), s	0.2	0.0	1.4	2.8	0.0	0.5	2.1	0.0	5.1	0.1	0.0	4.1
Cycle Q Clear(g_c), s	0.8	0.0	1.4	4.2	0.0	0.5	6.2	0.0	5.1	5.2	0.0	4.1
Prop In Lane	1.00		0.88	1.00		0.61	1.00		0.32	1.00		0.12
Lane Grp Cap(c), veh/h	364	0	266	365	0	283	657	0	967	633	0	1024
V/C Ratio(X)	0.02	0.00	0.16	0.22	0.00	0.06	0.12	0.00	0.32	0.01	0.00	0.27
Avail Cap(c_a), veh/h	723	0	667	758	0	708	657	0	967	633	0	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	17.4	19.1	0.0	17.1	7.2	0.0	5.9	7.2	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.6	0.0	0.2	0.4	0.0	0.9	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	1.0	2.0	0.0	0.4	1.2	0.0	4.6	0.1	0.0	3.9
LnGrp Delay(d),s/veh	17.4	0.0	18.0	19.7	0.0	17.3	7.6	0.0	6.7	7.3	0.0	6.3
LnGrp LOS	B		B	B		B	A		A	A		A
Approach Vol, veh/h		49			98			388			283	
Approach Delay, s/veh		17.9			19.3			6.9			6.3	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		16.4		36.0		16.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		8.2		3.4		7.2		6.2
Green Ext Time (p_c), s		13.3		2.0		13.7		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	139	35	8	41	54	495	12	21	570	9
Future Volume (veh/h)	15	4	139	35	8	41	54	495	12	21	570	9
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1882	1900	1845	1868	1900	1827	1839	1900	1900	1845	1900
Adj Flow Rate, veh/h	16	4	146	37	8	43	57	521	13	22	600	9
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	3	0	0	4	3	3	0	3	3
Cap, veh/h	392	9	346	312	56	304	498	1897	47	550	1926	29
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1281	43	1557	1217	254	1367	793	3483	87	884	3536	53
Grp Volume(v), veh/h	16	0	150	37	0	51	57	261	273	22	297	312
Grp Sat Flow(s),veh/h/ln	1281	0	1599	1217	0	1621	793	1747	1823	884	1753	1836
Q Serve(g_s), s	0.5	0.0	4.1	1.4	0.0	1.3	2.2	4.1	4.1	0.7	4.8	4.8
Cycle Q Clear(g_c), s	1.8	0.0	4.1	5.5	0.0	1.3	7.0	4.1	4.1	4.8	4.8	4.8
Prop In Lane	1.00		0.97	1.00		0.84	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	392	0	355	312	0	360	498	951	993	550	955	1000
V/C Ratio(X)	0.04	0.00	0.42	0.12	0.00	0.14	0.11	0.27	0.27	0.04	0.31	0.31
Avail Cap(c_a), veh/h	880	0	964	776	0	977	498	951	993	550	955	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	17.2	19.5	0.0	16.1	8.3	6.3	6.3	7.6	6.4	6.4
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.2	0.0	0.2	0.5	0.7	0.7	0.1	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	3.4	0.9	0.0	1.1	1.0	3.9	4.0	0.3	4.6	4.8
LnGrp Delay(d),s/veh	16.8	0.0	18.0	19.7	0.0	16.2	8.8	7.0	7.0	7.7	7.3	7.2
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		166			88			591			631	
Approach Delay, s/veh		17.9			17.7			7.1			7.3	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		17.4		34.0		17.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		9.0		7.5		6.8		6.1
Green Ext Time (p_c), s		14.7		3.4		16.0		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	643	39	28	530	62	51	71	41	34	41	7
Future Volume (veh/h)	8	643	39	28	530	62	51	71	41	34	41	7
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1660	1900	1570	1697	1900	1827	1941	1900	1652	1895	1900
Adj Flow Rate, veh/h	8	677	41	29	558	65	54	75	43	36	43	7
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	15	15	21	13	13	4	0	0	15	5	5
Cap, veh/h	24	1976	120	52	1966	228	211	164	94	148	225	37
Arrive On Green	0.01	0.65	0.65	0.05	0.90	0.90	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3022	183	1495	2910	338	1316	1156	663	1121	1588	259
Grp Volume(v), veh/h	8	353	365	29	308	315	54	0	118	36	0	50
Grp Sat Flow(s),veh/h/ln	1810	1577	1627	1495	1612	1636	1316	0	1819	1121	0	1847
Q Serve(g_s), s	0.6	13.0	13.0	2.5	3.4	3.4	4.9	0.0	7.7	4.0	0.0	3.1
Cycle Q Clear(g_c), s	0.6	13.0	13.0	2.5	3.4	3.4	8.0	0.0	7.7	11.7	0.0	3.1
Prop In Lane	1.00		0.11	1.00		0.21	1.00		0.36	1.00		0.14
Lane Grp Cap(c), veh/h	24	1031	1064	52	1089	1105	211	0	258	148	0	262
V/C Ratio(X)	0.33	0.34	0.34	0.55	0.28	0.28	0.26	0.00	0.46	0.24	0.00	0.19
Avail Cap(c_a), veh/h	111	1031	1064	138	1089	1105	383	0	497	295	0	504
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.5	10.0	10.0	61.0	2.3	2.3	52.7	0.0	51.2	56.6	0.0	49.2
Incr Delay (d2), s/veh	7.5	0.9	0.9	8.6	0.6	0.6	0.6	0.0	1.3	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	9.8	10.1	2.1	2.9	3.0	3.3	0.0	7.2	2.3	0.0	2.9
LnGrp Delay(d),s/veh	71.1	10.9	10.9	69.6	2.9	2.9	53.4	0.0	52.4	57.4	0.0	49.5
LnGrp LOS	E	B	B	E	A	A	D		D	E		D
Approach Vol, veh/h		726			652			172			86	
Approach Delay, s/veh		11.6			5.9			52.7			52.8	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	95.3		26.9	10.5	92.5		26.9
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	12.0	60.5		35.5
Max Q Clear Time (g_c+I1), s	2.6	5.4		13.7	4.5	15.0		10.0
Green Ext Time (p_c), s	0.0	36.6		2.9	0.0	30.8		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	640	585	22	25	35
Future Volume (veh/h)	78	640	585	22	25	35
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1667	1686	1900	1827	1792
Adj Flow Rate, veh/h	82	674	616	23	26	37
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	14	13	13	4	6
Cap, veh/h	102	2546	2197	82	120	105
Arrive On Green	0.12	1.00	1.00	1.00	0.07	0.07
Sat Flow, veh/h	1691	3250	3233	117	1740	1524
Grp Volume(v), veh/h	82	674	313	326	26	37
Grp Sat Flow(s),veh/h/ln	1691	1583	1601	1665	1740	1524
Q Serve(g_s), s	6.1	0.0	0.0	0.0	1.8	3.0
Cycle Q Clear(g_c), s	6.1	0.0	0.0	0.0	1.8	3.0
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	102	2546	1118	1162	120	105
V/C Ratio(X)	0.81	0.26	0.28	0.28	0.22	0.35
Avail Cap(c_a), veh/h	156	2546	1118	1162	335	293
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.89	0.89	1.00	1.00
Uniform Delay (d), s/veh	56.5	0.0	0.0	0.0	57.2	57.7
Incr Delay (d2), s/veh	15.3	0.2	0.6	0.5	0.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	0.2	0.3	0.3	1.6	2.4
LnGrp Delay(d),s/veh	71.8	0.2	0.6	0.5	58.1	59.7
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		756	639		63	
Approach Delay, s/veh		8.0	0.5		59.1	
Approach LOS		A	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.8	98.2		18.0		112.0		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	12.0	70.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	8.1	2.0		5.0		2.0		
Green Ext Time (p_c), s	0.1	39.7		0.2		44.8		

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	496	113	55	404	43	134	345	68	91	650	69
Future Volume (veh/h)	56	496	113	55	404	43	134	345	68	91	650	69
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1638	1635	1900	1827	1649	1900	1771	1818	1900	1792	1861	1900
Adj Flow Rate, veh/h	59	522	119	58	425	45	141	363	72	96	684	73
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	16	19	19	4	15	15	3	4	4	6	2	2
Cap, veh/h	74	924	210	82	1051	111	259	945	185	353	994	106
Arrive On Green	0.09	0.74	0.74	0.09	0.74	0.74	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	1560	2512	570	1740	2859	301	1687	2872	563	1707	3218	343
Grp Volume(v), veh/h	59	322	319	58	232	238	141	217	218	96	375	382
Grp Sat Flow(s),veh/h/ln	1560	1553	1529	1740	1567	1593	1687	1727	1708	1707	1768	1793
Q Serve(g_s), s	4.8	12.2	12.3	4.2	7.2	7.3	7.3	12.5	12.8	4.9	24.2	24.3
Cycle Q Clear(g_c), s	4.8	12.2	12.3	4.2	7.2	7.3	7.3	12.5	12.8	4.9	24.2	24.3
Prop In Lane	1.00		0.37	1.00		0.19	1.00		0.33	1.00		0.19
Lane Grp Cap(c), veh/h	74	571	562	82	576	586	259	568	562	353	546	554
V/C Ratio(X)	0.80	0.56	0.57	0.71	0.40	0.41	0.55	0.38	0.39	0.27	0.69	0.69
Avail Cap(c_a), veh/h	156	571	562	107	576	586	293	618	611	369	578	586
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	12.5	12.5	58.0	11.8	11.9	29.8	33.5	33.6	28.6	39.4	39.4
Incr Delay (d2), s/veh	17.0	3.9	4.0	13.4	2.1	2.1	1.8	0.4	0.4	0.4	3.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	9.5	9.4	4.2	6.2	6.3	6.3	10.1	10.1	4.2	18.0	18.3
LnGrp Delay(d),s/veh	75.2	16.4	16.5	71.4	13.9	13.9	31.6	33.9	34.0	29.0	42.6	42.6
LnGrp LOS	E	B	B	E	B	B	C	C	C	C	D	D
Approach Vol, veh/h		700			528			576			853	
Approach Delay, s/veh		21.4			20.3			33.4			41.1	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	55.8	13.4	48.7	12.1	55.8	10.8	51.3
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5
Max Green Setting (Gmax), s	13.0	36.0	12.0	42.5	8.0	41.0	8.0	46.5
Max Q Clear Time (g_c+I1), s	6.8	9.3	9.3	26.3	6.2	14.3	6.9	14.8
Green Ext Time (p_c), s	0.1	18.0	0.2	13.1	0.0	18.0	0.0	22.6

Intersection Summary		
HCM 2010 Ctrl Delay		30.1
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	449	83	90	415	57	43	230	74	72	228	44
Future Volume (veh/h)	81	449	83	90	415	57	43	230	74	72	228	44
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1854	1900	1557	1828	1900	1863	1597	1696	1473	1708	1900
Adj Flow Rate, veh/h	85	473	87	95	437	60	45	242	78	76	240	46
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	106	1412	258	113	1514	207	182	429	387	170	374	72
Arrive On Green	0.12	0.96	0.96	0.08	0.49	0.49	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	2952	539	1483	3060	417	1089	1597	1442	834	1394	267
Grp Volume(v), veh/h	85	281	279	95	247	250	45	242	78	76	0	286
Grp Sat Flow(s),veh/h/ln	1774	1762	1730	1483	1736	1741	1089	1597	1442	834	0	1661
Q Serve(g_s), s	6.1	1.3	1.4	8.2	10.9	11.0	5.0	17.0	5.4	11.2	0.0	19.8
Cycle Q Clear(g_c), s	6.1	1.3	1.4	8.2	10.9	11.0	24.7	17.0	5.4	28.2	0.0	19.8
Prop In Lane	1.00		0.31	1.00		0.24	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	106	842	827	113	859	861	182	429	387	170	0	446
V/C Ratio(X)	0.80	0.33	0.34	0.84	0.29	0.29	0.25	0.56	0.20	0.45	0.00	0.64
Avail Cap(c_a), veh/h	164	842	827	137	859	861	208	467	421	190	0	486
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	56.5	1.5	1.5	59.2	19.3	19.4	52.9	41.0	36.8	53.2	0.0	42.0
Incr Delay (d2), s/veh	14.4	1.1	1.1	30.1	0.8	0.9	0.7	1.3	0.3	1.8	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	1.3	1.3	7.7	9.2	9.3	2.7	12.1	4.0	4.8	0.0	14.3
LnGrp Delay(d),s/veh	70.9	2.6	2.6	89.4	20.2	20.2	53.6	42.3	37.0	55.0	0.0	44.5
LnGrp LOS	E	A	A	F	C	C	D	D	D	D		D
Approach Vol, veh/h		645			592			365			362	
Approach Delay, s/veh		11.6			31.3			42.6			46.7	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.8	72.3		43.9	15.9	70.2		43.9
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	12.0	57.0		38.0	12.0	57.0		38.0
Max Q Clear Time (g_c+I1), s	8.1	13.0		30.2	10.2	3.4		26.7
Green Ext Time (p_c), s	0.1	23.0		4.7	0.1	25.4		6.3

Intersection Summary		
HCM 2010 Ctrl Delay		29.8
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	342	156	44	334	121	146	365	33	136	523	89
Future Volume (veh/h)	71	342	156	44	334	121	146	365	33	136	523	89
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1787	1900	1776	1791	1900	1759	1833	1900	1827	1850	1900
Adj Flow Rate, veh/h	75	360	164	46	352	127	154	384	35	143	551	94
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	7	5	5	8	4	4	4	3	3
Cap, veh/h	540	1326	594	501	1432	508	169	900	82	254	837	142
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	894	2280	1022	833	2462	875	736	3226	292	940	3000	510
Grp Volume(v), veh/h	75	267	257	46	242	237	154	206	213	143	322	323
Grp Sat Flow(s),veh/h/ln	894	1698	1604	833	1702	1635	736	1741	1777	940	1757	1753
Q Serve(g_s), s	3.9	6.7	6.9	2.5	6.0	6.1	10.0	8.3	8.4	12.6	13.9	14.0
Cycle Q Clear(g_c), s	10.0	6.7	6.9	9.4	6.0	6.1	24.0	8.3	8.4	21.1	13.9	14.0
Prop In Lane	1.00		0.64	1.00		0.53	1.00		0.16	1.00		0.29
Lane Grp Cap(c), veh/h	540	987	933	501	989	951	169	486	496	254	490	489
V/C Ratio(X)	0.14	0.27	0.28	0.09	0.24	0.25	0.91	0.42	0.43	0.56	0.66	0.66
Avail Cap(c_a), veh/h	540	987	933	501	989	951	169	486	496	254	490	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	8.9	9.0	11.3	8.8	8.8	40.2	25.4	25.4	34.0	27.4	27.4
Incr Delay (d2), s/veh	0.5	0.7	0.7	0.4	0.6	0.6	45.6	1.3	1.3	4.7	4.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	5.9	5.7	1.1	5.2	5.2	9.7	7.5	7.7	6.5	11.7	11.8
LnGrp Delay(d),s/veh	11.8	9.6	9.7	11.7	9.4	9.4	85.9	26.6	26.6	38.7	31.7	31.8
LnGrp LOS	B	A	A	B	A	A	F	C	C	D	C	C
Approach Vol, veh/h		599			525			573			788	
Approach Delay, s/veh		9.9			9.6			42.6			33.0	
Approach LOS		A			A			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		11.4		26.0		12.0		23.1
Green Ext Time (p_c), s		33.9		0.0		33.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	169	211	90	91	67	120	358	89	89	685	75
Future Volume (veh/h)	96	169	211	90	91	67	120	358	89	89	685	75
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1829	1900	1900	1785	1900	1845	1806	1900	1776	1845	1900
Adj Flow Rate, veh/h	101	178	222	95	96	71	126	377	94	94	721	79
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	8	8	8	3	5	5	7	3	3
Cap, veh/h	385	245	305	188	288	228	397	1412	348	421	1217	133
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1154	734	916	314	864	685	1757	2723	671	868	3180	348
Grp Volume(v), veh/h	101	0	400	108	0	154	126	236	235	94	397	403
Grp Sat Flow(s),veh/h/ln	1154	0	1650	374	0	1490	1757	1716	1678	868	1752	1776
Q Serve(g_s), s	5.8	0.0	17.3	8.2	0.0	6.2	3.1	6.2	6.4	6.1	14.6	14.7
Cycle Q Clear(g_c), s	12.0	0.0	17.3	25.5	0.0	6.2	3.1	6.2	6.4	6.1	14.6	14.7
Prop In Lane	1.00		0.56	0.88		0.46	1.00		0.40	1.00		0.20
Lane Grp Cap(c), veh/h	385	0	550	208	0	497	397	890	870	421	671	680
V/C Ratio(X)	0.26	0.00	0.73	0.52	0.00	0.31	0.32	0.27	0.27	0.22	0.59	0.59
Avail Cap(c_a), veh/h	385	0	550	208	0	497	397	890	870	421	671	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	23.8	33.8	0.0	20.1	12.8	10.9	10.9	17.3	20.0	20.0
Incr Delay (d2), s/veh	0.4	0.0	4.8	2.2	0.0	0.4	2.1	0.7	0.8	1.2	3.8	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.0	13.3	4.5	0.0	4.7	3.1	5.6	5.6	2.8	12.3	12.5
LnGrp Delay(d),s/veh	24.9	0.0	28.6	36.0	0.0	20.4	14.8	11.6	11.7	18.5	23.8	23.7
LnGrp LOS	C		C	D		C	B	B	B	B	C	C
Approach Vol, veh/h		501			262			597			894	
Approach Delay, s/veh		27.8			26.8			12.3			23.2	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.1	16.7		27.5		8.4		19.3
Green Ext Time (p_c), s	0.1	12.6		0.0		26.6		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	3	43	26	4	69	15	426	15	51	656	16
Future Volume (veh/h)	49	3	43	26	4	69	15	426	15	51	656	16
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1839	1900	1900	1760	1900	1900	1811	1900	1900	1814	1900
Adj Flow Rate, veh/h	52	3	45	27	4	73	16	448	16	54	691	17
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	25	25	25	5	5	5	4	4	4
Cap, veh/h	211	39	116	128	36	176	100	1913	67	164	1837	44
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	611	229	687	226	216	1041	41	3221	113	140	3093	74
Grp Volume(v), veh/h	100	0	0	104	0	0	250	0	230	388	0	374
Grp Sat Flow(s),veh/h/ln	1528	0	0	1483	0	0	1749	0	1627	1671	0	1636
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	6.1
Cycle Q Clear(g_c), s	2.6	0.0	0.0	3.0	0.0	0.0	3.3	0.0	3.4	5.6	0.0	6.1
Prop In Lane	0.52		0.45	0.26		0.70	0.06		0.07	0.14		0.05
Lane Grp Cap(c), veh/h	366	0	0	340	0	0	1114	0	966	1073	0	972
V/C Ratio(X)	0.27	0.00	0.00	0.31	0.00	0.00	0.22	0.00	0.24	0.36	0.00	0.39
Avail Cap(c_a), veh/h	911	0	0	892	0	0	1114	0	966	1073	0	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	0.0	18.7	0.0	0.0	4.8	0.0	4.9	5.3	0.0	5.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.6	0.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	0.0	0.0	2.4	0.0	0.0	3.1	0.0	2.9	5.4	0.0	5.4
LnGrp Delay(d),s/veh	18.9	0.0	0.0	19.2	0.0	0.0	5.3	0.0	5.4	6.2	0.0	6.6
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		100			104			480			762	
Approach Delay, s/veh		18.9			19.2			5.4			6.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		14.5		36.0		14.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		5.4		5.0		8.1		4.6
Green Ext Time (p_c), s		18.8		3.1		17.1		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	12	40	60	11	87	8	513	31	39	770	11
Future Volume (veh/h)	17	12	40	60	11	87	8	513	31	39	770	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1725	1900	1900	1788	1900	1900	1816	1900	1900	1808	1900
Adj Flow Rate, veh/h	18	13	42	63	12	92	8	540	33	41	811	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	8	18	18	18	4	4	4	5	5	5
Cap, veh/h	142	96	181	199	57	173	91	1639	99	130	1650	24
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	180	454	859	398	271	820	11	3209	194	75	3231	47
Grp Volume(v), veh/h	73	0	0	167	0	0	306	0	275	444	0	420
Grp Sat Flow(s),veh/h/ln	1493	0	0	1489	0	0	1796	0	1618	1716	0	1637
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	4.3	0.0	0.0	7.3
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.1	0.0	0.0	4.3	0.0	4.3	6.9	0.0	7.3
Prop In Lane	0.25		0.58	0.38		0.55	0.03		0.12	0.09		0.03
Lane Grp Cap(c), veh/h	419	0	0	429	0	0	1003	0	827	968	0	836
V/C Ratio(X)	0.17	0.00	0.00	0.39	0.00	0.00	0.30	0.00	0.33	0.46	0.00	0.50
Avail Cap(c_a), veh/h	978	0	0	994	0	0	1003	0	827	968	0	836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	0.0	15.0	0.0	0.0	6.2	0.0	6.2	6.8	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	0.8	0.0	1.1	1.6	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	0.0	0.0	3.2	0.0	0.0	4.2	0.0	3.9	6.8	0.0	6.8
LnGrp Delay(d),s/veh	14.3	0.0	0.0	15.6	0.0	0.0	7.0	0.0	7.3	8.4	0.0	9.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		73			167			581			864	
Approach Delay, s/veh		14.3			15.6			7.1			8.7	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		15.1		28.0		15.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		6.3		3.7		9.3		6.1
Green Ext Time (p_c), s		13.8		3.7		11.4		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	18	70	61	6	24	45	481	34	17	767	27
Future Volume (veh/h)	47	18	70	61	6	24	45	481	34	17	767	27
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1793	1900	1900	1855	1900	1900	1798	1900	1900	1818	1900
Adj Flow Rate, veh/h	49	19	74	64	6	25	47	506	36	18	807	28
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	6	6	6	4	4	4
Cap, veh/h	175	84	180	326	44	91	160	1507	105	86	1776	61
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	358	371	794	923	194	399	147	2787	194	25	3284	113
Grp Volume(v), veh/h	142	0	0	95	0	0	293	0	296	447	0	406
Grp Sat Flow(s),veh/h/ln	1523	0	0	1515	0	0	1527	0	1600	1789	0	1633
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	7.9
Cycle Q Clear(g_c), s	3.8	0.0	0.0	2.2	0.0	0.0	4.6	0.0	5.4	7.7	0.0	7.9
Prop In Lane	0.35		0.52	0.67		0.26	0.16		0.12	0.04		0.07
Lane Grp Cap(c), veh/h	440	0	0	461	0	0	907	0	866	1040	0	883
V/C Ratio(X)	0.32	0.00	0.00	0.21	0.00	0.00	0.32	0.00	0.34	0.43	0.00	0.46
Avail Cap(c_a), veh/h	816	0	0	815	0	0	907	0	866	1040	0	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	0.0	16.3	0.0	0.0	6.5	0.0	6.7	7.2	0.0	7.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.9	0.0	1.1	1.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	0.0	0.0	2.0	0.0	0.0	4.5	0.0	4.6	7.6	0.0	7.1
LnGrp Delay(d),s/veh	17.3	0.0	0.0	16.5	0.0	0.0	7.5	0.0	7.8	8.5	0.0	9.0
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		142			95			589			853	
Approach Delay, s/veh		17.3			16.5			7.6			8.7	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.8		34.0		17.8		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		4.2		7.4		5.8		9.9
Green Ext Time (p_c), s		3.4		17.7		3.3		15.8

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	475	55	175	539	100	65	260	120	145	625	105
Future Volume (veh/h)	130	475	55	175	539	100	65	260	120	145	625	105
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1845	1863	1827	1900	1863	1900	1881	1876	1900
Adj Flow Rate, veh/h	137	500	58	184	567	105	68	274	126	153	658	111
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	0	3	2	4	0	2	2	1	1	1
Cap, veh/h	353	1322	602	406	1335	579	278	786	351	417	1035	174
Arrive On Green	0.06	0.38	0.38	0.02	0.12	0.12	0.06	0.33	0.33	0.06	0.34	0.34
Sat Flow, veh/h	1774	3505	1596	1757	3539	1534	1810	2370	1059	1792	3046	513
Grp Volume(v), veh/h	137	500	58	184	567	105	68	203	197	153	385	384
Grp Sat Flow(s),veh/h/ln	1774	1752	1596	1757	1770	1534	1810	1770	1659	1792	1782	1777
Q Serve(g_s), s	5.1	11.4	2.6	7.0	16.3	6.7	2.6	9.5	9.9	6.2	20.0	20.0
Cycle Q Clear(g_c), s	5.1	11.4	2.6	7.0	16.3	6.7	2.6	9.5	9.9	6.2	20.0	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		0.29
Lane Grp Cap(c), veh/h	353	1322	602	406	1335	579	278	587	550	417	605	604
V/C Ratio(X)	0.39	0.38	0.10	0.45	0.42	0.18	0.24	0.35	0.36	0.37	0.64	0.64
Avail Cap(c_a), veh/h	353	1322	602	406	1335	579	292	643	603	417	648	646
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	24.9	22.1	20.8	37.1	32.9	23.3	27.7	27.9	22.5	30.6	30.6
Incr Delay (d2), s/veh	0.7	0.8	0.3	0.8	1.0	0.7	0.5	0.3	0.4	0.5	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	9.5	2.1	6.2	12.9	5.4	2.4	8.2	8.1	5.6	15.4	15.4
LnGrp Delay(d),s/veh	20.8	25.7	22.4	21.6	38.1	33.6	23.7	28.1	28.3	23.1	32.4	32.5
LnGrp LOS	C	C	C	C	D	C	C	C	C	C	C	C
Approach Vol, veh/h		695			856			468			922	
Approach Delay, s/veh		24.5			34.0			27.5			30.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	47.5	9.1	43.4	10.0	47.5	10.0	42.5
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	7.0	40.0
Max Q Clear Time (g_c+I1), s	9.0	13.4	4.6	22.0	7.1	18.3	8.2	11.9
Green Ext Time (p_c), s	0.0	17.9	0.0	14.4	0.0	15.0	0.0	20.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	45	685	794	135	115	20		
Future Volume (veh/h)	45	685	794	135	115	20		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1827	1845	1863	1827	1863	1792		
Adj Flow Rate, veh/h	47	721	836	142	121	21		
Adj No. of Lanes	1	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	3	2	4	2	6		
Cap, veh/h	496	2745	2504	1087	191	164		
Arrive On Green	0.05	0.78	0.71	0.71	0.11	0.11		
Sat Flow, veh/h	1740	3597	3632	1536	1774	1524		
Grp Volume(v), veh/h	47	721	836	142	121	21		
Grp Sat Flow(s),veh/h/ln	1740	1752	1770	1536	1774	1524		
Q Serve(g_s), s	0.7	6.2	10.0	3.3	7.2	1.4		
Cycle Q Clear(g_c), s	0.7	6.2	10.0	3.3	7.2	1.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	496	2745	2504	1087	191	164		
V/C Ratio(X)	0.09	0.26	0.33	0.13	0.63	0.13		
Avail Cap(c_a), veh/h	522	2745	2504	1087	629	540		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.6	3.3	6.2	5.2	47.0	44.4		
Incr Delay (d2), s/veh	0.1	0.2	0.4	0.2	3.4	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	0.6	5.4	8.5	2.6	6.7	2.2		
LnGrp Delay(d),s/veh	3.7	3.5	6.5	5.4	50.4	44.8		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		768	978		142			
Approach Delay, s/veh		3.5	6.4		49.6			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		92.2		17.8	8.3	83.8		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		59.0		39.0	7.0	49.0		
Max Q Clear Time (g_c+I1), s		8.2		9.2	2.7	12.0		
Green Ext Time (p_c), s		41.3		0.8	0.0	31.6		
Intersection Summary								
HCM 2010 Ctrl Delay			8.5					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	624	216	146	588	163	214	853	175	166	1142	117
Future Volume (veh/h)	69	624	216	146	588	163	214	853	175	166	1142	117
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1696	1792	1863	1743	1776	1792	1792	1792	1792	1792	1792	1810
Adj Flow Rate, veh/h	73	657	227	154	619	172	225	898	184	175	1202	123
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	6	2	9	7	6	6	6	6	6	6	5
Cap, veh/h	241	1102	501	241	1126	497	169	1355	590	240	1355	596
Arrive On Green	0.05	0.32	0.32	0.06	0.33	0.33	0.06	0.40	0.40	0.02	0.13	0.13
Sat Flow, veh/h	1616	3406	1548	1660	3374	1491	1707	3406	1483	1707	3406	1497
Grp Volume(v), veh/h	73	657	227	154	619	172	225	898	184	175	1202	123
Grp Sat Flow(s),veh/h/ln	1616	1703	1548	1660	1687	1491	1707	1703	1483	1707	1703	1497
Q Serve(g_s), s	4.2	22.6	16.3	8.0	21.0	12.2	8.0	30.2	11.9	8.0	48.6	10.3
Cycle Q Clear(g_c), s	4.2	22.6	16.3	8.0	21.0	12.2	8.0	30.2	11.9	8.0	48.6	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	1102	501	241	1126	497	169	1355	590	240	1355	596
V/C Ratio(X)	0.30	0.60	0.45	0.64	0.55	0.35	1.33	0.66	0.31	0.73	0.89	0.21
Avail Cap(c_a), veh/h	257	1155	525	241	1145	506	169	1355	590	240	1355	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	39.7	37.5	34.0	38.1	35.1	35.1	34.5	29.0	30.8	57.7	41.1
Incr Delay (d2), s/veh	0.7	0.8	0.6	4.6	0.4	0.3	183.4	2.6	1.4	10.7	8.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	16.2	11.4	3.7	14.5	8.4	22.5	21.0	8.8	6.1	32.8	7.8
LnGrp Delay(d),s/veh	31.3	40.5	38.2	38.6	38.5	35.5	218.6	37.0	30.4	41.5	66.6	41.9
LnGrp LOS	C	D	D	D	D	D	F	D	C	D	E	D
Approach Vol, veh/h		957			945			1307			1500	
Approach Delay, s/veh		39.2			38.0			67.4			61.7	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	63.2	12.0	52.8	12.0	63.2	10.6	54.2				
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5				
Max Green Setting (Gmax), s	8.0	53.5	8.0	47.5	8.0	53.5	8.0	47.5				
Max Q Clear Time (g_c+I1), s	10.0	50.6	10.0	24.6	10.0	32.2	6.2	23.0				
Green Ext Time (p_c), s	0.0	2.9	0.0	19.6	0.0	20.7	0.0	20.8				
Intersection Summary												
HCM 2010 Ctrl Delay			53.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	907	80	107	803	94	188		
Future Volume (veh/h)	907	80	107	803	94	188		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1900	1900	1847	1881	1845		
Adj Flow Rate, veh/h	955	84	113	845	99	198		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	3	3	3	1	3		
Cap, veh/h	2407	212	236	1763	272	238		
Arrive On Green	0.74	0.74	0.74	0.74	0.15	0.15		
Sat Flow, veh/h	3350	287	262	2469	1792	1568		
Grp Volume(v), veh/h	514	525	403	555	99	198		
Grp Sat Flow(s),veh/h/ln	1752	1792	1051	1597	1792	1568		
Q Serve(g_s), s	11.9	11.9	10.0	15.3	5.5	13.5		
Cycle Q Clear(g_c), s	11.9	11.9	21.9	15.3	5.5	13.5		
Prop In Lane		0.16	0.28		1.00	1.00		
Lane Grp Cap(c), veh/h	1295	1324	818	1180	272	238		
V/C Ratio(X)	0.40	0.40	0.49	0.47	0.36	0.83		
Avail Cap(c_a), veh/h	1295	1324	818	1180	423	371		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.73	0.73	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	5.3	5.3	6.3	5.7	41.9	45.3		
Incr Delay (d2), s/veh	0.7	0.7	2.1	1.3	0.8	9.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	9.4	9.5	10.1	11.4	5.0	10.6		
LnGrp Delay(d),s/veh	6.0	6.0	8.4	7.1	42.7	54.3		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h	1039			958	297			
Approach Delay, s/veh	6.0			7.6	50.4			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		87.3				87.3		22.7
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		72.0				72.0		26.0
Max Q Clear Time (g_c+I1), s		13.9				23.9		15.5
Green Ext Time (p_c), s		52.8				44.4		1.2
Intersection Summary								
HCM 2010 Ctrl Delay			12.4					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
86: Clark Avenue & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	825	44	23	525	260	24	14	16	534	35	361
Future Volume (veh/h)	263	825	44	23	525	260	24	14	16	534	35	361
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1865	1900	1900	1845	1863	1900	1900	1900	1881	1866	1900
Adj Flow Rate, veh/h	277	868	46	24	553	274	25	15	17	562	37	380
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	3	2	0	0	0	1	0	0
Cap, veh/h	345	1461	77	182	1083	484	336	377	427	691	66	676
Arrive On Green	0.03	0.14	0.14	0.31	0.31	0.31	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1774	3420	181	618	3505	1565	984	812	920	1379	142	1459
Grp Volume(v), veh/h	277	450	464	24	553	274	25	0	32	562	0	417
Grp Sat Flow(s),veh/h/ln	1774	1771	1830	618	1752	1565	984	0	1733	1379	0	1601
Q Serve(g_s), s	10.0	26.2	26.2	3.6	14.2	16.1	2.1	0.0	1.1	41.3	0.0	20.8
Cycle Q Clear(g_c), s	10.0	26.2	26.2	16.8	14.2	16.1	22.9	0.0	1.1	42.4	0.0	20.8
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.53	1.00		0.91
Lane Grp Cap(c), veh/h	345	757	782	182	1083	484	336	0	803	691	0	742
V/C Ratio(X)	0.80	0.59	0.59	0.13	0.51	0.57	0.07	0.00	0.04	0.81	0.00	0.56
Avail Cap(c_a), veh/h	345	757	782	182	1083	484	336	0	803	691	0	742
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	27.9	38.3	38.3	37.6	31.2	31.8	29.7	0.0	16.1	27.7	0.0	21.4
Incr Delay (d2), s/veh	12.8	3.4	3.3	1.5	1.7	4.7	0.4	0.0	0.1	6.7	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.9	19.6	20.2	1.2	11.6	12.1	1.1	0.0	1.0	23.3	0.0	14.1
LnGrp Delay(d),s/veh	40.7	41.7	41.6	39.1	32.9	36.6	30.1	0.0	16.2	34.4	0.0	22.3
LnGrp LOS	D	D	D	D	C	D	C		B	C		C
Approach Vol, veh/h		1191			851			57			979	
Approach Delay, s/veh		41.4			34.3			22.3			29.2	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		53.0		57.0	13.0	40.0		57.0				
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s		47.0		51.0	10.0	34.0		51.0				
Max Q Clear Time (g_c+I1), s		28.2		44.4	12.0	18.8		24.9				
Green Ext Time (p_c), s		17.0		4.6	0.0	14.0		12.6				
Intersection Summary												
HCM 2010 Ctrl Delay			35.2									
HCM 2010 LOS			D									

HCM 2010 AWSC
91: Promenade Circle & North Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	201	40	80	144	183	217
Future Vol, veh/h	201	40	80	144	183	217
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	20	15	21	1	0	19
Mvmt Flow	212	42	84	152	193	228
Number of Lanes	0	2	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	14.1	10	11.8
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	94%	0%	0%	0%	100%	0%
Vol Thru, %	6%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	214	27	80	144	183	217
LT Vol	201	0	0	0	183	0
Through Vol	13	27	80	0	0	0
RT Vol	0	0	0	144	0	217
Lane Flow Rate	226	28	84	152	193	228
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.43	0.049	0.152	0.229	0.345	0.353
Departure Headway (Hd)	6.856	6.294	6.487	5.43	6.446	5.561
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	570	553	661	559	646
Service Time	4.59	4.027	4.221	3.164	4.176	3.292
HCM Lane V/C Ratio	0.43	0.049	0.152	0.23	0.345	0.353
HCM Control Delay	14.7	9.4	10.4	9.8	12.5	11.3
HCM Lane LOS	B	A	B	A	B	B
HCM 95th-tile Q	2.1	0.2	0.5	0.9	1.5	1.6

HCM 2010 AWSC
92: Promenade Circle & West Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	169	177	88	60	55	160
Future Vol, veh/h	169	177	88	60	55	160
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	4	5	3	6
Mvmt Flow	178	186	93	63	58	168
Number of Lanes	1	1	0	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	10.2	10	9.5
HCM LOS	B	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	81%	0%	100%	0%	0%	0%
Vol Thru, %	19%	100%	0%	0%	100%	10%
Vol Right, %	0%	0%	0%	100%	0%	90%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	40	169	177	37	178
LT Vol	88	0	169	0	0	0
Through Vol	20	40	0	0	37	18
RT Vol	0	0	0	177	0	160
Lane Flow Rate	114	42	178	186	39	188
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.194	0.067	0.296	0.247	0.061	0.266
Departure Headway (Hd)	6.155	5.76	5.984	4.779	5.679	5.096
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	579	616	598	745	626	698
Service Time	3.94	3.545	3.758	2.552	3.455	2.872
HCM Lane V/C Ratio	0.197	0.068	0.298	0.25	0.062	0.269
HCM Control Delay	10.4	9	11.3	9.1	8.8	9.7
HCM Lane LOS	B	A	B	A	A	A
HCM 95th-tile Q	0.7	0.2	1.2	1	0.2	1.1

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	50	120	0	25	50
Future Vol, veh/h	55	50	120	0	25	50
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	0	10	0	23	0
Mvmt Flow	58	53	126	0	26	53
Number of Lanes	1	0	2	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	7.8	7.1	8.2
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	52%	100%	0%
Vol Thru, %	100%	100%	0%	0%	100%
Vol Right, %	0%	0%	48%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	60	105	25	50
LT Vol	0	0	55	25	0
Through Vol	60	60	0	0	50
RT Vol	0	0	50	0	0
Lane Flow Rate	63	63	111	26	53
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.086	0.053	0.129	0.041	0.07
Departure Headway (Hd)	4.909	3.034	4.206	5.658	4.764
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	721	1154	858	628	744
Service Time	2.699	0.822	2.206	3.44	2.546
HCM Lane V/C Ratio	0.087	0.055	0.129	0.041	0.071
HCM Control Delay	8.2	6	7.8	8.7	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.4	0.1	0.2

HCM 2010 TWSC

31: New Westminster Drive & No Frills East Access

10/21/2019

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	25	48	396	735	59
Future Vol, veh/h	24	25	48	396	735	59
Conflicting Peds, #/hr	0	0	17	0	0	17
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	250	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	25	4	2	7	4	2
Mvmt Flow	25	26	51	417	774	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1131	435	853	0	-	0
Stage 1	822	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	7.3	6.98	4.14	-	-	-
Critical Hdwy Stg 1	6.3	-	-	-	-	-
Critical Hdwy Stg 2	6.3	-	-	-	-	-
Follow-up Hdwy	3.75	3.34	2.22	-	-	-
Pot Cap-1 Maneuver	165	564	782	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	149	555	782	-	-	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	334	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.7	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	782	-	149	555	-	-
HCM Lane V/C Ratio	0.065	-	0.17	0.047	-	-
HCM Control Delay (s)	9.9	-	34	11.8	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	0.1	-	-

HCM 2010 TWSC

33: Bathurst Street & SmartCentres East Access

10/21/2019

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	27	0	923	1380	27
Future Vol, veh/h	0	27	0	923	1380	27
Conflicting Peds, #/hr	0	0	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	11	0	12	8	19
Mvmt Flow	0	28	0	972	1453	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1959	747	-	0	-	0
Stage 1	1473	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.84	7.12	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.41	-	-	-	-
Pot Cap-1 Maneuver	56	336	0	-	-	-
Stage 1	177	-	0	-	-	-
Stage 2	584	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	55	334	-	-	-	-
Mov Cap-2 Maneuver	55	-	-	-	-	-
Stage 1	176	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	334	-	-
HCM Lane V/C Ratio	-	0.085	-	-
HCM Control Delay (s)	-	16.8	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	635	20	0	502	0	20
Future Vol, veh/h	635	20	0	502	0	20
Conflicting Peds, #/hr	0	10	10	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	100	0	7	0	100
Mvmt Flow	668	21	0	528	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	355
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	8.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.3
Pot Cap-1 Maneuver	-	-	0	-	0	427
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	423
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	423	-	-	-
HCM Lane V/C Ratio	0.05	-	-	-
HCM Control Delay (s)	14	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	590	5	0	562	0	5
Future Vol, veh/h	590	5	0	562	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	0	0	7	0	0
Mvmt Flow	621	5	0	592	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	313
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	689
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	689
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	689	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-
HCM Control Delay (s)	10.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	0	1007	1351	105
Future Vol, veh/h	0	25	0	1007	1351	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	1500
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	24	0	7	1	0
Mvmt Flow	0	26	0	1060	1422	111

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	766	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.58	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.14	-	-	-	-
Pot Cap-1 Maneuver	0	261	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	261	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	261	-	-
HCM Lane V/C Ratio	-	0.101	-	-
HCM Control Delay (s)	-	20.3	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	5	1080	1410	5
Future Vol, veh/h	0	15	5	1080	1410	5
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	3	2	0
Mvmt Flow	0	16	5	1137	1484	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	750	1494	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	5.3	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	3.1	-	-	-
Pot Cap-1 Maneuver	0	307	229	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	306	229	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	229	-	306	-	-
HCM Lane V/C Ratio	0.023	-	0.052	-	-
HCM Control Delay (s)	21.1	-	17.4	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	790	884	35	55	45
Future Vol, veh/h	10	790	884	35	55	45
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	400	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	3	7	6	2	2
Mvmt Flow	11	832	931	37	58	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	936	0	-	0	1373	470
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	437	-
Critical Hdwy	4.26	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.28	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	691	-	-	-	137	540
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	691	-	-	-	134	537
Mov Cap-2 Maneuver	-	-	-	-	134	-
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	606	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	33.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	691	-	-	-	134	537
HCM Lane V/C Ratio	0.015	-	-	-	0.432	0.088
HCM Control Delay (s)	10.3	-	-	-	50.9	12.4
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	-	1.9	0.3

HCM Signalized Intersection Capacity Analysis
47: Bathurst Street & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	356	140	108	419	42	138	779	90	123	1209	75
Future Volume (vph)	102	356	140	108	419	42	138	779	90	123	1209	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1163	3202	1426	1678	3015		3224	3292	1334	1531	3292	982
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1163	3202	1426	1678	3015		3224	3292	1334	1531	3292	982
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	107	375	147	114	441	44	145	820	95	129	1273	79
RTOR Reduction (vph)	0	0	121	0	5	0	0	0	64	0	0	50
Lane Group Flow (vph)	107	375	26	114	480	0	145	820	31	129	1273	29
Confl. Peds. (#/hr)	9		15	15		9	18		8	8		18
Heavy Vehicles (%)	50%	9%	6%	4%	13%	23%	5%	6%	14%	14%	6%	52%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4						6			2
Actuated Green, G (s)	12.0	26.9	26.9	12.0	26.9		11.5	51.1	51.1	17.6	57.2	57.2
Effective Green, g (s)	12.0	26.9	26.9	12.0	26.9		11.5	51.1	51.1	17.6	57.2	57.2
Actuated g/C Ratio	0.08	0.17	0.17	0.08	0.17		0.07	0.33	0.33	0.11	0.37	0.37
Clearance Time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	90	555	247	129	523		239	1085	439	173	1214	362
v/s Ratio Prot	c0.09	0.12		0.07	c0.16		0.04	0.25		c0.08	c0.39	
v/s Ratio Perm			0.02						0.02			0.03
v/c Ratio	1.19	0.68	0.10	0.88	0.92		0.61	0.76	0.07	0.75	1.05	0.08
Uniform Delay, d1	71.5	60.0	53.9	70.8	63.0		69.6	46.4	35.7	66.5	48.9	31.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	154.3	6.5	0.8	45.7	23.5		4.3	3.0	0.1	16.0	39.6	0.1
Delay (s)	225.8	66.4	54.7	116.5	86.5		73.9	49.4	35.7	82.5	88.5	31.9
Level of Service	F	E	D	F	F		E	D	D	F	F	C
Approach Delay (s)		90.8			92.2			51.5			84.9	
Approach LOS		F			F			D			F	

Intersection Summary				
HCM 2000 Control Delay	77.7	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	46.0	
Intersection Capacity Utilization	102.7%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Bathurst Street & East Promenade

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	35	63	113	972	1352	24
Future Volume (vph)	35	63	113	972	1352	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	2539	1516	1572	3292	2983	1534
Flt Permitted	0.95	1.00	0.14	1.00	1.00	1.00
Satd. Flow (perm)	2539	1516	225	3292	2983	1534
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	66	119	1023	1423	25
RTOR Reduction (vph)	0	59	0	0	0	5
Lane Group Flow (vph)	37	7	119	1023	1423	20
Confl. Peds. (#/hr)	2		5			5
Heavy Vehicles (%)	33%	3%	11%	6%	17%	0%
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			7	4	8	
Permitted Phases	1	6	4			8
Actuated Green, G (s)	14.4	14.4	111.6	111.6	96.8	96.8
Effective Green, g (s)	14.4	14.4	111.6	111.6	96.8	96.8
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.69	0.69
Clearance Time (s)	7.0	7.0	4.0	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)	261	155	283	2624	2062	1060
v/s Ratio Prot			0.03	c0.31	c0.48	
v/s Ratio Perm	c0.01	0.00	0.30			0.01
v/c Ratio	0.14	0.04	0.42	0.39	0.69	0.02
Uniform Delay, d1	57.2	56.6	7.6	4.2	12.7	6.8
Progression Factor	1.00	1.00	1.49	0.85	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.8	0.4	1.9	0.0
Delay (s)	57.4	56.7	12.2	3.9	14.7	6.8
Level of Service	E	E	B	A	B	A
Approach Delay (s)	57.0			4.8	14.5	
Approach LOS	E			A	B	

Intersection Summary				
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	67.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
93: Promenade Circle & East Promenade

10/21/2019

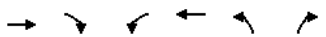
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	90	30	20	75	30
Future Volume (Veh/h)	40	90	30	20	75	30
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	42	95	32	21	79	32
Pedestrians			5			20
Lane Width (m)			3.3			3.3
Walking Speed (m/s)			1.0			1.0
Percent Blockage			0			2
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	1					
Upstream signal (m)	75					
pX, platoon unblocked						
vC, conflicting volume	5		204	5	120	109
vC1, stage 1 conf vol			5		104	104
vC2, stage 2 conf vol			199		16	5
vCu, unblocked vol	5		204	5	120	109
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	97		95	98	90	95
cM capacity (veh/h)	1609		639	1065	754	696

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	42	95	32	21	79	32
Volume Left	42	0	0	0	79	0
Volume Right	0	95	0	21	0	0
cSH	1609	1700	639	1065	754	696
Volume to Capacity	0.03	0.06	0.05	0.02	0.10	0.05
Queue Length 95th (m)	0.6	0.0	1.2	0.5	2.7	1.1
Control Delay (s)	7.3	0.0	10.9	8.4	10.3	10.4
Lane LOS	A		B	A	B	B
Approach Delay (s)	2.2		9.9		10.4	
Approach LOS			A		B	

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	25.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
94: South Promenade & Promenade Circle

10/21/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	20	115	20	20	145	35
Future Volume (Veh/h)	20	115	20	20	145	35
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	121	21	21	153	37
Pedestrians				5		
Lane Width (m)				3.3		
Walking Speed (m/s)				1.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					129	
pX, platoon unblocked						
vC, conflicting volume	348	0	322	311	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348	0	322	311	0	
tC, single (s)	6.6	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3	3.5	4.0	2.2	
p0 queue free %	96	89	96	96	91	
cM capacity (veh/h)	512	1082	503	541	1617	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	21	121	21	21	153	37
Volume Left	0	0	21	0	153	0
Volume Right	0	121	0	0	0	37
cSH	512	1082	503	541	1617	1700
Volume to Capacity	0.04	0.11	0.04	0.04	0.09	0.02
Queue Length 95th (m)	1.0	2.9	1.0	0.9	2.4	0.0
Control Delay (s)	12.3	8.7	12.5	11.9	7.5	0.0
Lane LOS	B	A	B	B	A	
Approach Delay (s)	9.3		12.2		6.0	
Approach LOS	A		B			

Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Arterial Level of Service: NB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Clark Avenue	84	36.1	63.4	0.5	27
SE Apartment Access	54	4.7	14.8	0.2	39
East Promenade	53	3.4	17.4	0.2	51
Promenade Circle	52	0.8	12.8	0.2	55
Centre Street	47	42.0	54.7	0.2	15
SmartCentres East Ac	33	4.3	16.7	0.2	41
Beverley Glen Boulev	22	8.7	22.5	0.2	39
Atkinson Avenue	11	26.7	43.8	0.3	24
Total		126.8	246.1	2.0	30

Arterial Level of Service: SB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
New Westminster Driv	11	117.9	212.9	0.3	9
Beverley Glen Boulev	22	8.2	25.4	0.3	41
SmartCentres East Ac	33	5.0	19.6	0.2	44
Centre Street	47	56.1	66.8	0.2	10
Promenade Circle	52	5.3	18.8	0.2	43
East Promenade	53	6.0	15.8	0.2	45
SE Apartment Access	54	4.6	18.0	0.2	49
Clark Avenue	84	51.4	61.1	0.2	10
Total		254.5	438.4	1.9	19

Arterial Level of Service: EB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Carl Tennen Street	41	10.2	31.3	0.4	41
Taiga Drive	42	4.2	21.4	0.3	49
New Westminster Driv	43	40.8	57.8	0.3	18
York Region Transit	44	3.7	14.4	0.2	48
North Promenade	45	11.5	17.1	0.1	22
Promenade Village Ac	46	2.0	12.8	0.2	49
Bathurst Street	47	41.6	49.3	0.1	11
Atkinson Avenue	48	13.9	45.0	0.5	44
Total		127.8	249.1	2.1	31

Arterial Level of Service: WB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Atkinson Avenue	48	9.4	33.0	0.4	44
Bathurst Street	47	50.1	78.9	0.5	25
Promenade Village Ac	46	3.7	13.0	0.1	40
Disera Drive	45	21.7	31.8	0.2	20
York Region Transit	44	2.1	8.4	0.1	45
New Westminster Driv	43	23.2	33.4	0.2	21
Taiga Drive	42	3.6	21.0	0.3	51
Vaughan Boulevard	41	3.4	20.8	0.3	50
Total		117.2	240.2	2.1	32

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	222	9	61	210	238	25	1158	33	149	1250	241
Future Volume (veh/h)	208	222	9	61	210	238	25	1158	33	149	1250	241
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1756	1900	1900	1863	1810	1900	1795	1900	1845	1824	1900
Adj Flow Rate, veh/h	219	234	9	64	221	251	26	1219	35	157	1316	254
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0	2	5	0	6	6	3	4	4
Cap, veh/h	256	633	24	283	644	272	58	1488	43	176	1472	280
Arrive On Green	0.06	0.19	0.19	0.05	0.18	0.18	0.06	0.88	0.88	0.10	0.51	0.51
Sat Flow, veh/h	1670	3274	125	1810	3539	1498	1810	3385	97	1757	2898	552
Grp Volume(v), veh/h	219	119	124	64	221	251	26	614	640	157	780	790
Grp Sat Flow(s),veh/h/ln	1670	1669	1730	1810	1770	1498	1810	1706	1776	1757	1733	1718
Q Serve(g_s), s	8.0	8.7	8.7	4.0	7.6	23.1	1.9	21.8	21.8	12.4	56.4	58.7
Cycle Q Clear(g_c), s	8.0	8.7	8.7	4.0	7.6	23.1	1.9	21.8	21.8	12.4	56.4	58.7
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.32
Lane Grp Cap(c), veh/h	256	322	334	283	644	272	58	750	781	176	880	872
V/C Ratio(X)	0.86	0.37	0.37	0.23	0.34	0.92	0.45	0.82	0.82	0.89	0.89	0.91
Avail Cap(c_a), veh/h	256	322	334	304	657	278	103	750	781	176	880	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	49.1	49.1	43.5	50.0	56.3	64.4	6.1	6.1	62.3	30.8	31.4
Incr Delay (d2), s/veh	23.8	0.7	0.7	0.4	0.3	33.3	4.8	8.6	8.4	39.4	12.8	14.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	4.1	4.2	2.0	3.8	12.0	1.0	11.0	11.4	7.9	30.0	31.2
LnGrp Delay(d),s/veh	76.5	49.8	49.8	43.9	50.3	89.6	69.2	14.7	14.4	101.6	43.6	46.2
LnGrp LOS	E	D	D	D	D	F	E	B	B	F	D	D
Approach Vol, veh/h		462			536			1280			1727	
Approach Delay, s/veh		62.4			67.9			15.7			50.1	
Approach LOS		E			E			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	79.1	15.4	35.1	20.0	69.5	17.0	33.5
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	67.0	8.0	26.0	14.0	61.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	3.9	60.7	6.0	10.7	14.4	23.8	10.0	25.1
Green Ext Time (p_c), s	0.0	6.3	0.0	7.1	0.0	36.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	163	121	7	384	78	62	22	8	19	22	63
Future Volume (veh/h)	120	163	121	7	384	78	62	22	8	19	22	63
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1834	1900	1900	1821	1900	1863	1781	1900	1810	1849	1900
Adj Flow Rate, veh/h	126	172	127	7	404	82	65	23	8	20	23	66
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	4	4	0	5	5	2	9	9	5	5	5
Cap, veh/h	570	1072	745	687	1567	315	365	276	96	410	92	263
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	912	1962	1364	1093	2868	577	1288	1259	438	1317	418	1199
Grp Volume(v), veh/h	126	152	147	7	242	244	65	0	31	20	0	89
Grp Sat Flow(s),veh/h/ln	912	1743	1583	1093	1730	1715	1288	0	1697	1317	0	1617
Q Serve(g_s), s	4.3	2.2	2.4	0.2	3.8	3.9	2.2	0.0	0.7	0.6	0.0	2.3
Cycle Q Clear(g_c), s	8.2	2.2	2.4	2.6	3.8	3.9	4.6	0.0	0.7	1.4	0.0	2.3
Prop In Lane	1.00		0.86	1.00		0.34	1.00		0.26	1.00		0.74
Lane Grp Cap(c), veh/h	570	952	865	687	945	937	365	0	372	410	0	355
V/C Ratio(X)	0.22	0.16	0.17	0.01	0.26	0.26	0.18	0.00	0.08	0.05	0.00	0.25
Avail Cap(c_a), veh/h	570	952	865	687	945	937	836	0	993	892	0	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.3	5.8	5.8	6.5	6.1	6.1	18.4	0.0	15.9	16.4	0.0	16.5
Incr Delay (d2), s/veh	0.9	0.4	0.4	0.0	0.7	0.7	0.2	0.0	0.1	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.1	1.1	0.1	1.9	1.9	0.8	0.0	0.4	0.2	0.0	1.1
LnGrp Delay(d),s/veh	9.2	6.1	6.2	6.5	6.8	6.8	18.6	0.0	16.0	16.5	0.0	16.9
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		425			493			96			109	
Approach Delay, s/veh		7.1			6.8			17.8			16.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		17.2		34.0		17.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		5.9		6.6		10.2		4.3
Green Ext Time (p_c), s		13.0		2.2		11.1		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	165	153	25	177	52	177	423	37	27	417	140
Future Volume (veh/h)	104	165	153	25	177	52	177	423	37	27	417	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1872	1900	1827	1841	1900	1863	1833	1900	1900	1849	1900
Adj Flow Rate, veh/h	109	174	161	26	186	55	186	445	39	28	439	147
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	4	3	3	2	4	4	0	3	3
Cap, veh/h	332	276	255	252	421	125	445	1653	144	506	1320	438
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1118	893	826	1017	1363	403	822	3237	283	920	2584	857
Grp Volume(v), veh/h	109	0	335	26	0	241	186	239	245	28	297	289
Grp Sat Flow(s),veh/h/ln	1118	0	1719	1017	0	1766	822	1741	1778	920	1757	1685
Q Serve(g_s), s	5.8	0.0	11.1	1.5	0.0	7.3	11.5	5.2	5.2	1.2	6.6	6.7
Cycle Q Clear(g_c), s	13.0	0.0	11.1	12.6	0.0	7.3	18.2	5.2	5.2	6.4	6.6	6.7
Prop In Lane	1.00		0.48	1.00		0.23	1.00		0.16	1.00		0.51
Lane Grp Cap(c), veh/h	332	0	531	252	0	546	445	889	908	506	897	861
V/C Ratio(X)	0.33	0.00	0.63	0.10	0.00	0.44	0.42	0.27	0.27	0.06	0.33	0.34
Avail Cap(c_a), veh/h	389	0	620	305	0	637	445	889	908	506	897	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	19.7	25.2	0.0	18.4	15.0	9.2	9.2	11.1	9.6	9.6
Incr Delay (d2), s/veh	0.6	0.0	1.6	0.2	0.0	0.6	2.9	0.7	0.7	0.2	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	5.5	0.4	0.0	3.6	2.9	2.6	2.7	0.3	3.5	3.4
LnGrp Delay(d),s/veh	24.2	0.0	21.3	25.3	0.0	19.0	17.9	10.0	10.0	11.3	10.6	10.7
LnGrp LOS	C		C	C		B	B	A	A	B	B	B
Approach Vol, veh/h		444			267			670			614	
Approach Delay, s/veh		22.0			19.6			12.2			10.7	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		26.6		40.0		26.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		20.2		15.0		8.7		14.6
Green Ext Time (p_c), s		11.2		5.3		18.6		5.5

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	69	123	1111	1247	73
Future Volume (veh/h)	105	69	123	1111	1247	73
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1792	1863	1776	1779	1900
Adj Flow Rate, veh/h	111	73	129	1169	1313	77
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	7	7	7
Cap, veh/h	146	126	127	2710	2235	131
Arrive On Green	0.08	0.08	0.07	0.80	1.00	1.00
Sat Flow, veh/h	1774	1524	1774	3463	3333	190
Grp Volume(v), veh/h	111	73	129	1169	683	707
Grp Sat Flow(s),veh/h/ln	1774	1524	1774	1687	1690	1743
Q Serve(g_s), s	8.6	6.5	10.0	14.6	0.0	0.0
Cycle Q Clear(g_c), s	8.6	6.5	10.0	14.6	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	146	126	127	2710	1165	1201
V/C Ratio(X)	0.76	0.58	1.02	0.43	0.59	0.59
Avail Cap(c_a), veh/h	437	375	127	2710	1165	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.47	0.47
Uniform Delay (d), s/veh	62.9	61.9	65.0	4.1	0.0	0.0
Incr Delay (d2), s/veh	7.8	4.2	84.8	0.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.2	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	2.9	7.9	6.8	0.3	0.3
LnGrp Delay(d),s/veh	70.6	66.1	150.0	4.7	1.0	1.0
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	184			1298	1390	
Approach Delay, s/veh	68.8			19.1	1.0	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.0	103.9		20.1		119.9		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	10.0	73.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	12.0	2.0		10.6		16.6		
Green Ext Time (p_c), s	0.0	69.0		1.0		70.3		

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	7	55	203	22	41	61	245	155	13	135	38
Future Volume (veh/h)	30	7	55	203	22	41	61	245	155	13	135	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.96		0.93	0.96		0.92	0.98		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1900	1900	1881	1844	1900	1900	1849	1900	1900	1772	1900
Adj Flow Rate, veh/h	32	7	58	214	23	43	64	258	163	14	142	40
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	1	5	5	0	2	2	0	7	7
Cap, veh/h	477	54	448	499	179	334	607	493	311	411	628	177
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1220	166	1374	1294	549	1026	1175	1023	646	963	1303	367
Grp Volume(v), veh/h	32	0	65	214	0	66	64	0	421	14	0	182
Grp Sat Flow(s),veh/h/ln	1220	0	1540	1294	0	1575	1175	0	1670	963	0	1670
Q Serve(g_s), s	1.2	0.0	1.9	8.7	0.0	1.8	2.1	0.0	10.9	0.6	0.0	3.9
Cycle Q Clear(g_c), s	3.0	0.0	1.9	10.5	0.0	1.8	6.0	0.0	10.9	11.5	0.0	3.9
Prop In Lane	1.00		0.89	1.00		0.65	1.00		0.39	1.00		0.22
Lane Grp Cap(c), veh/h	477	0	502	499	0	513	607	0	804	411	0	805
V/C Ratio(X)	0.07	0.00	0.13	0.43	0.00	0.13	0.11	0.00	0.52	0.03	0.00	0.23
Avail Cap(c_a), veh/h	589	0	643	617	0	658	607	0	804	411	0	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	14.8	18.5	0.0	14.8	11.1	0.0	11.2	15.2	0.0	9.4
Incr Delay (d2), s/veh	0.1	0.0	0.2	1.2	0.0	0.2	0.3	0.0	2.4	0.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.8	3.3	0.0	0.8	0.7	0.0	5.5	0.2	0.0	2.0
LnGrp Delay(d),s/veh	16.0	0.0	15.0	19.7	0.0	15.0	11.5	0.0	13.6	15.3	0.0	10.0
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		97			280			485			196	
Approach Delay, s/veh		15.3			18.6			13.3			10.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		26.3		36.0		26.3
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		12.9		5.0		13.5		12.5
Green Ext Time (p_c), s		8.8		5.4		8.6		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	68	23	3	19	115	614	41	35	306	7
Future Volume (veh/h)	6	5	68	23	3	19	115	614	41	35	306	7
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1842	1900	1743	1822	1900	1900	1842	1900	1845	1828	1900
Adj Flow Rate, veh/h	6	5	72	24	3	20	121	646	43	37	322	7
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	20	20	9	33	33	0	3	3	3	4	4
Cap, veh/h	353	16	230	290	32	213	738	1968	131	518	2054	45
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1403	102	1471	1227	205	1367	1067	3332	222	743	3477	75
Grp Volume(v), veh/h	6	0	77	24	0	23	121	339	350	37	161	168
Grp Sat Flow(s),veh/h/ln	1403	0	1573	1227	0	1572	1067	1750	1803	743	1737	1815
Q Serve(g_s), s	0.2	0.0	2.1	0.8	0.0	0.6	2.7	4.7	4.7	1.3	2.0	2.0
Cycle Q Clear(g_c), s	0.8	0.0	2.1	2.9	0.0	0.6	4.7	4.7	4.7	5.9	2.0	2.0
Prop In Lane	1.00		0.94	1.00		0.87	1.00		0.12	1.00		0.04
Lane Grp Cap(c), veh/h	353	0	246	290	0	245	738	1034	1065	518	1026	1072
V/C Ratio(X)	0.02	0.00	0.31	0.08	0.00	0.09	0.16	0.33	0.33	0.07	0.16	0.16
Avail Cap(c_a), veh/h	1052	0	1029	901	0	1028	738	1034	1065	518	1026	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	17.7	19.0	0.0	17.1	5.4	4.9	4.9	6.4	4.4	4.4
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.1	0.0	0.2	0.5	0.8	0.8	0.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.9	0.3	0.0	0.3	0.9	2.4	2.5	0.3	1.0	1.1
LnGrp Delay(d),s/veh	17.5	0.0	18.5	19.2	0.0	17.3	5.9	5.8	5.8	6.7	4.7	4.7
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		83			47			810			366	
Approach Delay, s/veh		18.4			18.2			5.8			4.9	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		13.4		34.0		13.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		6.7		4.9		7.9		4.1
Green Ext Time (p_c), s		15.3		1.7		14.6		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1195	27	63	705	77	41	110	47	35	44	7
Future Volume (veh/h)	4	1195	27	63	705	77	41	110	47	35	44	7
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1792	1900	1863	1766	1900	1652	1924	1900	1845	1894	1900
Adj Flow Rate, veh/h	4	1258	28	66	742	81	43	116	49	37	46	7
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	6	6	2	8	8	15	3	3	3	5	5
Cap, veh/h	13	2088	46	87	1997	218	226	216	91	158	271	41
Arrive On Green	0.01	0.61	0.61	0.10	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	3405	76	1774	3049	333	1186	1282	542	1199	1605	244
Grp Volume(v), veh/h	4	629	657	66	408	415	43	0	165	37	0	53
Grp Sat Flow(s),veh/h/ln	1810	1702	1778	1774	1677	1704	1186	0	1824	1199	0	1849
Q Serve(g_s), s	0.3	29.4	29.5	4.7	0.0	0.0	4.2	0.0	10.8	3.8	0.0	3.2
Cycle Q Clear(g_c), s	0.3	29.4	29.5	4.7	0.0	0.0	7.4	0.0	10.8	14.5	0.0	3.2
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.30	1.00		0.13
Lane Grp Cap(c), veh/h	13	1044	1090	87	1099	1116	226	0	308	158	0	312
V/C Ratio(X)	0.31	0.60	0.60	0.76	0.37	0.37	0.19	0.00	0.54	0.23	0.00	0.17
Avail Cap(c_a), veh/h	111	1044	1090	218	1099	1116	350	0	498	284	0	505
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.2	15.4	15.4	57.9	0.0	0.0	49.4	0.0	49.4	56.0	0.0	46.3
Incr Delay (d2), s/veh	12.5	2.6	2.5	11.5	0.9	0.8	0.4	0.0	1.5	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	14.5	15.2	2.6	0.3	0.3	1.4	0.0	5.5	1.3	0.0	1.7
LnGrp Delay(d),s/veh	76.7	18.0	17.9	69.4	0.9	0.8	49.8	0.0	50.9	56.8	0.0	46.5
LnGrp LOS	E	B	B	E	A	A	D		D	E		D
Approach Vol, veh/h		1290			889			208			90	
Approach Delay, s/veh		18.1			5.9			50.6			50.7	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.9	92.6		30.4	12.4	87.2		30.4
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	16.0	56.5		35.5
Max Q Clear Time (g_c+I1), s	2.3	2.0		16.5	6.7	31.5		12.8
Green Ext Time (p_c), s	0.0	56.6		3.5	0.1	23.9		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	155	1150	797	26	76	48
Future Volume (veh/h)	155	1150	797	26	76	48
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1792	1698	1900	1810	1792
Adj Flow Rate, veh/h	163	1211	839	27	80	51
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	12	12	5	6
Cap, veh/h	193	2714	2040	66	131	116
Arrive On Green	0.07	0.53	0.43	0.43	0.08	0.08
Sat Flow, veh/h	1740	3495	3274	103	1723	1524
Grp Volume(v), veh/h	163	1211	424	442	80	51
Grp Sat Flow(s),veh/h/ln	1740	1703	1613	1679	1723	1524
Q Serve(g_s), s	12.0	28.3	23.7	23.7	5.8	4.2
Cycle Q Clear(g_c), s	12.0	28.3	23.7	23.7	5.8	4.2
Prop In Lane	1.00			0.06	1.00	1.00
Lane Grp Cap(c), veh/h	193	2714	1032	1074	131	116
V/C Ratio(X)	0.84	0.45	0.41	0.41	0.61	0.44
Avail Cap(c_a), veh/h	294	2714	1032	1074	331	293
HCM Platoon Ratio	0.67	0.67	0.67	0.67	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.60	0.60	1.00	1.00
Uniform Delay (d), s/veh	59.1	12.7	20.2	20.2	58.2	57.4
Incr Delay (d2), s/veh	10.0	0.4	0.7	0.7	4.5	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	13.5	10.8	11.2	2.9	1.8
LnGrp Delay(d),s/veh	69.1	13.1	20.9	20.9	62.7	60.0
LnGrp LOS	E	B	C	C	E	E
Approach Vol, veh/h		1374	866		131	
Approach Delay, s/veh		19.8	20.9		61.6	
Approach LOS		B	C		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	20.4	90.7		18.9		111.1		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	22.0	60.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	14.0	25.7		7.8		30.3		
Green Ext Time (p_c), s	0.4	32.7		0.6		52.8		

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	803	269	65	449	106	256	514	56	93	471	118
Future Volume (veh/h)	154	803	269	65	449	106	256	514	56	93	471	118
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1793	1900	1900	1759	1900	1771	1827	1900	1863	1859	1900
Adj Flow Rate, veh/h	162	845	283	68	473	112	269	541	59	98	496	124
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	8	0	9	9	3	4	4	2	2	2
Cap, veh/h	189	921	308	89	830	195	291	1024	111	297	859	213
Arrive On Green	0.04	0.12	0.12	0.10	0.62	0.62	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	1757	2493	834	1810	2671	628	1687	3148	342	1774	2786	692
Grp Volume(v), veh/h	162	577	551	68	294	291	269	297	303	98	313	307
Grp Sat Flow(s),veh/h/ln	1757	1703	1624	1810	1671	1629	1687	1736	1755	1774	1766	1712
Q Serve(g_s), s	11.9	43.5	43.6	4.8	13.4	13.7	9.0	18.1	18.3	4.9	19.4	19.6
Cycle Q Clear(g_c), s	11.9	43.5	43.6	4.8	13.4	13.7	9.0	18.1	18.3	4.9	19.4	19.6
Prop In Lane	1.00		0.51	1.00		0.39	1.00		0.20	1.00		0.40
Lane Grp Cap(c), veh/h	189	629	600	89	519	506	291	565	571	297	545	528
V/C Ratio(X)	0.85	0.92	0.92	0.76	0.57	0.57	0.93	0.53	0.53	0.33	0.58	0.58
Avail Cap(c_a), veh/h	216	629	600	111	519	506	291	567	574	327	577	560
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	55.1	55.2	57.9	19.5	19.6	41.0	35.7	35.7	29.3	37.8	37.9
Incr Delay (d2), s/veh	22.2	18.5	19.5	21.2	4.4	4.7	33.7	0.9	0.9	0.6	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	23.8	22.9	2.9	6.7	6.6	9.3	8.8	9.0	2.4	9.7	9.5
LnGrp Delay(d),s/veh	83.9	73.6	74.6	79.0	24.0	24.2	74.8	36.6	36.7	29.9	39.0	39.2
LnGrp LOS	F	E	E	E	C	C	E	D	D	C	D	D
Approach Vol, veh/h		1290			653			869			718	
Approach Delay, s/veh		75.4			29.8			48.4			37.9	
Approach LOS		E			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	48.4	13.0	48.6	12.4	56.0	10.8	50.8
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5
Max Green Setting (Gmax), s	16.0	36.0	9.0	42.5	8.0	44.0	9.0	42.5
Max Q Clear Time (g_c+I1), s	13.9	15.7	11.0	21.6	6.8	45.6	6.9	20.3
Green Ext Time (p_c), s	0.1	18.6	0.0	16.5	0.0	0.0	0.1	17.4

Intersection Summary		
HCM 2010 Ctrl Delay		52.7
HCM 2010 LOS		D

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	589	251	114	346	145	190	203	162	79	229	84
Future Volume (veh/h)	112	589	251	114	346	145	190	203	162	79	229	84
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1847	1900	1557	1803	1900	1863	1597	1696	1473	1726	1900
Adj Flow Rate, veh/h	118	620	264	120	364	153	200	214	171	83	241	88
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	141	1023	435	141	1056	435	176	467	418	199	352	129
Arrive On Green	0.16	0.87	0.87	0.10	0.45	0.45	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1774	2350	1000	1483	2340	965	1043	1597	1430	783	1205	440
Grp Volume(v), veh/h	118	463	421	120	265	252	200	214	171	83	0	329
Grp Sat Flow(s),veh/h/ln	1774	1754	1595	1483	1713	1592	1043	1597	1430	783	0	1644
Q Serve(g_s), s	8.4	9.4	9.4	10.4	13.0	13.4	15.0	14.2	12.5	12.6	0.0	23.0
Cycle Q Clear(g_c), s	8.4	9.4	9.4	10.4	13.0	13.4	38.0	14.2	12.5	26.8	0.0	23.0
Prop In Lane	1.00		0.63	1.00		0.61	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	141	764	695	141	773	718	176	467	418	199	0	481
V/C Ratio(X)	0.84	0.61	0.61	0.85	0.34	0.35	1.14	0.46	0.41	0.42	0.00	0.68
Avail Cap(c_a), veh/h	177	764	695	194	773	718	176	467	418	199	0	481
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	53.8	5.3	5.3	57.9	23.2	23.3	59.9	37.6	37.0	48.6	0.0	40.7
Incr Delay (d2), s/veh	23.4	3.5	3.9	21.8	1.2	1.4	110.0	0.7	0.6	1.3	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	4.9	4.5	5.1	6.4	6.2	11.7	6.4	5.0	2.8	0.0	10.9
LnGrp Delay(d),s/veh	77.2	8.9	9.2	79.7	24.4	24.6	169.9	38.3	37.6	49.8	0.0	44.3
LnGrp LOS	E	A	A	E	C	C	F	D	D	D		D
Approach Vol, veh/h		1002			637			585			412	
Approach Delay, s/veh		17.1			34.9			83.1			45.4	
Approach LOS		B			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	66.7		47.0	18.4	64.6		47.0
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	13.0	56.0		38.0	17.0	52.0		38.0
Max Q Clear Time (g_c+I1), s	10.4	15.4		28.8	12.4	11.4		40.0
Green Ext Time (p_c), s	0.1	29.8		6.3	0.2	29.8		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		40.5
HCM 2010 LOS		D

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	376	276	47	366	118	174	549	54	72	292	30
Future Volume (veh/h)	94	376	276	47	366	118	174	549	54	72	292	30
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1847	1900	1863	1805	1900	1827	1846	1900	1845	1834	1900
Adj Flow Rate, veh/h	99	396	291	49	385	124	183	578	57	76	307	32
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	2	6	6	4	3	3	3	4	4
Cap, veh/h	536	1127	819	439	1488	473	287	899	88	178	888	92
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	894	1939	1409	751	2559	814	1007	3220	317	777	3181	329
Grp Volume(v), veh/h	99	358	329	49	256	253	183	314	321	76	167	172
Grp Sat Flow(s),veh/h/ln	894	1755	1593	751	1715	1658	1007	1754	1783	777	1742	1768
Q Serve(g_s), s	5.3	9.2	9.4	3.2	6.3	6.5	15.2	13.5	13.6	8.2	6.6	6.7
Cycle Q Clear(g_c), s	11.8	9.2	9.4	12.5	6.3	6.5	21.9	13.5	13.6	21.8	6.6	6.7
Prop In Lane	1.00		0.88	1.00		0.49	1.00		0.18	1.00		0.19
Lane Grp Cap(c), veh/h	536	1020	926	439	997	964	287	489	498	178	486	493
V/C Ratio(X)	0.18	0.35	0.36	0.11	0.26	0.26	0.64	0.64	0.64	0.43	0.34	0.35
Avail Cap(c_a), veh/h	536	1020	926	439	997	964	287	489	498	178	486	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	9.5	9.5	12.8	8.9	8.9	33.5	27.2	27.3	36.8	24.7	24.8
Incr Delay (d2), s/veh	0.8	1.0	1.1	0.5	0.6	0.7	6.5	4.0	4.0	3.5	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.6	4.4	0.7	3.2	3.1	4.7	7.1	7.2	1.9	3.3	3.4
LnGrp Delay(d),s/veh	12.5	10.4	10.6	13.3	9.5	9.6	40.0	31.2	31.2	40.3	25.6	25.7
LnGrp LOS	B	B	B	B	A	A	D	C	C	D	C	C
Approach Vol, veh/h		786			558			818			415	
Approach Delay, s/veh		10.7			9.9			33.2			28.3	
Approach LOS		B			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		14.5		23.9		13.8		23.8
Green Ext Time (p_c), s		31.0		0.1		31.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	126	119	133	147	100	117	657	187	145	531	129
Future Volume (veh/h)	69	126	119	133	147	100	117	657	187	145	531	129
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1845	1900	1900	1860	1900	1845	1867	1900	1845	1841	1900
Adj Flow Rate, veh/h	73	133	125	140	155	105	123	692	197	153	559	136
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	3	3	1	1	1	3	2	2	3	4	4
Cap, veh/h	331	281	264	264	332	248	433	1417	403	309	1071	260
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1094	853	802	564	1007	752	1757	2719	774	614	2783	675
Grp Volume(v), veh/h	73	0	258	189	0	211	123	451	438	153	350	345
Grp Sat Flow(s),veh/h/ln	1094	0	1655	808	0	1515	1757	1773	1720	614	1749	1709
Q Serve(g_s), s	4.5	0.0	10.0	10.5	0.0	8.8	3.0	13.2	13.2	17.2	12.4	12.5
Cycle Q Clear(g_c), s	13.2	0.0	10.0	20.5	0.0	8.8	3.0	13.2	13.2	19.3	12.4	12.5
Prop In Lane	1.00		0.48	0.74		0.50	1.00		0.45	1.00		0.39
Lane Grp Cap(c), veh/h	331	0	546	344	0	500	433	924	896	309	673	658
V/C Ratio(X)	0.22	0.00	0.47	0.55	0.00	0.42	0.28	0.49	0.49	0.49	0.52	0.52
Avail Cap(c_a), veh/h	337	0	555	351	0	508	433	924	896	309	673	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	21.4	28.3	0.0	21.0	12.0	12.4	12.4	22.1	19.1	19.1
Incr Delay (d2), s/veh	0.3	0.0	0.6	1.7	0.0	0.6	1.6	1.8	1.9	5.6	2.9	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	4.6	4.0	0.0	3.7	1.6	6.9	6.7	3.4	6.5	6.4
LnGrp Delay(d),s/veh	26.5	0.0	22.1	30.0	0.0	21.6	13.7	14.2	14.3	27.7	21.9	22.1
LnGrp LOS	C		C	C		C	B	B	B	C	C	C
Approach Vol, veh/h		331			400			1012			848	
Approach Delay, s/veh		23.1			25.6			14.2			23.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		32.6		48.0		32.6
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.0	21.3		22.5		15.2		15.2
Green Ext Time (p_c), s	0.1	9.3		3.1		24.7		7.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	5	20	18	8	52	24	688	14	64	500	61
Future Volume (veh/h)	32	5	20	18	8	52	24	688	14	64	500	61
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1868	1900	1900	1781	1900	1900	1826	1900	1900	1832	1900
Adj Flow Rate, veh/h	34	5	21	19	8	55	25	724	15	67	526	64
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	4	4	4
Cap, veh/h	236	52	96	119	58	184	100	1937	39	211	1505	179
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	700	287	532	180	320	1018	44	3308	67	216	2571	307
Grp Volume(v), veh/h	60	0	0	82	0	0	397	0	367	321	0	336
Grp Sat Flow(s),veh/h/ln	1519	0	0	1518	0	0	1770	0	1649	1485	0	1609
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	5.6
Cycle Q Clear(g_c), s	1.5	0.0	0.0	2.3	0.0	0.0	5.9	0.0	6.1	4.5	0.0	5.6
Prop In Lane	0.57		0.35	0.23		0.67	0.06		0.04	0.21		0.19
Lane Grp Cap(c), veh/h	384	0	0	361	0	0	1111	0	965	954	0	942
V/C Ratio(X)	0.16	0.00	0.00	0.23	0.00	0.00	0.36	0.00	0.38	0.34	0.00	0.36
Avail Cap(c_a), veh/h	910	0	0	897	0	0	1111	0	965	954	0	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	0.0	18.2	0.0	0.0	5.6	0.0	5.7	5.3	0.0	5.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.9	0.0	1.1	1.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.0	0.0	0.0	3.1	0.0	3.1	2.5	0.0	2.7
LnGrp Delay(d),s/veh	18.0	0.0	0.0	18.5	0.0	0.0	6.5	0.0	6.8	6.3	0.0	6.6
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		60			82			764			657	
Approach Delay, s/veh		18.0			18.5			6.7			6.5	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		15.3		36.0		15.3
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		8.1		4.3		7.6		3.5
Green Ext Time (p_c), s		18.6		2.0		18.9		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	29	36	17	184	14	717	18	73	486	13
Future Volume (veh/h)	3	6	29	36	17	184	14	717	18	73	486	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1854	1900	1900	1806	1900	1900	1809	1900	1900	1821	1900
Adj Flow Rate, veh/h	3	6	31	38	18	194	15	755	19	77	512	14
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	12	12	12	5	5	5	4	4	4
Cap, veh/h	92	89	334	125	57	320	90	1570	39	206	1238	34
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	31	332	1250	134	212	1198	21	3312	82	226	2611	72
Grp Volume(v), veh/h	40	0	0	250	0	0	413	0	376	284	0	319
Grp Sat Flow(s),veh/h/ln	1613	0	0	1544	0	0	1785	0	1631	1266	0	1643
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	7.3	0.6	0.0	5.9
Cycle Q Clear(g_c), s	0.9	0.0	0.0	6.4	0.0	0.0	7.2	0.0	7.3	7.9	0.0	5.9
Prop In Lane	0.07		0.77	0.15		0.78	0.04		0.05	0.27		0.04
Lane Grp Cap(c), veh/h	515	0	0	502	0	0	927	0	773	699	0	779
V/C Ratio(X)	0.08	0.00	0.00	0.50	0.00	0.00	0.45	0.00	0.49	0.41	0.00	0.41
Avail Cap(c_a), veh/h	974	0	0	946	0	0	927	0	773	699	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	14.8	0.0	0.0	8.3	0.0	8.3	7.7	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	1.6	0.0	2.2	1.8	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.9	0.0	0.0	4.0	0.0	3.7	2.6	0.0	3.0
LnGrp Delay(d),s/veh	12.8	0.0	0.0	15.6	0.0	0.0	9.9	0.0	10.5	9.4	0.0	9.6
LnGrp LOS	B			B			A		B	A		A
Approach Vol, veh/h		40			250			789			603	
Approach Delay, s/veh		12.8			15.6			10.2			9.5	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		18.4		28.0		18.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		9.3		2.9		9.9		8.4
Green Ext Time (p_c), s		11.2		4.8		10.7		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	3	49	32	9	19	75	709	71	20	508	32
Future Volume (veh/h)	21	3	49	32	9	19	75	709	71	20	508	32
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1801	1900	1900	1813	1900	1900	1838	1900	1900	1833	1900
Adj Flow Rate, veh/h	22	3	52	34	9	20	79	746	75	21	535	34
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	11	11	11	3	3	3	4	4	4
Cap, veh/h	154	52	248	268	81	114	177	1468	144	95	1663	104
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	273	213	1011	668	329	463	184	2779	272	43	3148	196
Grp Volume(v), veh/h	77	0	0	63	0	0	452	0	448	307	0	283
Grp Sat Flow(s),veh/h/ln	1498	0	0	1460	0	0	1613	0	1623	1755	0	1632
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	5.2
Cycle Q Clear(g_c), s	2.0	0.0	0.0	1.5	0.0	0.0	8.2	0.0	9.5	5.0	0.0	5.2
Prop In Lane	0.29		0.68	0.54		0.32	0.17		0.17	0.07		0.12
Lane Grp Cap(c), veh/h	455	0	0	463	0	0	932	0	857	1000	0	862
V/C Ratio(X)	0.17	0.00	0.00	0.14	0.00	0.00	0.49	0.00	0.52	0.31	0.00	0.33
Avail Cap(c_a), veh/h	783	0	0	783	0	0	932	0	857	1000	0	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	15.7	0.0	0.0	7.8	0.0	8.1	7.1	0.0	7.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	1.8	0.0	2.3	0.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.7	0.0	0.0	4.5	0.0	4.8	2.7	0.0	2.6
LnGrp Delay(d),s/veh	16.0	0.0	0.0	15.8	0.0	0.0	9.6	0.0	10.4	7.9	0.0	8.1
LnGrp LOS	B			B			A		B	A		A
Approach Vol, veh/h		77			63			900			590	
Approach Delay, s/veh		16.0			15.8			10.0			8.0	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.0		34.0		19.0		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		3.5		11.5		4.0		7.2
Green Ext Time (p_c), s		1.9		14.7		1.9		18.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	615	60	105	375	130	70	610	175	165	395	95
Future Volume (veh/h)	155	615	60	105	375	130	70	610	175	165	395	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1900	1900	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	163	647	63	111	395	137	74	642	184	174	416	100
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	1	1	0	0	1	1	1	1	1
Cap, veh/h	413	1310	587	344	1302	583	382	942	270	275	1003	239
Arrive On Green	0.06	0.37	0.37	0.02	0.12	0.12	0.06	0.34	0.34	0.06	0.35	0.35
Sat Flow, veh/h	1810	3574	1602	1792	3574	1602	1810	2732	782	1792	2855	680
Grp Volume(v), veh/h	163	647	63	111	395	137	74	420	406	174	259	257
Grp Sat Flow(s),veh/h/ln	1810	1787	1602	1792	1787	1602	1810	1787	1727	1792	1787	1747
Q Serve(g_s), s	6.2	15.4	2.9	4.2	11.1	8.5	2.8	22.1	22.2	7.0	12.1	12.3
Cycle Q Clear(g_c), s	6.2	15.4	2.9	4.2	11.1	8.5	2.8	22.1	22.2	7.0	12.1	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.39
Lane Grp Cap(c), veh/h	413	1310	587	344	1302	583	382	616	596	275	628	614
V/C Ratio(X)	0.39	0.49	0.11	0.32	0.30	0.23	0.19	0.68	0.68	0.63	0.41	0.42
Avail Cap(c_a), veh/h	413	1310	587	347	1302	583	394	634	612	275	634	620
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	27.0	23.0	21.5	35.6	34.5	21.2	30.9	30.9	24.3	27.1	27.1
Incr Delay (d2), s/veh	0.6	1.3	0.4	0.5	0.6	0.9	0.2	2.9	3.0	4.7	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	7.8	1.3	2.1	5.6	3.9	1.4	11.3	11.0	3.7	6.0	6.0
LnGrp Delay(d),s/veh	21.1	28.3	23.4	22.0	36.2	35.5	21.4	33.7	33.9	29.0	27.5	27.6
LnGrp LOS	C	C	C	C	D	D	C	C	C	C	C	C
Approach Vol, veh/h		873			643			900			690	
Approach Delay, s/veh		26.6			33.6			32.8			27.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	46.3	9.3	44.7	10.0	46.1	10.0	43.9
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	39.0	7.0	39.0	7.0	39.0	7.0	39.0
Max Q Clear Time (g_c+I1), s	6.2	17.4	4.8	14.3	8.2	13.1	9.0	24.2
Green Ext Time (p_c), s	0.0	17.0	0.0	20.1	0.0	19.7	0.0	12.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	60	875	525	255	240	55		
Future Volume (veh/h)	60	875	525	255	240	55		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1900	1881	1863	1881	1881	1881		
Adj Flow Rate, veh/h	63	921	553	268	253	58		
Adj No. of Lanes	1	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	1	2	1	1	1		
Cap, veh/h	551	2574	2260	1021	306	273		
Arrive On Green	0.11	1.00	0.64	0.64	0.17	0.17		
Sat Flow, veh/h	1810	3668	3632	1599	1792	1599		
Grp Volume(v), veh/h	63	921	553	268	253	58		
Grp Sat Flow(s),veh/h/ln	1810	1787	1770	1599	1792	1599		
Q Serve(g_s), s	1.1	0.0	7.4	8.0	15.0	3.4		
Cycle Q Clear(g_c), s	1.1	0.0	7.4	8.0	15.0	3.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	551	2574	2260	1021	306	273		
V/C Ratio(X)	0.11	0.36	0.24	0.26	0.83	0.21		
Avail Cap(c_a), veh/h	568	2574	2260	1021	668	596		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	4.9	0.0	8.5	8.6	44.0	39.2		
Incr Delay (d2), s/veh	0.1	0.4	0.3	0.6	5.7	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.6	0.1	3.6	3.7	7.9	3.3		
LnGrp Delay(d),s/veh	5.0	0.4	8.8	9.3	49.7	39.6		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		984	821		311			
Approach Delay, s/veh		0.7	8.9		47.8			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.2		24.8	9.0	76.2		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		2.0		17.0	3.1	10.0		
Green Ext Time (p_c), s		46.1		1.8	0.1	32.6		
Intersection Summary								
HCM 2010 Ctrl Delay			10.8					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	806	279	143	531	139	233	1292	156	171	1222	66
Future Volume (veh/h)	68	806	279	143	531	139	233	1292	156	171	1222	66
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1845	1792	1810	1792	1845	1827	1863	1863	1810	1863
Adj Flow Rate, veh/h	72	848	294	151	559	146	245	1360	164	180	1286	69
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	3	6	5	6	3	4	2	2	5	2
Cap, veh/h	290	1167	508	205	1168	509	160	1360	603	153	1347	603
Arrive On Green	0.05	0.33	0.33	0.06	0.34	0.34	0.06	0.39	0.39	0.02	0.13	0.13
Sat Flow, veh/h	1774	3539	1541	1707	3438	1498	1757	3471	1538	1774	3438	1538
Grp Volume(v), veh/h	72	848	294	151	559	146	245	1360	164	180	1286	69
Grp Sat Flow(s),veh/h/ln	1774	1770	1541	1707	1719	1498	1757	1736	1538	1774	1719	1538
Q Serve(g_s), s	3.7	29.6	22.1	8.0	17.9	10.0	8.0	54.8	10.2	8.0	52.0	5.5
Cycle Q Clear(g_c), s	3.7	29.6	22.1	8.0	17.9	10.0	8.0	54.8	10.2	8.0	52.0	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	1167	508	205	1168	509	160	1360	603	153	1347	603
V/C Ratio(X)	0.25	0.73	0.58	0.74	0.48	0.29	1.53	1.00	0.27	1.18	0.95	0.11
Avail Cap(c_a), veh/h	309	1201	523	205	1168	509	160	1360	603	153	1347	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	41.4	38.9	34.5	36.4	33.8	35.7	42.6	29.0	41.4	59.7	39.5
Incr Delay (d2), s/veh	0.4	2.2	1.5	11.3	0.3	0.3	268.7	24.4	1.1	128.6	15.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	14.8	9.6	2.6	8.6	4.2	18.1	30.9	4.5	11.4	27.8	2.4
LnGrp Delay(d),s/veh	29.9	43.5	40.4	45.8	36.7	34.1	304.4	67.0	30.1	170.0	75.6	39.9
LnGrp LOS	C	D	D	D	D	C	F	F	C	F	E	D
Approach Vol, veh/h		1214			856			1769			1535	
Approach Delay, s/veh		42.0			37.9			96.5			85.0	
Approach LOS		D			D			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	62.3	12.0	53.7	12.0	62.3	10.6	55.1				
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5				
Max Green Setting (Gmax), s	8.0	53.5	8.0	47.5	8.0	53.5	8.0	47.5				
Max Q Clear Time (g_c+I1), s	10.0	54.0	10.0	31.6	10.0	56.8	5.7	19.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	14.6	0.0	0.0	0.0	24.2				
Intersection Summary												
HCM 2010 Ctrl Delay			71.5									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	1011	85	83	780	65	155		
Future Volume (veh/h)	1011	85	83	780	65	155		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1883	1900	1900	1866	1900	1845		
Adj Flow Rate, veh/h	1064	89	87	821	68	163		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	1	1	2	2	0	3		
Cap, veh/h	2446	204	202	1871	243	211		
Arrive On Green	0.73	0.73	0.73	0.73	0.13	0.13		
Sat Flow, veh/h	3434	279	210	2640	1810	1568		
Grp Volume(v), veh/h	569	584	395	513	68	163		
Grp Sat Flow(s),veh/h/ln	1788	1831	1152	1613	1810	1568		
Q Serve(g_s), s	11.3	11.3	2.2	11.2	3.0	9.0		
Cycle Q Clear(g_c), s	11.3	11.3	13.5	11.2	3.0	9.0		
Prop In Lane		0.15	0.22		1.00	1.00		
Lane Grp Cap(c), veh/h	1310	1341	892	1181	243	211		
V/C Ratio(X)	0.43	0.44	0.44	0.43	0.28	0.77		
Avail Cap(c_a), veh/h	1310	1341	892	1181	523	453		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.59	0.59	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	4.7	4.7	4.2	4.7	35.0	37.6		
Incr Delay (d2), s/veh	0.6	0.6	1.6	1.2	0.6	6.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.6	5.7	3.7	5.2	1.6	4.2		
LnGrp Delay(d),s/veh	5.4	5.3	5.8	5.9	35.7	43.6		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h	1153			908	231			
Approach Delay, s/veh	5.3			5.9	41.2			
Approach LOS	A			A	D			

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.9				71.9		18.1
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		52.0				52.0		26.0
Max Q Clear Time (g_c+I1), s		13.3				15.5		11.0
Green Ext Time (p_c), s		36.6				34.6		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
86: Clark Avenue & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	834	46	16	670	553	31	18	8	365	34	190
Future Volume (veh/h)	259	834	46	16	670	553	31	18	8	365	34	190
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1880	1900	1900	1863	1881	1900	1900	1900	1881	1853	1900
Adj Flow Rate, veh/h	273	878	48	17	705	582	33	19	8	384	36	200
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	2	1	0	0	0	1	0	0
Cap, veh/h	352	1721	94	260	1298	578	376	464	195	571	89	495
Arrive On Green	0.07	0.34	0.34	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1810	3441	188	610	3539	1577	1153	1265	533	1374	243	1350
Grp Volume(v), veh/h	273	456	470	17	705	582	33	0	27	384	0	236
Grp Sat Flow(s),veh/h/ln	1810	1786	1843	610	1770	1577	1153	0	1798	1374	0	1594
Q Serve(g_s), s	8.0	18.4	18.4	1.8	14.2	33.0	2.0	0.0	0.9	22.4	0.0	9.9
Cycle Q Clear(g_c), s	8.0	18.4	18.4	8.2	14.2	33.0	11.9	0.0	0.9	23.3	0.0	9.9
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.30	1.00		0.85
Lane Grp Cap(c), veh/h	352	893	922	260	1298	578	376	0	659	571	0	584
V/C Ratio(X)	0.78	0.51	0.51	0.07	0.54	1.01	0.09	0.00	0.04	0.67	0.00	0.40
Avail Cap(c_a), veh/h	352	893	922	260	1298	578	376	0	659	571	0	584
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	18.2	21.1	21.1	23.0	22.5	28.5	25.6	0.0	18.3	25.8	0.0	21.2
Incr Delay (d2), s/veh	10.4	2.1	2.0	0.5	1.6	39.1	0.5	0.0	0.1	3.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	9.6	9.9	0.3	7.1	20.6	0.7	0.0	0.4	8.9	0.0	4.4
LnGrp Delay(d),s/veh	28.6	23.2	23.1	23.5	24.2	67.6	26.1	0.0	18.4	28.8	0.0	21.6
LnGrp LOS	C	C	C	C	C	F	C		B	C		C
Approach Vol, veh/h		1199			1304			60			620	
Approach Delay, s/veh		24.4			43.5			22.6			26.1	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		51.0		39.0	12.0	39.0		39.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		45.0		33.0	9.0	33.0		33.0
Max Q Clear Time (g_c+I1), s		20.4		25.3	10.0	35.0		13.9
Green Ext Time (p_c), s		24.3		3.5	0.0	0.0		6.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	222	9	61	210	238	25	1158	33	149	1250	241
Future Volume (veh/h)	208	222	9	61	210	238	25	1158	33	149	1250	241
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1756	1900	1900	1863	1810	1900	1795	1900	1845	1824	1900
Adj Flow Rate, veh/h	219	234	9	64	221	251	26	1219	35	157	1316	254
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0	2	5	0	6	6	3	4	4
Cap, veh/h	256	633	24	283	644	272	58	1488	43	176	1472	280
Arrive On Green	0.06	0.19	0.19	0.05	0.18	0.18	0.06	0.88	0.88	0.10	0.51	0.51
Sat Flow, veh/h	1670	3274	125	1810	3539	1498	1810	3385	97	1757	2898	552
Grp Volume(v), veh/h	219	119	124	64	221	251	26	614	640	157	780	790
Grp Sat Flow(s),veh/h/ln	1670	1669	1730	1810	1770	1498	1810	1706	1776	1757	1733	1718
Q Serve(g_s), s	8.0	8.7	8.7	4.0	7.6	23.1	1.9	21.8	21.8	12.4	56.4	58.7
Cycle Q Clear(g_c), s	8.0	8.7	8.7	4.0	7.6	23.1	1.9	21.8	21.8	12.4	56.4	58.7
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.05	1.00		0.32
Lane Grp Cap(c), veh/h	256	322	334	283	644	272	58	750	781	176	880	872
V/C Ratio(X)	0.86	0.37	0.37	0.23	0.34	0.92	0.45	0.82	0.82	0.89	0.89	0.91
Avail Cap(c_a), veh/h	256	322	334	304	657	278	103	750	781	176	880	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	49.1	49.1	43.5	50.0	56.3	64.4	6.1	6.1	62.3	30.8	31.4
Incr Delay (d2), s/veh	23.8	0.7	0.7	0.4	0.3	33.3	4.8	8.6	8.4	39.4	12.8	14.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.6	7.3	7.6	3.6	6.8	17.7	1.9	16.1	16.6	12.6	39.0	40.4
LnGrp Delay(d),s/veh	76.5	49.8	49.8	43.9	50.3	89.6	69.2	14.7	14.4	101.6	43.6	46.2
LnGrp LOS	E	D	D	D	D	F	E	B	B	F	D	D
Approach Vol, veh/h		462			536			1280			1727	
Approach Delay, s/veh		62.4			67.9			15.7			50.1	
Approach LOS		E			E			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	79.1	15.4	35.1	20.0	69.5	17.0	33.5
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	67.0	8.0	26.0	14.0	61.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	3.9	60.7	6.0	10.7	14.4	23.8	10.0	25.1
Green Ext Time (p_c), s	0.0	6.3	0.0	7.1	0.0	36.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	163	121	7	384	78	62	22	8	19	22	63
Future Volume (veh/h)	120	163	121	7	384	78	62	22	8	19	22	63
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1834	1900	1900	1821	1900	1863	1781	1900	1810	1849	1900
Adj Flow Rate, veh/h	126	172	127	7	404	82	65	23	8	20	23	66
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	4	4	0	5	5	2	9	9	5	5	5
Cap, veh/h	570	1072	745	687	1567	315	365	276	96	410	92	263
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	912	1962	1364	1093	2868	577	1288	1259	438	1317	418	1199
Grp Volume(v), veh/h	126	152	147	7	242	244	65	0	31	20	0	89
Grp Sat Flow(s),veh/h/ln	912	1743	1583	1093	1730	1715	1288	0	1697	1317	0	1617
Q Serve(g_s), s	4.3	2.2	2.4	0.2	3.8	3.9	2.2	0.0	0.7	0.6	0.0	2.3
Cycle Q Clear(g_c), s	8.2	2.2	2.4	2.6	3.8	3.9	4.6	0.0	0.7	1.4	0.0	2.3
Prop In Lane	1.00		0.86	1.00		0.34	1.00		0.26	1.00		0.74
Lane Grp Cap(c), veh/h	570	952	865	687	945	937	365	0	372	410	0	355
V/C Ratio(X)	0.22	0.16	0.17	0.01	0.26	0.26	0.18	0.00	0.08	0.05	0.00	0.25
Avail Cap(c_a), veh/h	570	952	865	687	945	937	836	0	993	892	0	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.3	5.8	5.8	6.5	6.1	6.1	18.4	0.0	15.9	16.4	0.0	16.5
Incr Delay (d2), s/veh	0.9	0.4	0.4	0.0	0.7	0.7	0.2	0.0	0.1	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	2.1	2.0	0.1	3.5	3.5	1.5	0.0	0.6	0.4	0.0	1.9
LnGrp Delay(d),s/veh	9.2	6.1	6.2	6.5	6.8	6.8	18.6	0.0	16.0	16.5	0.0	16.9
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		425			493			96			109	
Approach Delay, s/veh		7.1			6.8			17.8			16.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		17.2		34.0		17.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		5.9		6.6		10.2		4.3
Green Ext Time (p_c), s		13.0		2.2		11.1		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	165	153	25	177	52	177	423	37	27	417	140
Future Volume (veh/h)	104	165	153	25	177	52	177	423	37	27	417	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1872	1900	1827	1841	1900	1863	1833	1900	1900	1849	1900
Adj Flow Rate, veh/h	109	174	161	26	186	55	186	445	39	28	439	147
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	4	3	3	2	4	4	0	3	3
Cap, veh/h	332	276	255	252	421	125	445	1653	144	506	1320	438
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1118	893	826	1017	1363	403	822	3237	283	920	2584	857
Grp Volume(v), veh/h	109	0	335	26	0	241	186	239	245	28	297	289
Grp Sat Flow(s),veh/h/ln	1118	0	1719	1017	0	1766	822	1741	1778	920	1757	1685
Q Serve(g_s), s	5.8	0.0	11.1	1.5	0.0	7.3	11.5	5.2	5.2	1.2	6.6	6.7
Cycle Q Clear(g_c), s	13.0	0.0	11.1	12.6	0.0	7.3	18.2	5.2	5.2	6.4	6.6	6.7
Prop In Lane	1.00		0.48	1.00		0.23	1.00		0.16	1.00		0.51
Lane Grp Cap(c), veh/h	332	0	531	252	0	546	445	889	908	506	897	861
V/C Ratio(X)	0.33	0.00	0.63	0.10	0.00	0.44	0.42	0.27	0.27	0.06	0.33	0.34
Avail Cap(c_a), veh/h	389	0	620	305	0	637	445	889	908	506	897	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	19.7	25.2	0.0	18.4	15.0	9.2	9.2	11.1	9.6	9.6
Incr Delay (d2), s/veh	0.6	0.0	1.6	0.2	0.0	0.6	2.9	0.7	0.7	0.2	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	0.0	9.4	0.8	0.0	6.5	5.3	4.7	4.9	0.6	6.2	6.1
LnGrp Delay(d),s/veh	24.2	0.0	21.3	25.3	0.0	19.0	17.9	10.0	10.0	11.3	10.6	10.7
LnGrp LOS	C		C	C		B	B	A	A	B	B	B
Approach Vol, veh/h		444			267			670			614	
Approach Delay, s/veh		22.0			19.6			12.2			10.7	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		26.6		40.0		26.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		20.2		15.0		8.7		14.6
Green Ext Time (p_c), s		11.2		5.3		18.6		5.5

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	69	123	1111	1247	73
Future Volume (veh/h)	105	69	123	1111	1247	73
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1792	1863	1776	1779	1900
Adj Flow Rate, veh/h	111	73	129	1169	1313	77
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	7	7	7
Cap, veh/h	146	126	127	2710	2235	131
Arrive On Green	0.08	0.08	0.07	0.80	1.00	1.00
Sat Flow, veh/h	1774	1524	1774	3463	3333	190
Grp Volume(v), veh/h	111	73	129	1169	683	707
Grp Sat Flow(s),veh/h/ln	1774	1524	1774	1687	1690	1743
Q Serve(g_s), s	8.6	6.5	10.0	14.6	0.0	0.0
Cycle Q Clear(g_c), s	8.6	6.5	10.0	14.6	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	146	126	127	2710	1165	1201
V/C Ratio(X)	0.76	0.58	1.02	0.43	0.59	0.59
Avail Cap(c_a), veh/h	437	375	127	2710	1165	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.47	0.47
Uniform Delay (d), s/veh	62.9	61.9	65.0	4.1	0.0	0.0
Incr Delay (d2), s/veh	7.8	4.2	84.8	0.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.2	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	5.2	14.2	11.1	0.6	0.6
LnGrp Delay(d),s/veh	70.6	66.1	150.0	4.7	1.0	1.0
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	184			1298	1390	
Approach Delay, s/veh	68.8			19.1	1.0	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.0	103.9		20.1		119.9		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	10.0	73.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	12.0	2.0		10.6		16.6		
Green Ext Time (p_c), s	0.0	69.0		1.0		70.3		

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	7	55	203	22	41	61	245	155	13	135	38
Future Volume (veh/h)	30	7	55	203	22	41	61	245	155	13	135	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.96		0.93	0.96		0.92	0.98		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1900	1900	1881	1844	1900	1900	1849	1900	1900	1772	1900
Adj Flow Rate, veh/h	32	7	58	214	23	43	64	258	163	14	142	40
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	1	5	5	0	2	2	0	7	7
Cap, veh/h	477	54	448	499	179	334	607	493	311	411	628	177
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1220	166	1374	1294	549	1026	1175	1023	646	963	1303	367
Grp Volume(v), veh/h	32	0	65	214	0	66	64	0	421	14	0	182
Grp Sat Flow(s),veh/h/ln	1220	0	1540	1294	0	1575	1175	0	1670	963	0	1670
Q Serve(g_s), s	1.2	0.0	1.9	8.7	0.0	1.8	2.1	0.0	10.9	0.6	0.0	3.9
Cycle Q Clear(g_c), s	3.0	0.0	1.9	10.5	0.0	1.8	6.0	0.0	10.9	11.5	0.0	3.9
Prop In Lane	1.00		0.89	1.00		0.65	1.00		0.39	1.00		0.22
Lane Grp Cap(c), veh/h	477	0	502	499	0	513	607	0	804	411	0	805
V/C Ratio(X)	0.07	0.00	0.13	0.43	0.00	0.13	0.11	0.00	0.52	0.03	0.00	0.23
Avail Cap(c_a), veh/h	589	0	643	617	0	658	607	0	804	411	0	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	14.8	18.5	0.0	14.8	11.1	0.0	11.2	15.2	0.0	9.4
Incr Delay (d2), s/veh	0.1	0.0	0.2	1.2	0.0	0.2	0.3	0.0	2.4	0.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	1.5	5.9	0.0	1.5	1.3	0.0	9.3	0.3	0.0	3.5
LnGrp Delay(d),s/veh	16.0	0.0	15.0	19.7	0.0	15.0	11.5	0.0	13.6	15.3	0.0	10.0
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		97			280			485			196	
Approach Delay, s/veh		15.3			18.6			13.3			10.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		26.3		36.0		26.3
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		12.9		5.0		13.5		12.5
Green Ext Time (p_c), s		8.8		5.4		8.6		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	68	23	3	19	115	614	41	35	306	7
Future Volume (veh/h)	6	5	68	23	3	19	115	614	41	35	306	7
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1842	1900	1743	1822	1900	1900	1842	1900	1845	1828	1900
Adj Flow Rate, veh/h	6	5	72	24	3	20	121	646	43	37	322	7
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	20	20	9	33	33	0	3	3	3	4	4
Cap, veh/h	353	16	230	290	32	213	738	1968	131	518	2054	45
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1403	102	1471	1227	205	1367	1067	3332	222	743	3477	75
Grp Volume(v), veh/h	6	0	77	24	0	23	121	339	350	37	161	168
Grp Sat Flow(s),veh/h/ln	1403	0	1573	1227	0	1572	1067	1750	1803	743	1737	1815
Q Serve(g_s), s	0.2	0.0	2.1	0.8	0.0	0.6	2.7	4.7	4.7	1.3	2.0	2.0
Cycle Q Clear(g_c), s	0.8	0.0	2.1	2.9	0.0	0.6	4.7	4.7	4.7	5.9	2.0	2.0
Prop In Lane	1.00		0.94	1.00		0.87	1.00		0.12	1.00		0.04
Lane Grp Cap(c), veh/h	353	0	246	290	0	245	738	1034	1065	518	1026	1072
V/C Ratio(X)	0.02	0.00	0.31	0.08	0.00	0.09	0.16	0.33	0.33	0.07	0.16	0.16
Avail Cap(c_a), veh/h	1052	0	1029	901	0	1028	738	1034	1065	518	1026	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	17.7	19.0	0.0	17.1	5.4	4.9	4.9	6.4	4.4	4.4
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.1	0.0	0.2	0.5	0.8	0.8	0.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	1.7	0.5	0.0	0.5	1.6	4.3	4.5	0.5	1.9	1.9
LnGrp Delay(d),s/veh	17.5	0.0	18.5	19.2	0.0	17.3	5.9	5.8	5.8	6.7	4.7	4.7
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		83			47			810			366	
Approach Delay, s/veh		18.4			18.2			5.8			4.9	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		13.4		34.0		13.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		6.7		4.9		7.9		4.1
Green Ext Time (p_c), s		15.3		1.7		14.6		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1195	27	63	705	77	41	110	47	35	44	7
Future Volume (veh/h)	4	1195	27	63	705	77	41	110	47	35	44	7
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1792	1900	1863	1766	1900	1652	1924	1900	1845	1894	1900
Adj Flow Rate, veh/h	4	1258	28	66	742	81	43	116	49	37	46	7
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	6	6	2	8	8	15	3	3	3	5	5
Cap, veh/h	13	2088	46	87	1997	218	226	216	91	158	271	41
Arrive On Green	0.01	0.61	0.61	0.10	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	3405	76	1774	3049	333	1186	1282	542	1199	1605	244
Grp Volume(v), veh/h	4	629	657	66	408	415	43	0	165	37	0	53
Grp Sat Flow(s),veh/h/ln	1810	1702	1778	1774	1677	1704	1186	0	1824	1199	0	1849
Q Serve(g_s), s	0.3	29.4	29.5	4.7	0.0	0.0	4.2	0.0	10.8	3.8	0.0	3.2
Cycle Q Clear(g_c), s	0.3	29.4	29.5	4.7	0.0	0.0	7.4	0.0	10.8	14.5	0.0	3.2
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.30	1.00		0.13
Lane Grp Cap(c), veh/h	13	1044	1090	87	1099	1116	226	0	308	158	0	312
V/C Ratio(X)	0.31	0.60	0.60	0.76	0.37	0.37	0.19	0.00	0.54	0.23	0.00	0.17
Avail Cap(c_a), veh/h	111	1044	1090	218	1099	1116	350	0	498	284	0	505
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.2	15.4	15.4	57.9	0.0	0.0	49.4	0.0	49.4	56.0	0.0	46.3
Incr Delay (d2), s/veh	12.5	2.6	2.5	11.5	0.9	0.8	0.4	0.0	1.5	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	20.8	21.6	4.7	0.5	0.5	2.5	0.0	9.4	2.3	0.0	3.0
LnGrp Delay(d),s/veh	76.7	18.0	17.9	69.4	0.9	0.8	49.8	0.0	50.9	56.8	0.0	46.5
LnGrp LOS	E	B	B	E	A	A	D		D	E		D
Approach Vol, veh/h		1290			889			208			90	
Approach Delay, s/veh		18.1			5.9			50.6			50.7	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.9	92.6		30.4	12.4	87.2		30.4
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	16.0	56.5		35.5
Max Q Clear Time (g_c+I1), s	2.3	2.0		16.5	6.7	31.5		12.8
Green Ext Time (p_c), s	0.0	56.6		3.5	0.1	23.9		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	155	1150	797	26	76	48
Future Volume (veh/h)	155	1150	797	26	76	48
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1792	1698	1900	1810	1792
Adj Flow Rate, veh/h	163	1211	839	27	80	51
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	12	12	5	6
Cap, veh/h	193	2714	2040	66	131	116
Arrive On Green	0.07	0.53	0.43	0.43	0.08	0.08
Sat Flow, veh/h	1740	3495	3274	103	1723	1524
Grp Volume(v), veh/h	163	1211	424	442	80	51
Grp Sat Flow(s),veh/h/ln	1740	1703	1613	1679	1723	1524
Q Serve(g_s), s	12.0	28.3	23.7	23.7	5.8	4.2
Cycle Q Clear(g_c), s	12.0	28.3	23.7	23.7	5.8	4.2
Prop In Lane	1.00			0.06	1.00	1.00
Lane Grp Cap(c), veh/h	193	2714	1032	1074	131	116
V/C Ratio(X)	0.84	0.45	0.41	0.41	0.61	0.44
Avail Cap(c_a), veh/h	294	2714	1032	1074	331	293
HCM Platoon Ratio	0.67	0.67	0.67	0.67	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.60	0.60	1.00	1.00
Uniform Delay (d), s/veh	59.1	12.7	20.2	20.2	58.2	57.4
Incr Delay (d2), s/veh	10.0	0.4	0.7	0.7	4.5	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.9	18.7	15.0	15.5	5.3	3.3
LnGrp Delay(d),s/veh	69.1	13.1	20.9	20.9	62.7	60.0
LnGrp LOS	E	B	C	C	E	E
Approach Vol, veh/h		1374	866		131	
Approach Delay, s/veh		19.8	20.9		61.6	
Approach LOS		B	C		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	20.4	90.7		18.9		111.1		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	22.0	60.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	14.0	25.7		7.8		30.3		
Green Ext Time (p_c), s	0.4	32.7		0.6		52.8		

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	803	269	65	449	106	256	514	56	93	471	118
Future Volume (veh/h)	154	803	269	65	449	106	256	514	56	93	471	118
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1793	1900	1900	1759	1900	1771	1827	1900	1863	1859	1900
Adj Flow Rate, veh/h	162	845	283	68	473	112	269	541	59	98	496	124
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	8	0	9	9	3	4	4	2	2	2
Cap, veh/h	189	921	308	89	830	195	291	1024	111	297	859	213
Arrive On Green	0.04	0.12	0.12	0.10	0.62	0.62	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	1757	2493	834	1810	2671	628	1687	3148	342	1774	2786	692
Grp Volume(v), veh/h	162	577	551	68	294	291	269	297	303	98	313	307
Grp Sat Flow(s),veh/h/ln	1757	1703	1624	1810	1671	1629	1687	1736	1755	1774	1766	1712
Q Serve(g_s), s	11.9	43.5	43.6	4.8	13.4	13.7	9.0	18.1	18.3	4.9	19.4	19.6
Cycle Q Clear(g_c), s	11.9	43.5	43.6	4.8	13.4	13.7	9.0	18.1	18.3	4.9	19.4	19.6
Prop In Lane	1.00		0.51	1.00		0.39	1.00		0.20	1.00		0.40
Lane Grp Cap(c), veh/h	189	629	600	89	519	506	291	565	571	297	545	528
V/C Ratio(X)	0.85	0.92	0.92	0.76	0.57	0.57	0.93	0.53	0.53	0.33	0.58	0.58
Avail Cap(c_a), veh/h	216	629	600	111	519	506	291	567	574	327	577	560
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	55.1	55.2	57.9	19.5	19.6	41.0	35.7	35.7	29.3	37.8	37.9
Incr Delay (d2), s/veh	22.2	18.5	19.5	21.2	4.4	4.7	33.7	0.9	0.9	0.6	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.0	31.3	30.3	5.2	10.9	10.8	14.3	13.7	13.9	4.4	14.8	14.5
LnGrp Delay(d),s/veh	83.9	73.6	74.6	79.0	24.0	24.2	74.8	36.6	36.7	29.9	39.0	39.2
LnGrp LOS	F	E	E	E	C	C	E	D	D	C	D	D
Approach Vol, veh/h		1290			653			869			718	
Approach Delay, s/veh		75.4			29.8			48.4			37.9	
Approach LOS		E			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	48.4	13.0	48.6	12.4	56.0	10.8	50.8
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5
Max Green Setting (Gmax), s	16.0	36.0	9.0	42.5	8.0	44.0	9.0	42.5
Max Q Clear Time (g_c+I1), s	13.9	15.7	11.0	21.6	6.8	45.6	6.9	20.3
Green Ext Time (p_c), s	0.1	18.6	0.0	16.5	0.0	0.0	0.1	17.4

Intersection Summary	
HCM 2010 Ctrl Delay	52.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	589	251	114	346	145	190	203	162	79	229	84
Future Volume (veh/h)	112	589	251	114	346	145	190	203	162	79	229	84
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1847	1900	1557	1803	1900	1863	1597	1696	1473	1726	1900
Adj Flow Rate, veh/h	118	620	264	120	364	153	200	214	171	83	241	88
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	141	1023	435	141	1056	435	176	467	418	199	352	129
Arrive On Green	0.16	0.87	0.87	0.10	0.45	0.45	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1774	2350	1000	1483	2340	965	1043	1597	1430	783	1205	440
Grp Volume(v), veh/h	118	463	421	120	265	252	200	214	171	83	0	329
Grp Sat Flow(s),veh/h/ln	1774	1754	1595	1483	1713	1592	1043	1597	1430	783	0	1644
Q Serve(g_s), s	8.4	9.4	9.4	10.4	13.0	13.4	15.0	14.2	12.5	12.6	0.0	23.0
Cycle Q Clear(g_c), s	8.4	9.4	9.4	10.4	13.0	13.4	38.0	14.2	12.5	26.8	0.0	23.0
Prop In Lane	1.00		0.63	1.00		0.61	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	141	764	695	141	773	718	176	467	418	199	0	481
V/C Ratio(X)	0.84	0.61	0.61	0.85	0.34	0.35	1.14	0.46	0.41	0.42	0.00	0.68
Avail Cap(c_a), veh/h	177	764	695	194	773	718	176	467	418	199	0	481
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	53.8	5.3	5.3	57.9	23.2	23.3	59.9	37.6	37.0	48.6	0.0	40.7
Incr Delay (d2), s/veh	23.4	3.5	3.9	21.8	1.2	1.4	110.0	0.7	0.6	1.3	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.6	8.5	8.0	8.8	10.6	10.2	21.0	10.5	8.7	5.0	0.0	16.1
LnGrp Delay(d),s/veh	77.2	8.9	9.2	79.7	24.4	24.6	169.9	38.3	37.6	49.8	0.0	44.3
LnGrp LOS	E	A	A	E	C	C	F	D	D	D		D
Approach Vol, veh/h		1002			637			585			412	
Approach Delay, s/veh		17.1			34.9			83.1			45.4	
Approach LOS		B			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	66.7		47.0	18.4	64.6		47.0
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	13.0	56.0		38.0	17.0	52.0		38.0
Max Q Clear Time (g_c+I1), s	10.4	15.4		28.8	12.4	11.4		40.0
Green Ext Time (p_c), s	0.1	29.8		6.3	0.2	29.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	376	276	47	366	118	174	549	54	72	292	30
Future Volume (veh/h)	94	376	276	47	366	118	174	549	54	72	292	30
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1847	1900	1863	1805	1900	1827	1846	1900	1845	1834	1900
Adj Flow Rate, veh/h	99	396	291	49	385	124	183	578	57	76	307	32
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	2	6	6	4	3	3	3	4	4
Cap, veh/h	536	1127	819	439	1488	473	287	899	88	178	888	92
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	894	1939	1409	751	2559	814	1007	3220	317	777	3181	329
Grp Volume(v), veh/h	99	358	329	49	256	253	183	314	321	76	167	172
Grp Sat Flow(s),veh/h/ln	894	1755	1593	751	1715	1658	1007	1754	1783	777	1742	1768
Q Serve(g_s), s	5.3	9.2	9.4	3.2	6.3	6.5	15.2	13.5	13.6	8.2	6.6	6.7
Cycle Q Clear(g_c), s	11.8	9.2	9.4	12.5	6.3	6.5	21.9	13.5	13.6	21.8	6.6	6.7
Prop In Lane	1.00		0.88	1.00		0.49	1.00		0.18	1.00		0.19
Lane Grp Cap(c), veh/h	536	1020	926	439	997	964	287	489	498	178	486	493
V/C Ratio(X)	0.18	0.35	0.36	0.11	0.26	0.26	0.64	0.64	0.64	0.43	0.34	0.35
Avail Cap(c_a), veh/h	536	1020	926	439	997	964	287	489	498	178	486	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	9.5	9.5	12.8	8.9	8.9	33.5	27.2	27.3	36.8	24.7	24.8
Incr Delay (d2), s/veh	0.8	1.0	1.1	0.5	0.6	0.7	6.5	4.0	4.0	3.5	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	8.2	7.8	1.3	5.7	5.6	8.3	11.4	11.6	3.5	5.9	6.1
LnGrp Delay(d),s/veh	12.5	10.4	10.6	13.3	9.5	9.6	40.0	31.2	31.2	40.3	25.6	25.7
LnGrp LOS	B	B	B	B	A	A	D	C	C	D	C	C
Approach Vol, veh/h		786			558			818			415	
Approach Delay, s/veh		10.7			9.9			33.2			28.3	
Approach LOS		B			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		14.5		23.9		13.8		23.8
Green Ext Time (p_c), s		31.0		0.1		31.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	126	119	133	147	100	117	657	187	145	531	129
Future Volume (veh/h)	69	126	119	133	147	100	117	657	187	145	531	129
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1845	1900	1900	1860	1900	1845	1867	1900	1845	1841	1900
Adj Flow Rate, veh/h	73	133	125	140	155	105	123	692	197	153	559	136
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	3	3	1	1	1	3	2	2	3	4	4
Cap, veh/h	331	281	264	264	332	248	433	1417	403	309	1071	260
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1094	853	802	564	1007	752	1757	2719	774	614	2783	675
Grp Volume(v), veh/h	73	0	258	189	0	211	123	451	438	153	350	345
Grp Sat Flow(s),veh/h/ln	1094	0	1655	808	0	1515	1757	1773	1720	614	1749	1709
Q Serve(g_s), s	4.5	0.0	10.0	10.5	0.0	8.8	3.0	13.2	13.2	17.2	12.4	12.5
Cycle Q Clear(g_c), s	13.2	0.0	10.0	20.5	0.0	8.8	3.0	13.2	13.2	19.3	12.4	12.5
Prop In Lane	1.00		0.48	0.74		0.50	1.00		0.45	1.00		0.39
Lane Grp Cap(c), veh/h	331	0	546	344	0	500	433	924	896	309	673	658
V/C Ratio(X)	0.22	0.00	0.47	0.55	0.00	0.42	0.28	0.49	0.49	0.49	0.52	0.52
Avail Cap(c_a), veh/h	337	0	555	351	0	508	433	924	896	309	673	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	21.4	28.3	0.0	21.0	12.0	12.4	12.4	22.1	19.1	19.1
Incr Delay (d2), s/veh	0.3	0.0	0.6	1.7	0.0	0.6	1.6	1.8	1.9	5.6	2.9	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.0	8.1	7.3	0.0	6.7	2.9	11.2	10.9	6.1	10.6	10.5
LnGrp Delay(d),s/veh	26.5	0.0	22.1	30.0	0.0	21.6	13.7	14.2	14.3	27.7	21.9	22.1
LnGrp LOS	C		C	C		C	B	B	B	C	C	C
Approach Vol, veh/h		331			400			1012			848	
Approach Delay, s/veh		23.1			25.6			14.2			23.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		32.6		48.0		32.6
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.0	21.3		22.5		15.2		15.2
Green Ext Time (p_c), s	0.1	9.3		3.1		24.7		7.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	5	20	18	8	52	24	688	14	64	500	61
Future Volume (veh/h)	32	5	20	18	8	52	24	688	14	64	500	61
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1868	1900	1900	1781	1900	1900	1826	1900	1900	1832	1900
Adj Flow Rate, veh/h	34	5	21	19	8	55	25	724	15	67	526	64
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	4	4	4
Cap, veh/h	236	52	96	119	58	184	100	1937	39	211	1505	179
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	700	287	532	180	320	1018	44	3308	67	216	2571	307
Grp Volume(v), veh/h	60	0	0	82	0	0	397	0	367	321	0	336
Grp Sat Flow(s),veh/h/ln	1519	0	0	1518	0	0	1770	0	1649	1485	0	1609
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	5.6
Cycle Q Clear(g_c), s	1.5	0.0	0.0	2.3	0.0	0.0	5.9	0.0	6.1	4.5	0.0	5.6
Prop In Lane	0.57		0.35	0.23		0.67	0.06		0.04	0.21		0.19
Lane Grp Cap(c), veh/h	384	0	0	361	0	0	1111	0	965	954	0	942
V/C Ratio(X)	0.16	0.00	0.00	0.23	0.00	0.00	0.36	0.00	0.38	0.34	0.00	0.36
Avail Cap(c_a), veh/h	910	0	0	897	0	0	1111	0	965	954	0	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	0.0	18.2	0.0	0.0	5.6	0.0	5.7	5.3	0.0	5.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.9	0.0	1.1	1.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	0.0	0.0	1.9	0.0	0.0	5.7	0.0	5.5	4.5	0.0	4.9
LnGrp Delay(d),s/veh	18.0	0.0	0.0	18.5	0.0	0.0	6.5	0.0	6.8	6.3	0.0	6.6
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		60			82			764			657	
Approach Delay, s/veh		18.0			18.5			6.7			6.5	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		15.3		36.0		15.3
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		8.1		4.3		7.6		3.5
Green Ext Time (p_c), s		18.6		2.0		18.9		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	29	36	17	184	14	717	18	73	486	13
Future Volume (veh/h)	3	6	29	36	17	184	14	717	18	73	486	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1854	1900	1900	1806	1900	1900	1809	1900	1900	1821	1900
Adj Flow Rate, veh/h	3	6	31	38	18	194	15	755	19	77	512	14
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	12	12	12	5	5	5	4	4	4
Cap, veh/h	92	89	334	125	57	320	90	1570	39	206	1238	34
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	31	332	1250	134	212	1198	21	3312	82	226	2611	72
Grp Volume(v), veh/h	40	0	0	250	0	0	413	0	376	284	0	319
Grp Sat Flow(s),veh/h/ln	1613	0	0	1544	0	0	1785	0	1631	1266	0	1643
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	7.3	0.6	0.0	5.9
Cycle Q Clear(g_c), s	0.9	0.0	0.0	6.4	0.0	0.0	7.2	0.0	7.3	7.9	0.0	5.9
Prop In Lane	0.07		0.77	0.15		0.78	0.04		0.05	0.27		0.04
Lane Grp Cap(c), veh/h	515	0	0	502	0	0	927	0	773	699	0	779
V/C Ratio(X)	0.08	0.00	0.00	0.50	0.00	0.00	0.45	0.00	0.49	0.41	0.00	0.41
Avail Cap(c_a), veh/h	974	0	0	946	0	0	927	0	773	699	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	14.8	0.0	0.0	8.3	0.0	8.3	7.7	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	1.6	0.0	2.2	1.8	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	0.0	5.2	0.0	0.0	7.1	0.0	6.7	4.6	0.0	5.4
LnGrp Delay(d),s/veh	12.8	0.0	0.0	15.6	0.0	0.0	9.9	0.0	10.5	9.4	0.0	9.6
LnGrp LOS	B			B			A		B	A		A
Approach Vol, veh/h		40			250			789			603	
Approach Delay, s/veh		12.8			15.6			10.2			9.5	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		18.4		28.0		18.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		9.3		2.9		9.9		8.4
Green Ext Time (p_c), s		11.2		4.8		10.7		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	3	49	32	9	19	75	709	71	20	508	32
Future Volume (veh/h)	21	3	49	32	9	19	75	709	71	20	508	32
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1801	1900	1900	1813	1900	1900	1838	1900	1900	1833	1900
Adj Flow Rate, veh/h	22	3	52	34	9	20	79	746	75	21	535	34
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	11	11	11	3	3	3	4	4	4
Cap, veh/h	154	52	248	268	81	114	177	1468	144	95	1663	104
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	273	213	1011	668	329	463	184	2779	272	43	3148	196
Grp Volume(v), veh/h	77	0	0	63	0	0	452	0	448	307	0	283
Grp Sat Flow(s),veh/h/ln	1498	0	0	1460	0	0	1613	0	1623	1755	0	1632
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	5.2
Cycle Q Clear(g_c), s	2.0	0.0	0.0	1.5	0.0	0.0	8.2	0.0	9.5	5.0	0.0	5.2
Prop In Lane	0.29		0.68	0.54		0.32	0.17		0.17	0.07		0.12
Lane Grp Cap(c), veh/h	455	0	0	463	0	0	932	0	857	1000	0	862
V/C Ratio(X)	0.17	0.00	0.00	0.14	0.00	0.00	0.49	0.00	0.52	0.31	0.00	0.33
Avail Cap(c_a), veh/h	783	0	0	783	0	0	932	0	857	1000	0	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	15.7	0.0	0.0	7.8	0.0	8.1	7.1	0.0	7.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	1.8	0.0	2.3	0.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	0.0	1.3	0.0	0.0	8.0	0.0	8.3	4.8	0.0	4.7
LnGrp Delay(d),s/veh	16.0	0.0	0.0	15.8	0.0	0.0	9.6	0.0	10.4	7.9	0.0	8.1
LnGrp LOS	B			B			A		B	A		A
Approach Vol, veh/h		77			63			900			590	
Approach Delay, s/veh		16.0			15.8			10.0			8.0	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.0		34.0		19.0		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		3.5		11.5		4.0		7.2
Green Ext Time (p_c), s		1.9		14.7		1.9		18.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	615	60	105	375	130	70	610	175	165	395	95
Future Volume (veh/h)	155	615	60	105	375	130	70	610	175	165	395	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1900	1900	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	163	647	63	111	395	137	74	642	184	174	416	100
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	1	1	0	0	1	1	1	1	1
Cap, veh/h	413	1310	587	344	1302	583	382	942	270	275	1003	239
Arrive On Green	0.06	0.37	0.37	0.02	0.12	0.12	0.06	0.34	0.34	0.06	0.35	0.35
Sat Flow, veh/h	1810	3574	1602	1792	3574	1602	1810	2732	782	1792	2855	680
Grp Volume(v), veh/h	163	647	63	111	395	137	74	420	406	174	259	257
Grp Sat Flow(s),veh/h/ln	1810	1787	1602	1792	1787	1602	1810	1787	1727	1792	1787	1747
Q Serve(g_s), s	6.2	15.4	2.9	4.2	11.1	8.5	2.8	22.1	22.2	7.0	12.1	12.3
Cycle Q Clear(g_c), s	6.2	15.4	2.9	4.2	11.1	8.5	2.8	22.1	22.2	7.0	12.1	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.39
Lane Grp Cap(c), veh/h	413	1310	587	344	1302	583	382	616	596	275	628	614
V/C Ratio(X)	0.39	0.49	0.11	0.32	0.30	0.23	0.19	0.68	0.68	0.63	0.41	0.42
Avail Cap(c_a), veh/h	413	1310	587	347	1302	583	394	634	612	275	634	620
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	27.0	23.0	21.5	35.6	34.5	21.2	30.9	30.9	24.3	27.1	27.1
Incr Delay (d2), s/veh	0.6	1.3	0.4	0.5	0.6	0.9	0.2	2.9	3.0	4.7	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	12.4	2.4	3.8	9.5	7.1	2.5	16.9	16.4	6.7	10.1	10.0
LnGrp Delay(d),s/veh	21.1	28.3	23.4	22.0	36.2	35.5	21.4	33.7	33.9	29.0	27.5	27.6
LnGrp LOS	C	C	C	C	D	D	C	C	C	C	C	C
Approach Vol, veh/h		873			643			900			690	
Approach Delay, s/veh		26.6			33.6			32.8			27.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	46.3	9.3	44.7	10.0	46.1	10.0	43.9
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	39.0	7.0	39.0	7.0	39.0	7.0	39.0
Max Q Clear Time (g_c+I1), s	6.2	17.4	4.8	14.3	8.2	13.1	9.0	24.2
Green Ext Time (p_c), s	0.0	17.0	0.0	20.1	0.0	19.7	0.0	12.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	60	875	525	255	240	55		
Future Volume (veh/h)	60	875	525	255	240	55		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1900	1881	1863	1881	1881	1881		
Adj Flow Rate, veh/h	63	921	553	268	253	58		
Adj No. of Lanes	1	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	1	2	1	1	1		
Cap, veh/h	551	2574	2260	1021	306	273		
Arrive On Green	0.11	1.00	0.64	0.64	0.17	0.17		
Sat Flow, veh/h	1810	3668	3632	1599	1792	1599		
Grp Volume(v), veh/h	63	921	553	268	253	58		
Grp Sat Flow(s),veh/h/ln	1810	1787	1770	1599	1792	1599		
Q Serve(g_s), s	1.1	0.0	7.4	8.0	15.0	3.4		
Cycle Q Clear(g_c), s	1.1	0.0	7.4	8.0	15.0	3.4		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	551	2574	2260	1021	306	273		
V/C Ratio(X)	0.11	0.36	0.24	0.26	0.83	0.21		
Avail Cap(c_a), veh/h	568	2574	2260	1021	668	596		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	4.9	0.0	8.5	8.6	44.0	39.2		
Incr Delay (d2), s/veh	0.1	0.4	0.3	0.6	5.7	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	1.0	0.3	6.5	6.6	12.5	5.9		
LnGrp Delay(d),s/veh	5.0	0.4	8.8	9.3	49.7	39.6		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		984	821		311			
Approach Delay, s/veh		0.7	8.9		47.8			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.2		24.8	9.0	76.2		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		2.0		17.0	3.1	10.0		
Green Ext Time (p_c), s		46.1		1.8	0.1	32.6		
Intersection Summary								
HCM 2010 Ctrl Delay			10.8					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	806	279	143	531	139	233	1292	156	171	1222	66
Future Volume (veh/h)	68	806	279	143	531	139	233	1292	156	171	1222	66
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1845	1792	1810	1792	1845	1827	1863	1863	1810	1863
Adj Flow Rate, veh/h	72	848	294	151	559	146	245	1360	164	180	1286	69
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	3	6	5	6	3	4	2	2	5	2
Cap, veh/h	290	1167	508	205	1168	509	160	1360	603	153	1347	603
Arrive On Green	0.05	0.33	0.33	0.06	0.34	0.34	0.06	0.39	0.39	0.02	0.13	0.13
Sat Flow, veh/h	1774	3539	1541	1707	3438	1498	1757	3471	1538	1774	3438	1538
Grp Volume(v), veh/h	72	848	294	151	559	146	245	1360	164	180	1286	69
Grp Sat Flow(s),veh/h/ln	1774	1770	1541	1707	1719	1498	1757	1736	1538	1774	1719	1538
Q Serve(g_s), s	3.7	29.6	22.1	8.0	17.9	10.0	8.0	54.8	10.2	8.0	52.0	5.5
Cycle Q Clear(g_c), s	3.7	29.6	22.1	8.0	17.9	10.0	8.0	54.8	10.2	8.0	52.0	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	1167	508	205	1168	509	160	1360	603	153	1347	603
V/C Ratio(X)	0.25	0.73	0.58	0.74	0.48	0.29	1.53	1.00	0.27	1.18	0.95	0.11
Avail Cap(c_a), veh/h	309	1201	523	205	1168	509	160	1360	603	153	1347	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	41.4	38.9	34.5	36.4	33.8	35.7	42.6	29.0	41.4	59.7	39.5
Incr Delay (d2), s/veh	0.4	2.2	1.5	11.3	0.3	0.3	268.7	24.4	1.1	128.6	15.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	21.2	14.7	4.7	13.0	7.2	32.6	55.6	8.0	20.5	36.5	4.4
LnGrp Delay(d),s/veh	29.9	43.5	40.4	45.8	36.7	34.1	304.4	67.0	30.1	170.0	75.6	39.9
LnGrp LOS	C	D	D	D	D	C	F	F	C	F	E	D
Approach Vol, veh/h		1214			856			1769			1535	
Approach Delay, s/veh		42.0			37.9			96.5			85.0	
Approach LOS		D			D			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	62.3	12.0	53.7	12.0	62.3	10.6	55.1				
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5				
Max Green Setting (Gmax), s	8.0	53.5	8.0	47.5	8.0	53.5	8.0	47.5				
Max Q Clear Time (g_c+I1), s	10.0	54.0	10.0	31.6	10.0	56.8	5.7	19.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	14.6	0.0	0.0	0.0	24.2				
Intersection Summary												
HCM 2010 Ctrl Delay			71.5									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	1011	85	83	780	65	155		
Future Volume (veh/h)	1011	85	83	780	65	155		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1883	1900	1900	1866	1900	1845		
Adj Flow Rate, veh/h	1064	89	87	821	68	163		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	1	1	2	2	0	3		
Cap, veh/h	2446	204	202	1871	243	211		
Arrive On Green	0.73	0.73	0.73	0.73	0.13	0.13		
Sat Flow, veh/h	3434	279	210	2640	1810	1568		
Grp Volume(v), veh/h	569	584	395	513	68	163		
Grp Sat Flow(s),veh/h/ln	1788	1831	1152	1613	1810	1568		
Q Serve(g_s), s	11.3	11.3	2.2	11.2	3.0	9.0		
Cycle Q Clear(g_c), s	11.3	11.3	13.5	11.2	3.0	9.0		
Prop In Lane		0.15	0.22		1.00	1.00		
Lane Grp Cap(c), veh/h	1310	1341	892	1181	243	211		
V/C Ratio(X)	0.43	0.44	0.44	0.43	0.28	0.77		
Avail Cap(c_a), veh/h	1310	1341	892	1181	523	453		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.59	0.59	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	4.7	4.7	4.2	4.7	35.0	37.6		
Incr Delay (d2), s/veh	0.6	0.6	1.6	1.2	0.6	6.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.6	8.8	6.6	9.0	2.8	7.6		
LnGrp Delay(d),s/veh	5.4	5.3	5.8	5.9	35.7	43.6		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h	1153			908	231			
Approach Delay, s/veh	5.3			5.9	41.2			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.9				71.9		18.1
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		52.0				52.0		26.0
Max Q Clear Time (g_c+I1), s		13.3				15.5		11.0
Green Ext Time (p_c), s		36.6				34.6		1.1
Intersection Summary								
HCM 2010 Ctrl Delay			9.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
86: Clark Avenue & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	834	46	16	670	553	31	18	8	365	34	190
Future Volume (veh/h)	259	834	46	16	670	553	31	18	8	365	34	190
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1880	1900	1900	1863	1881	1900	1900	1900	1881	1853	1900
Adj Flow Rate, veh/h	273	878	48	17	705	582	33	19	8	384	36	200
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	2	1	0	0	0	1	0	0
Cap, veh/h	352	1721	94	260	1298	578	376	464	195	571	89	495
Arrive On Green	0.07	0.34	0.34	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1810	3441	188	610	3539	1577	1153	1265	533	1374	243	1350
Grp Volume(v), veh/h	273	456	470	17	705	582	33	0	27	384	0	236
Grp Sat Flow(s),veh/h/ln	1810	1786	1843	610	1770	1577	1153	0	1798	1374	0	1594
Q Serve(g_s), s	8.0	18.4	18.4	1.8	14.2	33.0	2.0	0.0	0.9	22.4	0.0	9.9
Cycle Q Clear(g_c), s	8.0	18.4	18.4	8.2	14.2	33.0	11.9	0.0	0.9	23.3	0.0	9.9
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.30	1.00		0.85
Lane Grp Cap(c), veh/h	352	893	922	260	1298	578	376	0	659	571	0	584
V/C Ratio(X)	0.78	0.51	0.51	0.07	0.54	1.01	0.09	0.00	0.04	0.67	0.00	0.40
Avail Cap(c_a), veh/h	352	893	922	260	1298	578	376	0	659	571	0	584
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	18.2	21.1	21.1	23.0	22.5	28.5	25.6	0.0	18.3	25.8	0.0	21.2
Incr Delay (d2), s/veh	10.4	2.1	2.0	0.5	1.6	39.1	0.5	0.0	0.1	3.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	14.7	15.1	0.6	11.5	37.0	1.2	0.0	0.8	13.7	0.0	7.8
LnGrp Delay(d),s/veh	28.6	23.2	23.1	23.5	24.2	67.6	26.1	0.0	18.4	28.8	0.0	21.6
LnGrp LOS	C	C	C	C	C	F	C		B	C		C
Approach Vol, veh/h		1199			1304			60			620	
Approach Delay, s/veh		24.4			43.5			22.6			26.1	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		51.0		39.0	12.0	39.0		39.0				
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s		45.0		33.0	9.0	33.0		33.0				
Max Q Clear Time (g_c+I1), s		20.4		25.3	10.0	35.0		13.9				
Green Ext Time (p_c), s		24.3		3.5	0.0	0.0		6.4				
Intersection Summary												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									

HCM 2010 AWSC
91: Promenade Circle & North Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	262	125	110	292	257	337
Future Vol, veh/h	262	125	110	292	257	337
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	6	2	10	0	0	6
Mvmt Flow	276	132	116	307	271	355
Number of Lanes	0	2	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	21.9	15.5	18.9
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	86%	0%	0%	0%	100%	0%
Vol Thru, %	14%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	304	83	110	292	257	337
LT Vol	262	0	0	0	257	0
Through Vol	42	83	110	0	0	0
RT Vol	0	0	0	292	0	337
Lane Flow Rate	320	88	116	307	271	355
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.673	0.172	0.234	0.545	0.556	0.618
Departure Headway (Hd)	7.581	7.069	7.275	6.383	7.393	6.276
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	504	491	559	487	571
Service Time	5.374	4.862	5.067	4.174	5.174	4.056
HCM Lane V/C Ratio	0.677	0.175	0.236	0.549	0.556	0.622
HCM Control Delay	24.8	11.3	12.3	16.7	19.1	18.8
HCM Lane LOS	C	B	B	C	C	C
HCM 95th-tile Q	4.9	0.6	0.9	3.3	3.3	4.2

HCM 2010 AWSC
92: Promenade Circle & West Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	250	206	246	115	135	133
Future Vol, veh/h	250	206	246	115	135	133
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	3	2	1	0
Mvmt Flow	263	217	259	121	142	140
Number of Lanes	1	1	0	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	14.2	16.6	11.2
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	87%	0%	100%	0%	0%	0%
Vol Thru, %	13%	100%	0%	0%	100%	25%
Vol Right, %	0%	0%	0%	100%	0%	75%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	77	250	206	90	178
LT Vol	246	0	250	0	0	0
Through Vol	38	77	0	0	90	45
RT Vol	0	0	0	206	0	133
Lane Flow Rate	299	81	263	217	95	187
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.569	0.143	0.504	0.342	0.173	0.314
Departure Headway (Hd)	6.849	6.392	6.896	5.682	6.576	6.025
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	560	521	631	544	594
Service Time	4.602	4.145	4.646	3.431	4.332	3.781
HCM Lane V/C Ratio	0.567	0.145	0.505	0.344	0.175	0.315
HCM Control Delay	18.3	10.2	16.5	11.4	10.7	11.5
HCM Lane LOS	C	B	C	B	B	B
HCM 95th-tile Q	3.5	0.5	2.8	1.5	0.6	1.3

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	135	100	255	20	40	245
Future Vol, veh/h	135	100	255	20	40	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	2	3	0	23	0
Mvmt Flow	142	105	268	21	42	258
Number of Lanes	1	0	2	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	11.1	9.9	11.5
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	57%	100%	0%
Vol Thru, %	100%	81%	0%	0%	100%
Vol Right, %	0%	19%	43%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	170	105	235	40	245
LT Vol	0	0	135	40	0
Through Vol	170	85	0	0	245
RT Vol	0	20	100	0	0
Lane Flow Rate	179	111	247	42	258
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.275	0.164	0.354	0.074	0.391
Departure Headway (Hd)	5.53	5.344	5.157	6.36	5.46
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	642	663	690	558	652
Service Time	3.328	3.141	3.237	4.158	3.257
HCM Lane V/C Ratio	0.279	0.167	0.358	0.075	0.396
HCM Control Delay	10.4	9.2	11.1	9.7	11.8
HCM Lane LOS	B	A	B	A	B
HCM 95th-tile Q	1.1	0.6	1.6	0.2	1.9

HCM 2010 TWSC
31: New Westminster Drive & No Frills East Access 10/21/2019

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	84	159	115	659	523	94
Future Vol, veh/h	84	159	115	659	523	94
Conflicting Peds, #/hr	1	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	250	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	4	3	0
Mvmt Flow	88	167	121	694	551	99

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1205	341	664	0	-	0
Stage 1	615	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.12	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.21	-	-	-
Pot Cap-1 Maneuver	179	661	928	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	151	651	927	-	-	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	448	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.2	1.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	927	-	151	651	-	-
HCM Lane V/C Ratio	0.131	-	0.586	0.257	-	-
HCM Control Delay (s)	9.5	-	58	12.4	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	3.1	1	-	-

HCM 2010 TWSC
33: Bathurst Street & SmartCentres East Access 10/21/2019

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	88	0	1234	1256	88
Future Vol, veh/h	0	88	0	1234	1256	88
Conflicting Peds, #/hr	0	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	9	8	7
Mvmt Flow	0	93	0	1299	1322	93

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2027	717	-	0	-	0
Stage 1	1378	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Critical Hdwy	6.8	6.92	-	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.31	-	-	-	-
Pot Cap-1 Maneuver	51	374	0	-	-	-
Stage 1	203	-	0	-	-	-
Stage 2	487	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	50	371	-	-	-	-
Mov Cap-2 Maneuver	50	-	-	-	-	-
Stage 1	201	-	-	-	-	-
Stage 2	482	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	371	-	-
HCM Lane V/C Ratio	-	0.25	-	-
HCM Control Delay (s)	-	17.9	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	932	20	0	620	0	20
Future Vol, veh/h	932	20	0	620	0	20
Conflicting Peds, #/hr	0	15	10	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	100	0	3	0	100
Mvmt Flow	981	21	0	653	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	516
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	8.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.3
Pot Cap-1 Maneuver	-	-	0	-	0	313
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	309
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	309	-	-	-
HCM Lane V/C Ratio	0.068	-	-	-
HCM Control Delay (s)	17.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	820	10	0	605	0	10
Future Vol, veh/h	820	10	0	605	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	0	0	5	0	0
Mvmt Flow	863	11	0	637	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	437
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	573
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	573
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	573	-	-	-
HCM Lane V/C Ratio	0.018	-	-	-
HCM Control Delay (s)	11.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	60	0	1385	1165	245
Future Vol, veh/h	0	60	0	1385	1165	245
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	1500
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	11	0	3	0	4
Mvmt Flow	0	63	0	1458	1226	258

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	742	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.32	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.01	-	-	-	-
Pot Cap-1 Maneuver	0	292	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	292	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	292	-	-
HCM Lane V/C Ratio	-	0.216	-	-
HCM Control Delay (s)	-	20.7	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.8	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	0	1495	1445	25
Future Vol, veh/h	0	10	0	1495	1445	25
Conflicting Peds, #/hr	0	0	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	11	0	1574	1521	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	789	1562	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	5.3	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	3.1	-	-	-
Pot Cap-1 Maneuver	0	290	212	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	286	212	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	212	-	286	-	-
HCM Lane V/C Ratio	-	-	0.037	-	-
HCM Control Delay (s)	0	-	18.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	1075	745	50	30	35
Future Vol, veh/h	40	1075	745	50	30	35
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	400	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	2	3	0
Mvmt Flow	42	1132	784	53	32	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	789	0	-	0	1439	397
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	650	-
Critical Hdwy	4.1	-	-	-	6.86	6.9
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.2	-	-	-	3.53	3.3
Pot Cap-1 Maneuver	840	-	-	-	123	608
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	479	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	840	-	-	-	116	605
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	403	-
Stage 2	-	-	-	-	453	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	27.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	840	-	-	-	116	605
HCM Lane V/C Ratio	0.05	-	-	-	0.272	0.061
HCM Control Delay (s)	9.5	-	-	-	47.3	11.3
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1	0.2

HCM Signalized Intersection Capacity Analysis
47: Bathurst Street & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	487	232	104	401	65	222	1057	96	163	1091	90
Future Volume (vph)	112	487	232	104	401	65	222	1057	96	163	1091	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.94	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1407	3292	1424	1631	3242		3193	3323	1412	1631	3323	1080
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1407	3292	1424	1631	3242		3193	3323	1412	1631	3323	1080
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	513	244	109	422	68	234	1113	101	172	1148	95
RTOR Reduction (vph)	0	0	202	0	8	0	0	0	73	0	0	65
Lane Group Flow (vph)	118	513	42	109	482	0	234	1113	28	172	1148	30
Confl. Peds. (#/hr)	13		15	15		13	16		16	16		16
Heavy Vehicles (%)	24%	6%	4%	7%	5%	3%	6%	5%	4%	7%	5%	36%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4						6			2
Actuated Green, G (s)	14.0	27.6	27.6	13.3	26.9		20.6	45.1	45.1	26.6	51.1	51.1
Effective Green, g (s)	14.0	27.6	27.6	13.3	26.9		20.6	45.1	45.1	26.6	51.1	51.1
Actuated g/C Ratio	0.09	0.17	0.17	0.08	0.17		0.13	0.28	0.28	0.17	0.32	0.32
Clearance Time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	123	567	245	135	545		411	936	398	271	1061	344
v/s Ratio Prot	c0.08	c0.16		0.07	0.15		0.07	c0.33		c0.11	c0.35	
v/s Ratio Perm			0.03						0.02			0.03
v/c Ratio	0.96	0.90	0.17	0.81	0.88		0.57	1.19	0.07	0.63	1.08	0.09
Uniform Delay, d1	72.7	64.9	56.5	72.1	65.0		65.5	57.5	42.1	62.2	54.5	38.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	67.6	20.4	1.5	28.6	18.5		1.8	95.8	0.1	4.8	52.6	0.1
Delay (s)	140.4	85.3	58.0	100.7	83.6		67.3	153.3	42.2	67.0	107.1	38.2
Level of Service	F	F	E	F	F		E	F	D	E	F	D
Approach Delay (s)		85.1			86.7			131.6			97.6	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM 2000 Control Delay	104.9	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	46.0	
Intersection Capacity Utilization	87.8%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Bathurst Street & East Promenade

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	153	269	260	1235	1201	40
Future Volume (vph)	153	269	260	1235	1201	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	0.95	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3076	1531	1646	3323	3355	1448
Flt Permitted	0.95	1.00	0.15	1.00	1.00	1.00
Satd. Flow (perm)	3076	1531	266	3323	3355	1448
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	161	283	274	1300	1264	42
RTOR Reduction (vph)	0	257	0	0	0	10
Lane Group Flow (vph)	161	26	274	1300	1264	32
Confl. Peds. (#/hr)	17		13			13
Heavy Vehicles (%)	4%	2%	6%	5%	4%	5%
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			7	4	8	
Permitted Phases	1	6	4			8
Actuated Green, G (s)	13.0	13.0	113.0	113.0	87.5	87.5
Effective Green, g (s)	13.0	13.0	113.0	113.0	87.5	87.5
Actuated g/C Ratio	0.09	0.09	0.81	0.81	0.62	0.62
Clearance Time (s)	7.0	7.0	4.0	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)	285	142	426	2682	2096	905
v/s Ratio Prot			c0.10	0.39	0.38	
v/s Ratio Perm	c0.05	0.02	c0.42			0.02
v/c Ratio	0.56	0.19	0.64	0.48	0.60	0.04
Uniform Delay, d1	60.8	58.6	13.5	4.3	15.8	10.1
Progression Factor	1.00	1.00	0.93	3.96	1.00	1.00
Incremental Delay, d2	2.6	0.6	1.1	0.2	1.3	0.1
Delay (s)	63.4	59.2	13.6	17.1	17.1	10.1
Level of Service	E	E	B	B	B	B
Approach Delay (s)	60.7			16.5	16.9	
Approach LOS	E			B	B	

Intersection Summary				
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	70.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
93: Promenade Circle & East Promenade

10/21/2019

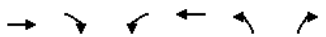
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	105	195	70	155	280	85
Future Volume (Veh/h)	105	195	70	155	280	85
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	111	205	74	163	295	89
Pedestrians			5			20
Lane Width (m)			3.3			3.3
Walking Speed (m/s)			1.0			1.0
Percent Blockage			0			2
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	1					
Upstream signal (m)	75					
pX, platoon unblocked						
vC, conflicting volume	5		452	5	279	247
vC1, stage 1 conf vol			5		242	242
vC2, stage 2 conf vol			447		37	5
vCu, unblocked vol	5		452	5	279	247
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	93		84	85	43	85
cM capacity (veh/h)	1615		469	1076	519	582

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	111	205	74	163	295	89
Volume Left	111	0	0	0	295	0
Volume Right	0	205	0	163	0	0
cSH	1615	1700	469	1076	519	582
Volume to Capacity	0.07	0.12	0.16	0.15	0.57	0.15
Queue Length 95th (m)	1.7	0.0	4.2	4.1	26.7	4.1
Control Delay (s)	7.4	0.0	14.1	8.9	20.7	12.3
Lane LOS	A		B	A	C	B
Approach Delay (s)	2.6		10.6		18.7	
Approach LOS			B		C	

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	38.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
94: South Promenade & Promenade Circle

10/21/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	75	190	105	95	210	105
Future Volume (Veh/h)	75	190	105	95	210	105
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	79	200	111	100	221	111
Pedestrians				5		
Lane Width (m)				3.3		
Walking Speed (m/s)				1.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					129	
pX, platoon unblocked						
vC, conflicting volume	558	0	486	447	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	558	0	486	447	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	79	82	63	77	86	
cM capacity (veh/h)	377	1088	301	438	1617	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	79	200	111	100	221	111
Volume Left	0	0	111	0	221	0
Volume Right	0	200	0	0	0	111
cSH	377	1088	301	438	1617	1700
Volume to Capacity	0.21	0.18	0.37	0.23	0.14	0.07
Queue Length 95th (m)	5.9	5.1	12.5	6.6	3.6	0.0
Control Delay (s)	17.1	9.1	23.8	15.6	7.6	0.0
Lane LOS	C	A	C	C	A	
Approach Delay (s)	11.3		19.9		5.0	
Approach LOS	B		C			

Intersection Summary				
Average Delay	11.0			
Intersection Capacity Utilization	31.0%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: NB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Clark Avenue	84	170.6	324.4	0.5	9
SE Apartment Access	54	6.4	16.5	0.2	35
East Promenade	53	15.0	28.8	0.2	31
Promenade Circle	52	3.0	14.7	0.2	48
Centre Street	47	59.4	72.0	0.2	11
SmartCentres East Ac	33	5.3	17.6	0.2	39
Beverley Glen Boulev	22	8.8	22.5	0.2	39
Atkinson Avenue	11	30.4	47.3	0.3	22
Total		299.0	543.8	2.0	17

Arterial Level of Service: SB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
New Westminster Driv	11	42.4	62.9	0.3	20
Beverley Glen Boulev	22	9.7	26.9	0.3	38
SmartCentres East Ac	33	5.9	20.7	0.2	42
Centre Street	47	54.8	65.5	0.2	11
Promenade Circle	52	5.2	19.1	0.2	43
East Promenade	53	17.6	28.4	0.2	25
SE Apartment Access	54	13.1	27.9	0.2	32
Clark Avenue	84	46.0	57.7	0.2	11
Total		194.7	309.0	1.9	22

Arterial Level of Service: EB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Carl Tennen Street	41	20.1	41.4	0.4	31
Taiga Drive	42	33.6	51.1	0.3	21
New Westminster Driv	43	107.5	124.4	0.3	9
York Region Transit	44	5.1	16.8	0.2	41
North Promenade	45	19.1	24.8	0.1	15
Promenade Village Ac	46	2.7	13.3	0.2	47
Bathurst Street	47	47.5	55.1	0.1	9
Atkinson Avenue	48	16.8	48.1	0.5	41
Total		252.3	375.1	2.1	20

Arterial Level of Service: WB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Atkinson Avenue	48	8.9	32.5	0.4	45
Bathurst Street	47	53.8	85.2	0.5	23
Promenade Village Ac	46	3.7	12.8	0.1	41
Disera Drive	45	22.5	32.0	0.2	19
York Region Transit	44	2.4	9.0	0.1	42
New Westminster Driv	43	26.6	37.1	0.2	19
Taiga Drive	42	4.8	21.6	0.3	50
Vaughan Boulevard	41	6.1	22.7	0.3	46
Total		129.0	253.0	2.1	31

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	149	15	42	161	204	48	636	34	134	910	285
Future Volume (veh/h)	223	149	15	42	161	204	48	636	34	134	910	285
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1771	1796	1900	1900	1792	1845	1827	1828	1900	1827	1814	1900
Adj Flow Rate, veh/h	235	157	16	44	169	215	51	669	36	141	958	300
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	0	6	3	4	4	4	4	5	5
Cap, veh/h	376	787	79	332	584	262	75	1311	71	164	1143	356
Arrive On Green	0.12	0.25	0.25	0.04	0.17	0.17	0.09	0.78	0.78	0.09	0.44	0.44
Sat Flow, veh/h	1687	3126	314	1810	3406	1527	1740	3350	180	1740	2583	805
Grp Volume(v), veh/h	235	85	88	44	169	215	51	346	359	141	638	620
Grp Sat Flow(s),veh/h/ln	1687	1706	1734	1810	1703	1527	1740	1736	1794	1740	1723	1664
Q Serve(g_s), s	15.7	5.5	5.6	2.7	6.1	19.0	4.0	10.1	10.1	11.2	45.8	46.4
Cycle Q Clear(g_c), s	15.7	5.5	5.6	2.7	6.1	19.0	4.0	10.1	10.1	11.2	45.8	46.4
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.10	1.00		0.48
Lane Grp Cap(c), veh/h	376	430	437	332	584	262	75	680	702	164	763	737
V/C Ratio(X)	0.63	0.20	0.20	0.13	0.29	0.82	0.68	0.51	0.51	0.86	0.84	0.84
Avail Cap(c_a), veh/h	376	430	437	361	632	284	137	680	702	186	763	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	41.2	41.3	44.5	50.6	55.9	63.0	10.4	10.4	62.5	34.5	34.7
Incr Delay (d2), s/veh	3.2	0.2	0.2	0.2	0.3	16.3	9.8	2.6	2.5	28.3	10.5	11.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	2.6	2.7	1.4	2.9	9.2	2.1	5.1	5.3	6.7	24.0	23.5
LnGrp Delay(d),s/veh	42.6	41.5	41.5	44.7	50.8	72.2	72.8	12.9	12.9	90.8	45.0	45.9
LnGrp LOS	D	D	D	D	D	E	E	B	B	F	D	D
Approach Vol, veh/h		408			428			756			1399	
Approach Delay, s/veh		42.1			61.0			16.9			50.0	
Approach LOS		D			E			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	70.0	14.7	43.3	19.2	62.8	26.0	32.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	11.0	55.0	8.0	35.0	15.0	51.0	17.0	26.0
Max Q Clear Time (g_c+I1), s	6.0	48.4	4.7	7.6	13.2	12.1	17.7	21.0
Green Ext Time (p_c), s	0.1	6.5	0.0	7.3	0.1	35.6	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	164	71	4	256	14	65	1	1	11	2	78
Future Volume (veh/h)	82	164	71	4	256	14	65	1	1	11	2	78
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1829	1900	1900	1831	1900	1845	1900	1900	1900	1829	1900
Adj Flow Rate, veh/h	86	173	75	4	269	15	68	1	1	12	2	82
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	4	4	3	0	0	0	0	0
Cap, veh/h	704	1347	560	749	1891	105	334	168	168	418	7	291
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1061	2385	991	1140	3348	186	1285	868	868	1422	37	1507
Grp Volume(v), veh/h	86	124	124	4	139	145	68	0	2	12	0	84
Grp Sat Flow(s),veh/h/ln	1061	1737	1639	1140	1739	1795	1285	0	1736	1422	0	1543
Q Serve(g_s), s	2.1	1.7	1.8	0.1	1.9	1.9	2.4	0.0	0.0	0.3	0.0	2.3
Cycle Q Clear(g_c), s	4.0	1.7	1.8	1.8	1.9	1.9	4.7	0.0	0.0	0.4	0.0	2.3
Prop In Lane	1.00		0.60	1.00		0.10	1.00		0.50	1.00		0.98
Lane Grp Cap(c), veh/h	704	981	926	749	982	1014	334	0	335	418	0	298
V/C Ratio(X)	0.12	0.13	0.13	0.01	0.14	0.14	0.20	0.00	0.01	0.03	0.00	0.28
Avail Cap(c_a), veh/h	704	981	926	749	982	1014	863	0	1050	1004	0	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	5.1	5.1	5.5	5.1	5.1	19.1	0.0	16.2	16.3	0.0	17.1
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	0.9	0.0	1.0	1.0	0.9	0.0	0.0	0.1	0.0	1.0
LnGrp Delay(d),s/veh	6.4	5.3	5.4	5.5	5.4	5.4	19.4	0.0	16.2	16.3	0.0	17.6
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		334			288			70			96	
Approach Delay, s/veh		5.6			5.4			19.3			17.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		15.6		34.0		15.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		3.9		6.7		6.0		4.3
Green Ext Time (p_c), s		9.2		1.6		8.7		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	112	165	39	140	57	105	316	39	32	328	84
Future Volume (veh/h)	89	112	165	39	140	57	105	316	39	32	328	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1759	1848	1900	1845	1845	1900	1900	1852	1900
Adj Flow Rate, veh/h	94	118	174	41	147	60	111	333	41	34	345	88
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	3	8	4	4	3	3	3	0	3	3
Cap, veh/h	356	204	301	268	382	156	517	1601	195	564	1415	355
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1148	661	975	1007	1236	504	929	3135	382	1009	2770	696
Grp Volume(v), veh/h	94	0	292	41	0	207	111	185	189	34	217	216
Grp Sat Flow(s),veh/h/ln	1148	0	1637	1007	0	1740	929	1752	1765	1009	1759	1707
Q Serve(g_s), s	4.7	0.0	10.0	2.4	0.0	6.2	5.1	3.8	3.9	1.3	4.6	4.7
Cycle Q Clear(g_c), s	10.9	0.0	10.0	12.4	0.0	6.2	9.8	3.8	3.9	5.2	4.6	4.7
Prop In Lane	1.00		0.60	1.00		0.29	1.00		0.22	1.00		0.41
Lane Grp Cap(c), veh/h	356	0	506	268	0	538	517	895	901	564	898	872
V/C Ratio(X)	0.26	0.00	0.58	0.15	0.00	0.38	0.21	0.21	0.21	0.06	0.24	0.25
Avail Cap(c_a), veh/h	415	0	590	320	0	627	517	895	901	564	898	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	19.3	24.5	0.0	18.0	11.9	8.9	8.9	10.3	9.1	9.1
Incr Delay (d2), s/veh	0.4	0.0	1.0	0.3	0.0	0.5	0.9	0.5	0.5	0.2	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	4.6	0.7	0.0	3.1	1.4	2.0	2.0	0.4	2.4	2.4
LnGrp Delay(d),s/veh	22.7	0.0	20.4	24.8	0.0	18.5	12.8	9.4	9.5	10.6	9.7	9.8
LnGrp LOS	C		C	C		B	B	A	A	B	A	A
Approach Vol, veh/h		386			248			485			467	
Approach Delay, s/veh		20.9			19.5			10.2			9.8	
Approach LOS		C			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		26.6		40.0		26.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		11.8		12.9		7.2		14.4
Green Ext Time (p_c), s		13.2		5.7		15.0		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	50	73	631	843	79
Future Volume (veh/h)	150	50	73	631	843	79
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1863	1845	1792	1827	1900
Adj Flow Rate, veh/h	158	53	77	664	887	83
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	3	6	4	4
Cap, veh/h	193	175	97	2639	2172	203
Arrive On Green	0.11	0.11	0.06	0.77	1.00	1.00
Sat Flow, veh/h	1740	1583	1757	3495	3300	300
Grp Volume(v), veh/h	158	53	77	664	480	490
Grp Sat Flow(s),veh/h/ln	1740	1583	1757	1703	1736	1774
Q Serve(g_s), s	12.4	4.3	6.1	7.6	0.0	0.0
Cycle Q Clear(g_c), s	12.4	4.3	6.1	7.6	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	193	175	97	2639	1175	1201
V/C Ratio(X)	0.82	0.30	0.80	0.25	0.41	0.41
Avail Cap(c_a), veh/h	429	390	138	2639	1175	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.54	0.54
Uniform Delay (d), s/veh	60.9	57.3	65.4	4.4	0.0	0.0
Incr Delay (d2), s/veh	8.3	1.0	18.4	0.2	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	1.9	3.4	3.7	0.2	0.2
LnGrp Delay(d),s/veh	69.2	58.2	83.8	4.6	0.6	0.6
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	211			741	970	
Approach Delay, s/veh	66.4			12.9	0.6	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.7	102.3		24.0		116.0		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	11.0	72.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	8.1	2.0		14.4		9.6		
Green Ext Time (p_c), s	0.1	51.8		1.1		56.6		

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	34	171	21	53	39	187	160	12	122	42
Future Volume (veh/h)	35	5	34	171	21	53	39	187	160	12	122	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.91	0.94		0.91	0.93		0.88	0.96		0.88
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1855	1900	1881	1847	1900	1845	1873	1900	1900	1862	1900
Adj Flow Rate, veh/h	37	5	36	180	22	56	41	197	168	13	128	44
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	20	20	1	0	0	3	1	1	0	1	1
Cap, veh/h	464	59	425	514	141	360	585	419	358	441	612	210
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1196	180	1296	1291	431	1096	1113	874	745	992	1275	438
Grp Volume(v), veh/h	37	0	41	180	0	78	41	0	365	13	0	172
Grp Sat Flow(s),veh/h/ln	1196	0	1476	1291	0	1527	1113	0	1619	992	0	1713
Q Serve(g_s), s	1.4	0.0	1.2	7.0	0.0	2.3	1.4	0.0	9.5	0.6	0.0	3.6
Cycle Q Clear(g_c), s	3.7	0.0	1.2	8.2	0.0	2.3	5.0	0.0	9.5	10.0	0.0	3.6
Prop In Lane	1.00		0.88	1.00		0.72	1.00		0.46	1.00		0.26
Lane Grp Cap(c), veh/h	464	0	484	514	0	501	585	0	777	441	0	822
V/C Ratio(X)	0.08	0.00	0.08	0.35	0.00	0.16	0.07	0.00	0.47	0.03	0.00	0.21
Avail Cap(c_a), veh/h	569	0	614	628	0	635	585	0	777	441	0	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	14.5	17.3	0.0	14.9	10.8	0.0	10.9	14.3	0.0	9.4
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.9	0.0	0.3	0.2	0.0	2.0	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	2.6	0.0	1.0	0.5	0.0	4.6	0.2	0.0	1.9
LnGrp Delay(d),s/veh	16.3	0.0	14.7	18.2	0.0	15.2	11.1	0.0	12.9	14.4	0.0	10.0
LnGrp LOS	B		B	B		B	B		B	B		A
Approach Vol, veh/h		78			258			406			185	
Approach Delay, s/veh		15.5			17.3			12.8			10.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		26.5		36.0		26.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		11.5		5.7		12.0		10.2
Green Ext Time (p_c), s		8.2		4.7		8.1		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	29	23	23	2	16	56	281	19	26	224	5
Future Volume (veh/h)	5	29	23	23	2	16	56	281	19	26	224	5
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1520	1900	1900	1810	1900	1900	1827	1865	1900	1827	1828	1900
Adj Flow Rate, veh/h	5	31	24	24	2	17	59	296	20	27	236	5
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	25	0	0	5	0	0	4	2	2	4	4	4
Cap, veh/h	315	154	119	318	27	227	770	1990	134	720	2056	43
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1122	990	767	1294	171	1456	1101	3367	226	1030	3478	74
Grp Volume(v), veh/h	5	0	55	24	0	19	59	155	161	27	118	123
Grp Sat Flow(s),veh/h/ln	1122	0	1757	1294	0	1628	1101	1772	1821	1030	1737	1814
Q Serve(g_s), s	0.2	0.0	1.3	0.8	0.0	0.5	1.2	1.9	1.9	0.6	1.4	1.4
Cycle Q Clear(g_c), s	0.7	0.0	1.3	2.1	0.0	0.5	2.6	1.9	1.9	2.5	1.4	1.4
Prop In Lane	1.00		0.44	1.00		0.89	1.00		0.12	1.00		0.04
Lane Grp Cap(c), veh/h	315	0	273	318	0	253	770	1047	1077	720	1027	1072
V/C Ratio(X)	0.02	0.00	0.20	0.08	0.00	0.08	0.08	0.15	0.15	0.04	0.11	0.12
Avail Cap(c_a), veh/h	875	0	1150	964	0	1065	770	1047	1077	720	1027	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	17.4	18.3	0.0	17.1	4.8	4.3	4.3	4.9	4.2	4.2
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.1	0.2	0.3	0.3	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.7	0.3	0.0	0.2	0.4	1.0	1.0	0.2	0.7	0.8
LnGrp Delay(d),s/veh	17.4	0.0	17.8	18.4	0.0	17.2	5.0	4.6	4.6	5.0	4.5	4.5
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		60			43			375			268	
Approach Delay, s/veh		17.8			17.9			4.7			4.5	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		13.4		34.0		13.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		4.6		4.1		4.5		3.3
Green Ext Time (p_c), s		9.3		1.2		9.3		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	440	28	60	390	79	27	39	51	27	20	10
Future Volume (veh/h)	1	440	28	60	390	79	27	39	51	27	20	10
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1824	1900	1845	1801	1900	1900	1954	1900	1900	1976	1900
Adj Flow Rate, veh/h	1	463	29	63	411	83	28	41	54	28	21	11
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	3	6	6	0	0	0	0	0	0
Cap, veh/h	3	2122	133	85	1952	391	230	107	142	176	172	90
Arrive On Green	0.00	0.64	0.64	0.02	0.23	0.23	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3312	207	1757	2840	569	1378	758	999	1305	1215	636
Grp Volume(v), veh/h	1	242	250	63	246	248	28	0	95	28	0	32
Grp Sat Flow(s),veh/h/ln	1810	1733	1786	1757	1711	1698	1378	0	1757	1305	0	1851
Q Serve(g_s), s	0.1	7.6	7.6	4.6	15.2	15.4	2.4	0.0	6.4	2.6	0.0	2.0
Cycle Q Clear(g_c), s	0.1	7.6	7.6	4.6	15.2	15.4	4.3	0.0	6.4	9.0	0.0	2.0
Prop In Lane	1.00		0.12	1.00		0.33	1.00		0.57	1.00		0.34
Lane Grp Cap(c), veh/h	3	1110	1145	85	1176	1167	230	0	249	176	0	262
V/C Ratio(X)	0.29	0.22	0.22	0.74	0.21	0.21	0.12	0.00	0.38	0.16	0.00	0.12
Avail Cap(c_a), veh/h	111	1110	1145	257	1176	1167	411	0	480	348	0	505
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	9.7	9.8	63.2	21.6	21.7	50.6	0.0	50.6	54.7	0.0	48.7
Incr Delay (d2), s/veh	40.7	0.5	0.4	11.7	0.4	0.4	0.2	0.0	1.0	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.8	3.9	2.5	7.3	7.4	0.9	0.0	3.2	1.0	0.0	1.0
LnGrp Delay(d),s/veh	105.4	10.2	10.2	74.9	22.0	22.1	50.9	0.0	51.6	55.1	0.0	48.9
LnGrp LOS	F	B	B	E	C	C	D		D	E		D
Approach Vol, veh/h		493			557			123			60	
Approach Delay, s/veh		10.4			28.0			51.4			51.8	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	96.8		26.9	12.3	90.8		26.9
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	19.0	53.5		35.5
Max Q Clear Time (g_c+I1), s	2.1	17.4		11.0	6.6	9.6		8.4
Green Ext Time (p_c), s	0.0	21.9		2.1	0.2	21.2		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	189	342	452	24	56	39
Future Volume (veh/h)	189	342	452	24	56	39
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1810	1814	1900	1827	1863
Adj Flow Rate, veh/h	199	360	476	25	59	41
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	5	5	4	2
Cap, veh/h	226	2744	2081	109	130	119
Arrive On Green	0.25	1.00	1.00	1.00	0.07	0.07
Sat Flow, veh/h	1774	3529	3422	175	1740	1583
Grp Volume(v), veh/h	199	360	246	255	59	41
Grp Sat Flow(s),veh/h/ln	1774	1719	1723	1783	1740	1583
Q Serve(g_s), s	14.0	0.0	0.0	0.0	4.2	3.2
Cycle Q Clear(g_c), s	14.0	0.0	0.0	0.0	4.2	3.2
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	226	2744	1076	1114	130	119
V/C Ratio(X)	0.88	0.13	0.23	0.23	0.45	0.35
Avail Cap(c_a), veh/h	328	2744	1076	1114	335	304
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	0.0	0.0	57.6	57.1
Incr Delay (d2), s/veh	16.8	0.1	0.5	0.5	2.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.1	0.1	2.1	1.5
LnGrp Delay(d),s/veh	64.3	0.1	0.5	0.5	60.0	58.8
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		559	501		100	
Approach Delay, s/veh		23.0	0.5		59.5	
Approach LOS		C	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.6	88.7		18.7		111.3		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	24.0	58.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	16.0	2.0		6.2		2.0		
Green Ext Time (p_c), s	0.6	20.3		0.4		22.6		

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	239	94	50	267	120	114	308	41	127	376	92
Future Volume (veh/h)	87	239	94	50	267	120	114	308	41	127	376	92
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1810	1819	1900	1863	1816	1900	1754	1852	1900	1863	1838	1900
Adj Flow Rate, veh/h	92	252	99	53	281	126	120	324	43	134	396	97
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	2	4	4	4	2	2	2	3	3
Cap, veh/h	114	948	361	81	858	373	310	929	122	379	818	198
Arrive On Green	0.13	0.78	0.78	0.02	0.12	0.12	0.06	0.30	0.30	0.06	0.30	0.30
Sat Flow, veh/h	1723	2428	924	1774	2318	1009	1670	3114	409	1774	2767	670
Grp Volume(v), veh/h	92	177	174	53	207	200	120	182	185	134	248	245
Grp Sat Flow(s),veh/h/ln	1723	1728	1624	1774	1725	1601	1670	1760	1763	1774	1746	1691
Q Serve(g_s), s	6.7	3.7	3.9	3.9	14.3	14.9	6.4	10.5	10.7	6.8	15.2	15.5
Cycle Q Clear(g_c), s	6.7	3.7	3.9	3.9	14.3	14.9	6.4	10.5	10.7	6.8	15.2	15.5
Prop In Lane	1.00		0.57	1.00		0.63	1.00		0.23	1.00		0.40
Lane Grp Cap(c), veh/h	114	675	634	81	638	592	310	525	526	379	516	500
V/C Ratio(X)	0.80	0.26	0.27	0.65	0.32	0.34	0.39	0.35	0.35	0.35	0.48	0.49
Avail Cap(c_a), veh/h	239	675	634	136	638	592	318	589	590	379	571	553
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	9.1	9.1	63.0	42.2	42.5	29.8	35.7	35.8	29.5	37.6	37.7
Incr Delay (d2), s/veh	12.2	0.9	1.1	8.4	1.3	1.5	0.8	0.4	0.4	0.6	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	1.8	1.8	2.1	7.1	6.9	3.0	5.2	5.3	3.4	7.4	7.3
LnGrp Delay(d),s/veh	67.7	10.0	10.2	71.4	43.6	44.0	30.6	36.1	36.2	30.1	38.3	38.5
LnGrp LOS	E	B	B	E	D	D	C	D	D	C	D	D
Approach Vol, veh/h		443			460			487			627	
Approach Delay, s/veh		22.1			47.0			34.8			36.6	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	56.1	12.4	46.9	12.0	58.8	12.0	47.3
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5
Max Green Setting (Gmax), s	18.0	34.0	9.0	42.5	10.0	42.0	8.0	43.5
Max Q Clear Time (g_c+I1), s	8.7	16.9	8.4	17.5	5.9	5.9	8.8	12.7
Green Ext Time (p_c), s	0.2	9.4	0.0	14.4	0.0	14.5	0.0	16.5

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	204	147	107	233	63	106	231	142	83	175	79
Future Volume (veh/h)	95	204	147	107	233	63	106	231	142	83	175	79
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	0.96		0.92	0.96		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1808	1900	1696	1859	1900	1743	1900	1881	1900	1864	1900
Adj Flow Rate, veh/h	100	215	155	113	245	66	112	243	149	87	184	83
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	8	8	12	2	2	9	0	1	0	1	1
Cap, veh/h	127	868	589	138	1284	338	207	541	419	230	337	152
Arrive On Green	0.02	0.15	0.15	0.09	0.47	0.47	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1792	1917	1300	1616	2749	723	993	1900	1471	970	1182	533
Grp Volume(v), veh/h	100	191	179	113	155	156	112	243	149	87	0	267
Grp Sat Flow(s),veh/h/ln	1792	1718	1499	1616	1766	1706	993	1900	1471	970	0	1715
Q Serve(g_s), s	7.2	12.8	13.7	8.9	6.7	7.0	14.0	13.6	10.5	10.5	0.0	17.1
Cycle Q Clear(g_c), s	7.2	12.8	13.7	8.9	6.7	7.0	31.1	13.6	10.5	24.1	0.0	17.1
Prop In Lane	1.00		0.87	1.00		0.42	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	127	778	679	138	825	797	207	541	419	230	0	489
V/C Ratio(X)	0.78	0.25	0.26	0.82	0.19	0.20	0.54	0.45	0.36	0.38	0.00	0.55
Avail Cap(c_a), veh/h	289	778	679	261	825	797	222	570	441	245	0	515
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	62.5	35.7	36.1	58.5	20.2	20.3	52.6	38.1	37.0	48.0	0.0	39.4
Incr Delay (d2), s/veh	10.1	0.8	0.9	11.4	0.5	0.5	2.2	0.6	0.5	1.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.2	5.9	4.4	3.3	3.4	4.0	7.2	4.3	2.9	0.0	8.2
LnGrp Delay(d),s/veh	72.5	36.4	37.0	69.9	20.7	20.9	54.8	38.7	37.5	49.0	0.0	40.4
LnGrp LOS	E	D	D	E	C	C	D	D	D	D		D
Approach Vol, veh/h		470			424			504			354	
Approach Delay, s/veh		44.3			33.9			41.9			42.5	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.3	68.7		46.0	17.1	66.9		46.0
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	21.0	47.0		39.0	21.0	47.0		39.0
Max Q Clear Time (g_c+I1), s	9.2	9.0		26.1	10.9	15.7		33.1
Green Ext Time (p_c), s	0.3	13.2		7.4	0.3	12.1		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	40.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	276	100	28	283	95	83	204	23	66	184	21
Future Volume (veh/h)	51	276	100	28	283	95	83	204	23	66	184	21
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.97		0.96	0.97		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1854	1900	1900	1858	1900	1776	1859	1900	1845	1832	1900
Adj Flow Rate, veh/h	54	291	105	29	298	100	87	215	24	69	194	22
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	2	2	7	2	2	3	3	3
Cap, veh/h	608	1522	537	630	1556	512	313	830	91	312	817	91
Arrive On Green	0.60	0.60	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	960	2550	900	1000	2608	857	1077	3194	352	1097	3142	351
Grp Volume(v), veh/h	54	199	197	29	200	198	87	118	121	69	106	110
Grp Sat Flow(s),veh/h/ln	960	1761	1688	1000	1765	1700	1077	1766	1780	1097	1740	1753
Q Serve(g_s), s	2.3	4.3	4.5	1.1	4.3	4.5	5.8	4.4	4.5	4.5	4.0	4.1
Cycle Q Clear(g_c), s	6.7	4.3	4.5	5.6	4.3	4.5	10.0	4.4	4.5	9.0	4.0	4.1
Prop In Lane	1.00		0.53	1.00		0.50	1.00		0.20	1.00		0.20
Lane Grp Cap(c), veh/h	608	1051	1007	630	1053	1014	313	459	463	312	452	456
V/C Ratio(X)	0.09	0.19	0.20	0.05	0.19	0.20	0.28	0.26	0.26	0.22	0.23	0.24
Avail Cap(c_a), veh/h	608	1051	1007	630	1053	1014	341	506	510	341	499	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	7.7	7.7	9.0	7.7	7.7	28.4	24.6	24.6	28.2	24.4	24.5
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.1	0.4	0.4	1.0	0.6	0.6	0.8	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.2	2.2	0.3	2.2	2.2	1.8	2.2	2.3	1.4	2.0	2.1
LnGrp Delay(d),s/veh	9.5	8.1	8.1	9.1	8.1	8.1	29.4	25.2	25.3	29.0	25.0	25.1
LnGrp LOS	A	A	A	A	A	A	C	C	C	C	C	C
Approach Vol, veh/h		450			427			326			285	
Approach Delay, s/veh		8.3			8.2			26.3			26.0	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		27.8		56.0		27.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		7.6		12.0		8.7		11.0
Green Ext Time (p_c), s		26.1		7.1		25.6		7.5

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	117	89	138	110	120	53	285	193	114	350	52
Future Volume (veh/h)	55	117	89	138	110	120	53	285	193	114	350	52
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1900	1900	1900	1834	1900	1863	1870	1900	1863	1832	1900
Adj Flow Rate, veh/h	58	123	94	145	116	126	56	300	203	120	368	55
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	0	4	4	4	2	2	2	2	4	4
Cap, veh/h	331	318	243	293	251	300	559	1079	710	435	1181	175
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.10	0.53	0.53	0.39	0.39	0.39
Sat Flow, veh/h	1112	985	753	662	778	932	1774	2048	1348	887	3036	450
Grp Volume(v), veh/h	58	0	217	188	0	199	56	259	244	120	210	213
Grp Sat Flow(s),veh/h/ln	1112	0	1738	904	0	1469	1774	1777	1619	887	1740	1746
Q Serve(g_s), s	3.4	0.0	7.7	10.1	0.0	8.4	1.3	6.4	6.7	7.6	6.7	6.8
Cycle Q Clear(g_c), s	11.9	0.0	7.7	17.8	0.0	8.4	1.3	6.4	6.7	7.6	6.7	6.8
Prop In Lane	1.00		0.43	0.77		0.63	1.00		0.83	1.00		0.26
Lane Grp Cap(c), veh/h	331	0	560	371	0	473	559	936	853	435	677	679
V/C Ratio(X)	0.18	0.00	0.39	0.51	0.00	0.42	0.10	0.28	0.29	0.28	0.31	0.31
Avail Cap(c_a), veh/h	349	0	589	392	0	498	559	936	853	435	677	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	20.9	26.9	0.0	21.2	10.2	10.4	10.5	17.2	16.9	16.9
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.1	0.0	0.6	0.4	0.7	0.8	1.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.7	3.8	0.0	3.5	0.6	3.3	3.2	2.1	3.4	3.5
LnGrp Delay(d),s/veh	26.1	0.0	21.3	28.0	0.0	21.7	10.6	11.2	11.3	18.8	18.1	18.2
LnGrp LOS	C		C	C		C	B	B	B	B	B	B
Approach Vol, veh/h		275			387			559			543	
Approach Delay, s/veh		22.3			24.8			11.2			18.3	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		31.7		48.0		31.7
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	3.3	9.6		19.8		8.7		13.9
Green Ext Time (p_c), s	0.1	15.1		4.3		20.9		7.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2	14	8	1	33	13	267	10	31	246	28
Future Volume (veh/h)	28	2	14	8	1	33	13	267	10	31	246	28
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.96		0.94	0.96		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1853	1900	1900	1856	1900	1900	1833	1900	1900	1815	1900
Adj Flow Rate, veh/h	29	2	15	8	1	35	14	281	11	33	259	29
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	5	5	5
Cap, veh/h	249	36	82	104	35	215	120	1903	73	221	1588	175
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	776	209	477	117	203	1247	72	3218	123	230	2686	296
Grp Volume(v), veh/h	46	0	0	44	0	0	160	0	146	167	0	154
Grp Sat Flow(s),veh/h/ln	1462	0	0	1567	0	0	1777	0	1637	1635	0	1578
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.2
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.2	0.0	0.0	2.0	0.0	2.0	2.1	0.0	2.2
Prop In Lane	0.63		0.33	0.18		0.80	0.09		0.08	0.20		0.19
Lane Grp Cap(c), veh/h	367	0	0	354	0	0	1128	0	968	1052	0	933
V/C Ratio(X)	0.13	0.00	0.00	0.12	0.00	0.00	0.14	0.00	0.15	0.16	0.00	0.17
Avail Cap(c_a), veh/h	906	0	0	930	0	0	1128	0	968	1052	0	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	0.0	17.9	0.0	0.0	4.6	0.0	4.6	4.7	0.0	4.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.5	0.0	0.0	1.1	0.0	1.0	1.1	0.0	1.0
LnGrp Delay(d),s/veh	18.0	0.0	0.0	18.0	0.0	0.0	4.9	0.0	5.0	5.0	0.0	5.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		46			44			306			321	
Approach Delay, s/veh		18.0			18.0			4.9			5.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		14.7		36.0		14.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		4.0		3.2		4.2		3.1
Green Ext Time (p_c), s		10.5		1.2		10.5		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1	14	26	2	55	9	220	16	30	232	4
Future Volume (veh/h)	6	1	14	26	2	55	9	220	16	30	232	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.96		0.94	0.96		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1802	1900	1900	1877	1900	1900	1866	1900	1900	1833	1900
Adj Flow Rate, veh/h	6	1	15	27	2	58	9	232	17	32	244	4
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	3	3	3
Cap, veh/h	152	55	215	168	51	219	109	1644	117	227	1544	25
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	216	263	1026	280	241	1042	38	3215	229	244	3020	49
Grp Volume(v), veh/h	22	0	0	87	0	0	136	0	122	145	0	135
Grp Sat Flow(s),veh/h/ln	1504	0	0	1563	0	0	1839	0	1642	1658	0	1656
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.9
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.9	0.0	0.0	1.7	0.0	1.7	1.8	0.0	1.9
Prop In Lane	0.27		0.68	0.31		0.67	0.07		0.14	0.22		0.03
Lane Grp Cap(c), veh/h	422	0	0	438	0	0	1030	0	840	950	0	847
V/C Ratio(X)	0.05	0.00	0.00	0.20	0.00	0.00	0.13	0.00	0.15	0.15	0.00	0.16
Avail Cap(c_a), veh/h	990	0	0	1030	0	0	1030	0	840	950	0	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	0.0	14.2	0.0	0.0	5.5	0.0	5.6	5.6	0.0	5.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.4	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.9	0.0	0.0	0.9	0.0	0.8	1.0	0.0	0.9
LnGrp Delay(d),s/veh	13.7	0.0	0.0	14.4	0.0	0.0	5.8	0.0	5.9	5.9	0.0	6.0
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		22			87			258			280	
Approach Delay, s/veh		13.7			14.4			5.9			6.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		15.0		28.0		15.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		3.7		2.5		3.9		3.9
Green Ext Time (p_c), s		7.4		1.5		7.3		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	16	24	1	20	29	217	32	12	249	11
Future Volume (veh/h)	8	1	16	24	1	20	29	217	32	12	249	11
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.96		0.96	0.97		0.94	0.97		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1827	1900	1900	1813	1900	1900	1845	1900	1900	1833	1900
Adj Flow Rate, veh/h	8	1	17	25	1	21	31	228	34	13	262	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	4	4	4
Cap, veh/h	172	53	263	277	36	172	200	1339	196	106	1631	73
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	317	194	966	647	132	630	237	2630	385	68	3204	144
Grp Volume(v), veh/h	26	0	0	47	0	0	153	0	140	151	0	136
Grp Sat Flow(s),veh/h/ln	1477	0	0	1409	0	0	1668	0	1584	1783	0	1632
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.5
Cycle Q Clear(g_c), s	0.7	0.0	0.0	1.2	0.0	0.0	2.4	0.0	2.6	2.4	0.0	2.5
Prop In Lane	0.31		0.65	0.53		0.45	0.20		0.24	0.09		0.09
Lane Grp Cap(c), veh/h	488	0	0	484	0	0	928	0	806	979	0	831
V/C Ratio(X)	0.05	0.00	0.00	0.10	0.00	0.00	0.16	0.00	0.17	0.15	0.00	0.16
Avail Cap(c_a), veh/h	749	0	0	735	0	0	928	0	806	979	0	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	0.0	15.0	0.0	0.0	7.2	0.0	7.3	7.2	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.5	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.5	0.0	0.0	1.3	0.0	1.2	1.3	0.0	1.2
LnGrp Delay(d),s/veh	14.8	0.0	0.0	15.1	0.0	0.0	7.6	0.0	7.7	7.6	0.0	7.7
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		26			47			293			287	
Approach Delay, s/veh		14.8			15.1			7.7			7.6	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.0		34.0		21.0		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		3.2		4.6		2.7		4.5
Green Ext Time (p_c), s		0.8		9.2		0.8		9.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	439	32	85	342	114	29	249	64	105	357	106
Future Volume (veh/h)	155	439	32	85	342	114	29	249	64	105	357	106
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1845	1900	1881	1827	1881	1900	1870	1900	1900	1835	1900
Adj Flow Rate, veh/h	163	462	34	89	360	120	31	262	67	111	376	112
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	4	1	0	2	2	0	4	4
Cap, veh/h	463	1419	637	454	1391	624	336	869	217	426	879	258
Arrive On Green	0.06	0.40	0.40	0.02	0.13	0.13	0.04	0.31	0.31	0.06	0.33	0.33
Sat Flow, veh/h	1810	3505	1574	1792	3471	1558	1810	2797	699	1810	2639	775
Grp Volume(v), veh/h	163	462	34	89	360	120	31	164	165	111	246	242
Grp Sat Flow(s),veh/h/ln	1810	1752	1574	1792	1736	1558	1810	1777	1720	1810	1743	1670
Q Serve(g_s), s	5.8	9.9	1.4	3.1	10.3	7.5	1.2	7.7	8.0	4.4	12.1	12.4
Cycle Q Clear(g_c), s	5.8	9.9	1.4	3.1	10.3	7.5	1.2	7.7	8.0	4.4	12.1	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.46
Lane Grp Cap(c), veh/h	463	1419	637	454	1391	624	336	552	534	426	581	556
V/C Ratio(X)	0.35	0.33	0.05	0.20	0.26	0.19	0.09	0.30	0.31	0.26	0.42	0.43
Avail Cap(c_a), veh/h	463	1419	637	462	1391	624	381	630	610	430	618	592
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	22.4	19.9	18.1	33.1	31.9	24.1	28.8	28.9	22.6	28.5	28.6
Incr Delay (d2), s/veh	0.5	0.6	0.2	0.2	0.5	0.7	0.1	0.3	0.3	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.9	0.7	1.6	5.0	3.4	0.6	3.8	3.8	2.2	5.9	5.8
LnGrp Delay(d),s/veh	18.4	23.0	20.1	18.3	33.5	32.6	24.3	29.1	29.2	22.9	29.0	29.1
LnGrp LOS	B	C	C	B	C	C	C	C	C	C	C	C
Approach Vol, veh/h		659			569			360			599	
Approach Delay, s/veh		21.7			30.9			28.7			27.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	50.5	7.3	42.6	10.0	50.1	9.8	40.2
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	39.0	7.0	39.0	7.0	39.0	7.0	39.0
Max Q Clear Time (g_c+I1), s	5.1	11.9	3.2	14.4	7.8	12.3	6.4	10.0
Green Ext Time (p_c), s	0.1	16.9	0.0	13.9	0.0	16.8	0.0	15.4

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	63	535	481	211	165	55		
Future Volume (veh/h)	63	535	481	211	165	55		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	0.99			0.98	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1863	1863	1863	1863	1810		
Adj Flow Rate, veh/h	66	563	506	222	174	58		
Adj No. of Lanes	1	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	2	2	2	2	5		
Cap, veh/h	611	2709	2418	1059	222	193		
Arrive On Green	0.11	1.00	0.68	0.68	0.13	0.13		
Sat Flow, veh/h	1757	3632	3632	1551	1774	1538		
Grp Volume(v), veh/h	66	563	506	222	174	58		
Grp Sat Flow(s),veh/h/ln	1757	1770	1770	1551	1774	1538		
Q Serve(g_s), s	1.0	0.0	5.8	5.8	10.5	3.8		
Cycle Q Clear(g_c), s	1.0	0.0	5.8	5.8	10.5	3.8		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	611	2709	2418	1059	222	193		
V/C Ratio(X)	0.11	0.21	0.21	0.21	0.78	0.30		
Avail Cap(c_a), veh/h	626	2709	2418	1059	661	573		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.5	0.0	6.4	6.4	46.6	43.7		
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.4	5.9	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	0.1	2.9	2.6	5.5	3.4		
LnGrp Delay(d),s/veh	3.6	0.2	6.6	6.9	52.6	44.6		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		629	728		232			
Approach Delay, s/veh		0.5	6.7		50.6			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		90.2		19.8	9.1	81.1		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		2.0		12.5	3.0	7.8		
Green Ext Time (p_c), s		35.4		1.3	0.1	28.0		
Intersection Summary								
HCM 2010 Ctrl Delay			10.7					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	474	172	127	417	128	193	793	113	176	815	71
Future Volume (veh/h)	58	474	172	127	417	128	193	793	113	176	815	71
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.99		0.96	0.99		0.94	0.99		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1827	1827	1845	1863	1863	1845	1845	1863	1827	1881
Adj Flow Rate, veh/h	61	499	181	134	439	135	203	835	119	185	858	75
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	4	3	2	2	3	3	2	4	1
Cap, veh/h	357	1201	508	333	1249	540	251	1252	527	255	1240	537
Arrive On Green	0.05	0.34	0.34	0.06	0.36	0.36	0.06	0.36	0.36	0.06	0.36	0.36
Sat Flow, veh/h	1774	3505	1484	1740	3505	1515	1774	3505	1474	1774	3471	1504
Grp Volume(v), veh/h	61	499	181	134	439	135	203	835	119	185	858	75
Grp Sat Flow(s),veh/h/ln	1774	1752	1484	1740	1752	1515	1774	1752	1474	1774	1736	1504
Q Serve(g_s), s	2.8	14.2	11.9	6.5	12.0	8.2	8.0	26.1	7.3	8.0	27.4	4.4
Cycle Q Clear(g_c), s	2.8	14.2	11.9	6.5	12.0	8.2	8.0	26.1	7.3	8.0	27.4	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	1201	508	333	1249	540	251	1252	527	255	1240	537
V/C Ratio(X)	0.17	0.42	0.36	0.40	0.35	0.25	0.81	0.67	0.23	0.72	0.69	0.14
Avail Cap(c_a), veh/h	381	1281	542	333	1281	554	251	1252	527	255	1240	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	32.7	32.0	25.9	30.8	29.6	33.8	35.2	29.2	30.4	35.7	28.3
Incr Delay (d2), s/veh	0.2	0.2	0.4	0.8	0.2	0.2	17.6	2.8	1.0	9.8	3.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.9	4.9	3.2	5.8	3.5	4.6	13.1	3.1	3.2	13.7	1.9
LnGrp Delay(d),s/veh	25.7	33.0	32.4	26.7	30.9	29.8	51.4	38.1	30.2	40.2	38.9	28.8
LnGrp LOS	C	C	C	C	C	C	D	D	C	D	D	C
Approach Vol, veh/h		741			708			1157			1118	
Approach Delay, s/veh		32.2			29.9			39.6			38.4	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	53.9	12.0	52.1	12.0	53.9	10.2	53.8				
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5				
Max Green Setting (Gmax), s	8.0	43.5	8.0	47.5	8.0	43.5	8.0	47.5				
Max Q Clear Time (g_c+I1), s	10.0	29.4	8.5	16.2	10.0	28.1	4.8	14.0				
Green Ext Time (p_c), s	0.0	13.4	0.0	20.4	0.0	14.6	0.0	21.3				
Intersection Summary												
HCM 2010 Ctrl Delay			35.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	740	45	22	668	38	39
Future Volume (veh/h)	740	45	22	668	38	39
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.93	0.98		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1865	1900	1900	1864	1900	1900
Adj Flow Rate, veh/h	779	47	23	703	40	41
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2672	161	89	2594	181	161
Arrive On Green	0.79	0.79	0.53	0.53	0.10	0.10
Sat Flow, veh/h	3472	204	68	3364	1810	1615
Grp Volume(v), veh/h	408	418	378	348	40	41
Grp Sat Flow(s),veh/h/ln	1772	1810	1736	1611	1810	1615
Q Serve(g_s), s	6.9	6.9	0.0	13.1	2.2	2.6
Cycle Q Clear(g_c), s	6.9	6.9	12.1	13.1	2.2	2.6
Prop In Lane		0.11	0.06		1.00	1.00
Lane Grp Cap(c), veh/h	1401	1432	1408	1275	181	161
V/C Ratio(X)	0.29	0.29	0.27	0.27	0.22	0.25
Avail Cap(c_a), veh/h	1401	1432	1408	1275	510	455
HCM Platoon Ratio	1.00	1.00	0.67	0.67	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.1	3.1	8.3	8.5	45.6	45.7
Incr Delay (d2), s/veh	0.4	0.4	0.5	0.5	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.5	6.4	6.0	1.2	1.2
LnGrp Delay(d),s/veh	3.6	3.6	8.7	9.0	46.2	46.5
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	826			726	81	
Approach Delay, s/veh	3.6			8.9	46.4	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		93.0				93.0		17.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		67.0				67.0		31.0
Max Q Clear Time (g_c+I1), s		8.9				15.1		4.6
Green Ext Time (p_c), s		43.5				39.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
86: Clark Avenue & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	629	44	8	528	162	33	17	7	155	12	121
Future Volume (veh/h)	75	629	44	8	528	162	33	17	7	155	12	121
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.96		0.94	0.94		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1863	1900	1900	1863	1863	1900	1821	1900	1845	1789	1900
Adj Flow Rate, veh/h	79	662	46	8	556	171	35	18	7	163	13	127
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	2	0	2	2	0	6	6	3	8	8
Cap, veh/h	477	2051	142	396	1864	821	311	342	133	411	38	368
Arrive On Green	0.02	0.20	0.20	0.53	0.53	0.53	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1740	3352	233	746	3539	1558	1212	1224	476	1286	135	1319
Grp Volume(v), veh/h	79	349	359	8	556	171	35	0	25	163	0	140
Grp Sat Flow(s),veh/h/ln	1740	1770	1815	746	1770	1558	1212	0	1700	1286	0	1453
Q Serve(g_s), s	2.1	18.5	18.6	0.7	9.7	6.4	2.6	0.0	1.2	11.7	0.0	8.5
Cycle Q Clear(g_c), s	2.1	18.5	18.6	9.9	9.7	6.4	11.1	0.0	1.2	12.9	0.0	8.5
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.28	1.00		0.91
Lane Grp Cap(c), veh/h	477	1083	1111	396	1864	821	311	0	474	411	0	406
V/C Ratio(X)	0.17	0.32	0.32	0.02	0.30	0.21	0.11	0.00	0.05	0.40	0.00	0.35
Avail Cap(c_a), veh/h	518	1083	1111	396	1864	821	446	0	665	554	0	568
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.2	24.4	24.4	17.2	14.6	13.8	36.0	0.0	29.0	33.7	0.0	31.6
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.1	0.4	0.6	0.2	0.0	0.0	0.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	9.3	9.6	0.1	4.8	2.9	0.9	0.0	0.6	4.2	0.0	3.4
LnGrp Delay(d),s/veh	10.4	25.2	25.2	17.3	15.0	14.4	36.2	0.0	29.1	34.3	0.0	32.1
LnGrp LOS	B	C	C	B	B	B	D		C	C		C
Approach Vol, veh/h		787			735			60			303	
Approach Delay, s/veh		23.7			14.9			33.2			33.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		73.3		36.7	9.4	63.9		36.7
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		55.0		43.0	9.0	43.0		43.0
Max Q Clear Time (g_c+I1), s		20.6		14.9	4.1	11.9		13.1
Green Ext Time (p_c), s		30.8		4.1	0.1	28.1		4.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	149	15	42	161	204	48	636	34	134	910	285
Future Volume (veh/h)	223	149	15	42	161	204	48	636	34	134	910	285
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1771	1796	1900	1900	1792	1845	1827	1828	1900	1827	1814	1900
Adj Flow Rate, veh/h	235	157	16	44	169	215	51	669	36	141	958	300
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	0	6	3	4	4	4	4	5	5
Cap, veh/h	376	787	79	332	584	262	75	1311	71	164	1143	356
Arrive On Green	0.12	0.25	0.25	0.04	0.17	0.17	0.09	0.78	0.78	0.09	0.44	0.44
Sat Flow, veh/h	1687	3126	314	1810	3406	1527	1740	3350	180	1740	2583	805
Grp Volume(v), veh/h	235	85	88	44	169	215	51	346	359	141	638	620
Grp Sat Flow(s),veh/h/ln	1687	1706	1734	1810	1703	1527	1740	1736	1794	1740	1723	1664
Q Serve(g_s), s	15.7	5.5	5.6	2.7	6.1	19.0	4.0	10.1	10.1	11.2	45.8	46.4
Cycle Q Clear(g_c), s	15.7	5.5	5.6	2.7	6.1	19.0	4.0	10.1	10.1	11.2	45.8	46.4
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.10	1.00		0.48
Lane Grp Cap(c), veh/h	376	430	437	332	584	262	75	680	702	164	763	737
V/C Ratio(X)	0.63	0.20	0.20	0.13	0.29	0.82	0.68	0.51	0.51	0.86	0.84	0.84
Avail Cap(c_a), veh/h	376	430	437	361	632	284	137	680	702	186	763	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	41.2	41.3	44.5	50.6	55.9	63.0	10.4	10.4	62.5	34.5	34.7
Incr Delay (d2), s/veh	3.2	0.2	0.2	0.2	0.3	16.3	9.8	2.6	2.5	28.3	10.5	11.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.1	4.7	4.9	2.5	5.2	14.1	3.8	8.7	8.9	10.9	32.1	31.4
LnGrp Delay(d),s/veh	42.6	41.5	41.5	44.7	50.8	72.2	72.8	12.9	12.9	90.8	45.0	45.9
LnGrp LOS	D	D	D	D	D	E	E	B	B	F	D	D
Approach Vol, veh/h		408			428			756			1399	
Approach Delay, s/veh		42.1			61.0			16.9			50.0	
Approach LOS		D			E			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	70.0	14.7	43.3	19.2	62.8	26.0	32.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	11.0	55.0	8.0	35.0	15.0	51.0	17.0	26.0
Max Q Clear Time (g_c+I1), s	6.0	48.4	4.7	7.6	13.2	12.1	17.7	21.0
Green Ext Time (p_c), s	0.1	6.5	0.0	7.3	0.1	35.6	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	164	71	4	256	14	65	1	1	11	2	78
Future Volume (veh/h)	82	164	71	4	256	14	65	1	1	11	2	78
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1829	1900	1900	1831	1900	1845	1900	1900	1900	1829	1900
Adj Flow Rate, veh/h	86	173	75	4	269	15	68	1	1	12	2	82
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	4	4	3	0	0	0	0	0
Cap, veh/h	704	1347	560	749	1891	105	334	168	168	418	7	291
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1061	2385	991	1140	3348	186	1285	868	868	1422	37	1507
Grp Volume(v), veh/h	86	124	124	4	139	145	68	0	2	12	0	84
Grp Sat Flow(s),veh/h/ln	1061	1737	1639	1140	1739	1795	1285	0	1736	1422	0	1543
Q Serve(g_s), s	2.1	1.7	1.8	0.1	1.9	1.9	2.4	0.0	0.0	0.3	0.0	2.3
Cycle Q Clear(g_c), s	4.0	1.7	1.8	1.8	1.9	1.9	4.7	0.0	0.0	0.4	0.0	2.3
Prop In Lane	1.00		0.60	1.00		0.10	1.00		0.50	1.00		0.98
Lane Grp Cap(c), veh/h	704	981	926	749	982	1014	334	0	335	418	0	298
V/C Ratio(X)	0.12	0.13	0.13	0.01	0.14	0.14	0.20	0.00	0.01	0.03	0.00	0.28
Avail Cap(c_a), veh/h	704	981	926	749	982	1014	863	0	1050	1004	0	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	5.1	5.1	5.5	5.1	5.1	19.1	0.0	16.2	16.3	0.0	17.1
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	1.6	1.6	0.1	1.7	1.8	1.5	0.0	0.0	0.2	0.0	1.8
LnGrp Delay(d),s/veh	6.4	5.3	5.4	5.5	5.4	5.4	19.4	0.0	16.2	16.3	0.0	17.6
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		334			288			70			96	
Approach Delay, s/veh		5.6			5.4			19.3			17.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		15.6		34.0		15.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		3.9		6.7		6.0		4.3
Green Ext Time (p_c), s		9.2		1.6		8.7		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	112	165	39	140	57	105	316	39	32	328	84
Future Volume (veh/h)	89	112	165	39	140	57	105	316	39	32	328	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1759	1848	1900	1845	1845	1900	1900	1852	1900
Adj Flow Rate, veh/h	94	118	174	41	147	60	111	333	41	34	345	88
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	3	8	4	4	3	3	3	0	3	3
Cap, veh/h	356	204	301	268	382	156	517	1601	195	564	1415	355
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1148	661	975	1007	1236	504	929	3135	382	1009	2770	696
Grp Volume(v), veh/h	94	0	292	41	0	207	111	185	189	34	217	216
Grp Sat Flow(s),veh/h/ln	1148	0	1637	1007	0	1740	929	1752	1765	1009	1759	1707
Q Serve(g_s), s	4.7	0.0	10.0	2.4	0.0	6.2	5.1	3.8	3.9	1.3	4.6	4.7
Cycle Q Clear(g_c), s	10.9	0.0	10.0	12.4	0.0	6.2	9.8	3.8	3.9	5.2	4.6	4.7
Prop In Lane	1.00		0.60	1.00		0.29	1.00		0.22	1.00		0.41
Lane Grp Cap(c), veh/h	356	0	506	268	0	538	517	895	901	564	898	872
V/C Ratio(X)	0.26	0.00	0.58	0.15	0.00	0.38	0.21	0.21	0.21	0.06	0.24	0.25
Avail Cap(c_a), veh/h	415	0	590	320	0	627	517	895	901	564	898	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	19.3	24.5	0.0	18.0	11.9	8.9	8.9	10.3	9.1	9.1
Incr Delay (d2), s/veh	0.4	0.0	1.0	0.3	0.0	0.5	0.9	0.5	0.5	0.2	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	8.1	1.2	0.0	5.5	2.6	3.6	3.6	0.7	4.3	4.3
LnGrp Delay(d),s/veh	22.7	0.0	20.4	24.8	0.0	18.5	12.8	9.4	9.5	10.6	9.7	9.8
LnGrp LOS	C		C	C		B	B	A	A	B	A	A
Approach Vol, veh/h		386			248			485			467	
Approach Delay, s/veh		20.9			19.5			10.2			9.8	
Approach LOS		C			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		26.6		40.0		26.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		11.8		12.9		7.2		14.4
Green Ext Time (p_c), s		13.2		5.7		15.0		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	50	73	631	843	79
Future Volume (veh/h)	150	50	73	631	843	79
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1863	1845	1792	1827	1900
Adj Flow Rate, veh/h	158	53	77	664	887	83
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	3	6	4	4
Cap, veh/h	193	175	97	2639	2172	203
Arrive On Green	0.11	0.11	0.06	0.77	1.00	1.00
Sat Flow, veh/h	1740	1583	1757	3495	3300	300
Grp Volume(v), veh/h	158	53	77	664	480	490
Grp Sat Flow(s),veh/h/ln	1740	1583	1757	1703	1736	1774
Q Serve(g_s), s	12.4	4.3	6.1	7.6	0.0	0.0
Cycle Q Clear(g_c), s	12.4	4.3	6.1	7.6	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	193	175	97	2639	1175	1201
V/C Ratio(X)	0.82	0.30	0.80	0.25	0.41	0.41
Avail Cap(c_a), veh/h	429	390	138	2639	1175	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.54	0.54
Uniform Delay (d), s/veh	60.9	57.3	65.4	4.4	0.0	0.0
Incr Delay (d2), s/veh	8.3	1.0	18.4	0.2	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.6	3.5	6.2	6.6	0.3	0.3
LnGrp Delay(d),s/veh	69.2	58.2	83.8	4.6	0.6	0.6
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	211			741	970	
Approach Delay, s/veh	66.4			12.9	0.6	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.7	102.3		24.0		116.0		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	11.0	72.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	8.1	2.0		14.4		9.6		
Green Ext Time (p_c), s	0.1	51.8		1.1		56.6		

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	34	171	21	53	39	187	160	12	122	42
Future Volume (veh/h)	35	5	34	171	21	53	39	187	160	12	122	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.91	0.94		0.91	0.93		0.88	0.96		0.88
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1855	1900	1881	1847	1900	1845	1873	1900	1900	1862	1900
Adj Flow Rate, veh/h	37	5	36	180	22	56	41	197	168	13	128	44
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	20	20	1	0	0	3	1	1	0	1	1
Cap, veh/h	464	59	425	514	141	360	585	419	358	441	612	210
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1196	180	1296	1291	431	1096	1113	874	745	992	1275	438
Grp Volume(v), veh/h	37	0	41	180	0	78	41	0	365	13	0	172
Grp Sat Flow(s),veh/h/ln	1196	0	1476	1291	0	1527	1113	0	1619	992	0	1713
Q Serve(g_s), s	1.4	0.0	1.2	7.0	0.0	2.3	1.4	0.0	9.5	0.6	0.0	3.6
Cycle Q Clear(g_c), s	3.7	0.0	1.2	8.2	0.0	2.3	5.0	0.0	9.5	10.0	0.0	3.6
Prop In Lane	1.00		0.88	1.00		0.72	1.00		0.46	1.00		0.26
Lane Grp Cap(c), veh/h	464	0	484	514	0	501	585	0	777	441	0	822
V/C Ratio(X)	0.08	0.00	0.08	0.35	0.00	0.16	0.07	0.00	0.47	0.03	0.00	0.21
Avail Cap(c_a), veh/h	569	0	614	628	0	635	585	0	777	441	0	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	14.5	17.3	0.0	14.9	10.8	0.0	10.9	14.3	0.0	9.4
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.9	0.0	0.3	0.2	0.0	2.0	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	0.0	0.9	4.7	0.0	1.8	0.8	0.0	8.1	0.3	0.0	3.3
LnGrp Delay(d),s/veh	16.3	0.0	14.7	18.2	0.0	15.2	11.1	0.0	12.9	14.4	0.0	10.0
LnGrp LOS	B		B	B		B	B		B	B		A
Approach Vol, veh/h		78			258			406			185	
Approach Delay, s/veh		15.5			17.3			12.8			10.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		26.5		36.0		26.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		11.5		5.7		12.0		10.2
Green Ext Time (p_c), s		8.2		4.7		8.1		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	29	23	23	2	16	56	281	19	26	224	5
Future Volume (veh/h)	5	29	23	23	2	16	56	281	19	26	224	5
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1520	1900	1900	1810	1900	1900	1827	1865	1900	1827	1828	1900
Adj Flow Rate, veh/h	5	31	24	24	2	17	59	296	20	27	236	5
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	25	0	0	5	0	0	4	2	2	4	4	4
Cap, veh/h	315	154	119	318	27	227	770	1990	134	720	2056	43
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1122	990	767	1294	171	1456	1101	3367	226	1030	3478	74
Grp Volume(v), veh/h	5	0	55	24	0	19	59	155	161	27	118	123
Grp Sat Flow(s),veh/h/ln	1122	0	1757	1294	0	1628	1101	1772	1821	1030	1737	1814
Q Serve(g_s), s	0.2	0.0	1.3	0.8	0.0	0.5	1.2	1.9	1.9	0.6	1.4	1.4
Cycle Q Clear(g_c), s	0.7	0.0	1.3	2.1	0.0	0.5	2.6	1.9	1.9	2.5	1.4	1.4
Prop In Lane	1.00		0.44	1.00		0.89	1.00		0.12	1.00		0.04
Lane Grp Cap(c), veh/h	315	0	273	318	0	253	770	1047	1077	720	1027	1072
V/C Ratio(X)	0.02	0.00	0.20	0.08	0.00	0.08	0.08	0.15	0.15	0.04	0.11	0.12
Avail Cap(c_a), veh/h	875	0	1150	964	0	1065	770	1047	1077	720	1027	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	17.4	18.3	0.0	17.1	4.8	4.3	4.3	4.9	4.2	4.2
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.1	0.2	0.3	0.3	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	1.2	0.5	0.0	0.4	0.7	1.8	1.8	0.3	1.3	1.4
LnGrp Delay(d),s/veh	17.4	0.0	17.8	18.4	0.0	17.2	5.0	4.6	4.6	5.0	4.5	4.5
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		60			43			375			268	
Approach Delay, s/veh		17.8			17.9			4.7			4.5	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		13.4		34.0		13.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		4.6		4.1		4.5		3.3
Green Ext Time (p_c), s		9.3		1.2		9.3		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	440	28	60	390	79	27	39	51	27	20	10
Future Volume (veh/h)	1	440	28	60	390	79	27	39	51	27	20	10
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1824	1900	1845	1801	1900	1900	1954	1900	1900	1976	1900
Adj Flow Rate, veh/h	1	463	29	63	411	83	28	41	54	28	21	11
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	3	6	6	0	0	0	0	0	0
Cap, veh/h	3	2122	133	85	1952	391	230	107	142	176	172	90
Arrive On Green	0.00	0.64	0.64	0.02	0.23	0.23	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3312	207	1757	2840	569	1378	758	999	1305	1215	636
Grp Volume(v), veh/h	1	242	250	63	246	248	28	0	95	28	0	32
Grp Sat Flow(s),veh/h/ln	1810	1733	1786	1757	1711	1698	1378	0	1757	1305	0	1851
Q Serve(g_s), s	0.1	7.6	7.6	4.6	15.2	15.4	2.4	0.0	6.4	2.6	0.0	2.0
Cycle Q Clear(g_c), s	0.1	7.6	7.6	4.6	15.2	15.4	4.3	0.0	6.4	9.0	0.0	2.0
Prop In Lane	1.00		0.12	1.00		0.33	1.00		0.57	1.00		0.34
Lane Grp Cap(c), veh/h	3	1110	1145	85	1176	1167	230	0	249	176	0	262
V/C Ratio(X)	0.29	0.22	0.22	0.74	0.21	0.21	0.12	0.00	0.38	0.16	0.00	0.12
Avail Cap(c_a), veh/h	111	1110	1145	257	1176	1167	411	0	480	348	0	505
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	9.7	9.8	63.2	21.6	21.7	50.6	0.0	50.6	54.7	0.0	48.7
Incr Delay (d2), s/veh	40.7	0.5	0.4	11.7	0.4	0.4	0.2	0.0	1.0	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	6.8	7.0	4.6	11.7	11.8	1.6	0.0	5.7	1.7	0.0	1.8
LnGrp Delay(d),s/veh	105.4	10.2	10.2	74.9	22.0	22.1	50.9	0.0	51.6	55.1	0.0	48.9
LnGrp LOS	F	B	B	E	C	C	D		D	E		D
Approach Vol, veh/h		493			557			123			60	
Approach Delay, s/veh		10.4			28.0			51.4			51.8	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	96.8		26.9	12.3	90.8		26.9
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	19.0	53.5		35.5
Max Q Clear Time (g_c+I1), s	2.1	17.4		11.0	6.6	9.6		8.4
Green Ext Time (p_c), s	0.0	21.9		2.1	0.2	21.2		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	189	342	452	24	56	39
Future Volume (veh/h)	189	342	452	24	56	39
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1810	1814	1900	1827	1863
Adj Flow Rate, veh/h	199	360	476	25	59	41
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	5	5	4	2
Cap, veh/h	226	2744	2081	109	130	119
Arrive On Green	0.25	1.00	1.00	1.00	0.07	0.07
Sat Flow, veh/h	1774	3529	3422	175	1740	1583
Grp Volume(v), veh/h	199	360	246	255	59	41
Grp Sat Flow(s),veh/h/ln	1774	1719	1723	1783	1740	1583
Q Serve(g_s), s	14.0	0.0	0.0	0.0	4.2	3.2
Cycle Q Clear(g_c), s	14.0	0.0	0.0	0.0	4.2	3.2
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	226	2744	1076	1114	130	119
V/C Ratio(X)	0.88	0.13	0.23	0.23	0.45	0.35
Avail Cap(c_a), veh/h	328	2744	1076	1114	335	304
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	0.0	0.0	57.6	57.1
Incr Delay (d2), s/veh	16.8	0.1	0.5	0.5	2.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.5	0.1	0.3	0.3	3.8	2.6
LnGrp Delay(d),s/veh	64.3	0.1	0.5	0.5	60.0	58.8
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		559	501		100	
Approach Delay, s/veh		23.0	0.5		59.5	
Approach LOS		C	A		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.6	88.7		18.7		111.3		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	24.0	58.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	16.0	2.0		6.2		2.0		
Green Ext Time (p_c), s	0.6	20.3		0.4		22.6		

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	239	94	50	267	120	114	308	41	127	376	92
Future Volume (veh/h)	87	239	94	50	267	120	114	308	41	127	376	92
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1810	1819	1900	1863	1816	1900	1754	1852	1900	1863	1838	1900
Adj Flow Rate, veh/h	92	252	99	53	281	126	120	324	43	134	396	97
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	2	4	4	4	2	2	2	3	3
Cap, veh/h	114	948	361	81	858	373	310	929	122	379	818	198
Arrive On Green	0.13	0.78	0.78	0.02	0.12	0.12	0.06	0.30	0.30	0.06	0.30	0.30
Sat Flow, veh/h	1723	2428	924	1774	2318	1009	1670	3114	409	1774	2767	670
Grp Volume(v), veh/h	92	177	174	53	207	200	120	182	185	134	248	245
Grp Sat Flow(s),veh/h/ln	1723	1728	1624	1774	1725	1601	1670	1760	1763	1774	1746	1691
Q Serve(g_s), s	6.7	3.7	3.9	3.9	14.3	14.9	6.4	10.5	10.7	6.8	15.2	15.5
Cycle Q Clear(g_c), s	6.7	3.7	3.9	3.9	14.3	14.9	6.4	10.5	10.7	6.8	15.2	15.5
Prop In Lane	1.00		0.57	1.00		0.63	1.00		0.23	1.00		0.40
Lane Grp Cap(c), veh/h	114	675	634	81	638	592	310	525	526	379	516	500
V/C Ratio(X)	0.80	0.26	0.27	0.65	0.32	0.34	0.39	0.35	0.35	0.35	0.48	0.49
Avail Cap(c_a), veh/h	239	675	634	136	638	592	318	589	590	379	571	553
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	9.1	9.1	63.0	42.2	42.5	29.8	35.7	35.8	29.5	37.6	37.7
Incr Delay (d2), s/veh	12.2	0.9	1.1	8.4	1.3	1.5	0.8	0.4	0.4	0.6	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.5	3.3	3.3	3.8	11.4	11.2	5.5	8.9	9.0	6.1	11.9	11.8
LnGrp Delay(d),s/veh	67.7	10.0	10.2	71.4	43.6	44.0	30.6	36.1	36.2	30.1	38.3	38.5
LnGrp LOS	E	B	B	E	D	D	C	D	D	C	D	D
Approach Vol, veh/h		443			460			487			627	
Approach Delay, s/veh		22.1			47.0			34.8			36.6	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	56.1	12.4	46.9	12.0	58.8	12.0	47.3
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5
Max Green Setting (Gmax), s	18.0	34.0	9.0	42.5	10.0	42.0	8.0	43.5
Max Q Clear Time (g_c+I1), s	8.7	16.9	8.4	17.5	5.9	5.9	8.8	12.7
Green Ext Time (p_c), s	0.2	9.4	0.0	14.4	0.0	14.5	0.0	16.5

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	204	147	107	233	63	106	231	142	83	175	79
Future Volume (veh/h)	95	204	147	107	233	63	106	231	142	83	175	79
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	0.96		0.92	0.96		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1808	1900	1696	1859	1900	1743	1900	1881	1900	1864	1900
Adj Flow Rate, veh/h	100	215	155	113	245	66	112	243	149	87	184	83
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	8	8	12	2	2	9	0	1	0	1	1
Cap, veh/h	127	868	589	138	1284	338	207	541	419	230	337	152
Arrive On Green	0.02	0.15	0.15	0.09	0.47	0.47	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1792	1917	1300	1616	2749	723	993	1900	1471	970	1182	533
Grp Volume(v), veh/h	100	191	179	113	155	156	112	243	149	87	0	267
Grp Sat Flow(s),veh/h/ln	1792	1718	1499	1616	1766	1706	993	1900	1471	970	0	1715
Q Serve(g_s), s	7.2	12.8	13.7	8.9	6.7	7.0	14.0	13.6	10.5	10.5	0.0	17.1
Cycle Q Clear(g_c), s	7.2	12.8	13.7	8.9	6.7	7.0	31.1	13.6	10.5	24.1	0.0	17.1
Prop In Lane	1.00		0.87	1.00		0.42	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	127	778	679	138	825	797	207	541	419	230	0	489
V/C Ratio(X)	0.78	0.25	0.26	0.82	0.19	0.20	0.54	0.45	0.36	0.38	0.00	0.55
Avail Cap(c_a), veh/h	289	778	679	261	825	797	222	570	441	245	0	515
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	62.5	35.7	36.1	58.5	20.2	20.3	52.6	38.1	37.0	48.0	0.0	39.4
Incr Delay (d2), s/veh	10.1	0.8	0.9	11.4	0.5	0.5	2.2	0.6	0.5	1.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.1	10.3	9.9	7.9	6.0	6.1	7.2	11.7	7.7	5.2	0.0	12.8
LnGrp Delay(d),s/veh	72.5	36.4	37.0	69.9	20.7	20.9	54.8	38.7	37.5	49.0	0.0	40.4
LnGrp LOS	E	D	D	E	C	C	D	D	D	D		D
Approach Vol, veh/h		470			424			504			354	
Approach Delay, s/veh		44.3			33.9			41.9			42.5	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.3	68.7		46.0	17.1	66.9		46.0
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	21.0	47.0		39.0	21.0	47.0		39.0
Max Q Clear Time (g_c+I1), s	9.2	9.0		26.1	10.9	15.7		33.1
Green Ext Time (p_c), s	0.3	13.2		7.4	0.3	12.1		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	40.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	276	100	28	283	95	83	204	23	66	184	21
Future Volume (veh/h)	51	276	100	28	283	95	83	204	23	66	184	21
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.97		0.96	0.97		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1854	1900	1900	1858	1900	1776	1859	1900	1845	1832	1900
Adj Flow Rate, veh/h	54	291	105	29	298	100	87	215	24	69	194	22
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	2	2	7	2	2	3	3	3
Cap, veh/h	608	1522	537	630	1556	512	313	830	91	312	817	91
Arrive On Green	0.60	0.60	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	960	2550	900	1000	2608	857	1077	3194	352	1097	3142	351
Grp Volume(v), veh/h	54	199	197	29	200	198	87	118	121	69	106	110
Grp Sat Flow(s),veh/h/ln	960	1761	1688	1000	1765	1700	1077	1766	1780	1097	1740	1753
Q Serve(g_s), s	2.3	4.3	4.5	1.1	4.3	4.5	5.8	4.4	4.5	4.5	4.0	4.1
Cycle Q Clear(g_c), s	6.7	4.3	4.5	5.6	4.3	4.5	10.0	4.4	4.5	9.0	4.0	4.1
Prop In Lane	1.00		0.53	1.00		0.50	1.00		0.20	1.00		0.20
Lane Grp Cap(c), veh/h	608	1051	1007	630	1053	1014	313	459	463	312	452	456
V/C Ratio(X)	0.09	0.19	0.20	0.05	0.19	0.20	0.28	0.26	0.26	0.22	0.23	0.24
Avail Cap(c_a), veh/h	608	1051	1007	630	1053	1014	341	506	510	341	499	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	7.7	7.7	9.0	7.7	7.7	28.4	24.6	24.6	28.2	24.4	24.5
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.1	0.4	0.4	1.0	0.6	0.6	0.8	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	3.9	4.0	0.6	3.9	4.0	3.2	4.0	4.2	2.6	3.6	3.8
LnGrp Delay(d),s/veh	9.5	8.1	8.1	9.1	8.1	8.1	29.4	25.2	25.3	29.0	25.0	25.1
LnGrp LOS	A	A	A	A	A	A	C	C	C	C	C	C
Approach Vol, veh/h		450			427			326			285	
Approach Delay, s/veh		8.3			8.2			26.3			26.0	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		27.8		56.0		27.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		7.6		12.0		8.7		11.0
Green Ext Time (p_c), s		26.1		7.1		25.6		7.5

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	117	89	138	110	120	53	285	193	114	350	52
Future Volume (veh/h)	55	117	89	138	110	120	53	285	193	114	350	52
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1900	1900	1900	1834	1900	1863	1870	1900	1863	1832	1900
Adj Flow Rate, veh/h	58	123	94	145	116	126	56	300	203	120	368	55
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	0	4	4	4	2	2	2	2	4	4
Cap, veh/h	331	318	243	293	251	300	559	1079	710	435	1181	175
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.10	0.53	0.53	0.39	0.39	0.39
Sat Flow, veh/h	1112	985	753	662	778	932	1774	2048	1348	887	3036	450
Grp Volume(v), veh/h	58	0	217	188	0	199	56	259	244	120	210	213
Grp Sat Flow(s),veh/h/ln	1112	0	1738	904	0	1469	1774	1777	1619	887	1740	1746
Q Serve(g_s), s	3.4	0.0	7.7	10.1	0.0	8.4	1.3	6.4	6.7	7.6	6.7	6.8
Cycle Q Clear(g_c), s	11.9	0.0	7.7	17.8	0.0	8.4	1.3	6.4	6.7	7.6	6.7	6.8
Prop In Lane	1.00		0.43	0.77		0.63	1.00		0.83	1.00		0.26
Lane Grp Cap(c), veh/h	331	0	560	371	0	473	559	936	853	435	677	679
V/C Ratio(X)	0.18	0.00	0.39	0.51	0.00	0.42	0.10	0.28	0.29	0.28	0.31	0.31
Avail Cap(c_a), veh/h	349	0	589	392	0	498	559	936	853	435	677	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	20.9	26.9	0.0	21.2	10.2	10.4	10.5	17.2	16.9	16.9
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.1	0.0	0.6	0.4	0.7	0.8	1.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	6.7	6.9	0.0	6.3	1.2	5.9	5.7	3.7	6.2	6.3
LnGrp Delay(d),s/veh	26.1	0.0	21.3	28.0	0.0	21.7	10.6	11.2	11.3	18.8	18.1	18.2
LnGrp LOS	C		C	C		C	B	B	B	B	B	B
Approach Vol, veh/h		275			387			559			543	
Approach Delay, s/veh		22.3			24.8			11.2			18.3	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		31.7		48.0		31.7
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	3.3	9.6		19.8		8.7		13.9
Green Ext Time (p_c), s	0.1	15.1		4.3		20.9		7.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2	14	8	1	33	13	267	10	31	246	28
Future Volume (veh/h)	28	2	14	8	1	33	13	267	10	31	246	28
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.96		0.94	0.96		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1853	1900	1900	1856	1900	1900	1833	1900	1900	1815	1900
Adj Flow Rate, veh/h	29	2	15	8	1	35	14	281	11	33	259	29
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	5	5	5
Cap, veh/h	249	36	82	104	35	215	120	1903	73	221	1588	175
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	776	209	477	117	203	1247	72	3218	123	230	2686	296
Grp Volume(v), veh/h	46	0	0	44	0	0	160	0	146	167	0	154
Grp Sat Flow(s),veh/h/ln	1462	0	0	1567	0	0	1777	0	1637	1635	0	1578
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.2
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.2	0.0	0.0	2.0	0.0	2.0	2.1	0.0	2.2
Prop In Lane	0.63		0.33	0.18		0.80	0.09		0.08	0.20		0.19
Lane Grp Cap(c), veh/h	367	0	0	354	0	0	1128	0	968	1052	0	933
V/C Ratio(X)	0.13	0.00	0.00	0.12	0.00	0.00	0.14	0.00	0.15	0.16	0.00	0.17
Avail Cap(c_a), veh/h	906	0	0	930	0	0	1128	0	968	1052	0	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	0.0	17.9	0.0	0.0	4.6	0.0	4.6	4.7	0.0	4.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	0.0	1.0	0.0	0.0	1.9	0.0	1.8	2.0	0.0	1.9
LnGrp Delay(d),s/veh	18.0	0.0	0.0	18.0	0.0	0.0	4.9	0.0	5.0	5.0	0.0	5.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		46			44			306			321	
Approach Delay, s/veh		18.0			18.0			4.9			5.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		14.7		36.0		14.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		4.0		3.2		4.2		3.1
Green Ext Time (p_c), s		10.5		1.2		10.5		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1	14	26	2	55	9	220	16	30	232	4
Future Volume (veh/h)	6	1	14	26	2	55	9	220	16	30	232	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.96		0.94	0.96		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1802	1900	1900	1877	1900	1900	1866	1900	1900	1833	1900
Adj Flow Rate, veh/h	6	1	15	27	2	58	9	232	17	32	244	4
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	3	3	3
Cap, veh/h	152	55	215	168	51	219	109	1644	117	227	1544	25
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	216	263	1026	280	241	1042	38	3215	229	244	3020	49
Grp Volume(v), veh/h	22	0	0	87	0	0	136	0	122	145	0	135
Grp Sat Flow(s),veh/h/ln	1504	0	0	1563	0	0	1839	0	1642	1658	0	1656
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.9
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.9	0.0	0.0	1.7	0.0	1.7	1.8	0.0	1.9
Prop In Lane	0.27		0.68	0.31		0.67	0.07		0.14	0.22		0.03
Lane Grp Cap(c), veh/h	422	0	0	438	0	0	1030	0	840	950	0	847
V/C Ratio(X)	0.05	0.00	0.00	0.20	0.00	0.00	0.13	0.00	0.15	0.15	0.00	0.16
Avail Cap(c_a), veh/h	990	0	0	1030	0	0	1030	0	840	950	0	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	0.0	14.2	0.0	0.0	5.5	0.0	5.6	5.6	0.0	5.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.4	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	0.0	1.6	0.0	0.0	1.6	0.0	1.5	1.8	0.0	1.7
LnGrp Delay(d),s/veh	13.7	0.0	0.0	14.4	0.0	0.0	5.8	0.0	5.9	5.9	0.0	6.0
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		22			87			258			280	
Approach Delay, s/veh		13.7			14.4			5.9			6.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		15.0		28.0		15.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		3.7		2.5		3.9		3.9
Green Ext Time (p_c), s		7.4		1.5		7.3		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	16	24	1	20	29	217	32	12	249	11
Future Volume (veh/h)	8	1	16	24	1	20	29	217	32	12	249	11
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.96		0.96	0.97		0.94	0.97		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1827	1900	1900	1813	1900	1900	1845	1900	1900	1833	1900
Adj Flow Rate, veh/h	8	1	17	25	1	21	31	228	34	13	262	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	4	4	4
Cap, veh/h	172	53	263	277	36	172	200	1339	196	106	1631	73
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	317	194	966	647	132	630	237	2630	385	68	3204	144
Grp Volume(v), veh/h	26	0	0	47	0	0	153	0	140	151	0	136
Grp Sat Flow(s),veh/h/ln	1477	0	0	1409	0	0	1668	0	1584	1783	0	1632
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.5
Cycle Q Clear(g_c), s	0.7	0.0	0.0	1.2	0.0	0.0	2.4	0.0	2.6	2.4	0.0	2.5
Prop In Lane	0.31		0.65	0.53		0.45	0.20		0.24	0.09		0.09
Lane Grp Cap(c), veh/h	488	0	0	484	0	0	928	0	806	979	0	831
V/C Ratio(X)	0.05	0.00	0.00	0.10	0.00	0.00	0.16	0.00	0.17	0.15	0.00	0.16
Avail Cap(c_a), veh/h	749	0	0	735	0	0	928	0	806	979	0	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	0.0	15.0	0.0	0.0	7.2	0.0	7.3	7.2	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.5	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	0.0	1.0	0.0	0.0	2.4	0.0	2.2	2.3	0.0	2.2
LnGrp Delay(d),s/veh	14.8	0.0	0.0	15.1	0.0	0.0	7.6	0.0	7.7	7.6	0.0	7.7
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		26			47			293			287	
Approach Delay, s/veh		14.8			15.1			7.7			7.6	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.0		34.0		21.0		34.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0				
Max Q Clear Time (g_c+I1), s		3.2		4.6		2.7		4.5				
Green Ext Time (p_c), s		0.8		9.2		0.8		9.2				
Intersection Summary												
HCM 2010 Ctrl Delay			8.5									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	439	32	85	342	114	29	249	64	105	357	106
Future Volume (veh/h)	155	439	32	85	342	114	29	249	64	105	357	106
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1845	1900	1881	1827	1881	1900	1870	1900	1900	1835	1900
Adj Flow Rate, veh/h	163	462	34	89	360	120	31	262	67	111	376	112
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	4	1	0	2	2	0	4	4
Cap, veh/h	463	1419	637	454	1391	624	336	869	217	426	879	258
Arrive On Green	0.06	0.40	0.40	0.02	0.13	0.13	0.04	0.31	0.31	0.06	0.33	0.33
Sat Flow, veh/h	1810	3505	1574	1792	3471	1558	1810	2797	699	1810	2639	775
Grp Volume(v), veh/h	163	462	34	89	360	120	31	164	165	111	246	242
Grp Sat Flow(s),veh/h/ln	1810	1752	1574	1792	1736	1558	1810	1777	1720	1810	1743	1670
Q Serve(g_s), s	5.8	9.9	1.4	3.1	10.3	7.5	1.2	7.7	8.0	4.4	12.1	12.4
Cycle Q Clear(g_c), s	5.8	9.9	1.4	3.1	10.3	7.5	1.2	7.7	8.0	4.4	12.1	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.46
Lane Grp Cap(c), veh/h	463	1419	637	454	1391	624	336	552	534	426	581	556
V/C Ratio(X)	0.35	0.33	0.05	0.20	0.26	0.19	0.09	0.30	0.31	0.26	0.42	0.43
Avail Cap(c_a), veh/h	463	1419	637	462	1391	624	381	630	610	430	618	592
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	22.4	19.9	18.1	33.1	31.9	24.1	28.8	28.9	22.6	28.5	28.6
Incr Delay (d2), s/veh	0.5	0.6	0.2	0.2	0.5	0.7	0.1	0.3	0.3	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	8.6	1.2	2.8	8.7	6.1	1.1	6.9	6.9	4.0	9.9	9.7
LnGrp Delay(d),s/veh	18.4	23.0	20.1	18.3	33.5	32.6	24.3	29.1	29.2	22.9	29.0	29.1
LnGrp LOS	B	C	C	B	C	C	C	C	C	C	C	C
Approach Vol, veh/h		659			569			360			599	
Approach Delay, s/veh		21.7			30.9			28.7			27.9	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	50.5	7.3	42.6	10.0	50.1	9.8	40.2				
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0				
Max Green Setting (Gmax), s	7.0	39.0	7.0	39.0	7.0	39.0	7.0	39.0				
Max Q Clear Time (g_c+I1), s	5.1	11.9	3.2	14.4	7.8	12.3	6.4	10.0				
Green Ext Time (p_c), s	0.1	16.9	0.0	13.9	0.0	16.8	0.0	15.4				
Intersection Summary												
HCM 2010 Ctrl Delay			27.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	63	535	481	211	165	55		
Future Volume (veh/h)	63	535	481	211	165	55		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	0.99			0.98	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1863	1863	1863	1863	1810		
Adj Flow Rate, veh/h	66	563	506	222	174	58		
Adj No. of Lanes	1	2	2	1	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	2	2	2	2	5		
Cap, veh/h	611	2709	2418	1059	222	193		
Arrive On Green	0.11	1.00	0.68	0.68	0.13	0.13		
Sat Flow, veh/h	1757	3632	3632	1551	1774	1538		
Grp Volume(v), veh/h	66	563	506	222	174	58		
Grp Sat Flow(s),veh/h/ln	1757	1770	1770	1551	1774	1538		
Q Serve(g_s), s	1.0	0.0	5.8	5.8	10.5	3.8		
Cycle Q Clear(g_c), s	1.0	0.0	5.8	5.8	10.5	3.8		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	611	2709	2418	1059	222	193		
V/C Ratio(X)	0.11	0.21	0.21	0.21	0.78	0.30		
Avail Cap(c_a), veh/h	626	2709	2418	1059	661	573		
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.5	0.0	6.4	6.4	46.6	43.7		
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.4	5.9	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	0.8	0.1	5.2	4.7	9.3	6.0		
LnGrp Delay(d),s/veh	3.6	0.2	6.6	6.9	52.6	44.6		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h		629	728		232			
Approach Delay, s/veh		0.5	6.7		50.6			
Approach LOS		A	A		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		90.2		19.8	9.1	81.1		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		2.0		12.5	3.0	7.8		
Green Ext Time (p_c), s		35.4		1.3	0.1	28.0		
Intersection Summary								
HCM 2010 Ctrl Delay			10.7					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	474	172	127	417	128	193	793	113	176	815	71
Future Volume (veh/h)	58	474	172	127	417	128	193	793	113	176	815	71
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.99		0.96	0.99		0.94	0.99		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1827	1827	1845	1863	1863	1845	1845	1863	1827	1881
Adj Flow Rate, veh/h	61	499	181	134	439	135	203	835	119	185	858	75
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	4	3	2	2	3	3	2	4	1
Cap, veh/h	357	1201	508	333	1249	540	251	1252	527	255	1240	537
Arrive On Green	0.05	0.34	0.34	0.06	0.36	0.36	0.06	0.36	0.36	0.06	0.36	0.36
Sat Flow, veh/h	1774	3505	1484	1740	3505	1515	1774	3505	1474	1774	3471	1504
Grp Volume(v), veh/h	61	499	181	134	439	135	203	835	119	185	858	75
Grp Sat Flow(s),veh/h/ln	1774	1752	1484	1740	1752	1515	1774	1752	1474	1774	1736	1504
Q Serve(g_s), s	2.8	14.2	11.9	6.5	12.0	8.2	8.0	26.1	7.3	8.0	27.4	4.4
Cycle Q Clear(g_c), s	2.8	14.2	11.9	6.5	12.0	8.2	8.0	26.1	7.3	8.0	27.4	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	1201	508	333	1249	540	251	1252	527	255	1240	537
V/C Ratio(X)	0.17	0.42	0.36	0.40	0.35	0.25	0.81	0.67	0.23	0.72	0.69	0.14
Avail Cap(c_a), veh/h	381	1281	542	333	1281	554	251	1252	527	255	1240	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	32.7	32.0	25.9	30.8	29.6	33.8	35.2	29.2	30.4	35.7	28.3
Incr Delay (d2), s/veh	0.2	0.2	0.4	0.8	0.2	0.2	17.6	2.8	1.0	9.8	3.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	11.2	8.5	5.7	9.7	6.3	8.1	19.1	5.6	5.7	19.7	3.4
LnGrp Delay(d),s/veh	25.7	33.0	32.4	26.7	30.9	29.8	51.4	38.1	30.2	40.2	38.9	28.8
LnGrp LOS	C	C	C	C	C	C	D	D	C	D	D	C
Approach Vol, veh/h		741			708			1157			1118	
Approach Delay, s/veh		32.2			29.9			39.6			38.4	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	53.9	12.0	52.1	12.0	53.9	10.2	53.8				
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5				
Max Green Setting (Gmax), s	8.0	43.5	8.0	47.5	8.0	43.5	8.0	47.5				
Max Q Clear Time (g_c+I1), s	10.0	29.4	8.5	16.2	10.0	28.1	4.8	14.0				
Green Ext Time (p_c), s	0.0	13.4	0.0	20.4	0.0	14.6	0.0	21.3				
Intersection Summary												
HCM 2010 Ctrl Delay			35.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	740	45	22	668	38	39		
Future Volume (veh/h)	740	45	22	668	38	39		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.93	0.98		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1865	1900	1900	1864	1900	1900		
Adj Flow Rate, veh/h	779	47	23	703	40	41		
Adj No. of Lanes	2	0	0	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	2672	161	89	2594	181	161		
Arrive On Green	0.79	0.79	0.53	0.53	0.10	0.10		
Sat Flow, veh/h	3472	204	68	3364	1810	1615		
Grp Volume(v), veh/h	408	418	378	348	40	41		
Grp Sat Flow(s),veh/h/ln	1772	1810	1736	1611	1810	1615		
Q Serve(g_s), s	6.9	6.9	0.0	13.1	2.2	2.6		
Cycle Q Clear(g_c), s	6.9	6.9	12.1	13.1	2.2	2.6		
Prop In Lane		0.11	0.06		1.00	1.00		
Lane Grp Cap(c), veh/h	1401	1432	1408	1275	181	161		
V/C Ratio(X)	0.29	0.29	0.27	0.27	0.22	0.25		
Avail Cap(c_a), veh/h	1401	1432	1408	1275	510	455		
HCM Platoon Ratio	1.00	1.00	0.67	0.67	1.00	1.00		
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.1	3.1	8.3	8.5	45.6	45.7		
Incr Delay (d2), s/veh	0.4	0.4	0.5	0.5	0.6	0.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.2	6.4	10.5	10.0	2.1	2.1		
LnGrp Delay(d),s/veh	3.6	3.6	8.7	9.0	46.2	46.5		
LnGrp LOS	A	A	A	A	D	D		
Approach Vol, veh/h	826			726	81			
Approach Delay, s/veh	3.6			8.9	46.4			
Approach LOS	A			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		93.0				93.0		17.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		67.0				67.0		31.0
Max Q Clear Time (g_c+I1), s		8.9				15.1		4.6
Green Ext Time (p_c), s		43.5				39.9		0.4
Intersection Summary								
HCM 2010 Ctrl Delay			8.0					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
86: Clark Avenue & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	629	44	8	528	162	33	17	7	155	12	121
Future Volume (veh/h)	75	629	44	8	528	162	33	17	7	155	12	121
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.96		0.94	0.94		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1863	1900	1900	1863	1863	1900	1821	1900	1845	1789	1900
Adj Flow Rate, veh/h	79	662	46	8	556	171	35	18	7	163	13	127
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	2	0	2	2	0	6	6	3	8	8
Cap, veh/h	477	2051	142	396	1864	821	311	342	133	411	38	368
Arrive On Green	0.02	0.20	0.20	0.53	0.53	0.53	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1740	3352	233	746	3539	1558	1212	1224	476	1286	135	1319
Grp Volume(v), veh/h	79	349	359	8	556	171	35	0	25	163	0	140
Grp Sat Flow(s),veh/h/ln	1740	1770	1815	746	1770	1558	1212	0	1700	1286	0	1453
Q Serve(g_s), s	2.1	18.5	18.6	0.7	9.7	6.4	2.6	0.0	1.2	11.7	0.0	8.5
Cycle Q Clear(g_c), s	2.1	18.5	18.6	9.9	9.7	6.4	11.1	0.0	1.2	12.9	0.0	8.5
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.28	1.00		0.91
Lane Grp Cap(c), veh/h	477	1083	1111	396	1864	821	311	0	474	411	0	406
V/C Ratio(X)	0.17	0.32	0.32	0.02	0.30	0.21	0.11	0.00	0.05	0.40	0.00	0.35
Avail Cap(c_a), veh/h	518	1083	1111	396	1864	821	446	0	665	554	0	568
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.2	24.4	24.4	17.2	14.6	13.8	36.0	0.0	29.0	33.7	0.0	31.6
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.1	0.4	0.6	0.2	0.0	0.0	0.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	14.3	14.7	0.3	8.4	5.2	1.6	0.0	1.0	7.6	0.0	6.2
LnGrp Delay(d),s/veh	10.4	25.2	25.2	17.3	15.0	14.4	36.2	0.0	29.1	34.3	0.0	32.1
LnGrp LOS	B	C	C	B	B	B	D		C	C		C
Approach Vol, veh/h		787			735			60			303	
Approach Delay, s/veh		23.7			14.9			33.2			33.3	
Approach LOS		C			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		73.3		36.7	9.4	63.9		36.7				
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s		55.0		43.0	9.0	43.0		43.0				
Max Q Clear Time (g_c+I1), s		20.6		14.9	4.1	11.9		13.1				
Green Ext Time (p_c), s		30.8		4.1	0.1	28.1		4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			22.1									
HCM 2010 LOS			C									

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	274	149	119	204	170	255
Future Vol, veh/h	274	149	119	204	170	255
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	2	6	2	2	5
Mvmt Flow	288	157	125	215	179	268
Number of Lanes	0	2	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	18.9	11.8	13.8
HCM LOS	C	B	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	85%	0%	0%	0%	100%	0%
Vol Thru, %	15%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	99	119	204	170	255
LT Vol	274	0	0	0	170	0
Through Vol	50	99	119	0	0	0
RT Vol	0	0	0	204	0	255
Lane Flow Rate	341	105	125	215	179	268
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.648	0.186	0.233	0.352	0.358	0.449
Departure Headway (Hd)	6.849	6.401	6.686	5.902	7.193	6.028
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	525	558	535	606	499	596
Service Time	4.609	4.161	4.453	3.668	4.953	3.787
HCM Lane V/C Ratio	0.65	0.188	0.234	0.355	0.359	0.45
HCM Control Delay	21.4	10.6	11.5	11.9	13.9	13.7
HCM Lane LOS	C	B	B	B	B	B
HCM 95th-tile Q	4.6	0.7	0.9	1.6	1.6	2.3

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	287	135	131	149	123	237
Future Vol, veh/h	287	135	131	149	123	237
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	1	4	1	2	3
Mvmt Flow	302	142	138	157	129	249
Number of Lanes	1	1	0	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.8	12.6	12.9
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	73%	0%	100%	0%	0%	0%
Vol Thru, %	27%	100%	0%	0%	100%	15%
Vol Right, %	0%	0%	0%	100%	0%	85%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	181	99	287	135	82	278
LT Vol	131	0	287	0	0	0
Through Vol	50	99	0	0	82	41
RT Vol	0	0	0	135	0	237
Lane Flow Rate	190	105	302	142	86	293
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.364	0.188	0.575	0.223	0.154	0.473
Departure Headway (Hd)	6.885	6.464	6.853	5.656	6.413	5.823
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	521	553	526	634	558	617
Service Time	4.643	4.222	4.602	3.405	4.168	3.577
HCM Lane V/C Ratio	0.365	0.19	0.574	0.224	0.154	0.475
HCM Control Delay	13.6	10.7	18.5	10	10.3	13.7
HCM Lane LOS	B	B	C	A	B	B
HCM 95th-tile Q	1.7	0.7	3.6	0.8	0.5	2.5

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	84	90	206	13	82	163
Future Vol, veh/h	84	90	206	13	82	163
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	1	5	0	4	1
Mvmt Flow	88	95	217	14	86	172
Number of Lanes	1	0	2	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	9.5	9.2	9.6
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	48%	100%	0%
Vol Thru, %	100%	84%	0%	0%	100%
Vol Right, %	0%	16%	52%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	82	174	82	163
LT Vol	0	0	84	82	0
Through Vol	137	69	0	0	163
RT Vol	0	13	90	0	0
Lane Flow Rate	145	86	183	86	172
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.213	0.122	0.248	0.138	0.248
Departure Headway (Hd)	5.307	5.109	4.867	5.756	5.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	674	698	736	621	688
Service Time	3.064	2.866	2.913	3.512	2.957
HCM Lane V/C Ratio	0.215	0.123	0.249	0.138	0.25
HCM Control Delay	9.5	8.6	9.5	9.4	9.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.8	0.4	1	0.5	1

HCM 2010 TWSC
31: New Westminster Drive & No Frills East Access 10/21/2019

Intersection	
Int Delay, s/veh	11.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	134	201	188	359	389	139
Future Vol, veh/h	134	201	188	359	389	139
Conflicting Peds, #/hr	34	18	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	250	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	3	2	3	4	2
Mvmt Flow	141	212	198	378	409	146

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1102	296	556	0	-	0
Stage 1	483	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Critical Hdwy	6.84	6.96	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.33	2.22	-	-	-
Pot Cap-1 Maneuver	206	697	1011	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	165	685	994	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	400	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	44.1	3.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	994	-	165	685	-	-
HCM Lane V/C Ratio	0.199	-	0.855	0.309	-	-
HCM Control Delay (s)	9.5	-	91.4	12.6	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	5.9	1.3	-	-

HCM 2010 TWSC
33: Bathurst Street & SmartCentres East Access 10/21/2019

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	127	0	721	811	78
Future Vol, veh/h	0	127	0	721	811	78
Conflicting Peds, #/hr	0	14	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	0	4	5	4
Mvmt Flow	0	134	0	759	854	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1290	498	-	0	-	0
Stage 1	911	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	-	-
Pot Cap-1 Maneuver	158	518	0	-	-	-
Stage 1	357	-	0	-	-	-
Stage 2	668	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	153	504	-	-	-	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	352	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	504	-	-
HCM Lane V/C Ratio	-	0.265	-	-
HCM Control Delay (s)	-	14.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	1.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	394	5	0	435	0	44
Future Vol, veh/h	394	5	0	435	0	44
Conflicting Peds, #/hr	0	18	18	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	6	2	2
Mvmt Flow	415	5	0	458	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	228
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	775
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	762
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	762	-	-	-
HCM Lane V/C Ratio	0.061	-	-	-
HCM Control Delay (s)	10	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	435	10	0	337	0	10
Future Vol, veh/h	435	10	0	337	0	10
Conflicting Peds, #/hr	0	10	10	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	0	6	0	0
Mvmt Flow	458	11	0	355	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	244
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	763
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	756
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	756	-	-	-
HCM Lane V/C Ratio	0.014	-	-	-
HCM Control Delay (s)	9.8	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	100	0	875	751	181
Future Vol, veh/h	0	100	0	875	751	181
Conflicting Peds, #/hr	0	0	0	0	0	25
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	1500
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	0	3	4	2
Mvmt Flow	0	105	0	921	791	191

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	516	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	431	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	421	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	421	-	-
HCM Lane V/C Ratio	-	0.25	-	-
HCM Control Delay (s)	-	16.4	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	2	1007	1029	14
Future Vol, veh/h	0	10	2	1007	1029	14
Conflicting Peds, #/hr	0	0	47	0	0	47
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	3	3	7
Mvmt Flow	0	11	2	1060	1083	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	596	1145	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	5.3	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	3.1	-	-	-
Pot Cap-1 Maneuver	0	387	338	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	370	338	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	338	-	370	-	-
HCM Lane V/C Ratio	0.006	-	0.028	-	-
HCM Control Delay (s)	15.7	-	15	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	671	652	49	27	40
Future Vol, veh/h	29	671	652	49	27	40
Conflicting Peds, #/hr	28	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	400	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	31	706	686	52	28	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	714	0	-	0	1128	371
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	414	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	895	-	-	-	201	632
Stage 1	-	-	-	-	452	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	895	-	-	-	184	616
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	895	-	-	-	184	616
HCM Lane V/C Ratio	0.034	-	-	-	0.154	0.068
HCM Control Delay (s)	9.2	-	-	-	28.1	11.3
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	0.2

HCM Signalized Intersection Capacity Analysis
47: Bathurst Street & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	242	120	76	267	29	177	569	81	118	782	63
Future Volume (vph)	80	242	120	76	267	29	177	569	81	118	782	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.84	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1586	3323	1426	1745	3296		3351	3388	1294	1694	3388	1158
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1586	3323	1426	1745	3296		3351	3388	1294	1694	3388	1158
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	255	126	80	281	31	186	599	85	124	823	66
RTOR Reduction (vph)	0	0	94	0	5	0	0	0	64	0	0	49
Lane Group Flow (vph)	84	255	32	80	307	0	186	599	21	124	823	17
Confl. Peds. (#/hr)	10		15	15		10	50		53	53		50
Heavy Vehicles (%)	10%	5%	4%	0%	4%	3%	1%	3%	1%	3%	3%	14%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4						6			2
Actuated Green, G (s)	12.2	39.4	39.4	11.7	38.9		11.3	38.4	38.4	12.5	39.6	39.6
Effective Green, g (s)	12.2	39.4	39.4	11.7	38.9		11.3	38.4	38.4	12.5	39.6	39.6
Actuated g/C Ratio	0.08	0.25	0.25	0.08	0.25		0.07	0.25	0.25	0.08	0.26	0.26
Clearance Time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	124	844	362	131	827		244	839	320	136	865	295
v/s Ratio Prot	c0.05	0.08		0.05	c0.09		0.06	0.18		c0.07	c0.24	
v/s Ratio Perm			0.02						0.02			0.01
v/c Ratio	0.68	0.30	0.09	0.61	0.37		0.76	0.71	0.07	0.91	0.95	0.06
Uniform Delay, d1	69.5	46.7	44.1	69.4	47.9		70.5	53.3	44.6	70.7	56.8	43.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.7	0.9	0.5	8.2	1.3		13.1	2.9	0.1	51.2	19.7	0.1
Delay (s)	83.2	47.6	44.6	77.6	49.2		83.7	56.2	44.7	121.9	76.5	43.7
Level of Service	F	D	D	E	D		F	E	D	F	E	D
Approach Delay (s)		53.2			55.0			60.9			79.9	
Approach LOS		D			E			E			E	

Intersection Summary				
HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	46.0	
Intersection Capacity Utilization	80.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Bathurst Street & East Promenade

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	224	249	763	820	37
Future Volume (vph)	105	224	249	763	820	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	0.97
Flpb, ped/bikes	0.95	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3201	1435	1709	3388	3388	1518
Flt Permitted	0.95	1.00	0.27	1.00	1.00	1.00
Satd. Flow (perm)	3201	1435	477	3388	3388	1518
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	236	262	803	863	39
RTOR Reduction (vph)	0	181	0	0	0	16
Lane Group Flow (vph)	111	55	262	803	863	23
Confl. Peds. (#/hr)	15	11	16			16
Heavy Vehicles (%)	1%	4%	2%	3%	3%	0%
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			7	4	8	
Permitted Phases	1	6	4			8
Actuated Green, G (s)	12.5	12.5	98.5	98.5	72.5	72.5
Effective Green, g (s)	12.5	12.5	98.5	98.5	72.5	72.5
Actuated g/C Ratio	0.10	0.10	0.79	0.79	0.58	0.58
Clearance Time (s)	7.0	7.0	4.0	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)	320	143	592	2669	1965	880
v/s Ratio Prot			c0.08	0.24	0.25	
v/s Ratio Perm	0.03	c0.04	c0.27			0.01
v/c Ratio	0.35	0.39	0.44	0.30	0.44	0.03
Uniform Delay, d1	52.4	52.7	4.9	3.7	14.8	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	1.7	0.5	0.3	0.7	0.1
Delay (s)	53.1	54.4	5.4	4.0	15.5	11.2
Level of Service	D	D	A	A	B	B
Approach Delay (s)	54.0			4.3	15.3	
Approach LOS	D			A	B	

Intersection Summary				
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	68.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
93: Promenade Circle & East Promenade

10/21/2019

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	207	68	71	287	62
Future Volume (Veh/h)	62	207	68	71	287	62
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	65	218	72	75	302	65
Pedestrians	1		14			33
Lane Width (m)	3.3		3.3			3.3
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		1			3
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	1					
Upstream signal (m)	75					
pX, platoon unblocked						
vC, conflicting volume	14		395	15	200	177
vC1, stage 1 conf vol			14		163	163
vC2, stage 2 conf vol			381		37	14
vCu, unblocked vol	14		395	15	200	177
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	96		86	93	51	90
cM capacity (veh/h)	1584		513	1053	614	636

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	65	218	72	75	302	65
Volume Left	65	0	0	0	302	0
Volume Right	0	218	0	75	0	0
cSH	1584	1700	513	1053	614	636
Volume to Capacity	0.04	0.13	0.14	0.07	0.49	0.10
Queue Length 95th (m)	1.0	0.0	3.7	1.7	20.6	2.6
Control Delay (s)	7.4	0.0	13.2	8.7	16.4	11.3
Lane LOS	A		B	A	C	B
Approach Delay (s)	1.7		10.9		15.5	
Approach LOS			B		C	

Intersection Summary				
Average Delay	9.7			
Intersection Capacity Utilization	39.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
94: South Promenade & Promenade Circle

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	29	164	56	45	192	81
Future Volume (Veh/h)	29	164	56	45	192	81
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	31	173	59	47	202	85
Pedestrians	4			14	5	
Lane Width (m)	3.3			3.3	3.3	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			1	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					129	
pX, platoon unblocked						
vC, conflicting volume	507	9	438	422	4	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507	9	438	422	4	
tC, single (s)	6.5	6.2	7.2	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.6	4.0	2.2	
p0 queue free %	92	84	84	90	87	
cM capacity (veh/h)	405	1067	358	450	1605	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	31	173	59	47	202	85
Volume Left	0	0	59	0	202	0
Volume Right	0	173	0	0	0	85
cSH	405	1067	358	450	1605	1700
Volume to Capacity	0.08	0.16	0.16	0.10	0.13	0.05
Queue Length 95th (m)	1.9	4.4	4.4	2.6	3.3	0.0
Control Delay (s)	14.6	9.0	17.0	13.9	7.6	0.0
Lane LOS	B	A	C	B	A	
Approach Delay (s)	9.9		15.7		5.3	
Approach LOS	A		C			

Intersection Summary				
Average Delay	8.7			
Intersection Capacity Utilization	28.1%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: NB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Clark Avenue	84	37.4	65.0	0.5	26
SE Apartment Access	54	4.3	14.5	0.2	40
East Promenade	53	7.3	21.4	0.2	41
Promenade Circle	52	1.4	13.3	0.2	53
Centre Street	47	45.5	57.6	0.2	14
SmartCentres East Ac	33	4.5	16.6	0.2	42
Beverley Glen Boulev	22	10.0	23.6	0.2	37
Atkinson Avenue	11	24.2	40.6	0.3	25
Total		134.7	252.4	2.0	29

Arterial Level of Service: SB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
New Westminster Driv	11	45.5	65.5	0.3	19
Beverley Glen Boulev	22	8.5	25.6	0.3	40
SmartCentres East Ac	33	3.2	17.9	0.2	48
Centre Street	47	57.6	68.0	0.2	10
Promenade Circle	52	4.9	18.8	0.2	43
East Promenade	53	12.4	23.3	0.2	30
SE Apartment Access	54	3.2	18.6	0.2	48
Clark Avenue	84	35.7	44.8	0.2	13
Total		171.0	282.5	1.9	24

Arterial Level of Service: EB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Carl Tennen Street	41	10.9	32.0	0.4	41
Taiga Drive	42	4.2	21.5	0.3	49
New Westminster Driv	43	27.5	44.2	0.3	24
York Region Transit	44	3.1	14.8	0.2	47
North Promenade	45	23.8	29.2	0.1	13
Promenade Village Ac	46	2.8	13.3	0.2	47
Bathurst Street	47	43.0	50.6	0.1	10
Atkinson Avenue	48	11.5	43.9	0.5	45
Total		126.8	249.5	2.1	30

Arterial Level of Service: WB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Atkinson Avenue	48	8.0	31.2	0.4	46
Bathurst Street	47	43.7	74.5	0.5	26
Promenade Village Ac	46	3.0	11.3	0.1	46
Disera Drive	45	21.5	30.8	0.2	20
York Region Transit	44	2.2	8.5	0.1	44
New Westminster Driv	43	34.4	45.3	0.2	15
Taiga Drive	42	5.6	23.1	0.3	46
Vaughan Boulevard	41	3.8	20.6	0.3	51
Total		122.2	245.2	2.1	31

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	327	23	73	278	179	28	937	36	113	1279	400
Future Volume (veh/h)	278	327	23	73	278	179	28	937	36	113	1279	400
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	0.95		0.89	1.00		0.93	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1715	1900	1845	1863	1827	1900	1728	1900	1810	1792	1900
Adj Flow Rate, veh/h	293	344	24	77	293	188	29	986	38	119	1346	421
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	3	2	4	0	10	10	5	7	7
Cap, veh/h	264	629	44	234	616	242	61	1426	55	141	1251	373
Arrive On Green	0.08	0.21	0.21	0.05	0.17	0.17	0.07	0.89	0.89	0.08	0.49	0.49
Sat Flow, veh/h	1670	3071	213	1757	3539	1390	1810	3214	124	1723	2543	757
Grp Volume(v), veh/h	293	181	187	77	293	188	29	504	520	119	878	889
Grp Sat Flow(s),veh/h/ln	1670	1630	1653	1757	1770	1390	1810	1642	1696	1723	1702	1598
Q Serve(g_s), s	11.0	13.9	14.2	5.0	10.4	18.1	2.2	12.5	12.5	9.5	68.9	68.9
Cycle Q Clear(g_c), s	11.0	13.9	14.2	5.0	10.4	18.1	2.2	12.5	12.5	9.5	68.9	68.9
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.07	1.00		0.47
Lane Grp Cap(c), veh/h	264	334	339	234	616	242	61	729	753	141	837	786
V/C Ratio(X)	1.11	0.54	0.55	0.33	0.48	0.78	0.47	0.69	0.69	0.84	1.05	1.13
Avail Cap(c_a), veh/h	264	334	339	263	657	258	103	729	753	160	837	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	49.8	49.9	44.7	52.0	55.2	64.1	5.1	5.1	63.4	35.6	35.6
Incr Delay (d2), s/veh	87.4	1.8	1.9	0.8	0.6	12.8	5.1	4.9	4.8	28.9	44.7	74.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	6.5	6.7	2.5	5.2	7.8	1.2	6.0	6.2	5.7	42.7	46.6
LnGrp Delay(d),s/veh	140.4	51.6	51.8	45.5	52.6	68.0	69.2	10.0	9.8	92.2	80.3	109.8
LnGrp LOS	F	D	D	D	D	E	E	A	A	F	F	F
Approach Vol, veh/h		661			558			1053			1886	
Approach Delay, s/veh		91.0			56.8			11.5			94.9	
Approach LOS		F			E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	76.9	15.7	36.7	17.5	70.1	20.0	32.4
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	64.0	9.0	28.0	13.0	59.0	11.0	26.0
Max Q Clear Time (g_c+I1), s	4.2	70.9	7.0	16.2	11.5	14.5	13.0	20.1
Green Ext Time (p_c), s	0.0	0.0	0.0	7.3	0.1	44.0	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	68.1
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	286	120	45	357	62	117	60	37	86	62	56
Future Volume (veh/h)	68	286	120	45	357	62	117	60	37	86	62	56
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1597	1779	1900	1759	1792	1900	1827	1835	1900	1863	1791	1900
Adj Flow Rate, veh/h	72	301	126	47	376	65	123	63	39	91	65	59
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	19	8	8	8	6	6	4	2	2	2	8	8
Cap, veh/h	446	1119	456	483	1397	239	435	327	203	463	267	242
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	797	2318	945	889	2893	495	1224	1055	653	1272	859	780
Grp Volume(v), veh/h	72	217	210	47	220	221	123	0	102	91	0	124
Grp Sat Flow(s),veh/h/ln	797	1690	1573	889	1703	1685	1224	0	1709	1272	0	1640
Q Serve(g_s), s	3.4	4.4	4.6	1.9	4.4	4.5	4.8	0.0	2.5	3.3	0.0	3.3
Cycle Q Clear(g_c), s	8.0	4.4	4.6	6.5	4.4	4.5	8.1	0.0	2.5	5.8	0.0	3.3
Prop In Lane	1.00		0.60	1.00		0.29	1.00		0.38	1.00		0.48
Lane Grp Cap(c), veh/h	446	816	759	483	822	813	435	0	530	463	0	509
V/C Ratio(X)	0.16	0.27	0.28	0.10	0.27	0.27	0.28	0.00	0.19	0.20	0.00	0.24
Avail Cap(c_a), veh/h	446	816	759	483	822	813	688	0	884	727	0	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	8.9	8.9	10.9	8.9	8.9	17.9	0.0	14.7	16.8	0.0	14.9
Incr Delay (d2), s/veh	0.8	0.8	0.9	0.4	0.8	0.8	0.4	0.0	0.2	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.2	2.2	0.5	2.3	2.3	1.7	0.0	1.2	1.2	0.0	1.5
LnGrp Delay(d),s/veh	12.1	9.7	9.9	11.3	9.7	9.8	18.3	0.0	14.8	17.0	0.0	15.2
LnGrp LOS	B	A	A	B	A	A	B		B	B		B
Approach Vol, veh/h		499			488			225			215	
Approach Delay, s/veh		10.1			9.9			16.7			15.9	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		24.0		34.0		24.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		8.5		10.1		10.0		7.8
Green Ext Time (p_c), s		12.8		4.5		12.1		4.8

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	118	239	38	127	72	90	323	24	45	543	237
Future Volume (veh/h)	215	118	239	38	127	72	90	323	24	45	543	237
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1838	1900	1845	1832	1900	1881	1795	1900	1900	1832	1900
Adj Flow Rate, veh/h	226	124	252	40	134	76	95	340	25	47	572	249
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	3	3	3	1	6	6	0	4	4
Cap, veh/h	388	181	367	239	367	208	322	1582	116	544	1154	501
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1173	539	1096	990	1096	621	666	3217	235	1020	2346	1019
Grp Volume(v), veh/h	226	0	376	40	0	210	95	179	186	47	424	397
Grp Sat Flow(s),veh/h/ln	1173	0	1636	990	0	1717	666	1705	1747	1020	1741	1625
Q Serve(g_s), s	12.5	0.0	13.7	2.5	0.0	6.4	7.7	4.1	4.2	1.9	11.3	11.4
Cycle Q Clear(g_c), s	18.9	0.0	13.7	16.2	0.0	6.4	19.1	4.1	4.2	6.1	11.3	11.4
Prop In Lane	1.00		0.67	1.00		0.36	1.00		0.13	1.00		0.63
Lane Grp Cap(c), veh/h	388	0	548	239	0	575	322	838	859	544	856	799
V/C Ratio(X)	0.58	0.00	0.69	0.17	0.00	0.37	0.29	0.21	0.22	0.09	0.50	0.50
Avail Cap(c_a), veh/h	403	0	568	251	0	596	322	838	859	544	856	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	19.9	26.9	0.0	17.4	18.2	10.0	10.0	11.7	11.8	11.8
Incr Delay (d2), s/veh	2.0	0.0	3.3	0.3	0.0	0.4	2.3	0.6	0.6	0.3	2.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	6.7	0.7	0.0	3.1	1.6	2.1	2.1	0.6	5.9	5.6
LnGrp Delay(d),s/veh	26.6	0.0	23.2	27.2	0.0	17.8	20.6	10.6	10.6	12.0	13.9	14.0
LnGrp LOS	C		C	C		B	C	B	B	B	B	B
Approach Vol, veh/h		602			250			460			868	
Approach Delay, s/veh		24.5			19.3			12.6			13.8	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		29.2		40.0		29.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		21.1		20.9		13.4		18.2
Green Ext Time (p_c), s		12.1		2.2		18.8		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	76	33	914	1218	39
Future Volume (veh/h)	105	76	33	914	1218	39
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1557	1727	1744	1900
Adj Flow Rate, veh/h	111	80	35	962	1282	41
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	22	10	9	9
Cap, veh/h	146	132	55	2631	2365	76
Arrive On Green	0.08	0.08	0.04	0.80	1.00	1.00
Sat Flow, veh/h	1740	1568	1483	3368	3364	105
Grp Volume(v), veh/h	111	80	35	962	648	675
Grp Sat Flow(s),veh/h/ln	1740	1568	1483	1641	1657	1725
Q Serve(g_s), s	8.7	6.9	3.3	11.5	0.0	0.0
Cycle Q Clear(g_c), s	8.7	6.9	3.3	11.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	146	132	55	2631	1196	1245
V/C Ratio(X)	0.76	0.61	0.63	0.37	0.54	0.54
Avail Cap(c_a), veh/h	429	386	85	2631	1196	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	62.7	61.9	66.5	3.9	0.0	0.0
Incr Delay (d2), s/veh	7.8	4.5	11.5	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	3.2	1.5	5.2	0.1	0.1
LnGrp Delay(d),s/veh	70.6	66.3	77.9	4.3	0.2	0.2
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	191			997	1323	
Approach Delay, s/veh	68.8			6.9	0.2	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	108.5		20.3		119.7		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	8.0	75.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	5.3	2.0		10.7		13.5		
Green Ext Time (p_c), s	0.0	68.4		1.0		70.6		

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	22	22	56	463	761	57		
Future Volume (veh/h)	22	22	56	463	761	57		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1520	1827	1863	1776	1829	1900		
Adj Flow Rate, veh/h	23	23	59	487	801	60		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	25	4	2	7	4	4		
Cap, veh/h	132	142	508	2336	2267	170		
Arrive On Green	0.09	0.09	0.69	0.69	0.69	0.69		
Sat Flow, veh/h	1448	1553	638	3463	3367	245		
Grp Volume(v), veh/h	23	23	59	487	425	436		
Grp Sat Flow(s),veh/h/ln	1448	1553	638	1687	1738	1783		
Q Serve(g_s), s	0.8	0.8	2.3	2.9	5.5	5.5		
Cycle Q Clear(g_c), s	0.8	0.8	7.8	2.9	5.5	5.5		
Prop In Lane	1.00	1.00	1.00			0.14		
Lane Grp Cap(c), veh/h	132	142	508	2336	1203	1234		
V/C Ratio(X)	0.17	0.16	0.12	0.21	0.35	0.35		
Avail Cap(c_a), veh/h	548	588	606	2857	1472	1509		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.3	23.2	5.1	3.1	3.5	3.5		
Incr Delay (d2), s/veh	0.6	0.5	0.1	0.0	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.4	1.3	2.7	2.7		
LnGrp Delay(d),s/veh	23.9	23.8	5.2	3.1	3.7	3.7		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	46			546	861			
Approach Delay, s/veh	23.8			3.3	3.7			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		44.4		11.1		44.4		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		47.0		21.0		47.0		
Max Q Clear Time (g_c+I1), s		9.8		2.8		7.5		
Green Ext Time (p_c), s		28.6		0.1		30.0		
Intersection Summary								
HCM 2010 Ctrl Delay			4.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	27	60	7	10	91	254	118	6	213	36
Future Volume (veh/h)	7	0	27	60	7	10	91	254	118	6	213	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1667	1570	1900	1863	1615	1900	1827	1809	1900	1863	1834	1900
Adj Flow Rate, veh/h	7	0	28	63	7	11	96	267	124	6	224	38
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	14	2	2	2	14	14	4	6	6	2	3	3
Cap, veh/h	356	0	246	369	106	166	678	667	310	577	878	149
Arrive On Green	0.19	0.00	0.19	0.19	0.19	0.19	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1203	0	1289	1333	554	871	1066	1154	536	972	1519	258
Grp Volume(v), veh/h	7	0	28	63	0	18	96	0	391	6	0	262
Grp Sat Flow(s),veh/h/ln	1203	0	1289	1333	0	1425	1066	0	1689	972	0	1777
Q Serve(g_s), s	0.2	0.0	0.9	2.1	0.0	0.5	2.5	0.0	6.6	0.2	0.0	3.8
Cycle Q Clear(g_c), s	0.8	0.0	0.9	3.1	0.0	0.5	6.3	0.0	6.6	6.8	0.0	3.8
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.32	1.00		0.15
Lane Grp Cap(c), veh/h	356	0	246	369	0	272	678	0	977	577	0	1027
V/C Ratio(X)	0.02	0.00	0.11	0.17	0.00	0.07	0.14	0.00	0.40	0.01	0.00	0.26
Avail Cap(c_a), veh/h	729	0	646	783	0	714	678	0	977	577	0	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	17.4	18.6	0.0	17.2	7.0	0.0	6.0	7.9	0.0	5.4
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.5	0.0	0.2	0.4	0.0	1.2	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.8	0.0	0.2	0.8	0.0	3.4	0.1	0.0	2.0
LnGrp Delay(d),s/veh	17.6	0.0	17.8	19.1	0.0	17.4	7.4	0.0	7.2	7.9	0.0	6.0
LnGrp LOS	B		B	B		B	A		A	A		A
Approach Vol, veh/h		35			81			487			268	
Approach Delay, s/veh		17.8			18.7			7.3			6.1	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		15.9		36.0		15.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0				
Max Q Clear Time (g_c+I1), s		8.6		2.9		8.8		5.1				
Green Ext Time (p_c), s		14.3		1.5		14.2		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			8.4									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	3	116	36	8	42	54	494	12	26	697	11
Future Volume (veh/h)	13	3	116	36	8	42	54	494	12	26	697	11
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1882	1900	1845	1868	1900	1827	1839	1900	1900	1846	1900
Adj Flow Rate, veh/h	14	3	122	38	8	44	57	520	13	27	734	12
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	3	0	0	4	3	3	0	3	3
Cap, veh/h	369	8	317	312	51	278	452	1943	49	568	1970	32
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1279	38	1560	1245	249	1370	698	3483	87	885	3531	58
Grp Volume(v), veh/h	14	0	125	38	0	52	57	261	272	27	364	382
Grp Sat Flow(s),veh/h/ln	1279	0	1598	1245	0	1619	698	1747	1823	885	1753	1835
Q Serve(g_s), s	0.5	0.0	3.4	1.4	0.0	1.3	2.5	3.9	3.9	0.8	5.8	5.8
Cycle Q Clear(g_c), s	1.8	0.0	3.4	4.8	0.0	1.3	8.3	3.9	3.9	4.7	5.8	5.8
Prop In Lane	1.00		0.98	1.00		0.85	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	369	0	324	312	0	329	452	975	1017	568	978	1024
V/C Ratio(X)	0.04	0.00	0.39	0.12	0.00	0.16	0.13	0.27	0.27	0.05	0.37	0.37
Avail Cap(c_a), veh/h	900	0	987	828	0	1000	452	975	1017	568	978	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	17.3	19.4	0.0	16.5	8.5	5.8	5.8	7.0	6.2	6.2
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.2	0.0	0.2	0.6	0.7	0.6	0.2	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.6	0.5	0.0	0.6	0.5	2.0	2.1	0.2	3.0	3.2
LnGrp Delay(d),s/veh	17.2	0.0	18.0	19.5	0.0	16.7	9.1	6.4	6.4	7.1	7.3	7.2
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		139			90			590			773	
Approach Delay, s/veh		18.0			17.9			6.7			7.2	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		16.2		34.0		16.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		10.3		6.8		7.8		5.4
Green Ext Time (p_c), s		14.7		3.0		16.5		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1027	65	35	662	77	26	37	21	24	29	5
Future Volume (veh/h)	13	1027	65	35	662	77	26	37	21	24	29	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1661	1900	1570	1697	1900	1827	1941	1900	1652	1894	1900
Adj Flow Rate, veh/h	14	1081	68	37	697	81	27	39	22	25	31	5
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	15	15	21	13	13	4	0	0	15	5	5
Cap, veh/h	39	2088	131	59	2069	240	163	115	65	135	157	25
Arrive On Green	0.02	0.69	0.69	0.03	0.48	0.48	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1810	3015	190	1495	2911	338	1330	1162	656	1177	1590	256
Grp Volume(v), veh/h	14	566	583	37	386	392	27	0	61	25	0	36
Grp Sat Flow(s),veh/h/ln	1810	1578	1627	1495	1612	1636	1330	0	1818	1177	0	1846
Q Serve(g_s), s	1.0	22.3	22.4	3.2	19.4	19.4	2.5	0.0	4.1	2.6	0.0	2.3
Cycle Q Clear(g_c), s	1.0	22.3	22.4	3.2	19.4	19.4	4.8	0.0	4.1	6.7	0.0	2.3
Prop In Lane	1.00		0.12	1.00		0.21	1.00		0.36	1.00		0.14
Lane Grp Cap(c), veh/h	39	1093	1126	59	1146	1163	163	0	179	135	0	182
V/C Ratio(X)	0.36	0.52	0.52	0.62	0.34	0.34	0.17	0.00	0.34	0.19	0.00	0.20
Avail Cap(c_a), veh/h	111	1093	1126	92	1146	1163	395	0	497	340	0	504
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.7	9.6	9.6	62.3	14.9	14.9	56.1	0.0	54.7	57.8	0.0	53.9
Incr Delay (d2), s/veh	5.6	1.8	1.7	9.6	0.7	0.7	0.5	0.0	1.1	0.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.1	10.4	1.5	8.9	9.0	0.9	0.0	2.1	0.9	0.0	1.2
LnGrp Delay(d),s/veh	68.3	11.3	11.3	71.9	15.7	15.7	56.6	0.0	55.8	58.4	0.0	54.4
LnGrp LOS	E	B	B	E	B	B	E		E	E		D
Approach Vol, veh/h		1163			815			88			61	
Approach Delay, s/veh		12.0			18.2			56.0			56.0	
Approach LOS		B			B			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	99.9		21.3	11.2	97.5		21.3
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	8.0	64.5		35.5
Max Q Clear Time (g_c+I1), s	3.0	21.4		8.7	5.2	24.4		6.8
Green Ext Time (p_c), s	0.0	38.7		1.7	0.0	36.3		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	82	959	720	27	25	35		
Future Volume (veh/h)	82	959	720	27	25	35		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1776	1667	1686	1900	1827	1792		
Adj Flow Rate, veh/h	86	1009	758	28	26	37		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	7	14	13	13	4	6		
Cap, veh/h	106	2546	2190	81	120	105		
Arrive On Green	0.13	1.00	0.47	0.47	0.07	0.07		
Sat Flow, veh/h	1691	3250	3234	116	1740	1524		
Grp Volume(v), veh/h	86	1009	385	401	26	37		
Grp Sat Flow(s),veh/h/ln	1691	1583	1601	1665	1740	1524		
Q Serve(g_s), s	6.4	0.0	19.9	19.9	1.8	3.0		
Cycle Q Clear(g_c), s	6.4	0.0	19.9	19.9	1.8	3.0		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	106	2546	1113	1158	120	105		
V/C Ratio(X)	0.81	0.40	0.35	0.35	0.22	0.35		
Avail Cap(c_a), veh/h	156	2546	1113	1158	335	293		
HCM Platoon Ratio	2.00	2.00	0.67	0.67	1.00	1.00		
Upstream Filter(I)	0.85	0.85	0.76	0.76	1.00	1.00		
Uniform Delay (d), s/veh	56.1	0.0	15.9	15.9	57.2	57.7		
Incr Delay (d2), s/veh	15.5	0.4	0.7	0.6	0.9	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.5	0.1	9.0	9.4	0.9	1.3		
LnGrp Delay(d),s/veh	71.6	0.4	16.6	16.5	58.1	59.7		
LnGrp LOS	E	A	B	B	E	E		
Approach Vol, veh/h		1095	786		63			
Approach Delay, s/veh		6.0	16.5		59.1			
Approach LOS		A	B		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.1	97.9		18.0		112.0		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	12.0	70.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	8.4	21.9		5.0		2.0		
Green Ext Time (p_c), s	0.1	41.6		0.2		66.9		
Intersection Summary								
HCM 2010 Ctrl Delay			12.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	728	166	72	527	56	167	429	85	73	618	55
Future Volume (veh/h)	82	728	166	72	527	56	167	429	85	73	618	55
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1638	1635	1900	1827	1649	1900	1771	1818	1900	1792	1861	1900
Adj Flow Rate, veh/h	86	766	175	76	555	59	176	452	89	77	651	58
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	16	19	19	4	15	15	3	4	4	6	2	2
Cap, veh/h	106	875	200	95	958	102	294	984	192	322	1011	90
Arrive On Green	0.02	0.12	0.12	0.11	0.67	0.67	0.08	0.34	0.34	0.05	0.31	0.31
Sat Flow, veh/h	1560	2508	573	1740	2857	303	1687	2874	562	1707	3280	292
Grp Volume(v), veh/h	86	474	467	76	304	310	176	270	271	77	351	358
Grp Sat Flow(s),veh/h/ln	1560	1553	1528	1740	1567	1593	1687	1727	1709	1707	1768	1804
Q Serve(g_s), s	7.1	39.1	39.1	5.5	13.6	13.7	9.0	15.9	16.1	3.9	22.2	22.3
Cycle Q Clear(g_c), s	7.1	39.1	39.1	5.5	13.6	13.7	9.0	15.9	16.1	3.9	22.2	22.3
Prop In Lane	1.00		0.38	1.00		0.19	1.00		0.33	1.00		0.16
Lane Grp Cap(c), veh/h	106	542	533	95	525	534	294	592	585	322	545	556
V/C Ratio(X)	0.81	0.88	0.88	0.80	0.58	0.58	0.60	0.46	0.46	0.24	0.64	0.65
Avail Cap(c_a), veh/h	156	542	533	107	525	534	306	618	611	340	578	590
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	62.7	54.7	54.7	57.3	16.5	16.5	28.4	33.3	33.4	28.6	38.8	38.8
Incr Delay (d2), s/veh	16.9	16.7	16.9	31.3	4.6	4.6	3.0	0.6	0.6	0.4	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	19.3	19.1	3.5	6.4	6.5	4.4	7.7	7.7	1.9	11.2	11.5
LnGrp Delay(d),s/veh	79.6	71.4	71.7	88.5	21.0	21.0	31.4	33.9	34.0	28.9	41.0	41.0
LnGrp LOS	E	E	E	F	C	C	C	C	C	C	D	D
Approach Vol, veh/h		1027			690			717			786	
Approach Delay, s/veh		72.2			28.5			33.3			39.8	
Approach LOS		E			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	51.6	15.0	48.6	13.1	53.3	10.6	53.0				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	13.0	36.0	12.0	42.5	8.0	41.0	8.0	46.5				
Max Q Clear Time (g_c+I1), s	9.1	15.7	11.0	24.3	7.5	41.1	5.9	18.1				
Green Ext Time (p_c), s	0.1	17.9	0.1	14.9	0.0	0.0	0.0	21.5				
Intersection Summary												
HCM 2010 Ctrl Delay			46.3									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	751	124	103	475	65	51	275	99	68	193	37
Future Volume (veh/h)	121	751	124	103	475	65	51	275	99	68	193	37
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1855	1900	1557	1828	1900	1863	1597	1696	1473	1708	1900
Adj Flow Rate, veh/h	127	791	131	108	500	68	54	289	104	72	203	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	150	1366	226	127	1397	189	237	451	408	152	394	76
Arrive On Green	0.17	0.91	0.91	0.09	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3004	497	1483	3062	415	1133	1597	1442	780	1393	268
Grp Volume(v), veh/h	127	464	458	108	282	286	54	289	104	72	0	242
Grp Sat Flow(s),veh/h/ln	1774	1762	1739	1483	1736	1741	1133	1597	1442	780	0	1661
Q Serve(g_s), s	9.0	6.5	6.5	9.3	13.7	13.9	5.5	20.6	7.2	11.6	0.0	15.9
Cycle Q Clear(g_c), s	9.0	6.5	6.5	9.3	13.7	13.9	21.4	20.6	7.2	32.2	0.0	15.9
Prop In Lane	1.00		0.29	1.00		0.24	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	150	802	791	127	792	794	237	451	408	152	0	469
V/C Ratio(X)	0.85	0.58	0.58	0.85	0.36	0.36	0.23	0.64	0.26	0.47	0.00	0.52
Avail Cap(c_a), veh/h	164	802	791	137	792	794	248	467	421	160	0	486
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	53.2	3.5	3.5	58.6	23.0	23.0	48.1	40.8	36.1	54.9	0.0	39.2
Incr Delay (d2), s/veh	30.3	3.0	3.1	35.3	1.3	1.3	0.5	2.8	0.3	2.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.5	3.5	5.1	6.9	6.9	1.7	9.4	2.9	2.6	0.0	7.4
LnGrp Delay(d),s/veh	83.5	6.5	6.6	93.9	24.2	24.3	48.6	43.7	36.4	57.2	0.0	40.0
LnGrp LOS	F	A	A	F	C	C	D	D	D	E		D
Approach Vol, veh/h		1049			676			447			314	
Approach Delay, s/veh		15.9			35.4			42.6			44.0	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		45.7	17.1	67.1		45.7
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	12.0	57.0		38.0	12.0	57.0		38.0
Max Q Clear Time (g_c+I1), s	11.0	15.9		34.2	11.3	8.5		23.4
Green Ext Time (p_c), s	0.0	31.3		2.6	0.0	35.5		7.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	450	205	53	404	146	129	322	29	163	627	107
Future Volume (veh/h)	93	450	205	53	404	146	129	322	29	163	627	107
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1787	1900	1776	1791	1900	1759	1833	1900	1827	1850	1900
Adj Flow Rate, veh/h	98	474	216	56	425	154	136	339	31	172	660	113
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	7	5	5	8	4	4	4	3	3
Cap, veh/h	485	1321	598	420	1427	512	133	900	82	274	836	143
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	815	2272	1029	715	2455	881	654	3225	293	983	2997	512
Grp Volume(v), veh/h	98	353	337	56	293	286	136	182	188	172	387	386
Grp Sat Flow(s),veh/h/ln	815	1698	1603	715	1702	1634	654	1741	1777	983	1757	1752
Q Serve(g_s), s	6.0	9.5	9.6	3.9	7.5	7.6	6.5	7.2	7.3	14.7	17.5	17.5
Cycle Q Clear(g_c), s	13.6	9.5	9.6	13.4	7.5	7.6	24.0	7.2	7.3	22.0	17.5	17.5
Prop In Lane	1.00		0.64	1.00		0.54	1.00		0.16	1.00		0.29
Lane Grp Cap(c), veh/h	485	987	932	420	989	950	133	486	496	274	490	489
V/C Ratio(X)	0.20	0.36	0.36	0.13	0.30	0.30	1.02	0.37	0.38	0.63	0.79	0.79
Avail Cap(c_a), veh/h	485	987	932	420	989	950	133	486	496	274	490	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	9.5	9.5	13.1	9.1	9.1	41.8	25.0	25.0	33.9	28.7	28.7
Incr Delay (d2), s/veh	0.9	1.0	1.1	0.7	0.8	0.8	84.5	1.0	1.0	6.4	9.6	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.7	4.5	0.8	3.7	3.6	6.3	3.6	3.7	4.5	9.8	9.8
LnGrp Delay(d),s/veh	13.5	10.5	10.6	13.8	9.9	9.9	126.6	26.0	26.0	40.3	38.2	38.4
LnGrp LOS	B	B	B	B	A	A	F	C	C	D	D	D
Approach Vol, veh/h		788			635			506			945	
Approach Delay, s/veh		10.9			10.2			53.0			38.7	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		15.4		26.0		15.6		24.0
Green Ext Time (p_c), s		33.1		0.0		33.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	224	279	91	92	68	130	438	96	86	660	72
Future Volume (veh/h)	127	224	279	91	92	68	130	438	96	86	660	72
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.99	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1829	1900	1900	1785	1900	1845	1806	1900	1776	1845	1900
Adj Flow Rate, veh/h	134	236	294	96	97	72	137	461	101	91	695	76
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	8	8	8	3	5	5	7	3	3
Cap, veh/h	375	245	305	104	287	213	407	1450	316	395	1217	133
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1153	735	915	44	860	639	1757	2797	609	799	3181	348
Grp Volume(v), veh/h	134	0	530	96	0	169	137	282	280	91	383	388
Grp Sat Flow(s),veh/h/ln	1153	0	1650	44	0	1499	1757	1716	1690	799	1752	1776
Q Serve(g_s), s	8.0	0.0	25.6	1.4	0.0	6.9	3.4	7.7	7.8	6.4	14.0	14.0
Cycle Q Clear(g_c), s	14.9	0.0	25.6	27.0	0.0	6.9	3.4	7.7	7.8	6.4	14.0	14.0
Prop In Lane	1.00		0.55	1.00		0.43	1.00		0.36	1.00		0.20
Lane Grp Cap(c), veh/h	375	0	550	104	0	500	407	890	876	395	671	680
V/C Ratio(X)	0.36	0.00	0.96	0.93	0.00	0.34	0.34	0.32	0.32	0.23	0.57	0.57
Avail Cap(c_a), veh/h	375	0	550	104	0	500	407	890	876	395	671	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	0.0	26.5	40.4	0.0	20.3	12.7	11.2	11.3	17.4	19.7	19.8
Incr Delay (d2), s/veh	0.6	0.0	29.4	65.2	0.0	0.4	2.2	0.9	1.0	1.4	3.5	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	16.1	4.0	0.0	2.9	1.9	3.8	3.8	1.6	7.3	7.5
LnGrp Delay(d),s/veh	26.4	0.0	55.9	105.6	0.0	20.7	14.9	12.2	12.2	18.8	23.2	23.2
LnGrp LOS	C		E	F		C	B	B	B	B	C	C
Approach Vol, veh/h		664			265			699			862	
Approach Delay, s/veh		49.9			51.4			12.7			22.8	
Approach LOS		D			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.4	16.0		29.0		9.8		27.6
Green Ext Time (p_c), s	0.1	13.4		0.0		26.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	3	42	13	2	33	15	439	15	62	804	20
Future Volume (veh/h)	48	3	42	13	2	33	15	439	15	62	804	20
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1840	1900	1900	1762	1900	1900	1811	1900	1900	1814	1900
Adj Flow Rate, veh/h	51	3	44	14	2	35	16	462	16	65	846	21
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	25	25	25	5	5	5	4	4	4
Cap, veh/h	202	38	106	124	42	162	100	1936	66	164	1863	45
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	584	242	673	204	266	1027	38	3217	110	136	3095	75
Grp Volume(v), veh/h	98	0	0	51	0	0	256	0	238	473	0	459
Grp Sat Flow(s),veh/h/ln	1499	0	0	1496	0	0	1737	0	1627	1670	0	1636
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	7.7
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.4	0.0	0.0	3.3	0.0	3.4	7.0	0.0	7.7
Prop In Lane	0.52		0.45	0.27		0.69	0.06		0.07	0.14		0.05
Lane Grp Cap(c), veh/h	346	0	0	328	0	0	1122	0	979	1087	0	985
V/C Ratio(X)	0.28	0.00	0.00	0.16	0.00	0.00	0.23	0.00	0.24	0.44	0.00	0.47
Avail Cap(c_a), veh/h	929	0	0	906	0	0	1122	0	979	1087	0	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	0.0	0.0	18.3	0.0	0.0	4.6	0.0	4.6	5.4	0.0	5.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.6	1.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.6	0.0	0.0	1.8	0.0	1.7	3.8	0.0	3.9
LnGrp Delay(d),s/veh	19.2	0.0	0.0	18.5	0.0	0.0	5.1	0.0	5.2	6.6	0.0	7.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		98			51			494			932	
Approach Delay, s/veh		19.2			18.5			5.1			6.8	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		13.9		36.0		13.9
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		5.4		3.4		9.7		4.7
Green Ext Time (p_c), s		20.6		2.2		17.4		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	70	169	51	13	101	9	573	35	33	471	9
Future Volume (veh/h)	99	70	169	51	13	101	9	573	35	33	471	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1725	1900	1900	1782	1900	1900	1816	1900	1900	1808	1900
Adj Flow Rate, veh/h	104	74	178	54	14	106	9	603	37	35	496	9
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	8	18	18	18	4	4	4	5	5	5
Cap, veh/h	203	145	260	212	83	321	75	1331	81	118	1305	23
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	321	402	723	342	231	893	13	3212	195	100	3150	56
Grp Volume(v), veh/h	356	0	0	174	0	0	342	0	307	276	0	264
Grp Sat Flow(s),veh/h/ln	1446	0	0	1465	0	0	1802	0	1618	1671	0	1635
Q Serve(g_s), s	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	6.0
Cycle Q Clear(g_c), s	10.8	0.0	0.0	4.1	0.0	0.0	7.2	0.0	7.3	5.6	0.0	6.0
Prop In Lane	0.29		0.50	0.31		0.61	0.03		0.12	0.13		0.03
Lane Grp Cap(c), veh/h	608	0	0	616	0	0	816	0	670	768	0	678
V/C Ratio(X)	0.59	0.00	0.00	0.28	0.00	0.00	0.42	0.00	0.46	0.36	0.00	0.39
Avail Cap(c_a), veh/h	790	0	0	792	0	0	816	0	670	768	0	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	12.2	0.0	0.0	11.2	0.0	11.2	10.8	0.0	10.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.2	0.0	0.0	1.6	0.0	2.2	1.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	1.9	0.0	0.0	4.0	0.0	3.7	3.0	0.0	3.0
LnGrp Delay(d),s/veh	15.1	0.0	0.0	12.5	0.0	0.0	12.8	0.0	13.5	12.1	0.0	12.5
LnGrp LOS	B			B			B		B	B		B
Approach Vol, veh/h		356			174			649			540	
Approach Delay, s/veh		15.1			12.5			13.1			12.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		25.1		28.0		25.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		9.3		12.8		8.0		6.1
Green Ext Time (p_c), s		10.4		6.3		11.4		8.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	10	38	99	10	39	52	552	39	15	656	23
Future Volume (veh/h)	25	10	38	99	10	39	52	552	39	15	656	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1793	1900	1900	1856	1900	1900	1798	1900	1900	1818	1900
Adj Flow Rate, veh/h	26	11	40	104	11	41	55	581	41	16	691	24
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	6	6	6	4	4	4
Cap, veh/h	173	88	182	318	47	89	165	1521	105	86	1776	61
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	351	389	800	890	205	390	155	2811	194	24	3282	112
Grp Volume(v), veh/h	77	0	0	156	0	0	338	0	339	382	0	349
Grp Sat Flow(s),veh/h/ln	1540	0	0	1485	0	0	1559	0	1601	1785	0	1633
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	6.4	0.0	0.0	6.4
Cycle Q Clear(g_c), s	2.0	0.0	0.0	4.4	0.0	0.0	5.5	0.0	6.4	6.3	0.0	6.4
Prop In Lane	0.34		0.52	0.67		0.26	0.16		0.12	0.04		0.07
Lane Grp Cap(c), veh/h	443	0	0	453	0	0	924	0	866	1039	0	884
V/C Ratio(X)	0.17	0.00	0.00	0.34	0.00	0.00	0.37	0.00	0.39	0.37	0.00	0.39
Avail Cap(c_a), veh/h	818	0	0	818	0	0	924	0	866	1039	0	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	17.0	0.0	0.0	6.7	0.0	6.9	6.9	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	1.1	0.0	1.3	1.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	2.0	0.0	0.0	3.0	0.0	3.0	3.4	0.0	3.1
LnGrp Delay(d),s/veh	16.4	0.0	0.0	17.5	0.0	0.0	7.8	0.0	8.2	7.9	0.0	8.2
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		77			156			677			731	
Approach Delay, s/veh		16.4			17.5			8.0			8.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.7		34.0		17.7		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		6.4		8.4		4.0		8.4
Green Ext Time (p_c), s		3.2		16.7		3.4		16.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	959	111	177	544	101	80	318	181	133	574	96
Future Volume (veh/h)	263	959	111	177	544	101	80	318	181	133	574	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1845	1863	1827	1900	1863	1900	1881	1876	1900
Adj Flow Rate, veh/h	277	1009	117	186	573	106	84	335	191	140	604	101
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	0	3	2	4	0	2	2	1	1	1
Cap, veh/h	349	1317	600	238	1330	577	303	727	406	363	1032	172
Arrive On Green	0.06	0.38	0.38	0.02	0.12	0.12	0.06	0.33	0.33	0.06	0.34	0.34
Sat Flow, veh/h	1774	3505	1596	1757	3539	1534	1810	2181	1217	1792	3051	509
Grp Volume(v), veh/h	277	1009	117	186	573	106	84	270	256	140	352	353
Grp Sat Flow(s),veh/h/ln	1774	1752	1596	1757	1770	1534	1810	1770	1628	1792	1782	1778
Q Serve(g_s), s	7.0	27.8	5.4	7.0	16.5	6.8	3.3	13.2	13.7	5.6	17.9	18.0
Cycle Q Clear(g_c), s	7.0	27.8	5.4	7.0	16.5	6.8	3.3	13.2	13.7	5.6	17.9	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		0.29
Lane Grp Cap(c), veh/h	349	1317	600	238	1330	577	303	590	543	363	603	601
V/C Ratio(X)	0.79	0.77	0.20	0.78	0.43	0.18	0.28	0.46	0.47	0.39	0.58	0.59
Avail Cap(c_a), veh/h	349	1317	600	238	1330	577	312	643	592	363	648	647
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	30.1	23.1	26.3	37.3	33.1	22.9	28.9	29.0	22.7	30.0	30.1
Incr Delay (d2), s/veh	11.9	4.3	0.7	15.3	1.0	0.7	0.5	0.6	0.6	0.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	14.2	2.5	3.3	8.3	3.0	1.7	6.6	6.2	2.8	9.0	9.0
LnGrp Delay(d),s/veh	41.0	34.4	23.8	41.6	38.3	33.8	23.4	29.4	29.6	23.4	31.2	31.3
LnGrp LOS	D	C	C	D	D	C	C	C	C	C	C	C
Approach Vol, veh/h		1403			865			610			845	
Approach Delay, s/veh		34.8			38.5			28.7			29.9	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	47.3	9.5	43.2	10.0	47.3	10.0	42.7
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	7.0	40.0
Max Q Clear Time (g_c+I1), s	9.0	29.8	5.3	20.0	9.0	18.5	7.6	15.7
Green Ext Time (p_c), s	0.0	7.9	0.0	16.1	0.0	18.0	0.0	19.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	1212	835	142	96	17
Future Volume (veh/h)	67	1212	835	142	96	17
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1863	1827	1863	1792
Adj Flow Rate, veh/h	71	1276	879	149	101	18
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	2	4	2	6
Cap, veh/h	486	2750	2481	1077	188	162
Arrive On Green	0.04	0.53	0.70	0.70	0.11	0.11
Sat Flow, veh/h	1740	3597	3632	1536	1774	1524
Grp Volume(v), veh/h	71	1276	879	149	101	18
Grp Sat Flow(s),veh/h/ln	1740	1752	1770	1536	1774	1524
Q Serve(g_s), s	1.1	25.1	10.9	3.5	5.9	1.2
Cycle Q Clear(g_c), s	1.1	25.1	10.9	3.5	5.9	1.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	486	2750	2481	1077	188	162
V/C Ratio(X)	0.15	0.46	0.35	0.14	0.54	0.11
Avail Cap(c_a), veh/h	498	2750	2481	1077	629	540
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.8	11.6	6.5	5.4	46.6	44.5
Incr Delay (d2), s/veh	0.1	0.6	0.4	0.3	2.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	12.4	5.4	1.6	3.0	1.1
LnGrp Delay(d),s/veh	4.0	12.1	6.9	5.7	48.9	44.8
LnGrp LOS	A	B	A	A	D	D
Approach Vol, veh/h		1347	1028		119	
Approach Delay, s/veh		11.7	6.8		48.3	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		92.3		17.7	9.2	83.1		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		59.0		39.0	7.0	49.0		
Max Q Clear Time (g_c+I1), s		27.1		7.9	3.1	12.9		
Green Ext Time (p_c), s		30.8		0.6	0.1	34.8		

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	880	305	142	571	158	287	1143	234	213	1466	150
Future Volume (veh/h)	97	880	305	142	571	158	287	1143	234	213	1466	150
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1696	1792	1863	1743	1776	1792	1792	1792	1900	1792	1794	1900
Adj Flow Rate, veh/h	102	926	321	149	601	166	302	1203	246	224	1543	158
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	6	2	9	7	6	6	6	6	6	6	6
Cap, veh/h	247	1116	507	166	1105	488	234	1383	283	248	1512	155
Arrive On Green	0.05	0.33	0.33	0.05	0.33	0.33	0.11	0.36	0.36	0.03	0.12	0.12
Sat Flow, veh/h	1616	3406	1549	1660	3374	1490	1707	3878	793	1707	4309	441
Grp Volume(v), veh/h	102	926	321	149	601	166	302	945	504	224	1092	609
Grp Sat Flow(s),veh/h/ln	1616	1703	1549	1660	1687	1490	1707	1524	1624	1707	1525	1700
Q Serve(g_s), s	5.9	35.2	24.6	7.0	20.4	11.8	15.0	40.5	40.5	12.1	49.1	49.1
Cycle Q Clear(g_c), s	5.9	35.2	24.6	7.0	20.4	11.8	15.0	40.5	40.5	12.1	49.1	49.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.26
Lane Grp Cap(c), veh/h	247	1116	507	166	1105	488	234	1086	579	248	1070	597
V/C Ratio(X)	0.41	0.83	0.63	0.90	0.54	0.34	1.29	0.87	0.87	0.90	1.02	1.02
Avail Cap(c_a), veh/h	247	1119	509	166	1109	490	234	1086	579	258	1070	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	43.5	39.9	41.4	38.5	35.6	44.2	42.0	42.0	38.4	61.9	61.9
Incr Delay (d2), s/veh	1.1	5.4	2.5	32.9	0.4	0.3	158.1	9.5	16.3	31.0	32.6	42.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	17.4	10.9	5.4	9.6	4.9	19.3	18.5	20.8	10.8	25.6	30.2
LnGrp Delay(d),s/veh	31.8	48.8	42.5	74.2	38.9	35.9	202.3	51.5	58.3	69.4	94.5	104.2
LnGrp LOS	C	D	D	E	D	D	F	D	E	E	F	F
Approach Vol, veh/h		1349			916			1751			1925	
Approach Delay, s/veh		46.0			44.1			79.5			94.6	
Approach LOS		D			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	56.6	11.0	53.4	18.2	57.4	11.0	53.4
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	15.0	49.0	7.0	46.0	15.0	49.0	7.0	46.0
Max Q Clear Time (g_c+I1), s	17.0	51.1	9.0	37.2	14.1	42.5	7.9	22.4
Green Ext Time (p_c), s	0.0	0.0	0.0	8.5	0.1	6.5	0.0	21.7

Intersection Summary	
HCM 2010 Ctrl Delay	71.3
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1216	107	110	824	95	190
Future Volume (veh/h)	1216	107	110	824	95	190
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1847	1881	1845
Adj Flow Rate, veh/h	1280	113	116	867	100	200
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	1	3
Cap, veh/h	2403	212	196	1555	274	240
Arrive On Green	0.74	0.74	0.74	0.74	0.15	0.15
Sat Flow, veh/h	3349	287	207	2192	1792	1568
Grp Volume(v), veh/h	687	706	351	632	100	200
Grp Sat Flow(s),veh/h/ln	1752	1792	719	1597	1792	1568
Q Serve(g_s), s	18.6	18.8	19.9	18.9	5.5	13.6
Cycle Q Clear(g_c), s	18.6	18.8	38.6	18.9	5.5	13.6
Prop In Lane		0.16	0.33		1.00	1.00
Lane Grp Cap(c), veh/h	1293	1322	574	1178	274	240
V/C Ratio(X)	0.53	0.53	0.61	0.54	0.36	0.83
Avail Cap(c_a), veh/h	1293	1322	574	1178	423	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.2	6.2	9.4	6.3	41.8	45.2
Incr Delay (d2), s/veh	0.5	0.5	4.8	1.8	0.8	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	9.4	7.3	8.8	2.8	6.5
LnGrp Delay(d),s/veh	6.7	6.8	14.2	8.0	42.6	54.5
LnGrp LOS	A	A	B	A	D	D
Approach Vol, veh/h	1393			983	300	
Approach Delay, s/veh	6.7			10.2	50.5	
Approach LOS	A			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		87.2				87.2		22.8
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		72.0				72.0		26.0
Max Q Clear Time (g_c+I1), s		20.8				40.6		15.6
Green Ext Time (p_c), s		49.8				30.8		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	1059	57	26	590	292	24	14	16	500	33	338
Future Volume (veh/h)	338	1059	57	26	590	292	24	14	16	500	33	338
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1865	1900	1900	1845	1863	1900	1900	1900	1881	1866	1900
Adj Flow Rate, veh/h	356	1115	60	27	621	307	25	15	17	526	35	356
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	3	2	0	0	0	1	0	0
Cap, veh/h	410	1646	89	198	1115	498	285	332	376	614	59	596
Arrive On Green	0.18	0.64	0.64	0.32	0.32	0.32	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1774	3417	184	483	3505	1565	1007	812	920	1379	143	1457
Grp Volume(v), veh/h	356	578	597	27	621	307	25	0	32	526	0	391
Grp Sat Flow(s),veh/h/ln	1774	1771	1829	483	1752	1565	1007	0	1732	1379	0	1600
Q Serve(g_s), s	15.0	22.8	22.8	4.7	16.2	18.3	2.2	0.0	1.2	40.9	0.0	21.0
Cycle Q Clear(g_c), s	15.0	22.8	22.8	9.5	16.2	18.3	23.2	0.0	1.2	42.1	0.0	21.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.53	1.00		0.91
Lane Grp Cap(c), veh/h	410	853	881	198	1115	498	285	0	709	614	0	655
V/C Ratio(X)	0.87	0.68	0.68	0.14	0.56	0.62	0.09	0.00	0.05	0.86	0.00	0.60
Avail Cap(c_a), veh/h	410	853	881	198	1115	498	285	0	709	614	0	655
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.00	0.93
Uniform Delay (d), s/veh	21.5	14.3	14.3	30.7	31.1	31.8	34.5	0.0	19.6	32.2	0.0	25.4
Incr Delay (d2), s/veh	17.7	4.3	4.2	1.4	2.0	5.6	0.6	0.0	0.1	10.8	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	11.8	12.4	0.7	8.1	8.7	0.7	0.0	0.6	17.3	0.0	9.5
LnGrp Delay(d),s/veh	39.2	18.6	18.5	32.1	33.1	37.4	35.1	0.0	19.7	43.0	0.0	26.8
LnGrp LOS	D	B	B	C	C	D	D		B	D		C
Approach Vol, veh/h		1531			955			57			917	
Approach Delay, s/veh		23.3			34.5			26.4			36.1	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		59.0		51.0	18.0	41.0		51.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		53.0		45.0	15.0	35.0		45.0
Max Q Clear Time (g_c+I1), s		24.8		44.1	17.0	20.3		25.2
Green Ext Time (p_c), s		26.6		0.7	0.0	14.2		10.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	327	23	73	278	179	28	937	36	113	1279	400
Future Volume (veh/h)	278	327	23	73	278	179	28	937	36	113	1279	400
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	0.95		0.89	1.00		0.93	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1715	1900	1845	1863	1827	1900	1728	1900	1810	1792	1900
Adj Flow Rate, veh/h	293	344	24	77	293	188	29	986	38	119	1346	421
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	3	2	4	0	10	10	5	7	7
Cap, veh/h	264	629	44	234	616	242	61	1426	55	141	1251	373
Arrive On Green	0.08	0.21	0.21	0.05	0.17	0.17	0.07	0.89	0.89	0.08	0.49	0.49
Sat Flow, veh/h	1670	3071	213	1757	3539	1390	1810	3214	124	1723	2543	757
Grp Volume(v), veh/h	293	181	187	77	293	188	29	504	520	119	878	889
Grp Sat Flow(s),veh/h/ln	1670	1630	1653	1757	1770	1390	1810	1642	1696	1723	1702	1598
Q Serve(g_s), s	11.0	13.9	14.2	5.0	10.4	18.1	2.2	12.5	12.5	9.5	68.9	68.9
Cycle Q Clear(g_c), s	11.0	13.9	14.2	5.0	10.4	18.1	2.2	12.5	12.5	9.5	68.9	68.9
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.07	1.00		0.47
Lane Grp Cap(c), veh/h	264	334	339	234	616	242	61	729	753	141	837	786
V/C Ratio(X)	1.11	0.54	0.55	0.33	0.48	0.78	0.47	0.69	0.69	0.84	1.05	1.13
Avail Cap(c_a), veh/h	264	334	339	263	657	258	103	729	753	160	837	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	49.8	49.9	44.7	52.0	55.2	64.1	5.1	5.1	63.4	35.6	35.6
Incr Delay (d2), s/veh	87.4	1.8	1.9	0.8	0.6	12.8	5.1	4.9	4.8	28.9	44.7	74.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.8	10.6	10.9	4.4	8.9	12.3	2.1	9.9	10.1	9.6	76.9	83.8
LnGrp Delay(d),s/veh	140.4	51.6	51.8	45.5	52.6	68.0	69.2	10.0	9.8	92.2	80.3	109.8
LnGrp LOS	F	D	D	D	D	E	E	A	A	F	F	F
Approach Vol, veh/h		661			558			1053			1886	
Approach Delay, s/veh		91.0			56.8			11.5			94.9	
Approach LOS		F			E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	76.9	15.7	36.7	17.5	70.1	20.0	32.4
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	64.0	9.0	28.0	13.0	59.0	11.0	26.0
Max Q Clear Time (g_c+I1), s	4.2	70.9	7.0	16.2	11.5	14.5	13.0	20.1
Green Ext Time (p_c), s	0.0	0.0	0.0	7.3	0.1	44.0	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	68.1
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	286	120	45	357	62	117	60	37	86	62	56
Future Volume (veh/h)	68	286	120	45	357	62	117	60	37	86	62	56
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1597	1779	1900	1759	1792	1900	1827	1835	1900	1863	1791	1900
Adj Flow Rate, veh/h	72	301	126	47	376	65	123	63	39	91	65	59
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	19	8	8	8	6	6	4	2	2	2	8	8
Cap, veh/h	446	1119	456	483	1397	239	435	327	203	463	267	242
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	797	2318	945	889	2893	495	1224	1055	653	1272	859	780
Grp Volume(v), veh/h	72	217	210	47	220	221	123	0	102	91	0	124
Grp Sat Flow(s),veh/h/ln	797	1690	1573	889	1703	1685	1224	0	1709	1272	0	1640
Q Serve(g_s), s	3.4	4.4	4.6	1.9	4.4	4.5	4.8	0.0	2.5	3.3	0.0	3.3
Cycle Q Clear(g_c), s	8.0	4.4	4.6	6.5	4.4	4.5	8.1	0.0	2.5	5.8	0.0	3.3
Prop In Lane	1.00		0.60	1.00		0.29	1.00		0.38	1.00		0.48
Lane Grp Cap(c), veh/h	446	816	759	483	822	813	435	0	530	463	0	509
V/C Ratio(X)	0.16	0.27	0.28	0.10	0.27	0.27	0.28	0.00	0.19	0.20	0.00	0.24
Avail Cap(c_a), veh/h	446	816	759	483	822	813	688	0	884	727	0	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	8.9	8.9	10.9	8.9	8.9	17.9	0.0	14.7	16.8	0.0	14.9
Incr Delay (d2), s/veh	0.8	0.8	0.9	0.4	0.8	0.8	0.4	0.0	0.2	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	4.0	3.9	0.9	4.1	4.1	3.0	0.0	2.2	2.1	0.0	2.7
LnGrp Delay(d),s/veh	12.1	9.7	9.9	11.3	9.7	9.8	18.3	0.0	14.8	17.0	0.0	15.2
LnGrp LOS	B	A	A	B	A	A	B		B	B		B
Approach Vol, veh/h		499			488			225			215	
Approach Delay, s/veh		10.1			9.9			16.7			15.9	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		24.0		34.0		24.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		8.5		10.1		10.0		7.8
Green Ext Time (p_c), s		12.8		4.5		12.1		4.8

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	118	239	38	127	72	90	323	24	45	543	237
Future Volume (veh/h)	215	118	239	38	127	72	90	323	24	45	543	237
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1838	1900	1845	1832	1900	1881	1795	1900	1900	1832	1900
Adj Flow Rate, veh/h	226	124	252	40	134	76	95	340	25	47	572	249
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	3	3	3	1	6	6	0	4	4
Cap, veh/h	388	181	367	239	367	208	322	1582	116	544	1154	501
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1173	539	1096	990	1096	621	666	3217	235	1020	2346	1019
Grp Volume(v), veh/h	226	0	376	40	0	210	95	179	186	47	424	397
Grp Sat Flow(s),veh/h/ln	1173	0	1636	990	0	1717	666	1705	1747	1020	1741	1625
Q Serve(g_s), s	12.5	0.0	13.7	2.5	0.0	6.4	7.7	4.1	4.2	1.9	11.3	11.4
Cycle Q Clear(g_c), s	18.9	0.0	13.7	16.2	0.0	6.4	19.1	4.1	4.2	6.1	11.3	11.4
Prop In Lane	1.00		0.67	1.00		0.36	1.00		0.13	1.00		0.63
Lane Grp Cap(c), veh/h	388	0	548	239	0	575	322	838	859	544	856	799
V/C Ratio(X)	0.58	0.00	0.69	0.17	0.00	0.37	0.29	0.21	0.22	0.09	0.50	0.50
Avail Cap(c_a), veh/h	403	0	568	251	0	596	322	838	859	544	856	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	19.9	26.9	0.0	17.4	18.2	10.0	10.0	11.7	11.8	11.8
Incr Delay (d2), s/veh	2.0	0.0	3.3	0.3	0.0	0.4	2.3	0.6	0.6	0.3	2.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.6	0.0	10.9	1.3	0.0	5.6	2.9	3.7	3.9	1.0	9.9	9.4
LnGrp Delay(d),s/veh	26.6	0.0	23.2	27.2	0.0	17.8	20.6	10.6	10.6	12.0	13.9	14.0
LnGrp LOS	C		C	C		B	C	B	B	B	B	B
Approach Vol, veh/h		602			250			460			868	
Approach Delay, s/veh		24.5			19.3			12.6			13.8	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		29.2		40.0		29.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		21.1		20.9		13.4		18.2
Green Ext Time (p_c), s		12.1		2.2		18.8		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	76	33	914	1218	39
Future Volume (veh/h)	105	76	33	914	1218	39
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1557	1727	1744	1900
Adj Flow Rate, veh/h	111	80	35	962	1282	41
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	22	10	9	9
Cap, veh/h	146	132	55	2631	2365	76
Arrive On Green	0.08	0.08	0.04	0.80	1.00	1.00
Sat Flow, veh/h	1740	1568	1483	3368	3364	105
Grp Volume(v), veh/h	111	80	35	962	648	675
Grp Sat Flow(s),veh/h/ln	1740	1568	1483	1641	1657	1725
Q Serve(g_s), s	8.7	6.9	3.3	11.5	0.0	0.0
Cycle Q Clear(g_c), s	8.7	6.9	3.3	11.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	146	132	55	2631	1196	1245
V/C Ratio(X)	0.76	0.61	0.63	0.37	0.54	0.54
Avail Cap(c_a), veh/h	429	386	85	2631	1196	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	62.7	61.9	66.5	3.9	0.0	0.0
Incr Delay (d2), s/veh	7.8	4.5	11.5	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	5.7	2.7	9.0	0.1	0.1
LnGrp Delay(d),s/veh	70.6	66.3	77.9	4.3	0.2	0.2
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	191			997	1323	
Approach Delay, s/veh	68.8			6.9	0.2	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	108.5		20.3		119.7		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	8.0	75.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	5.3	2.0		10.7		13.5		
Green Ext Time (p_c), s	0.0	68.4		1.0		70.6		

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	22	22	56	463	761	57		
Future Volume (veh/h)	22	22	56	463	761	57		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1520	1827	1863	1776	1829	1900		
Adj Flow Rate, veh/h	23	23	59	487	801	60		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	25	4	2	7	4	4		
Cap, veh/h	132	142	508	2336	2267	170		
Arrive On Green	0.09	0.09	0.69	0.69	0.69	0.69		
Sat Flow, veh/h	1448	1553	638	3463	3367	245		
Grp Volume(v), veh/h	23	23	59	487	425	436		
Grp Sat Flow(s),veh/h/ln	1448	1553	638	1687	1738	1783		
Q Serve(g_s), s	0.8	0.8	2.3	2.9	5.5	5.5		
Cycle Q Clear(g_c), s	0.8	0.8	7.8	2.9	5.5	5.5		
Prop In Lane	1.00	1.00	1.00			0.14		
Lane Grp Cap(c), veh/h	132	142	508	2336	1203	1234		
V/C Ratio(X)	0.17	0.16	0.12	0.21	0.35	0.35		
Avail Cap(c_a), veh/h	548	588	606	2857	1472	1509		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.3	23.2	5.1	3.1	3.5	3.5		
Incr Delay (d2), s/veh	0.6	0.5	0.1	0.0	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	0.6	0.6	0.7	2.3	4.8	4.9		
LnGrp Delay(d),s/veh	23.9	23.8	5.2	3.1	3.7	3.7		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	46			546	861			
Approach Delay, s/veh	23.8			3.3	3.7			
Approach LOS	C			A	A			

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		44.4		11.1		44.4		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		47.0		21.0		47.0		
Max Q Clear Time (g_c+I1), s		9.8		2.8		7.5		
Green Ext Time (p_c), s		28.6		0.1		30.0		

Intersection Summary	
HCM 2010 Ctrl Delay	4.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	27	60	7	10	91	254	118	6	213	36
Future Volume (veh/h)	7	0	27	60	7	10	91	254	118	6	213	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1667	1570	1900	1863	1615	1900	1827	1809	1900	1863	1834	1900
Adj Flow Rate, veh/h	7	0	28	63	7	11	96	267	124	6	224	38
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	14	2	2	2	14	14	4	6	6	2	3	3
Cap, veh/h	356	0	246	369	106	166	678	667	310	577	878	149
Arrive On Green	0.19	0.00	0.19	0.19	0.19	0.19	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1203	0	1289	1333	554	871	1066	1154	536	972	1519	258
Grp Volume(v), veh/h	7	0	28	63	0	18	96	0	391	6	0	262
Grp Sat Flow(s),veh/h/ln	1203	0	1289	1333	0	1425	1066	0	1689	972	0	1777
Q Serve(g_s), s	0.2	0.0	0.9	2.1	0.0	0.5	2.5	0.0	6.6	0.2	0.0	3.8
Cycle Q Clear(g_c), s	0.8	0.0	0.9	3.1	0.0	0.5	6.3	0.0	6.6	6.8	0.0	3.8
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.32	1.00		0.15
Lane Grp Cap(c), veh/h	356	0	246	369	0	272	678	0	977	577	0	1027
V/C Ratio(X)	0.02	0.00	0.11	0.17	0.00	0.07	0.14	0.00	0.40	0.01	0.00	0.26
Avail Cap(c_a), veh/h	729	0	646	783	0	714	678	0	977	577	0	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	17.4	18.6	0.0	17.2	7.0	0.0	6.0	7.9	0.0	5.4
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.5	0.0	0.2	0.4	0.0	1.2	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.6	1.5	0.0	0.4	1.5	0.0	6.1	0.1	0.0	3.6
LnGrp Delay(d),s/veh	17.6	0.0	17.8	19.1	0.0	17.4	7.4	0.0	7.2	7.9	0.0	6.0
LnGrp LOS	B		B	B		B	A		A	A		A
Approach Vol, veh/h		35			81			487			268	
Approach Delay, s/veh		17.8			18.7			7.3			6.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		15.9		36.0		15.9
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0
Max Q Clear Time (g_c+I1), s		8.6		2.9		8.8		5.1
Green Ext Time (p_c), s		14.3		1.5		14.2		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	3	116	36	8	42	54	494	12	26	697	11
Future Volume (veh/h)	13	3	116	36	8	42	54	494	12	26	697	11
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1882	1900	1845	1868	1900	1827	1839	1900	1900	1846	1900
Adj Flow Rate, veh/h	14	3	122	38	8	44	57	520	13	27	734	12
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	3	0	0	4	3	3	0	3	3
Cap, veh/h	369	8	317	312	51	278	452	1943	49	568	1970	32
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1279	38	1560	1245	249	1370	698	3483	87	885	3531	58
Grp Volume(v), veh/h	14	0	125	38	0	52	57	261	272	27	364	382
Grp Sat Flow(s),veh/h/ln	1279	0	1598	1245	0	1619	698	1747	1823	885	1753	1835
Q Serve(g_s), s	0.5	0.0	3.4	1.4	0.0	1.3	2.5	3.9	3.9	0.8	5.8	5.8
Cycle Q Clear(g_c), s	1.8	0.0	3.4	4.8	0.0	1.3	8.3	3.9	3.9	4.7	5.8	5.8
Prop In Lane	1.00		0.98	1.00		0.85	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	369	0	324	312	0	329	452	975	1017	568	978	1024
V/C Ratio(X)	0.04	0.00	0.39	0.12	0.00	0.16	0.13	0.27	0.27	0.05	0.37	0.37
Avail Cap(c_a), veh/h	900	0	987	828	0	1000	452	975	1017	568	978	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	17.3	19.4	0.0	16.5	8.5	5.8	5.8	7.0	6.2	6.2
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.2	0.0	0.2	0.6	0.7	0.6	0.2	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	2.8	0.9	0.0	1.1	1.0	3.6	3.7	0.4	5.5	5.7
LnGrp Delay(d),s/veh	17.2	0.0	18.0	19.5	0.0	16.7	9.1	6.4	6.4	7.1	7.3	7.2
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		139			90			590			773	
Approach Delay, s/veh		18.0			17.9			6.7			7.2	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		16.2		34.0		16.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		10.3		6.8		7.8		5.4
Green Ext Time (p_c), s		14.7		3.0		16.5		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1027	65	35	662	77	26	37	21	24	29	5
Future Volume (veh/h)	13	1027	65	35	662	77	26	37	21	24	29	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1661	1900	1570	1697	1900	1827	1941	1900	1652	1894	1900
Adj Flow Rate, veh/h	14	1081	68	37	697	81	27	39	22	25	31	5
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	15	15	21	13	13	4	0	0	15	5	5
Cap, veh/h	39	2088	131	59	2069	240	163	115	65	135	157	25
Arrive On Green	0.02	0.69	0.69	0.03	0.48	0.48	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1810	3015	190	1495	2911	338	1330	1162	656	1177	1590	256
Grp Volume(v), veh/h	14	566	583	37	386	392	27	0	61	25	0	36
Grp Sat Flow(s),veh/h/ln	1810	1578	1627	1495	1612	1636	1330	0	1818	1177	0	1846
Q Serve(g_s), s	1.0	22.3	22.4	3.2	19.4	19.4	2.5	0.0	4.1	2.6	0.0	2.3
Cycle Q Clear(g_c), s	1.0	22.3	22.4	3.2	19.4	19.4	4.8	0.0	4.1	6.7	0.0	2.3
Prop In Lane	1.00		0.12	1.00		0.21	1.00		0.36	1.00		0.14
Lane Grp Cap(c), veh/h	39	1093	1126	59	1146	1163	163	0	179	135	0	182
V/C Ratio(X)	0.36	0.52	0.52	0.62	0.34	0.34	0.17	0.00	0.34	0.19	0.00	0.20
Avail Cap(c_a), veh/h	111	1093	1126	92	1146	1163	395	0	497	340	0	504
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.7	9.6	9.6	62.3	14.9	14.9	56.1	0.0	54.7	57.8	0.0	53.9
Incr Delay (d2), s/veh	5.6	1.8	1.7	9.6	0.7	0.7	0.5	0.0	1.1	0.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	15.3	15.7	2.7	13.6	13.8	1.7	0.0	3.8	1.6	0.0	2.2
LnGrp Delay(d),s/veh	68.3	11.3	11.3	71.9	15.7	15.7	56.6	0.0	55.8	58.4	0.0	54.4
LnGrp LOS	E	B	B	E	B	B	E		E	E		D
Approach Vol, veh/h		1163			815			88			61	
Approach Delay, s/veh		12.0			18.2			56.0			56.0	
Approach LOS		B			B			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	99.9		21.3	11.2	97.5		21.3
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	8.0	64.5		35.5
Max Q Clear Time (g_c+I1), s	3.0	21.4		8.7	5.2	24.4		6.8
Green Ext Time (p_c), s	0.0	38.7		1.7	0.0	36.3		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	82	959	720	27	25	35		
Future Volume (veh/h)	82	959	720	27	25	35		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1776	1667	1686	1900	1827	1792		
Adj Flow Rate, veh/h	86	1009	758	28	26	37		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	7	14	13	13	4	6		
Cap, veh/h	106	2546	2190	81	120	105		
Arrive On Green	0.13	1.00	0.47	0.47	0.07	0.07		
Sat Flow, veh/h	1691	3250	3234	116	1740	1524		
Grp Volume(v), veh/h	86	1009	385	401	26	37		
Grp Sat Flow(s),veh/h/ln	1691	1583	1601	1665	1740	1524		
Q Serve(g_s), s	6.4	0.0	19.9	19.9	1.8	3.0		
Cycle Q Clear(g_c), s	6.4	0.0	19.9	19.9	1.8	3.0		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	106	2546	1113	1158	120	105		
V/C Ratio(X)	0.81	0.40	0.35	0.35	0.22	0.35		
Avail Cap(c_a), veh/h	156	2546	1113	1158	335	293		
HCM Platoon Ratio	2.00	2.00	0.67	0.67	1.00	1.00		
Upstream Filter(I)	0.85	0.85	0.76	0.76	1.00	1.00		
Uniform Delay (d), s/veh	56.1	0.0	15.9	15.9	57.2	57.7		
Incr Delay (d2), s/veh	15.5	0.4	0.7	0.6	0.9	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	6.2	0.3	13.3	13.8	1.6	2.4		
LnGrp Delay(d),s/veh	71.6	0.4	16.6	16.5	58.1	59.7		
LnGrp LOS	E	A	B	B	E	E		
Approach Vol, veh/h		1095	786		63			
Approach Delay, s/veh		6.0	16.5		59.1			
Approach LOS		A	B		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.1	97.9		18.0		112.0		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	12.0	70.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	8.4	21.9		5.0		2.0		
Green Ext Time (p_c), s	0.1	41.6		0.2		66.9		
Intersection Summary								
HCM 2010 Ctrl Delay			12.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	728	166	72	527	56	167	429	85	73	618	55
Future Volume (veh/h)	82	728	166	72	527	56	167	429	85	73	618	55
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1638	1635	1900	1827	1649	1900	1771	1818	1900	1792	1861	1900
Adj Flow Rate, veh/h	86	766	175	76	555	59	176	452	89	77	651	58
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	16	19	19	4	15	15	3	4	4	6	2	2
Cap, veh/h	106	875	200	95	958	102	294	984	192	322	1011	90
Arrive On Green	0.02	0.12	0.12	0.11	0.67	0.67	0.08	0.34	0.34	0.05	0.31	0.31
Sat Flow, veh/h	1560	2508	573	1740	2857	303	1687	2874	562	1707	3280	292
Grp Volume(v), veh/h	86	474	467	76	304	310	176	270	271	77	351	358
Grp Sat Flow(s),veh/h/ln	1560	1553	1528	1740	1567	1593	1687	1727	1709	1707	1768	1804
Q Serve(g_s), s	7.1	39.1	39.1	5.5	13.6	13.7	9.0	15.9	16.1	3.9	22.2	22.3
Cycle Q Clear(g_c), s	7.1	39.1	39.1	5.5	13.6	13.7	9.0	15.9	16.1	3.9	22.2	22.3
Prop In Lane	1.00		0.38	1.00		0.19	1.00		0.33	1.00		0.16
Lane Grp Cap(c), veh/h	106	542	533	95	525	534	294	592	585	322	545	556
V/C Ratio(X)	0.81	0.88	0.88	0.80	0.58	0.58	0.60	0.46	0.46	0.24	0.64	0.65
Avail Cap(c_a), veh/h	156	542	533	107	525	534	306	618	611	340	578	590
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	62.7	54.7	54.7	57.3	16.5	16.5	28.4	33.3	33.4	28.6	38.8	38.8
Incr Delay (d2), s/veh	16.9	16.7	16.9	31.3	4.6	4.6	3.0	0.6	0.6	0.4	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.5	26.3	26.0	6.3	10.5	10.7	7.8	12.2	12.2	3.4	16.6	16.9
LnGrp Delay(d),s/veh	79.6	71.4	71.7	88.5	21.0	21.0	31.4	33.9	34.0	28.9	41.0	41.0
LnGrp LOS	E	E	E	F	C	C	C	C	C	C	D	D
Approach Vol, veh/h		1027			690			717			786	
Approach Delay, s/veh		72.2			28.5			33.3			39.8	
Approach LOS		E			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	51.6	15.0	48.6	13.1	53.3	10.6	53.0				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	13.0	36.0	12.0	42.5	8.0	41.0	8.0	46.5				
Max Q Clear Time (g_c+I1), s	9.1	15.7	11.0	24.3	7.5	41.1	5.9	18.1				
Green Ext Time (p_c), s	0.1	17.9	0.1	14.9	0.0	0.0	0.0	21.5				
Intersection Summary												
HCM 2010 Ctrl Delay			46.3									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	751	124	103	475	65	51	275	99	68	193	37
Future Volume (veh/h)	121	751	124	103	475	65	51	275	99	68	193	37
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1855	1900	1557	1828	1900	1863	1597	1696	1473	1708	1900
Adj Flow Rate, veh/h	127	791	131	108	500	68	54	289	104	72	203	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	150	1366	226	127	1397	189	237	451	408	152	394	76
Arrive On Green	0.17	0.91	0.91	0.09	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3004	497	1483	3062	415	1133	1597	1442	780	1393	268
Grp Volume(v), veh/h	127	464	458	108	282	286	54	289	104	72	0	242
Grp Sat Flow(s),veh/h/ln	1774	1762	1739	1483	1736	1741	1133	1597	1442	780	0	1661
Q Serve(g_s), s	9.0	6.5	6.5	9.3	13.7	13.9	5.5	20.6	7.2	11.6	0.0	15.9
Cycle Q Clear(g_c), s	9.0	6.5	6.5	9.3	13.7	13.9	21.4	20.6	7.2	32.2	0.0	15.9
Prop In Lane	1.00		0.29	1.00		0.24	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	150	802	791	127	792	794	237	451	408	152	0	469
V/C Ratio(X)	0.85	0.58	0.58	0.85	0.36	0.36	0.23	0.64	0.26	0.47	0.00	0.52
Avail Cap(c_a), veh/h	164	802	791	137	792	794	248	467	421	160	0	486
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	53.2	3.5	3.5	58.6	23.0	23.0	48.1	40.8	36.1	54.9	0.0	39.2
Incr Delay (d2), s/veh	30.3	3.0	3.1	35.3	1.3	1.3	0.5	2.8	0.3	2.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	6.3	6.2	8.8	11.2	11.3	3.1	14.5	5.3	4.7	0.0	11.9
LnGrp Delay(d),s/veh	83.5	6.5	6.6	93.9	24.2	24.3	48.6	43.7	36.4	57.2	0.0	40.0
LnGrp LOS	F	A	A	F	C	C	D	D	D	E		D
Approach Vol, veh/h		1049			676			447			314	
Approach Delay, s/veh		15.9			35.4			42.6			44.0	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		45.7	17.1	67.1		45.7
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	12.0	57.0		38.0	12.0	57.0		38.0
Max Q Clear Time (g_c+I1), s	11.0	15.9		34.2	11.3	8.5		23.4
Green Ext Time (p_c), s	0.0	31.3		2.6	0.0	35.5		7.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	450	205	53	404	146	129	322	29	163	627	107
Future Volume (veh/h)	93	450	205	53	404	146	129	322	29	163	627	107
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1787	1900	1776	1791	1900	1759	1833	1900	1827	1850	1900
Adj Flow Rate, veh/h	98	474	216	56	425	154	136	339	31	172	660	113
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	7	5	5	8	4	4	4	3	3
Cap, veh/h	485	1321	598	420	1427	512	133	900	82	274	836	143
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	815	2272	1029	715	2455	881	654	3225	293	983	2997	512
Grp Volume(v), veh/h	98	353	337	56	293	286	136	182	188	172	387	386
Grp Sat Flow(s),veh/h/ln	815	1698	1603	715	1702	1634	654	1741	1777	983	1757	1752
Q Serve(g_s), s	6.0	9.5	9.6	3.9	7.5	7.6	6.5	7.2	7.3	14.7	17.5	17.5
Cycle Q Clear(g_c), s	13.6	9.5	9.6	13.4	7.5	7.6	24.0	7.2	7.3	22.0	17.5	17.5
Prop In Lane	1.00		0.64	1.00		0.54	1.00		0.16	1.00		0.29
Lane Grp Cap(c), veh/h	485	987	932	420	989	950	133	486	496	274	490	489
V/C Ratio(X)	0.20	0.36	0.36	0.13	0.30	0.30	1.02	0.37	0.38	0.63	0.79	0.79
Avail Cap(c_a), veh/h	485	987	932	420	989	950	133	486	496	274	490	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	9.5	9.5	13.1	9.1	9.1	41.8	25.0	25.0	33.9	28.7	28.7
Incr Delay (d2), s/veh	0.9	1.0	1.1	0.7	0.8	0.8	84.5	1.0	1.0	6.4	9.6	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	8.2	8.0	1.5	6.7	6.5	11.3	6.5	6.7	7.9	14.9	14.9
LnGrp Delay(d),s/veh	13.5	10.5	10.6	13.8	9.9	9.9	126.6	26.0	26.0	40.3	38.2	38.4
LnGrp LOS	B	B	B	B	A	A	F	C	C	D	D	D
Approach Vol, veh/h		788			635			506			945	
Approach Delay, s/veh		10.9			10.2			53.0			38.7	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		15.4		26.0		15.6		24.0
Green Ext Time (p_c), s		33.1		0.0		33.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	224	279	91	92	68	130	438	96	86	660	72
Future Volume (veh/h)	127	224	279	91	92	68	130	438	96	86	660	72
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.99	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1829	1900	1900	1785	1900	1845	1806	1900	1776	1845	1900
Adj Flow Rate, veh/h	134	236	294	96	97	72	137	461	101	91	695	76
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	8	8	8	3	5	5	7	3	3
Cap, veh/h	375	245	305	104	287	213	407	1450	316	395	1217	133
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1153	735	915	44	860	639	1757	2797	609	799	3181	348
Grp Volume(v), veh/h	134	0	530	96	0	169	137	282	280	91	383	388
Grp Sat Flow(s),veh/h/ln	1153	0	1650	44	0	1499	1757	1716	1690	799	1752	1776
Q Serve(g_s), s	8.0	0.0	25.6	1.4	0.0	6.9	3.4	7.7	7.8	6.4	14.0	14.0
Cycle Q Clear(g_c), s	14.9	0.0	25.6	27.0	0.0	6.9	3.4	7.7	7.8	6.4	14.0	14.0
Prop In Lane	1.00		0.55	1.00		0.43	1.00		0.36	1.00		0.20
Lane Grp Cap(c), veh/h	375	0	550	104	0	500	407	890	876	395	671	680
V/C Ratio(X)	0.36	0.00	0.96	0.93	0.00	0.34	0.34	0.32	0.32	0.23	0.57	0.57
Avail Cap(c_a), veh/h	375	0	550	104	0	500	407	890	876	395	671	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	0.0	26.5	40.4	0.0	20.3	12.7	11.2	11.3	17.4	19.7	19.8
Incr Delay (d2), s/veh	0.6	0.0	29.4	65.2	0.0	0.4	2.2	0.9	1.0	1.4	3.5	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	22.7	7.2	0.0	5.2	3.3	6.9	6.9	2.8	11.8	11.9
LnGrp Delay(d),s/veh	26.4	0.0	55.9	105.6	0.0	20.7	14.9	12.2	12.2	18.8	23.2	23.2
LnGrp LOS	C		E	F		C	B	B	B	B	C	C
Approach Vol, veh/h		664			265			699			862	
Approach Delay, s/veh		49.9			51.4			12.7			22.8	
Approach LOS		D			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.4	16.0		29.0		9.8		27.6
Green Ext Time (p_c), s	0.1	13.4		0.0		26.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	3	42	13	2	33	15	439	15	62	804	20
Future Volume (veh/h)	48	3	42	13	2	33	15	439	15	62	804	20
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1840	1900	1900	1762	1900	1900	1811	1900	1900	1814	1900
Adj Flow Rate, veh/h	51	3	44	14	2	35	16	462	16	65	846	21
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	25	25	25	5	5	5	4	4	4
Cap, veh/h	202	38	106	124	42	162	100	1936	66	164	1863	45
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	584	242	673	204	266	1027	38	3217	110	136	3095	75
Grp Volume(v), veh/h	98	0	0	51	0	0	256	0	238	473	0	459
Grp Sat Flow(s),veh/h/ln	1499	0	0	1496	0	0	1737	0	1627	1670	0	1636
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	7.7
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.4	0.0	0.0	3.3	0.0	3.4	7.0	0.0	7.7
Prop In Lane	0.52		0.45	0.27		0.69	0.06		0.07	0.14		0.05
Lane Grp Cap(c), veh/h	346	0	0	328	0	0	1122	0	979	1087	0	985
V/C Ratio(X)	0.28	0.00	0.00	0.16	0.00	0.00	0.23	0.00	0.24	0.44	0.00	0.47
Avail Cap(c_a), veh/h	929	0	0	906	0	0	1122	0	979	1087	0	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	0.0	0.0	18.3	0.0	0.0	4.6	0.0	4.6	5.4	0.0	5.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.6	1.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	0.0	0.0	1.1	0.0	0.0	3.2	0.0	3.0	6.8	0.0	7.0
LnGrp Delay(d),s/veh	19.2	0.0	0.0	18.5	0.0	0.0	5.1	0.0	5.2	6.6	0.0	7.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		98			51			494			932	
Approach Delay, s/veh		19.2			18.5			5.1			6.8	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		13.9		36.0		13.9
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		5.4		3.4		9.7		4.7
Green Ext Time (p_c), s		20.6		2.2		17.4		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	70	169	51	13	101	9	573	35	33	471	9
Future Volume (veh/h)	99	70	169	51	13	101	9	573	35	33	471	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1725	1900	1900	1782	1900	1900	1816	1900	1900	1808	1900
Adj Flow Rate, veh/h	104	74	178	54	14	106	9	603	37	35	496	9
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	8	18	18	18	4	4	4	5	5	5
Cap, veh/h	203	145	260	212	83	321	75	1331	81	118	1305	23
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	321	402	723	342	231	893	13	3212	195	100	3150	56
Grp Volume(v), veh/h	356	0	0	174	0	0	342	0	307	276	0	264
Grp Sat Flow(s),veh/h/ln	1446	0	0	1465	0	0	1802	0	1618	1671	0	1635
Q Serve(g_s), s	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	6.0
Cycle Q Clear(g_c), s	10.8	0.0	0.0	4.1	0.0	0.0	7.2	0.0	7.3	5.6	0.0	6.0
Prop In Lane	0.29		0.50	0.31		0.61	0.03		0.12	0.13		0.03
Lane Grp Cap(c), veh/h	608	0	0	616	0	0	816	0	670	768	0	678
V/C Ratio(X)	0.59	0.00	0.00	0.28	0.00	0.00	0.42	0.00	0.46	0.36	0.00	0.39
Avail Cap(c_a), veh/h	790	0	0	792	0	0	816	0	670	768	0	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	12.2	0.0	0.0	11.2	0.0	11.2	10.8	0.0	10.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.2	0.0	0.0	1.6	0.0	2.2	1.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	0.0	3.4	0.0	0.0	7.1	0.0	6.6	5.5	0.0	5.4
LnGrp Delay(d),s/veh	15.1	0.0	0.0	12.5	0.0	0.0	12.8	0.0	13.5	12.1	0.0	12.5
LnGrp LOS	B			B			B		B	B		B
Approach Vol, veh/h		356			174			649			540	
Approach Delay, s/veh		15.1			12.5			13.1			12.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		25.1		28.0		25.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		9.3		12.8		8.0		6.1
Green Ext Time (p_c), s		10.4		6.3		11.4		8.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	10	38	99	10	39	52	552	39	15	656	23
Future Volume (veh/h)	25	10	38	99	10	39	52	552	39	15	656	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1793	1900	1900	1856	1900	1900	1798	1900	1900	1818	1900
Adj Flow Rate, veh/h	26	11	40	104	11	41	55	581	41	16	691	24
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	6	6	6	4	4	4
Cap, veh/h	173	88	182	318	47	89	165	1521	105	86	1776	61
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	351	389	800	890	205	390	155	2811	194	24	3282	112
Grp Volume(v), veh/h	77	0	0	156	0	0	338	0	339	382	0	349
Grp Sat Flow(s),veh/h/ln	1540	0	0	1485	0	0	1559	0	1601	1785	0	1633
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	6.4	0.0	0.0	6.4
Cycle Q Clear(g_c), s	2.0	0.0	0.0	4.4	0.0	0.0	5.5	0.0	6.4	6.3	0.0	6.4
Prop In Lane	0.34		0.52	0.67		0.26	0.16		0.12	0.04		0.07
Lane Grp Cap(c), veh/h	443	0	0	453	0	0	924	0	866	1039	0	884
V/C Ratio(X)	0.17	0.00	0.00	0.34	0.00	0.00	0.37	0.00	0.39	0.37	0.00	0.39
Avail Cap(c_a), veh/h	818	0	0	818	0	0	924	0	866	1039	0	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	17.0	0.0	0.0	6.7	0.0	6.9	6.9	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	1.1	0.0	1.3	1.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	0.0	3.5	0.0	0.0	5.4	0.0	5.5	6.1	0.0	5.6
LnGrp Delay(d),s/veh	16.4	0.0	0.0	17.5	0.0	0.0	7.8	0.0	8.2	7.9	0.0	8.2
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		77			156			677			731	
Approach Delay, s/veh		16.4			17.5			8.0			8.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.7		34.0		17.7		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		6.4		8.4		4.0		8.4
Green Ext Time (p_c), s		3.2		16.7		3.4		16.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	959	111	177	544	101	80	318	181	133	574	96
Future Volume (veh/h)	263	959	111	177	544	101	80	318	181	133	574	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1845	1863	1827	1900	1863	1900	1881	1876	1900
Adj Flow Rate, veh/h	277	1009	117	186	573	106	84	335	191	140	604	101
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	0	3	2	4	0	2	2	1	1	1
Cap, veh/h	349	1317	600	238	1330	577	303	727	406	363	1032	172
Arrive On Green	0.06	0.38	0.38	0.02	0.12	0.12	0.06	0.33	0.33	0.06	0.34	0.34
Sat Flow, veh/h	1774	3505	1596	1757	3539	1534	1810	2181	1217	1792	3051	509
Grp Volume(v), veh/h	277	1009	117	186	573	106	84	270	256	140	352	353
Grp Sat Flow(s),veh/h/ln	1774	1752	1596	1757	1770	1534	1810	1770	1628	1792	1782	1778
Q Serve(g_s), s	7.0	27.8	5.4	7.0	16.5	6.8	3.3	13.2	13.7	5.6	17.9	18.0
Cycle Q Clear(g_c), s	7.0	27.8	5.4	7.0	16.5	6.8	3.3	13.2	13.7	5.6	17.9	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		0.29
Lane Grp Cap(c), veh/h	349	1317	600	238	1330	577	303	590	543	363	603	601
V/C Ratio(X)	0.79	0.77	0.20	0.78	0.43	0.18	0.28	0.46	0.47	0.39	0.58	0.59
Avail Cap(c_a), veh/h	349	1317	600	238	1330	577	312	643	592	363	648	647
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	30.1	23.1	26.3	37.3	33.1	22.9	28.9	29.0	22.7	30.0	30.1
Incr Delay (d2), s/veh	11.9	4.3	0.7	15.3	1.0	0.7	0.5	0.6	0.6	0.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	20.4	4.5	5.9	13.0	5.4	3.0	10.7	10.3	5.1	13.9	13.9
LnGrp Delay(d),s/veh	41.0	34.4	23.8	41.6	38.3	33.8	23.4	29.4	29.6	23.4	31.2	31.3
LnGrp LOS	D	C	C	D	D	C	C	C	C	C	C	C
Approach Vol, veh/h		1403			865			610			845	
Approach Delay, s/veh		34.8			38.5			28.7			29.9	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	47.3	9.5	43.2	10.0	47.3	10.0	42.7
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	7.0	40.0
Max Q Clear Time (g_c+I1), s	9.0	29.8	5.3	20.0	9.0	18.5	7.6	15.7
Green Ext Time (p_c), s	0.0	7.9	0.0	16.1	0.0	18.0	0.0	19.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	1212	835	142	96	17
Future Volume (veh/h)	67	1212	835	142	96	17
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1863	1827	1863	1792
Adj Flow Rate, veh/h	71	1276	879	149	101	18
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	2	4	2	6
Cap, veh/h	486	2750	2481	1077	188	162
Arrive On Green	0.04	0.53	0.70	0.70	0.11	0.11
Sat Flow, veh/h	1740	3597	3632	1536	1774	1524
Grp Volume(v), veh/h	71	1276	879	149	101	18
Grp Sat Flow(s),veh/h/ln	1740	1752	1770	1536	1774	1524
Q Serve(g_s), s	1.1	25.1	10.9	3.5	5.9	1.2
Cycle Q Clear(g_c), s	1.1	25.1	10.9	3.5	5.9	1.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	486	2750	2481	1077	188	162
V/C Ratio(X)	0.15	0.46	0.35	0.14	0.54	0.11
Avail Cap(c_a), veh/h	498	2750	2481	1077	629	540
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.8	11.6	6.5	5.4	46.6	44.5
Incr Delay (d2), s/veh	0.1	0.6	0.4	0.3	2.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	18.1	9.2	2.8	5.5	1.9
LnGrp Delay(d),s/veh	4.0	12.1	6.9	5.7	48.9	44.8
LnGrp LOS	A	B	A	A	D	D
Approach Vol, veh/h		1347	1028		119	
Approach Delay, s/veh		11.7	6.8		48.3	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		92.3		17.7	9.2	83.1		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		59.0		39.0	7.0	49.0		
Max Q Clear Time (g_c+I1), s		27.1		7.9	3.1	12.9		
Green Ext Time (p_c), s		30.8		0.6	0.1	34.8		

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	880	305	142	571	158	287	1143	234	213	1466	150
Future Volume (veh/h)	97	880	305	142	571	158	287	1143	234	213	1466	150
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1696	1792	1863	1743	1776	1792	1792	1792	1900	1792	1794	1900
Adj Flow Rate, veh/h	102	926	321	149	601	166	302	1203	246	224	1543	158
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	6	2	9	7	6	6	6	6	6	6	6
Cap, veh/h	247	1116	507	166	1105	488	234	1383	283	248	1512	155
Arrive On Green	0.05	0.33	0.33	0.05	0.33	0.33	0.11	0.36	0.36	0.03	0.12	0.12
Sat Flow, veh/h	1616	3406	1549	1660	3374	1490	1707	3878	793	1707	4309	441
Grp Volume(v), veh/h	102	926	321	149	601	166	302	945	504	224	1092	609
Grp Sat Flow(s),veh/h/ln	1616	1703	1549	1660	1687	1490	1707	1524	1624	1707	1525	1700
Q Serve(g_s), s	5.9	35.2	24.6	7.0	20.4	11.8	15.0	40.5	40.5	12.1	49.1	49.1
Cycle Q Clear(g_c), s	5.9	35.2	24.6	7.0	20.4	11.8	15.0	40.5	40.5	12.1	49.1	49.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.26
Lane Grp Cap(c), veh/h	247	1116	507	166	1105	488	234	1086	579	248	1070	597
V/C Ratio(X)	0.41	0.83	0.63	0.90	0.54	0.34	1.29	0.87	0.87	0.90	1.02	1.02
Avail Cap(c_a), veh/h	247	1119	509	166	1109	490	234	1086	579	258	1070	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	43.5	39.9	41.4	38.5	35.6	44.2	42.0	42.0	38.4	61.9	61.9
Incr Delay (d2), s/veh	1.1	5.4	2.5	32.9	0.4	0.3	158.1	9.5	16.3	31.0	32.6	42.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	24.3	16.3	8.6	13.9	7.9	34.8	25.6	28.3	16.2	46.1	54.3
LnGrp Delay(d),s/veh	31.8	48.8	42.5	74.2	38.9	35.9	202.3	51.5	58.3	69.4	94.5	104.2
LnGrp LOS	C	D	D	E	D	D	F	D	E	E	F	F
Approach Vol, veh/h		1349			916			1751			1925	
Approach Delay, s/veh		46.0			44.1			79.5			94.6	
Approach LOS		D			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	56.6	11.0	53.4	18.2	57.4	11.0	53.4
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	15.0	49.0	7.0	46.0	15.0	49.0	7.0	46.0
Max Q Clear Time (g_c+I1), s	17.0	51.1	9.0	37.2	14.1	42.5	7.9	22.4
Green Ext Time (p_c), s	0.0	0.0	0.0	8.5	0.1	6.5	0.0	21.7

Intersection Summary	
HCM 2010 Ctrl Delay	71.3
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1216	107	110	824	95	190
Future Volume (veh/h)	1216	107	110	824	95	190
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1847	1881	1845
Adj Flow Rate, veh/h	1280	113	116	867	100	200
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	1	3
Cap, veh/h	2403	212	196	1555	274	240
Arrive On Green	0.74	0.74	0.74	0.74	0.15	0.15
Sat Flow, veh/h	3349	287	207	2192	1792	1568
Grp Volume(v), veh/h	687	706	351	632	100	200
Grp Sat Flow(s),veh/h/ln	1752	1792	719	1597	1792	1568
Q Serve(g_s), s	18.6	18.8	19.9	18.9	5.5	13.6
Cycle Q Clear(g_c), s	18.6	18.8	38.6	18.9	5.5	13.6
Prop In Lane		0.16	0.33		1.00	1.00
Lane Grp Cap(c), veh/h	1293	1322	574	1178	274	240
V/C Ratio(X)	0.53	0.53	0.61	0.54	0.36	0.83
Avail Cap(c_a), veh/h	1293	1322	574	1178	423	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.2	6.2	9.4	6.3	41.8	45.2
Incr Delay (d2), s/veh	0.5	0.5	4.8	1.8	0.8	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.8	12.3	11.7	13.7	5.0	10.7
LnGrp Delay(d),s/veh	6.7	6.8	14.2	8.0	42.6	54.5
LnGrp LOS	A	A	B	A	D	D
Approach Vol, veh/h	1393			983	300	
Approach Delay, s/veh	6.7			10.2	50.5	
Approach LOS	A			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		87.2				87.2		22.8
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		72.0				72.0		26.0
Max Q Clear Time (g_c+I1), s		20.8				40.6		15.6
Green Ext Time (p_c), s		49.8				30.8		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	1059	57	26	590	292	24	14	16	500	33	338
Future Volume (veh/h)	338	1059	57	26	590	292	24	14	16	500	33	338
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1865	1900	1900	1845	1863	1900	1900	1900	1881	1866	1900
Adj Flow Rate, veh/h	356	1115	60	27	621	307	25	15	17	526	35	356
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	3	2	0	0	0	1	0	0
Cap, veh/h	410	1646	89	198	1115	498	285	332	376	614	59	596
Arrive On Green	0.18	0.64	0.64	0.32	0.32	0.32	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1774	3417	184	483	3505	1565	1007	812	920	1379	143	1457
Grp Volume(v), veh/h	356	578	597	27	621	307	25	0	32	526	0	391
Grp Sat Flow(s),veh/h/ln	1774	1771	1829	483	1752	1565	1007	0	1732	1379	0	1600
Q Serve(g_s), s	15.0	22.8	22.8	4.7	16.2	18.3	2.2	0.0	1.2	40.9	0.0	21.0
Cycle Q Clear(g_c), s	15.0	22.8	22.8	9.5	16.2	18.3	23.2	0.0	1.2	42.1	0.0	21.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.53	1.00		0.91
Lane Grp Cap(c), veh/h	410	853	881	198	1115	498	285	0	709	614	0	655
V/C Ratio(X)	0.87	0.68	0.68	0.14	0.56	0.62	0.09	0.00	0.05	0.86	0.00	0.60
Avail Cap(c_a), veh/h	410	853	881	198	1115	498	285	0	709	614	0	655
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.00	0.93
Uniform Delay (d), s/veh	21.5	14.3	14.3	30.7	31.1	31.8	34.5	0.0	19.6	32.2	0.0	25.4
Incr Delay (d2), s/veh	17.7	4.3	4.2	1.4	2.0	5.6	0.6	0.0	0.1	10.8	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.2	17.5	18.2	1.3	12.7	13.5	1.2	0.0	1.1	23.9	0.0	14.4
LnGrp Delay(d),s/veh	39.2	18.6	18.5	32.1	33.1	37.4	35.1	0.0	19.7	43.0	0.0	26.8
LnGrp LOS	D	B	B	C	C	D	D		B	D		C
Approach Vol, veh/h		1531			955			57			917	
Approach Delay, s/veh		23.3			34.5			26.4			36.1	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		59.0		51.0	18.0	41.0		51.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		53.0		45.0	15.0	35.0		45.0
Max Q Clear Time (g_c+I1), s		24.8		44.1	17.0	20.3		25.2
Green Ext Time (p_c), s		26.6		0.7	0.0	14.2		10.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

HCM 2010 AWSC
91: Promenade Circle & North Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	263	52	98	176	193	228
Future Vol, veh/h	263	52	98	176	193	228
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	20	15	21	1	0	19
Mvmt Flow	277	55	103	185	203	240
Number of Lanes	0	2	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	18.2	10.9	13.2
HCM LOS	C	B	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	94%	0%	0%	0%	100%	0%
Vol Thru, %	6%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	35	98	176	193	228
LT Vol	263	0	0	0	193	0
Through Vol	17	35	98	0	0	0
RT Vol	0	0	0	176	0	228
Lane Flow Rate	295	36	103	185	203	240
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.58	0.066	0.194	0.293	0.386	0.396
Departure Headway (Hd)	7.074	6.51	6.76	5.7	6.833	5.946
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	511	550	530	628	526	605
Service Time	4.821	4.257	4.511	3.451	4.58	3.693
HCM Lane V/C Ratio	0.577	0.065	0.194	0.295	0.386	0.397
HCM Control Delay	19.2	9.7	11.1	10.8	13.8	12.6
HCM Lane LOS	C	A	B	B	B	B
HCM 95th-tile Q	3.6	0.2	0.7	1.2	1.8	1.9

HCM 2010 AWSC
92: Promenade Circle & West Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	187	195	133	74	33	118
Future Vol, veh/h	187	195	133	74	33	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	4	5	3	6
Mvmt Flow	197	205	140	78	35	124
Number of Lanes	1	1	0	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	10.5	10.9	9.3
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	84%	0%	100%	0%	0%	0%
Vol Thru, %	16%	100%	0%	0%	100%	9%
Vol Right, %	0%	0%	0%	100%	0%	91%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	158	49	187	195	22	129
LT Vol	133	0	187	0	0	0
Through Vol	25	49	0	0	22	11
RT Vol	0	0	0	195	0	118
Lane Flow Rate	166	52	197	205	23	136
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.285	0.083	0.329	0.274	0.038	0.198
Departure Headway (Hd)	6.192	5.782	6.01	4.804	5.856	5.259
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	576	614	594	741	605	675
Service Time	3.982	3.572	3.786	2.579	3.651	3.053
HCM Lane V/C Ratio	0.288	0.085	0.332	0.277	0.038	0.201
HCM Control Delay	11.5	9.1	11.7	9.4	8.9	9.4
HCM Lane LOS	B	A	B	A	A	A
HCM 95th-tile Q	1.2	0.3	1.4	1.1	0.1	0.7

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	70	64	163	0	25	72
Future Vol, veh/h	70	64	163	0	25	72
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	0	10	0	23	0
Mvmt Flow	74	67	172	0	26	76
Number of Lanes	1	0	2	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	8.3	7.4	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	52%	100%	0%
Vol Thru, %	100%	100%	0%	0%	100%
Vol Right, %	0%	0%	48%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	82	134	25	72
LT Vol	0	0	70	25	0
Through Vol	82	82	0	0	72
RT Vol	0	0	64	0	0
Lane Flow Rate	86	86	141	26	76
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.121	0.077	0.171	0.043	0.104
Departure Headway (Hd)	5.093	3.215	4.353	5.851	4.956
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	706	1115	827	614	725
Service Time	2.81	0.931	2.366	3.57	2.674
HCM Lane V/C Ratio	0.122	0.077	0.17	0.042	0.105
HCM Control Delay	8.5	6.2	8.3	8.8	8.3
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.6	0.1	0.3

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	1221	1415	26
Future Vol, veh/h	0	15	0	1221	1415	26
Conflicting Peds, #/hr	0	0	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	11	0	12	8	19
Mvmt Flow	0	16	0	1285	1489	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2152	764	-	0	-	0
Stage 1	1509	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Critical Hdwy	6.84	7.12	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.41	-	-	-	-
Pot Cap-1 Maneuver	41	327	0	-	-	-
Stage 1	169	-	0	-	-	-
Stage 2	485	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	41	325	-	-	-	-
Mov Cap-2 Maneuver	41	-	-	-	-	-
Stage 1	168	-	-	-	-	-
Stage 2	482	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	325	-	-
HCM Lane V/C Ratio	-	0.049	-	-
HCM Control Delay (s)	-	16.6	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	916	30	0	603	0	20
Future Vol, veh/h	916	30	0	603	0	20
Conflicting Peds, #/hr	0	10	10	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	100	0	7	0	100
Mvmt Flow	964	32	0	635	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	508
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	8.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.3
Pot Cap-1 Maneuver	-	-	0	-	0	318
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	315
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	315	-	-	-
HCM Lane V/C Ratio	0.067	-	-	-
HCM Control Delay (s)	17.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	911	8	0	643	0	1
Future Vol, veh/h	911	8	0	643	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	0	0	7	0	0
Mvmt Flow	959	8	0	677	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	484
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	534
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	534
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	534	-	-	-
HCM Lane V/C Ratio	0.002	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	24	0	1283	1742	135
Future Vol, veh/h	0	24	0	1283	1742	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	24	0	7	1	0
Mvmt Flow	0	25	0	1351	1834	142

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	988	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.58	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.14	-	-	-	-
Pot Cap-1 Maneuver	0	182	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	182	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	182	-	-
HCM Lane V/C Ratio	-	0.139	-	-
HCM Control Delay (s)	-	27.9	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.5	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	22	6	1314	1810	6
Future Vol, veh/h	0	22	6	1314	1810	6
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	3	2	0
Mvmt Flow	0	23	6	1383	1905	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	961	1917	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	5.3	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	3.1	-	-	-
Pot Cap-1 Maneuver	0	223	141	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	222	141	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	141	-	222	-	-
HCM Lane V/C Ratio	0.045	-	0.104	-	-
HCM Control Delay (s)	31.7	-	23.1	-	-
HCM Lane LOS	D	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	1289	970	38	55	45
Future Vol, veh/h	16	1289	970	38	55	45
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	400	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	3	7	6	2	2
Mvmt Flow	17	1357	1021	40	58	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1026	0	-	0	1738	516
Stage 1	-	-	-	-	1026	-
Stage 2	-	-	-	-	712	-
Critical Hdwy	4.26	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.28	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	638	-	-	-	78	504
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	447	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	638	-	-	-	75	502
Mov Cap-2 Maneuver	-	-	-	-	75	-
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	433	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	83.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	638	-	-	-	75	502
HCM Lane V/C Ratio	0.026	-	-	-	0.772	0.094
HCM Control Delay (s)	10.8	-	-	-	140.6	12.9
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.1	-	-	-	3.7	0.3

HCM Signalized Intersection Capacity Analysis
47: Bathurst Street & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	500	316	179	449	50	179	1013	117	128	1254	78
Future Volume (vph)	108	500	316	179	449	50	179	1013	117	128	1254	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1163	3202	1426	1678	3007		3224	3292	1334	1531	3292	982
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1163	3202	1426	1678	3007		3224	3292	1334	1531	3292	982
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	526	333	188	473	53	188	1066	123	135	1320	82
RTOR Reduction (vph)	0	0	212	0	6	0	0	0	85	0	0	55
Lane Group Flow (vph)	114	526	121	188	520	0	188	1066	38	135	1320	27
Confl. Peds. (#/hr)	9		15	15		9	18		8	8		18
Heavy Vehicles (%)	50%	9%	6%	4%	13%	23%	5%	6%	14%	14%	6%	52%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4						6			2
Actuated Green, G (s)	13.0	26.9	26.9	13.0	26.9		17.4	48.5	48.5	19.2	50.3	50.3
Effective Green, g (s)	13.0	26.9	26.9	13.0	26.9		17.4	48.5	48.5	19.2	50.3	50.3
Actuated g/C Ratio	0.08	0.17	0.17	0.08	0.17		0.11	0.31	0.31	0.12	0.32	0.32
Clearance Time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	97	555	247	140	521		361	1030	417	189	1068	318
v/s Ratio Prot	0.10	0.16		c0.11	c0.17		0.06	0.32		c0.09	c0.40	
v/s Ratio Perm			0.08						0.03			0.03
v/c Ratio	1.18	0.95	0.49	1.34	1.00		0.52	1.03	0.09	0.71	1.24	0.08
Uniform Delay, d1	71.0	63.4	57.8	71.0	64.0		64.9	53.2	37.7	65.3	52.4	36.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	146.1	27.2	6.8	194.3	39.1		1.4	37.5	0.1	12.1	114.4	0.1
Delay (s)	217.1	90.6	64.6	265.3	103.1		66.2	90.7	37.8	77.3	166.7	36.5
Level of Service	F	F	E	F	F		E	F	D	E	F	D
Approach Delay (s)		96.5			145.8			82.6			151.9	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM 2000 Control Delay	118.5	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	46.0	
Intersection Capacity Utilization	107.5%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Bathurst Street & East Promenade

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	49	87	138	1190	1727	31
Future Volume (vph)	49	87	138	1190	1727	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	*0.85	*0.85	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	2539	1516	1572	4418	4001	
Flt Permitted	0.95	1.00	0.06	1.00	1.00	
Satd. Flow (perm)	2539	1516	108	4418	4001	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	92	145	1253	1818	33
RTOR Reduction (vph)	0	81	0	0	1	0
Lane Group Flow (vph)	52	11	145	1253	1850	0
Confl. Peds. (#/hr)	2		5			5
Heavy Vehicles (%)	33%	3%	11%	6%	17%	0%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			7	4	8	
Permitted Phases	1	6	4			
Actuated Green, G (s)	16.4	16.4	109.6	109.6	90.0	
Effective Green, g (s)	16.4	16.4	109.6	109.6	90.0	
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.64	
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	297	177	247	3458	2572	
v/s Ratio Prot			c0.07	0.28	c0.46	
v/s Ratio Perm	c0.02	0.01	0.39			
v/c Ratio	0.18	0.06	0.59	0.36	0.72	
Uniform Delay, d1	55.7	55.0	25.5	4.6	16.6	
Progression Factor	1.00	1.00	0.78	3.47	1.00	
Incremental Delay, d2	0.3	0.1	1.9	0.2	1.8	
Delay (s)	56.0	55.1	21.8	16.1	18.4	
Level of Service	E	E	C	B	B	
Approach Delay (s)	55.4			16.7	18.4	
Approach LOS	E			B	B	

Intersection Summary				
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	65.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
93: Promenade Circle & East Promenade

10/21/2019

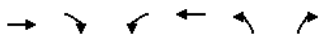
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	52	117	16	14	122	38
Future Volume (Veh/h)	52	117	16	14	122	38
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	55	123	17	15	128	40
Pedestrians			5			20
Lane Width (m)			3.3			3.3
Walking Speed (m/s)			1.0			1.0
Percent Blockage			0			2
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	1					
Upstream signal (m)	75					
pX, platoon unblocked						
vC, conflicting volume	5		258	5	138	135
vC1, stage 1 conf vol			5		130	130
vC2, stage 2 conf vol			253		8	5
vCu, unblocked vol	5		258	5	138	135
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	97		97	99	83	94
cM capacity (veh/h)	1609		600	1065	740	672

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	55	123	17	15	128	40
Volume Left	55	0	0	0	128	0
Volume Right	0	123	0	15	0	0
cSH	1609	1700	600	1065	740	672
Volume to Capacity	0.03	0.07	0.03	0.01	0.17	0.06
Queue Length 95th (m)	0.8	0.0	0.7	0.3	4.7	1.4
Control Delay (s)	7.3	0.0	11.2	8.4	10.9	10.7
Lane LOS	A		B	A	B	B
Approach Delay (s)	2.3		9.9		10.8	
Approach LOS			A		B	

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	28.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
94: South Promenade & Promenade Circle

10/21/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	7	60	51	34	165	40
Future Volume (Veh/h)	7	60	51	34	165	40
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	63	54	36	174	42
Pedestrians				5		
Lane Width (m)				3.3		
Walking Speed (m/s)				1.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					129	
pX, platoon unblocked						
vC, conflicting volume	395	0	356	353	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395	0	356	353	0	
tC, single (s)	6.6	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3	3.5	4.0	2.2	
p0 queue free %	99	94	89	93	89	
cM capacity (veh/h)	474	1082	511	505	1617	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	7	63	54	36	174	42
Volume Left	0	0	54	0	174	0
Volume Right	0	63	0	0	0	42
cSH	474	1082	511	505	1617	1700
Volume to Capacity	0.01	0.06	0.11	0.07	0.11	0.02
Queue Length 95th (m)	0.3	1.4	2.7	1.7	2.7	0.0
Control Delay (s)	12.7	8.5	12.9	12.7	7.5	0.0
Lane LOS	B	A	B	B	A	
Approach Delay (s)	8.9		12.8		6.0	
Approach LOS	A		B			

Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	25.9%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: NB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Clark Avenue	84	56.3	122.7	0.5	20
SE Apartment Access	54	4.4	14.5	0.2	40
East Promenade	53	11.5	25.5	0.2	35
Promenade Circle	52	5.1	16.8	0.2	42
Centre Street	47	57.1	69.9	0.2	12
SmartCentres East Ac	33	5.2	17.5	0.2	40
Beverley Glen Boulev	22	6.6	19.2	0.2	45
Atkinson Avenue	11	28.3	45.3	0.3	23
Total		174.4	331.2	2.0	25

Arterial Level of Service: SB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
New Westminster Driv	11	138.1	348.5	0.3	8
Beverley Glen Boulev	22	5.8	22.5	0.3	46
SmartCentres East Ac	33	5.6	19.6	0.2	45
Centre Street	47	58.7	69.7	0.2	10
Promenade Circle	52	3.9	16.7	0.2	49
East Promenade	53	8.9	18.5	0.2	38
SE Apartment Access	54	4.9	18.2	0.2	49
Clark Avenue	84	47.3	56.7	0.2	10
Total		273.3	570.3	1.9	18

Arterial Level of Service: EB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Carl Tennen Street	41	10.8	31.9	0.4	41
Taiga Drive	42	5.8	23.1	0.3	45
New Westminster Driv	43	54.1	70.9	0.3	15
York Region Transit	44	4.5	15.0	0.2	47
North Promenade	45	19.2	25.0	0.1	15
Promenade Village Ac	46	3.3	14.1	0.2	44
Bathurst Street	47	51.3	58.6	0.1	9
Atkinson Avenue	48	15.5	46.4	0.5	43
Total		164.6	285.0	2.1	27

Arterial Level of Service: WB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Atkinson Avenue	48	10.5	34.3	0.4	42
Bathurst Street	47	69.4	101.5	0.5	20
Promenade Village Ac	46	3.5	12.8	0.1	40
Disera Drive	45	23.4	33.6	0.2	19
York Region Transit	44	2.3	8.5	0.1	44
New Westminster Driv	43	31.4	41.9	0.2	17
Taiga Drive	42	9.0	26.5	0.3	40
Vaughan Boulevard	41	4.7	21.7	0.3	48
Total		154.1	281.0	2.1	28

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	327	23	73	278	179	28	937	36	113	1279	400
Future Volume (veh/h)	278	327	23	73	278	179	28	937	36	113	1279	400
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.91	0.95		0.89	1.00		0.93	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1715	1900	1845	1863	1827	1900	1728	1900	1810	1792	1900
Adj Flow Rate, veh/h	293	344	24	77	293	188	29	986	38	119	1346	421
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	3	2	4	0	10	10	5	7	7
Cap, veh/h	264	629	44	234	616	242	61	1426	55	141	1251	373
Arrive On Green	0.08	0.21	0.21	0.05	0.17	0.17	0.07	0.89	0.89	0.08	0.49	0.49
Sat Flow, veh/h	1670	3071	213	1757	3539	1390	1810	3214	124	1723	2543	757
Grp Volume(v), veh/h	293	181	187	77	293	188	29	504	520	119	878	889
Grp Sat Flow(s),veh/h/ln	1670	1630	1653	1757	1770	1390	1810	1642	1696	1723	1702	1598
Q Serve(g_s), s	11.0	13.9	14.2	5.0	10.4	18.1	2.2	12.5	12.5	9.5	68.9	68.9
Cycle Q Clear(g_c), s	11.0	13.9	14.2	5.0	10.4	18.1	2.2	12.5	12.5	9.5	68.9	68.9
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.07	1.00		0.47
Lane Grp Cap(c), veh/h	264	334	339	234	616	242	61	729	753	141	837	786
V/C Ratio(X)	1.11	0.54	0.55	0.33	0.48	0.78	0.47	0.69	0.69	0.84	1.05	1.13
Avail Cap(c_a), veh/h	264	334	339	263	657	258	103	729	753	160	837	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	49.8	49.9	44.7	52.0	55.2	64.1	5.1	5.1	63.4	35.6	35.6
Incr Delay (d2), s/veh	87.4	1.8	1.9	0.8	0.6	12.8	5.1	4.9	4.8	28.9	44.7	74.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	6.5	6.7	2.5	5.2	7.8	1.2	6.0	6.2	5.7	42.7	46.6
LnGrp Delay(d),s/veh	140.4	51.6	51.8	45.5	52.6	68.0	69.2	10.0	9.8	92.2	80.3	109.8
LnGrp LOS	F	D	D	D	D	E	E	A	A	F	F	F
Approach Vol, veh/h		661			558			1053			1886	
Approach Delay, s/veh		91.0			56.8			11.5			94.9	
Approach LOS		F			E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	76.9	15.7	36.7	17.5	70.1	20.0	32.4
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	64.0	9.0	28.0	13.0	59.0	11.0	26.0
Max Q Clear Time (g_c+I1), s	4.2	70.9	7.0	16.2	11.5	14.5	13.0	20.1
Green Ext Time (p_c), s	0.0	0.0	0.0	7.3	0.1	44.0	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	68.1
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	286	120	45	357	62	117	60	37	86	62	56
Future Volume (veh/h)	68	286	120	45	357	62	117	60	37	86	62	56
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1597	1779	1900	1759	1792	1900	1827	1835	1900	1863	1791	1900
Adj Flow Rate, veh/h	72	301	126	47	376	65	123	63	39	91	65	59
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	19	8	8	8	6	6	4	2	2	2	8	8
Cap, veh/h	446	1119	456	483	1397	239	435	327	203	463	267	242
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	797	2318	945	889	2893	495	1224	1055	653	1272	859	780
Grp Volume(v), veh/h	72	217	210	47	220	221	123	0	102	91	0	124
Grp Sat Flow(s),veh/h/ln	797	1690	1573	889	1703	1685	1224	0	1709	1272	0	1640
Q Serve(g_s), s	3.4	4.4	4.6	1.9	4.4	4.5	4.8	0.0	2.5	3.3	0.0	3.3
Cycle Q Clear(g_c), s	8.0	4.4	4.6	6.5	4.4	4.5	8.1	0.0	2.5	5.8	0.0	3.3
Prop In Lane	1.00		0.60	1.00		0.29	1.00		0.38	1.00		0.48
Lane Grp Cap(c), veh/h	446	816	759	483	822	813	435	0	530	463	0	509
V/C Ratio(X)	0.16	0.27	0.28	0.10	0.27	0.27	0.28	0.00	0.19	0.20	0.00	0.24
Avail Cap(c_a), veh/h	446	816	759	483	822	813	688	0	884	727	0	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	8.9	8.9	10.9	8.9	8.9	17.9	0.0	14.7	16.8	0.0	14.9
Incr Delay (d2), s/veh	0.8	0.8	0.9	0.4	0.8	0.8	0.4	0.0	0.2	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.2	2.2	0.5	2.3	2.3	1.7	0.0	1.2	1.2	0.0	1.5
LnGrp Delay(d),s/veh	12.1	9.7	9.9	11.3	9.7	9.8	18.3	0.0	14.8	17.0	0.0	15.2
LnGrp LOS	B	A	A	B	A	A	B		B	B		B
Approach Vol, veh/h		499			488			225			215	
Approach Delay, s/veh		10.1			9.9			16.7			15.9	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		24.0		34.0		24.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		8.5		10.1		10.0		7.8
Green Ext Time (p_c), s		12.8		4.5		12.1		4.8

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	118	239	38	127	72	90	323	24	45	543	237
Future Volume (veh/h)	215	118	239	38	127	72	90	323	24	45	543	237
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1838	1900	1845	1832	1900	1881	1795	1900	1900	1832	1900
Adj Flow Rate, veh/h	226	124	252	40	134	76	95	340	25	47	572	249
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	3	3	3	1	6	6	0	4	4
Cap, veh/h	388	181	367	239	367	208	322	1582	116	544	1154	501
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1173	539	1096	990	1096	621	666	3217	235	1020	2346	1019
Grp Volume(v), veh/h	226	0	376	40	0	210	95	179	186	47	424	397
Grp Sat Flow(s),veh/h/ln	1173	0	1636	990	0	1717	666	1705	1747	1020	1741	1625
Q Serve(g_s), s	12.5	0.0	13.7	2.5	0.0	6.4	7.7	4.1	4.2	1.9	11.3	11.4
Cycle Q Clear(g_c), s	18.9	0.0	13.7	16.2	0.0	6.4	19.1	4.1	4.2	6.1	11.3	11.4
Prop In Lane	1.00		0.67	1.00		0.36	1.00		0.13	1.00		0.63
Lane Grp Cap(c), veh/h	388	0	548	239	0	575	322	838	859	544	856	799
V/C Ratio(X)	0.58	0.00	0.69	0.17	0.00	0.37	0.29	0.21	0.22	0.09	0.50	0.50
Avail Cap(c_a), veh/h	403	0	568	251	0	596	322	838	859	544	856	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	19.9	26.9	0.0	17.4	18.2	10.0	10.0	11.7	11.8	11.8
Incr Delay (d2), s/veh	2.0	0.0	3.3	0.3	0.0	0.4	2.3	0.6	0.6	0.3	2.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	6.7	0.7	0.0	3.1	1.6	2.1	2.1	0.6	5.9	5.6
LnGrp Delay(d),s/veh	26.6	0.0	23.2	27.2	0.0	17.8	20.6	10.6	10.6	12.0	13.9	14.0
LnGrp LOS	C		C	C		B	C	B	B	B	B	B
Approach Vol, veh/h		602			250			460			868	
Approach Delay, s/veh		24.5			19.3			12.6			13.8	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		29.2		40.0		29.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		21.1		20.9		13.4		18.2
Green Ext Time (p_c), s		12.1		2.2		18.8		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	76	33	914	1218	39
Future Volume (veh/h)	105	76	33	914	1218	39
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1557	1727	1744	1900
Adj Flow Rate, veh/h	111	80	35	962	1282	41
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	22	10	9	9
Cap, veh/h	146	132	55	2631	2365	76
Arrive On Green	0.08	0.08	0.04	0.80	1.00	1.00
Sat Flow, veh/h	1740	1568	1483	3368	3364	105
Grp Volume(v), veh/h	111	80	35	962	648	675
Grp Sat Flow(s),veh/h/ln	1740	1568	1483	1641	1657	1725
Q Serve(g_s), s	8.7	6.9	3.3	11.5	0.0	0.0
Cycle Q Clear(g_c), s	8.7	6.9	3.3	11.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	146	132	55	2631	1196	1245
V/C Ratio(X)	0.76	0.61	0.63	0.37	0.54	0.54
Avail Cap(c_a), veh/h	429	386	85	2631	1196	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	62.7	61.9	66.5	3.9	0.0	0.0
Incr Delay (d2), s/veh	7.8	4.5	11.5	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	3.2	1.5	5.2	0.1	0.1
LnGrp Delay(d),s/veh	70.6	66.3	77.9	4.3	0.2	0.2
LnGrp LOS	E	E	E	A	A	A
Approach Vol, veh/h	191			997	1323	
Approach Delay, s/veh	68.8			6.9	0.2	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	108.5		20.3		119.7		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	8.0	75.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	5.3	2.0		10.7		13.5		
Green Ext Time (p_c), s	0.0	68.4		1.0		70.6		

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	22	22	56	463	761	57		
Future Volume (veh/h)	22	22	56	463	761	57		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1520	1827	1863	1776	1829	1900		
Adj Flow Rate, veh/h	23	23	59	487	801	60		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	25	4	2	7	4	4		
Cap, veh/h	132	142	508	2336	2267	170		
Arrive On Green	0.09	0.09	0.69	0.69	0.69	0.69		
Sat Flow, veh/h	1448	1553	638	3463	3367	245		
Grp Volume(v), veh/h	23	23	59	487	425	436		
Grp Sat Flow(s),veh/h/ln	1448	1553	638	1687	1738	1783		
Q Serve(g_s), s	0.8	0.8	2.3	2.9	5.5	5.5		
Cycle Q Clear(g_c), s	0.8	0.8	7.8	2.9	5.5	5.5		
Prop In Lane	1.00	1.00	1.00			0.14		
Lane Grp Cap(c), veh/h	132	142	508	2336	1203	1234		
V/C Ratio(X)	0.17	0.16	0.12	0.21	0.35	0.35		
Avail Cap(c_a), veh/h	548	588	606	2857	1472	1509		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	23.3	23.2	5.1	3.1	3.5	3.5		
Incr Delay (d2), s/veh	0.6	0.5	0.1	0.0	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.4	1.3	2.7	2.7		
LnGrp Delay(d),s/veh	23.9	23.8	5.2	3.1	3.7	3.7		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	46			546	861			
Approach Delay, s/veh	23.8			3.3	3.7			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		44.4		11.1		44.4		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		47.0		21.0		47.0		
Max Q Clear Time (g_c+I1), s		9.8		2.8		7.5		
Green Ext Time (p_c), s		28.6		0.1		30.0		
Intersection Summary								
HCM 2010 Ctrl Delay			4.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	27	60	7	10	91	254	118	6	213	36
Future Volume (veh/h)	7	0	27	60	7	10	91	254	118	6	213	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1667	1570	1900	1863	1615	1900	1827	1809	1900	1863	1834	1900
Adj Flow Rate, veh/h	7	0	28	63	7	11	96	267	124	6	224	38
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	14	2	2	2	14	14	4	6	6	2	3	3
Cap, veh/h	356	0	246	369	106	166	678	667	310	577	878	149
Arrive On Green	0.19	0.00	0.19	0.19	0.19	0.19	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1203	0	1289	1333	554	871	1066	1154	536	972	1519	258
Grp Volume(v), veh/h	7	0	28	63	0	18	96	0	391	6	0	262
Grp Sat Flow(s),veh/h/ln	1203	0	1289	1333	0	1425	1066	0	1689	972	0	1777
Q Serve(g_s), s	0.2	0.0	0.9	2.1	0.0	0.5	2.5	0.0	6.6	0.2	0.0	3.8
Cycle Q Clear(g_c), s	0.8	0.0	0.9	3.1	0.0	0.5	6.3	0.0	6.6	6.8	0.0	3.8
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.32	1.00		0.15
Lane Grp Cap(c), veh/h	356	0	246	369	0	272	678	0	977	577	0	1027
V/C Ratio(X)	0.02	0.00	0.11	0.17	0.00	0.07	0.14	0.00	0.40	0.01	0.00	0.26
Avail Cap(c_a), veh/h	729	0	646	783	0	714	678	0	977	577	0	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	17.4	18.6	0.0	17.2	7.0	0.0	6.0	7.9	0.0	5.4
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.5	0.0	0.2	0.4	0.0	1.2	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.8	0.0	0.2	0.8	0.0	3.4	0.1	0.0	2.0
LnGrp Delay(d),s/veh	17.6	0.0	17.8	19.1	0.0	17.4	7.4	0.0	7.2	7.9	0.0	6.0
LnGrp LOS	B		B	B		B	A		A	A		A
Approach Vol, veh/h		35			81			487			268	
Approach Delay, s/veh		17.8			18.7			7.3			6.1	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		15.9		36.0		15.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0				
Max Q Clear Time (g_c+I1), s		8.6		2.9		8.8		5.1				
Green Ext Time (p_c), s		14.3		1.5		14.2		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			8.4									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	3	116	36	8	42	54	494	12	26	697	11
Future Volume (veh/h)	13	3	116	36	8	42	54	494	12	26	697	11
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1882	1900	1845	1868	1900	1827	1839	1900	1900	1846	1900
Adj Flow Rate, veh/h	14	3	122	38	8	44	57	520	13	27	734	12
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	3	0	0	4	3	3	0	3	3
Cap, veh/h	369	8	317	312	51	278	452	1943	49	568	1970	32
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1279	38	1560	1245	249	1370	698	3483	87	885	3531	58
Grp Volume(v), veh/h	14	0	125	38	0	52	57	261	272	27	364	382
Grp Sat Flow(s),veh/h/ln	1279	0	1598	1245	0	1619	698	1747	1823	885	1753	1835
Q Serve(g_s), s	0.5	0.0	3.4	1.4	0.0	1.3	2.5	3.9	3.9	0.8	5.8	5.8
Cycle Q Clear(g_c), s	1.8	0.0	3.4	4.8	0.0	1.3	8.3	3.9	3.9	4.7	5.8	5.8
Prop In Lane	1.00		0.98	1.00		0.85	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	369	0	324	312	0	329	452	975	1017	568	978	1024
V/C Ratio(X)	0.04	0.00	0.39	0.12	0.00	0.16	0.13	0.27	0.27	0.05	0.37	0.37
Avail Cap(c_a), veh/h	900	0	987	828	0	1000	452	975	1017	568	978	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	17.3	19.4	0.0	16.5	8.5	5.8	5.8	7.0	6.2	6.2
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.2	0.0	0.2	0.6	0.7	0.6	0.2	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.6	0.5	0.0	0.6	0.5	2.0	2.1	0.2	3.0	3.2
LnGrp Delay(d),s/veh	17.2	0.0	18.0	19.5	0.0	16.7	9.1	6.4	6.4	7.1	7.3	7.2
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		139			90			590			773	
Approach Delay, s/veh		18.0			17.9			6.7			7.2	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		16.2		34.0		16.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		10.3		6.8		7.8		5.4
Green Ext Time (p_c), s		14.7		3.0		16.5		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1027	65	35	662	77	26	37	21	24	29	5
Future Volume (veh/h)	13	1027	65	35	662	77	26	37	21	24	29	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1661	1900	1570	1697	1900	1827	1941	1900	1652	1894	1900
Adj Flow Rate, veh/h	14	1081	68	37	697	81	27	39	22	25	31	5
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	15	15	21	13	13	4	0	0	15	5	5
Cap, veh/h	39	2088	131	59	2069	240	163	115	65	135	157	25
Arrive On Green	0.02	0.69	0.69	0.03	0.48	0.48	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1810	3015	190	1495	2911	338	1330	1162	656	1177	1590	256
Grp Volume(v), veh/h	14	566	583	37	386	392	27	0	61	25	0	36
Grp Sat Flow(s),veh/h/ln	1810	1578	1627	1495	1612	1636	1330	0	1818	1177	0	1846
Q Serve(g_s), s	1.0	22.3	22.4	3.2	19.4	19.4	2.5	0.0	4.1	2.6	0.0	2.3
Cycle Q Clear(g_c), s	1.0	22.3	22.4	3.2	19.4	19.4	4.8	0.0	4.1	6.7	0.0	2.3
Prop In Lane	1.00		0.12	1.00		0.21	1.00		0.36	1.00		0.14
Lane Grp Cap(c), veh/h	39	1093	1126	59	1146	1163	163	0	179	135	0	182
V/C Ratio(X)	0.36	0.52	0.52	0.62	0.34	0.34	0.17	0.00	0.34	0.19	0.00	0.20
Avail Cap(c_a), veh/h	111	1093	1126	92	1146	1163	395	0	497	340	0	504
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.7	9.6	9.6	62.3	14.9	14.9	56.1	0.0	54.7	57.8	0.0	53.9
Incr Delay (d2), s/veh	5.6	1.8	1.7	9.6	0.7	0.7	0.5	0.0	1.1	0.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.1	10.4	1.5	8.9	9.0	0.9	0.0	2.1	0.9	0.0	1.2
LnGrp Delay(d),s/veh	68.3	11.3	11.3	71.9	15.7	15.7	56.6	0.0	55.8	58.4	0.0	54.4
LnGrp LOS	E	B	B	E	B	B	E		E	E		D
Approach Vol, veh/h		1163			815			88			61	
Approach Delay, s/veh		12.0			18.2			56.0			56.0	
Approach LOS		B			B			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	99.9		21.3	11.2	97.5		21.3
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	8.0	64.5		35.5
Max Q Clear Time (g_c+I1), s	3.0	21.4		8.7	5.2	24.4		6.8
Green Ext Time (p_c), s	0.0	38.7		1.7	0.0	36.3		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	82	959	720	27	25	35		
Future Volume (veh/h)	82	959	720	27	25	35		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1776	1667	1686	1900	1827	1792		
Adj Flow Rate, veh/h	86	1009	758	28	26	37		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	7	14	13	13	4	6		
Cap, veh/h	106	2546	2190	81	120	105		
Arrive On Green	0.13	1.00	0.47	0.47	0.07	0.07		
Sat Flow, veh/h	1691	3250	3234	116	1740	1524		
Grp Volume(v), veh/h	86	1009	385	401	26	37		
Grp Sat Flow(s),veh/h/ln	1691	1583	1601	1665	1740	1524		
Q Serve(g_s), s	6.4	0.0	19.9	19.9	1.8	3.0		
Cycle Q Clear(g_c), s	6.4	0.0	19.9	19.9	1.8	3.0		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	106	2546	1113	1158	120	105		
V/C Ratio(X)	0.81	0.40	0.35	0.35	0.22	0.35		
Avail Cap(c_a), veh/h	156	2546	1113	1158	335	293		
HCM Platoon Ratio	2.00	2.00	0.67	0.67	1.00	1.00		
Upstream Filter(I)	0.85	0.85	0.76	0.76	1.00	1.00		
Uniform Delay (d), s/veh	56.1	0.0	15.9	15.9	57.2	57.7		
Incr Delay (d2), s/veh	15.5	0.4	0.7	0.6	0.9	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.5	0.1	9.0	9.4	0.9	1.3		
LnGrp Delay(d),s/veh	71.6	0.4	16.6	16.5	58.1	59.7		
LnGrp LOS	E	A	B	B	E	E		
Approach Vol, veh/h		1095	786		63			
Approach Delay, s/veh		6.0	16.5		59.1			
Approach LOS		A	B		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.1	97.9		18.0		112.0		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	12.0	70.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	8.4	21.9		5.0		2.0		
Green Ext Time (p_c), s	0.1	41.6		0.2		66.9		
Intersection Summary								
HCM 2010 Ctrl Delay			12.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	728	166	72	527	56	167	429	85	73	618	55
Future Volume (veh/h)	82	728	166	72	527	56	167	429	85	73	618	55
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1638	1635	1900	1827	1649	1900	1771	1818	1900	1792	1861	1900
Adj Flow Rate, veh/h	86	766	175	76	555	59	176	452	89	77	651	58
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	16	19	19	4	15	15	3	4	4	6	2	2
Cap, veh/h	106	875	200	95	958	102	294	984	192	322	1011	90
Arrive On Green	0.02	0.12	0.12	0.11	0.67	0.67	0.08	0.34	0.34	0.05	0.31	0.31
Sat Flow, veh/h	1560	2508	573	1740	2857	303	1687	2874	562	1707	3280	292
Grp Volume(v), veh/h	86	474	467	76	304	310	176	270	271	77	351	358
Grp Sat Flow(s),veh/h/ln	1560	1553	1528	1740	1567	1593	1687	1727	1709	1707	1768	1804
Q Serve(g_s), s	7.1	39.1	39.1	5.5	13.6	13.7	9.0	15.9	16.1	3.9	22.2	22.3
Cycle Q Clear(g_c), s	7.1	39.1	39.1	5.5	13.6	13.7	9.0	15.9	16.1	3.9	22.2	22.3
Prop In Lane	1.00		0.38	1.00		0.19	1.00		0.33	1.00		0.16
Lane Grp Cap(c), veh/h	106	542	533	95	525	534	294	592	585	322	545	556
V/C Ratio(X)	0.81	0.88	0.88	0.80	0.58	0.58	0.60	0.46	0.46	0.24	0.64	0.65
Avail Cap(c_a), veh/h	156	542	533	107	525	534	306	618	611	340	578	590
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	62.7	54.7	54.7	57.3	16.5	16.5	28.4	33.3	33.4	28.6	38.8	38.8
Incr Delay (d2), s/veh	16.9	16.7	16.9	31.3	4.6	4.6	3.0	0.6	0.6	0.4	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	19.3	19.1	3.5	6.4	6.5	4.4	7.7	7.7	1.9	11.2	11.5
LnGrp Delay(d),s/veh	79.6	71.4	71.7	88.5	21.0	21.0	31.4	33.9	34.0	28.9	41.0	41.0
LnGrp LOS	E	E	E	F	C	C	C	C	C	C	D	D
Approach Vol, veh/h		1027			690			717			786	
Approach Delay, s/veh		72.2			28.5			33.3			39.8	
Approach LOS		E			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	51.6	15.0	48.6	13.1	53.3	10.6	53.0				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	13.0	36.0	12.0	42.5	8.0	41.0	8.0	46.5				
Max Q Clear Time (g_c+I1), s	9.1	15.7	11.0	24.3	7.5	41.1	5.9	18.1				
Green Ext Time (p_c), s	0.1	17.9	0.1	14.9	0.0	0.0	0.0	21.5				
Intersection Summary												
HCM 2010 Ctrl Delay			46.3									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	751	124	103	475	65	51	275	99	68	193	37
Future Volume (veh/h)	121	751	124	103	475	65	51	275	99	68	193	37
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1855	1900	1557	1828	1900	1863	1597	1696	1473	1708	1900
Adj Flow Rate, veh/h	127	791	131	108	500	68	54	289	104	72	203	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	150	1366	226	127	1397	189	237	451	408	152	394	76
Arrive On Green	0.17	0.91	0.91	0.09	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3004	497	1483	3062	415	1133	1597	1442	780	1393	268
Grp Volume(v), veh/h	127	464	458	108	282	286	54	289	104	72	0	242
Grp Sat Flow(s),veh/h/ln	1774	1762	1739	1483	1736	1741	1133	1597	1442	780	0	1661
Q Serve(g_s), s	9.0	6.5	6.5	9.3	13.7	13.9	5.5	20.6	7.2	11.6	0.0	15.9
Cycle Q Clear(g_c), s	9.0	6.5	6.5	9.3	13.7	13.9	21.4	20.6	7.2	32.2	0.0	15.9
Prop In Lane	1.00		0.29	1.00		0.24	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	150	802	791	127	792	794	237	451	408	152	0	469
V/C Ratio(X)	0.85	0.58	0.58	0.85	0.36	0.36	0.23	0.64	0.26	0.47	0.00	0.52
Avail Cap(c_a), veh/h	164	802	791	137	792	794	248	467	421	160	0	486
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	53.2	3.5	3.5	58.6	23.0	23.0	48.1	40.8	36.1	54.9	0.0	39.2
Incr Delay (d2), s/veh	30.3	3.0	3.1	35.3	1.3	1.3	0.5	2.8	0.3	2.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.5	3.5	5.1	6.9	6.9	1.7	9.4	2.9	2.6	0.0	7.4
LnGrp Delay(d),s/veh	83.5	6.5	6.6	93.9	24.2	24.3	48.6	43.7	36.4	57.2	0.0	40.0
LnGrp LOS	F	A	A	F	C	C	D	D	D	E		D
Approach Vol, veh/h		1049			676			447			314	
Approach Delay, s/veh		15.9			35.4			42.6			44.0	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		45.7	17.1	67.1		45.7
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	12.0	57.0		38.0	12.0	57.0		38.0
Max Q Clear Time (g_c+I1), s	11.0	15.9		34.2	11.3	8.5		23.4
Green Ext Time (p_c), s	0.0	31.3		2.6	0.0	35.5		7.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	450	205	53	404	146	129	322	29	163	627	107
Future Volume (veh/h)	93	450	205	53	404	146	129	322	29	163	627	107
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1787	1900	1776	1791	1900	1759	1833	1900	1827	1850	1900
Adj Flow Rate, veh/h	98	474	216	56	425	154	136	339	31	172	660	113
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	6	6	7	5	5	8	4	4	4	3	3
Cap, veh/h	485	1321	598	420	1427	512	133	900	82	274	836	143
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	815	2272	1029	715	2455	881	654	3225	293	983	2997	512
Grp Volume(v), veh/h	98	353	337	56	293	286	136	182	188	172	387	386
Grp Sat Flow(s),veh/h/ln	815	1698	1603	715	1702	1634	654	1741	1777	983	1757	1752
Q Serve(g_s), s	6.0	9.5	9.6	3.9	7.5	7.6	6.5	7.2	7.3	14.7	17.5	17.5
Cycle Q Clear(g_c), s	13.6	9.5	9.6	13.4	7.5	7.6	24.0	7.2	7.3	22.0	17.5	17.5
Prop In Lane	1.00		0.64	1.00		0.54	1.00		0.16	1.00		0.29
Lane Grp Cap(c), veh/h	485	987	932	420	989	950	133	486	496	274	490	489
V/C Ratio(X)	0.20	0.36	0.36	0.13	0.30	0.30	1.02	0.37	0.38	0.63	0.79	0.79
Avail Cap(c_a), veh/h	485	987	932	420	989	950	133	486	496	274	490	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	9.5	9.5	13.1	9.1	9.1	41.8	25.0	25.0	33.9	28.7	28.7
Incr Delay (d2), s/veh	0.9	1.0	1.1	0.7	0.8	0.8	84.5	1.0	1.0	6.4	9.6	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.7	4.5	0.8	3.7	3.6	6.3	3.6	3.7	4.5	9.8	9.8
LnGrp Delay(d),s/veh	13.5	10.5	10.6	13.8	9.9	9.9	126.6	26.0	26.0	40.3	38.2	38.4
LnGrp LOS	B	B	B	B	A	A	F	C	C	D	D	D
Approach Vol, veh/h		788			635			506			945	
Approach Delay, s/veh		10.9			10.2			53.0			38.7	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		15.4		26.0		15.6		24.0
Green Ext Time (p_c), s		33.1		0.0		33.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	224	279	91	92	68	130	438	96	86	660	72
Future Volume (veh/h)	127	224	279	91	92	68	130	438	96	86	660	72
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.99	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1829	1900	1900	1785	1900	1845	1806	1900	1776	1845	1900
Adj Flow Rate, veh/h	134	236	294	96	97	72	137	461	101	91	695	76
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	8	8	8	3	5	5	7	3	3
Cap, veh/h	375	245	305	104	287	213	407	1450	316	395	1217	133
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1153	735	915	44	860	639	1757	2797	609	799	3181	348
Grp Volume(v), veh/h	134	0	530	96	0	169	137	282	280	91	383	388
Grp Sat Flow(s),veh/h/ln	1153	0	1650	44	0	1499	1757	1716	1690	799	1752	1776
Q Serve(g_s), s	8.0	0.0	25.6	1.4	0.0	6.9	3.4	7.7	7.8	6.4	14.0	14.0
Cycle Q Clear(g_c), s	14.9	0.0	25.6	27.0	0.0	6.9	3.4	7.7	7.8	6.4	14.0	14.0
Prop In Lane	1.00		0.55	1.00		0.43	1.00		0.36	1.00		0.20
Lane Grp Cap(c), veh/h	375	0	550	104	0	500	407	890	876	395	671	680
V/C Ratio(X)	0.36	0.00	0.96	0.93	0.00	0.34	0.34	0.32	0.32	0.23	0.57	0.57
Avail Cap(c_a), veh/h	375	0	550	104	0	500	407	890	876	395	671	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	0.0	26.5	40.4	0.0	20.3	12.7	11.2	11.3	17.4	19.7	19.8
Incr Delay (d2), s/veh	0.6	0.0	29.4	65.2	0.0	0.4	2.2	0.9	1.0	1.4	3.5	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	16.1	4.0	0.0	2.9	1.9	3.8	3.8	1.6	7.3	7.5
LnGrp Delay(d),s/veh	26.4	0.0	55.9	105.6	0.0	20.7	14.9	12.2	12.2	18.8	23.2	23.2
LnGrp LOS	C		E	F		C	B	B	B	B	C	C
Approach Vol, veh/h		664			265			699			862	
Approach Delay, s/veh		49.9			51.4			12.7			22.8	
Approach LOS		D			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.4	16.0		29.0		9.8		27.6
Green Ext Time (p_c), s	0.1	13.4		0.0		26.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	3	42	13	2	33	15	439	15	62	804	20
Future Volume (veh/h)	48	3	42	13	2	33	15	439	15	62	804	20
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1840	1900	1900	1762	1900	1900	1811	1900	1900	1814	1900
Adj Flow Rate, veh/h	51	3	44	14	2	35	16	462	16	65	846	21
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	25	25	25	5	5	5	4	4	4
Cap, veh/h	202	38	106	124	42	162	100	1936	66	164	1863	45
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	584	242	673	204	266	1027	38	3217	110	136	3095	75
Grp Volume(v), veh/h	98	0	0	51	0	0	256	0	238	473	0	459
Grp Sat Flow(s),veh/h/ln	1499	0	0	1496	0	0	1737	0	1627	1670	0	1636
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	7.7
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.4	0.0	0.0	3.3	0.0	3.4	7.0	0.0	7.7
Prop In Lane	0.52		0.45	0.27		0.69	0.06		0.07	0.14		0.05
Lane Grp Cap(c), veh/h	346	0	0	328	0	0	1122	0	979	1087	0	985
V/C Ratio(X)	0.28	0.00	0.00	0.16	0.00	0.00	0.23	0.00	0.24	0.44	0.00	0.47
Avail Cap(c_a), veh/h	929	0	0	906	0	0	1122	0	979	1087	0	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	0.0	0.0	18.3	0.0	0.0	4.6	0.0	4.6	5.4	0.0	5.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.6	1.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.6	0.0	0.0	1.8	0.0	1.7	3.8	0.0	3.9
LnGrp Delay(d),s/veh	19.2	0.0	0.0	18.5	0.0	0.0	5.1	0.0	5.2	6.6	0.0	7.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		98			51			494			932	
Approach Delay, s/veh		19.2			18.5			5.1			6.8	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		13.9		36.0		13.9
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		5.4		3.4		9.7		4.7
Green Ext Time (p_c), s		20.6		2.2		17.4		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	70	169	51	13	101	9	573	35	33	471	9
Future Volume (veh/h)	99	70	169	51	13	101	9	573	35	33	471	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1725	1900	1900	1782	1900	1900	1816	1900	1900	1808	1900
Adj Flow Rate, veh/h	104	74	178	54	14	106	9	603	37	35	496	9
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	8	8	18	18	18	4	4	4	5	5	5
Cap, veh/h	203	145	260	212	83	321	75	1331	81	118	1305	23
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	321	402	723	342	231	893	13	3212	195	100	3150	56
Grp Volume(v), veh/h	356	0	0	174	0	0	342	0	307	276	0	264
Grp Sat Flow(s),veh/h/ln	1446	0	0	1465	0	0	1802	0	1618	1671	0	1635
Q Serve(g_s), s	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	6.0
Cycle Q Clear(g_c), s	10.8	0.0	0.0	4.1	0.0	0.0	7.2	0.0	7.3	5.6	0.0	6.0
Prop In Lane	0.29		0.50	0.31		0.61	0.03		0.12	0.13		0.03
Lane Grp Cap(c), veh/h	608	0	0	616	0	0	816	0	670	768	0	678
V/C Ratio(X)	0.59	0.00	0.00	0.28	0.00	0.00	0.42	0.00	0.46	0.36	0.00	0.39
Avail Cap(c_a), veh/h	790	0	0	792	0	0	816	0	670	768	0	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	12.2	0.0	0.0	11.2	0.0	11.2	10.8	0.0	10.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.2	0.0	0.0	1.6	0.0	2.2	1.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	1.9	0.0	0.0	4.0	0.0	3.7	3.0	0.0	3.0
LnGrp Delay(d),s/veh	15.1	0.0	0.0	12.5	0.0	0.0	12.8	0.0	13.5	12.1	0.0	12.5
LnGrp LOS	B			B			B		B	B		B
Approach Vol, veh/h		356			174			649			540	
Approach Delay, s/veh		15.1			12.5			13.1			12.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		25.1		28.0		25.1
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		9.3		12.8		8.0		6.1
Green Ext Time (p_c), s		10.4		6.3		11.4		8.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	10	38	99	10	39	52	552	39	15	656	23
Future Volume (veh/h)	25	10	38	99	10	39	52	552	39	15	656	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1793	1900	1900	1856	1900	1900	1798	1900	1900	1818	1900
Adj Flow Rate, veh/h	26	11	40	104	11	41	55	581	41	16	691	24
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	0	0	0	6	6	6	4	4	4
Cap, veh/h	173	88	182	318	47	89	165	1521	105	86	1776	61
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	351	389	800	890	205	390	155	2811	194	24	3282	112
Grp Volume(v), veh/h	77	0	0	156	0	0	338	0	339	382	0	349
Grp Sat Flow(s),veh/h/ln	1540	0	0	1485	0	0	1559	0	1601	1785	0	1633
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	6.4	0.0	0.0	6.4
Cycle Q Clear(g_c), s	2.0	0.0	0.0	4.4	0.0	0.0	5.5	0.0	6.4	6.3	0.0	6.4
Prop In Lane	0.34		0.52	0.67		0.26	0.16		0.12	0.04		0.07
Lane Grp Cap(c), veh/h	443	0	0	453	0	0	924	0	866	1039	0	884
V/C Ratio(X)	0.17	0.00	0.00	0.34	0.00	0.00	0.37	0.00	0.39	0.37	0.00	0.39
Avail Cap(c_a), veh/h	818	0	0	818	0	0	924	0	866	1039	0	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	17.0	0.0	0.0	6.7	0.0	6.9	6.9	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	1.1	0.0	1.3	1.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	2.0	0.0	0.0	3.0	0.0	3.0	3.4	0.0	3.1
LnGrp Delay(d),s/veh	16.4	0.0	0.0	17.5	0.0	0.0	7.8	0.0	8.2	7.9	0.0	8.2
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		77			156			677			731	
Approach Delay, s/veh		16.4			17.5			8.0			8.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.7		34.0		17.7		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		6.4		8.4		4.0		8.4
Green Ext Time (p_c), s		3.2		16.7		3.4		16.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	959	111	177	544	101	80	318	181	133	574	96
Future Volume (veh/h)	263	959	111	177	544	101	80	318	181	133	574	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1845	1863	1827	1900	1863	1900	1881	1876	1900
Adj Flow Rate, veh/h	277	1009	117	186	573	106	84	335	191	140	604	101
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	0	3	2	4	0	2	2	1	1	1
Cap, veh/h	349	1317	600	238	1330	577	303	727	406	363	1032	172
Arrive On Green	0.06	0.38	0.38	0.02	0.12	0.12	0.06	0.33	0.33	0.06	0.34	0.34
Sat Flow, veh/h	1774	3505	1596	1757	3539	1534	1810	2181	1217	1792	3051	509
Grp Volume(v), veh/h	277	1009	117	186	573	106	84	270	256	140	352	353
Grp Sat Flow(s),veh/h/ln	1774	1752	1596	1757	1770	1534	1810	1770	1628	1792	1782	1778
Q Serve(g_s), s	7.0	27.8	5.4	7.0	16.5	6.8	3.3	13.2	13.7	5.6	17.9	18.0
Cycle Q Clear(g_c), s	7.0	27.8	5.4	7.0	16.5	6.8	3.3	13.2	13.7	5.6	17.9	18.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		0.29
Lane Grp Cap(c), veh/h	349	1317	600	238	1330	577	303	590	543	363	603	601
V/C Ratio(X)	0.79	0.77	0.20	0.78	0.43	0.18	0.28	0.46	0.47	0.39	0.58	0.59
Avail Cap(c_a), veh/h	349	1317	600	238	1330	577	312	643	592	363	648	647
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	30.1	23.1	26.3	37.3	33.1	22.9	28.9	29.0	22.7	30.0	30.1
Incr Delay (d2), s/veh	11.9	4.3	0.7	15.3	1.0	0.7	0.5	0.6	0.6	0.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	14.2	2.5	3.3	8.3	3.0	1.7	6.6	6.2	2.8	9.0	9.0
LnGrp Delay(d),s/veh	41.0	34.4	23.8	41.6	38.3	33.8	23.4	29.4	29.6	23.4	31.2	31.3
LnGrp LOS	D	C	C	D	D	C	C	C	C	C	C	C
Approach Vol, veh/h		1403			865			610			845	
Approach Delay, s/veh		34.8			38.5			28.7			29.9	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	47.3	9.5	43.2	10.0	47.3	10.0	42.7
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	7.0	40.0
Max Q Clear Time (g_c+I1), s	9.0	29.8	5.3	20.0	9.0	18.5	7.6	15.7
Green Ext Time (p_c), s	0.0	7.9	0.0	16.1	0.0	18.0	0.0	19.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	1212	835	142	96	17
Future Volume (veh/h)	67	1212	835	142	96	17
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1845	1863	1827	1863	1792
Adj Flow Rate, veh/h	71	1276	879	149	101	18
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	2	4	2	6
Cap, veh/h	486	2750	2481	1077	188	162
Arrive On Green	0.04	0.53	0.70	0.70	0.11	0.11
Sat Flow, veh/h	1740	3597	3632	1536	1774	1524
Grp Volume(v), veh/h	71	1276	879	149	101	18
Grp Sat Flow(s),veh/h/ln	1740	1752	1770	1536	1774	1524
Q Serve(g_s), s	1.1	25.1	10.9	3.5	5.9	1.2
Cycle Q Clear(g_c), s	1.1	25.1	10.9	3.5	5.9	1.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	486	2750	2481	1077	188	162
V/C Ratio(X)	0.15	0.46	0.35	0.14	0.54	0.11
Avail Cap(c_a), veh/h	498	2750	2481	1077	629	540
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.8	11.6	6.5	5.4	46.6	44.5
Incr Delay (d2), s/veh	0.1	0.6	0.4	0.3	2.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	12.4	5.4	1.6	3.0	1.1
LnGrp Delay(d),s/veh	4.0	12.1	6.9	5.7	48.9	44.8
LnGrp LOS	A	B	A	A	D	D
Approach Vol, veh/h		1347	1028		119	
Approach Delay, s/veh		11.7	6.8		48.3	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		92.3		17.7	9.2	83.1		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		59.0		39.0	7.0	49.0		
Max Q Clear Time (g_c+I1), s		27.1		7.9	3.1	12.9		
Green Ext Time (p_c), s		30.8		0.6	0.1	34.8		

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	880	305	142	571	158	287	1143	234	213	1466	150
Future Volume (veh/h)	97	880	305	142	571	158	287	1143	234	213	1466	150
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1696	1792	1863	1743	1776	1792	1792	1792	1900	1792	1794	1900
Adj Flow Rate, veh/h	102	926	321	149	601	166	302	1203	246	224	1543	158
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	6	2	9	7	6	6	6	6	6	6	6
Cap, veh/h	247	1116	507	166	1105	488	234	1383	283	248	1512	155
Arrive On Green	0.05	0.33	0.33	0.05	0.33	0.33	0.11	0.36	0.36	0.03	0.12	0.12
Sat Flow, veh/h	1616	3406	1549	1660	3374	1490	1707	3878	793	1707	4309	441
Grp Volume(v), veh/h	102	926	321	149	601	166	302	945	504	224	1092	609
Grp Sat Flow(s),veh/h/ln	1616	1703	1549	1660	1687	1490	1707	1524	1624	1707	1525	1700
Q Serve(g_s), s	5.9	35.2	24.6	7.0	20.4	11.8	15.0	40.5	40.5	12.1	49.1	49.1
Cycle Q Clear(g_c), s	5.9	35.2	24.6	7.0	20.4	11.8	15.0	40.5	40.5	12.1	49.1	49.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.26
Lane Grp Cap(c), veh/h	247	1116	507	166	1105	488	234	1086	579	248	1070	597
V/C Ratio(X)	0.41	0.83	0.63	0.90	0.54	0.34	1.29	0.87	0.87	0.90	1.02	1.02
Avail Cap(c_a), veh/h	247	1119	509	166	1109	490	234	1086	579	258	1070	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	43.5	39.9	41.4	38.5	35.6	44.2	42.0	42.0	38.4	61.9	61.9
Incr Delay (d2), s/veh	1.1	5.4	2.5	32.9	0.4	0.3	158.1	9.5	16.3	31.0	32.6	42.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	17.4	10.9	5.4	9.6	4.9	19.3	18.5	20.8	10.8	25.6	30.2
LnGrp Delay(d),s/veh	31.8	48.8	42.5	74.2	38.9	35.9	202.3	51.5	58.3	69.4	94.5	104.2
LnGrp LOS	C	D	D	E	D	D	F	D	E	E	F	F
Approach Vol, veh/h		1349			916			1751			1925	
Approach Delay, s/veh		46.0			44.1			79.5			94.6	
Approach LOS		D			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	56.6	11.0	53.4	18.2	57.4	11.0	53.4
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	15.0	49.0	7.0	46.0	15.0	49.0	7.0	46.0
Max Q Clear Time (g_c+I1), s	17.0	51.1	9.0	37.2	14.1	42.5	7.9	22.4
Green Ext Time (p_c), s	0.0	0.0	0.0	8.5	0.1	6.5	0.0	21.7

Intersection Summary	
HCM 2010 Ctrl Delay	71.3
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1216	107	110	824	95	190
Future Volume (veh/h)	1216	107	110	824	95	190
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1847	1881	1845
Adj Flow Rate, veh/h	1280	113	116	867	100	200
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	1	3
Cap, veh/h	2403	212	196	1555	274	240
Arrive On Green	0.74	0.74	0.74	0.74	0.15	0.15
Sat Flow, veh/h	3349	287	207	2192	1792	1568
Grp Volume(v), veh/h	687	706	351	632	100	200
Grp Sat Flow(s),veh/h/ln	1752	1792	719	1597	1792	1568
Q Serve(g_s), s	18.6	18.8	19.9	18.9	5.5	13.6
Cycle Q Clear(g_c), s	18.6	18.8	38.6	18.9	5.5	13.6
Prop In Lane		0.16	0.33		1.00	1.00
Lane Grp Cap(c), veh/h	1293	1322	574	1178	274	240
V/C Ratio(X)	0.53	0.53	0.61	0.54	0.36	0.83
Avail Cap(c_a), veh/h	1293	1322	574	1178	423	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.2	6.2	9.4	6.3	41.8	45.2
Incr Delay (d2), s/veh	0.5	0.5	4.8	1.8	0.8	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	9.4	7.3	8.8	2.8	6.5
LnGrp Delay(d),s/veh	6.7	6.8	14.2	8.0	42.6	54.5
LnGrp LOS	A	A	B	A	D	D
Approach Vol, veh/h	1393			983	300	
Approach Delay, s/veh	6.7			10.2	50.5	
Approach LOS	A			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		87.2				87.2		22.8
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		72.0				72.0		26.0
Max Q Clear Time (g_c+I1), s		20.8				40.6		15.6
Green Ext Time (p_c), s		49.8				30.8		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	1059	57	26	590	292	24	14	16	500	33	338
Future Volume (veh/h)	338	1059	57	26	590	292	24	14	16	500	33	338
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1865	1900	1900	1845	1863	1900	1900	1900	1881	1866	1900
Adj Flow Rate, veh/h	356	1115	60	27	621	307	25	15	17	526	35	356
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	3	2	0	0	0	1	0	0
Cap, veh/h	410	1646	89	198	1115	498	285	332	376	614	59	596
Arrive On Green	0.18	0.64	0.64	0.32	0.32	0.32	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1774	3417	184	483	3505	1565	1007	812	920	1379	143	1457
Grp Volume(v), veh/h	356	578	597	27	621	307	25	0	32	526	0	391
Grp Sat Flow(s),veh/h/ln	1774	1771	1829	483	1752	1565	1007	0	1732	1379	0	1600
Q Serve(g_s), s	15.0	22.8	22.8	4.7	16.2	18.3	2.2	0.0	1.2	40.9	0.0	21.0
Cycle Q Clear(g_c), s	15.0	22.8	22.8	9.5	16.2	18.3	23.2	0.0	1.2	42.1	0.0	21.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.53	1.00		0.91
Lane Grp Cap(c), veh/h	410	853	881	198	1115	498	285	0	709	614	0	655
V/C Ratio(X)	0.87	0.68	0.68	0.14	0.56	0.62	0.09	0.00	0.05	0.86	0.00	0.60
Avail Cap(c_a), veh/h	410	853	881	198	1115	498	285	0	709	614	0	655
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.00	0.93
Uniform Delay (d), s/veh	21.5	14.3	14.3	30.7	31.1	31.8	34.5	0.0	19.6	32.2	0.0	25.4
Incr Delay (d2), s/veh	17.7	4.3	4.2	1.4	2.0	5.6	0.6	0.0	0.1	10.8	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	11.8	12.4	0.7	8.1	8.7	0.7	0.0	0.6	17.3	0.0	9.5
LnGrp Delay(d),s/veh	39.2	18.6	18.5	32.1	33.1	37.4	35.1	0.0	19.7	43.0	0.0	26.8
LnGrp LOS	D	B	B	C	C	D	D		B	D		C
Approach Vol, veh/h		1531			955			57			917	
Approach Delay, s/veh		23.3			34.5			26.4			36.1	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		59.0		51.0	18.0	41.0		51.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		53.0		45.0	15.0	35.0		45.0
Max Q Clear Time (g_c+I1), s		24.8		44.1	17.0	20.3		25.2
Green Ext Time (p_c), s		26.6		0.7	0.0	14.2		10.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	297	12	96	330	373	27	1237	35	159	1336	258
Future Volume (veh/h)	278	297	12	96	330	373	27	1237	35	159	1336	258
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1757	1900	1900	1863	1810	1900	1795	1900	1845	1824	1900
Adj Flow Rate, veh/h	293	313	13	101	347	393	28	1302	37	167	1406	272
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0	2	5	0	6	6	3	4	4
Cap, veh/h	260	696	29	293	657	278	60	1378	39	176	1374	261
Arrive On Green	0.09	0.21	0.21	0.06	0.19	0.19	0.02	0.27	0.27	0.10	0.47	0.47
Sat Flow, veh/h	1670	3263	135	1810	3539	1498	1810	3386	96	1757	2900	551
Grp Volume(v), veh/h	293	160	166	101	347	393	28	655	684	167	830	848
Grp Sat Flow(s),veh/h/ln	1670	1669	1729	1810	1770	1498	1810	1705	1776	1757	1733	1717
Q Serve(g_s), s	12.0	11.6	11.7	6.3	12.4	26.0	2.1	52.7	52.8	13.2	66.4	66.4
Cycle Q Clear(g_c), s	12.0	11.6	11.7	6.3	12.4	26.0	2.1	52.7	52.8	13.2	66.4	66.4
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.05	1.00		0.32
Lane Grp Cap(c), veh/h	260	356	369	293	657	278	60	694	723	176	821	814
V/C Ratio(X)	1.13	0.45	0.45	0.34	0.53	1.41	0.47	0.94	0.95	0.95	1.01	1.04
Avail Cap(c_a), veh/h	260	356	369	305	657	278	103	694	723	176	821	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	47.9	47.9	42.6	51.5	57.0	67.2	49.3	49.4	62.7	36.8	36.8
Incr Delay (d2), s/veh	94.8	0.9	0.9	0.7	0.7	204.5	4.8	20.6	20.2	53.4	33.9	43.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	5.4	5.7	3.2	6.1	26.5	1.2	28.8	30.0	9.1	39.5	41.2
LnGrp Delay(d),s/veh	145.5	48.8	48.8	43.3	52.2	261.5	72.0	69.9	69.6	116.1	70.8	79.9
LnGrp LOS	F	D	D	D	D	F	E	E	E	F	F	F
Approach Vol, veh/h		619			841			1367			1845	
Approach Delay, s/veh		94.6			148.9			69.8			79.1	
Approach LOS		F			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	74.4	17.1	37.9	20.0	65.0	21.0	34.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	63.0	9.0	29.0	14.0	57.0	12.0	26.0
Max Q Clear Time (g_c+I1), s	4.1	68.4	8.3	13.7	15.2	54.8	14.0	28.0
Green Ext Time (p_c), s	0.0	0.0	0.0	9.9	0.0	2.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	91.0
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	197	146	12	675	137	62	22	8	19	22	63
Future Volume (veh/h)	145	197	146	12	675	137	62	22	8	19	22	63
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1834	1900	1900	1821	1900	1863	1781	1900	1810	1849	1900
Adj Flow Rate, veh/h	153	207	154	13	711	144	65	23	8	20	23	66
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	4	4	0	5	5	2	9	9	5	5	5
Cap, veh/h	398	1064	753	646	1565	317	365	276	96	410	92	263
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	648	1946	1377	1033	2865	580	1288	1259	438	1317	418	1199
Grp Volume(v), veh/h	153	184	177	13	429	426	65	0	31	20	0	89
Grp Sat Flow(s),veh/h/ln	648	1743	1581	1033	1730	1714	1288	0	1697	1317	0	1617
Q Serve(g_s), s	9.6	2.7	2.9	0.3	7.7	7.7	2.2	0.0	0.7	0.6	0.0	2.3
Cycle Q Clear(g_c), s	17.2	2.7	2.9	3.3	7.7	7.7	4.6	0.0	0.7	1.4	0.0	2.3
Prop In Lane	1.00		0.87	1.00		0.34	1.00		0.26	1.00		0.74
Lane Grp Cap(c), veh/h	398	952	864	646	945	937	365	0	372	410	0	355
V/C Ratio(X)	0.38	0.19	0.20	0.02	0.45	0.45	0.18	0.00	0.08	0.05	0.00	0.25
Avail Cap(c_a), veh/h	398	952	864	646	945	937	836	0	993	892	0	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	5.9	5.9	6.8	7.0	7.0	18.4	0.0	15.9	16.4	0.0	16.5
Incr Delay (d2), s/veh	2.8	0.5	0.5	0.1	1.6	1.6	0.2	0.0	0.1	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.4	1.4	0.1	4.0	4.0	0.8	0.0	0.4	0.2	0.0	1.1
LnGrp Delay(d),s/veh	15.0	6.3	6.5	6.8	8.6	8.6	18.6	0.0	16.0	16.5	0.0	16.9
LnGrp LOS	B	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		514			868			96			109	
Approach Delay, s/veh		9.0			8.6			17.8			16.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		17.2		34.0		17.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		9.7		6.6		19.2		4.3
Green Ext Time (p_c), s		15.4		2.2		7.8		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	202	187	44	309	91	203	485	42	95	547	334
Future Volume (veh/h)	127	202	187	44	309	91	203	485	42	95	547	334
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1872	1900	1827	1841	1900	1863	1833	1900	1900	1851	1900
Adj Flow Rate, veh/h	134	213	197	46	325	96	214	511	44	100	576	352
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	4	3	3	2	4	4	0	3	3
Cap, veh/h	233	306	283	233	467	138	276	1574	135	438	1015	620
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	950	893	826	951	1363	403	599	3242	278	862	2089	1276
Grp Volume(v), veh/h	134	0	410	46	0	421	214	274	281	100	485	443
Grp Sat Flow(s),veh/h/ln	950	0	1720	951	0	1766	599	1741	1779	862	1759	1606
Q Serve(g_s), s	9.6	0.0	14.4	3.1	0.0	14.4	20.3	6.7	6.8	5.6	13.7	13.7
Cycle Q Clear(g_c), s	24.0	0.0	14.4	17.5	0.0	14.4	34.0	6.7	6.8	12.4	13.7	13.7
Prop In Lane	1.00		0.48	1.00		0.23	1.00		0.16	1.00		0.79
Lane Grp Cap(c), veh/h	233	0	590	233	0	606	276	846	864	438	854	780
V/C Ratio(X)	0.57	0.00	0.70	0.20	0.00	0.70	0.77	0.32	0.33	0.23	0.57	0.57
Avail Cap(c_a), veh/h	233	0	590	233	0	606	276	846	864	438	854	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	19.8	27.4	0.0	19.8	26.8	11.0	11.0	14.8	12.8	12.8
Incr Delay (d2), s/veh	3.4	0.0	3.5	0.4	0.0	3.5	18.9	1.0	1.0	1.2	2.7	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	7.4	0.8	0.0	7.6	5.5	3.4	3.5	1.5	7.2	6.7
LnGrp Delay(d),s/veh	33.7	0.0	23.4	27.8	0.0	23.3	45.6	12.0	12.0	16.0	15.5	15.8
LnGrp LOS	C		C	C		C	D	B	B	B	B	B
Approach Vol, veh/h		544			467			769			1028	
Approach Delay, s/veh		25.9			23.7			21.4			15.7	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		30.0		40.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		36.0		26.0		15.7		19.5
Green Ext Time (p_c), s		0.0		0.0		16.9		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	58	133	1206	1357	79
Future Volume (veh/h)	88	58	133	1206	1357	79
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1792	1863	1776	1779	1900
Adj Flow Rate, veh/h	93	61	140	1269	1428	83
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	7	7	7
Cap, veh/h	126	109	127	2748	2273	132
Arrive On Green	0.07	0.07	0.07	0.81	0.93	0.93
Sat Flow, veh/h	1774	1524	1774	3463	3335	188
Grp Volume(v), veh/h	93	61	140	1269	741	770
Grp Sat Flow(s),veh/h/ln	1774	1524	1774	1687	1690	1744
Q Serve(g_s), s	7.2	5.4	10.0	15.7	10.1	10.3
Cycle Q Clear(g_c), s	7.2	5.4	10.0	15.7	10.1	10.3
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	126	109	127	2748	1183	1221
V/C Ratio(X)	0.74	0.56	1.10	0.46	0.63	0.63
Avail Cap(c_a), veh/h	437	375	127	2748	1183	1221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	63.7	62.9	65.0	3.9	1.8	1.8
Incr Delay (d2), s/veh	8.0	4.5	110.9	0.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	2.4	8.8	7.4	4.3	4.4
LnGrp Delay(d),s/veh	71.7	67.4	175.9	4.4	2.0	2.0
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	154			1409	1511	
Approach Delay, s/veh	70.0			21.5	2.0	
Approach LOS	E			C	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.0	105.5		18.5		121.5		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	10.0	73.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	12.0	12.3		9.2		17.7		
Green Ext Time (p_c), s	0.0	60.2		0.8		70.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	123	232	128	732	451	162		
Future Volume (veh/h)	123	232	128	732	451	162		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1900	1900	1881	1827	1859	1900		
Adj Flow Rate, veh/h	129	244	135	771	475	171		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	1	4	3	3		
Cap, veh/h	364	325	523	2123	1555	556		
Arrive On Green	0.20	0.20	0.61	0.61	0.61	0.61		
Sat Flow, veh/h	1810	1615	786	3563	2636	909		
Grp Volume(v), veh/h	129	244	135	771	329	317		
Grp Sat Flow(s),veh/h/ln	1810	1615	786	1736	1766	1685		
Q Serve(g_s), s	3.9	9.1	6.3	7.1	5.7	5.8		
Cycle Q Clear(g_c), s	3.9	9.1	12.1	7.1	5.7	5.8		
Prop In Lane	1.00	1.00	1.00			0.54		
Lane Grp Cap(c), veh/h	364	325	523	2123	1080	1031		
V/C Ratio(X)	0.35	0.75	0.26	0.36	0.30	0.31		
Avail Cap(c_a), veh/h	678	605	582	2385	1213	1158		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.0	24.1	8.8	6.2	5.9	6.0		
Incr Delay (d2), s/veh	0.6	3.5	0.3	0.1	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.0	4.4	1.4	3.4	2.8	2.7		
LnGrp Delay(d),s/veh	22.6	27.6	9.1	6.3	6.1	6.1		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	373			906	646			
Approach Delay, s/veh	25.9			6.7	6.1			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.2		18.9		45.2		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		44.0		24.0		44.0		
Max Q Clear Time (g_c+I1), s		14.1		11.1		7.8		
Green Ext Time (p_c), s		25.1		1.8		29.5		
Intersection Summary								
HCM 2010 Ctrl Delay			10.2					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	7	31	222	40	75	70	282	178	22	137	65
Future Volume (veh/h)	29	7	31	222	40	75	70	282	178	22	137	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.96		0.93	0.97		0.92	0.99		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1900	1900	1881	1844	1900	1900	1849	1900	1900	1770	1900
Adj Flow Rate, veh/h	31	7	33	234	42	79	74	297	187	23	144	68
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	1	5	5	0	2	2	0	7	7
Cap, veh/h	434	90	425	527	180	339	575	491	309	358	529	250
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1166	274	1290	1321	547	1029	1147	1025	645	913	1104	521
Grp Volume(v), veh/h	31	0	40	234	0	121	74	0	484	23	0	212
Grp Sat Flow(s),veh/h/ln	1166	0	1563	1321	0	1575	1147	0	1670	913	0	1626
Q Serve(g_s), s	1.2	0.0	1.1	9.3	0.0	3.5	2.6	0.0	13.3	1.2	0.0	4.9
Cycle Q Clear(g_c), s	4.7	0.0	1.1	10.4	0.0	3.5	7.5	0.0	13.3	14.5	0.0	4.9
Prop In Lane	1.00		0.82	1.00		0.65	1.00		0.39	1.00		0.32
Lane Grp Cap(c), veh/h	434	0	515	527	0	519	575	0	800	358	0	779
V/C Ratio(X)	0.07	0.00	0.08	0.44	0.00	0.23	0.13	0.00	0.60	0.06	0.00	0.27
Avail Cap(c_a), veh/h	534	0	649	640	0	654	575	0	800	358	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	14.5	18.0	0.0	15.3	12.0	0.0	12.0	17.3	0.0	9.8
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	0.5	0.5	0.0	3.4	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.5	3.6	0.0	1.6	0.9	0.0	6.8	0.3	0.0	2.4
LnGrp Delay(d),s/veh	17.1	0.0	14.6	19.3	0.0	15.7	12.5	0.0	15.3	17.6	0.0	10.6
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		71			355			558			235	
Approach Delay, s/veh		15.7			18.1			15.0			11.3	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		26.6		36.0		26.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0				
Max Q Clear Time (g_c+I1), s		15.3		6.7		16.5		12.4				
Green Ext Time (p_c), s		9.0		5.9		8.4		4.8				
Intersection Summary												
HCM 2010 Ctrl Delay			15.2									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	8	158	50	5	30	122	650	43	28	336	6
Future Volume (veh/h)	10	8	158	50	5	30	122	650	43	28	336	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1848	1900	1743	1819	1900	1900	1842	1900	1845	1828	1900
Adj Flow Rate, veh/h	11	8	166	53	5	32	128	684	45	29	354	6
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	20	20	9	33	33	0	3	3	3	4	4
Cap, veh/h	458	18	377	313	53	341	623	1749	115	422	1833	31
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1388	72	1504	1126	213	1360	1037	3335	219	716	3495	59
Grp Volume(v), veh/h	11	0	174	53	0	37	128	359	370	29	176	184
Grp Sat Flow(s),veh/h/ln	1388	0	1576	1126	0	1573	1037	1750	1804	716	1737	1818
Q Serve(g_s), s	0.3	0.0	5.0	2.2	0.0	1.0	4.0	6.5	6.6	1.3	2.9	2.9
Cycle Q Clear(g_c), s	1.3	0.0	5.0	7.2	0.0	1.0	6.8	6.5	6.6	7.9	2.9	2.9
Prop In Lane	1.00		0.95	1.00		0.86	1.00		0.12	1.00		0.03
Lane Grp Cap(c), veh/h	458	0	395	313	0	395	623	918	946	422	911	953
V/C Ratio(X)	0.02	0.00	0.44	0.17	0.00	0.09	0.21	0.39	0.39	0.07	0.19	0.19
Avail Cap(c_a), veh/h	916	0	915	684	0	913	623	918	946	422	911	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	16.8	19.9	0.0	15.3	8.5	7.6	7.6	10.0	6.7	6.7
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.3	0.0	0.1	0.7	1.3	1.2	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.2	0.7	0.0	0.4	1.3	3.4	3.5	0.3	1.5	1.6
LnGrp Delay(d),s/veh	15.9	0.0	17.6	20.1	0.0	15.4	9.3	8.8	8.8	10.3	7.2	7.2
LnGrp LOS	B		B	C		B	A	A	A	B	A	A
Approach Vol, veh/h		185			90			857			389	
Approach Delay, s/veh		17.5			18.2			8.9			7.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		19.4		34.0		19.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		8.8		9.2		9.9		7.0
Green Ext Time (p_c), s		14.7		3.7		14.0		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1443	33	94	1049	115	34	90	38	57	71	11
Future Volume (veh/h)	5	1443	33	94	1049	115	34	90	38	57	71	11
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1792	1900	1863	1766	1900	1652	1924	1900	1845	1894	1900
Adj Flow Rate, veh/h	5	1519	35	99	1104	121	36	95	40	60	75	12
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	6	6	2	8	8	15	3	3	3	5	5
Cap, veh/h	16	2039	47	109	1987	217	204	218	92	183	271	43
Arrive On Green	0.01	0.60	0.60	0.02	0.22	0.22	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	3402	78	1774	3048	334	1151	1284	540	1231	1592	255
Grp Volume(v), veh/h	5	759	795	99	607	618	36	0	135	60	0	87
Grp Sat Flow(s),veh/h/ln	1810	1702	1777	1774	1677	1704	1151	0	1824	1231	0	1847
Q Serve(g_s), s	0.4	41.9	42.1	7.2	41.9	42.0	3.7	0.0	8.6	6.0	0.0	5.3
Cycle Q Clear(g_c), s	0.4	41.9	42.1	7.2	41.9	42.0	9.0	0.0	8.6	14.6	0.0	5.3
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.30	1.00		0.14
Lane Grp Cap(c), veh/h	16	1020	1065	109	1094	1111	204	0	310	183	0	314
V/C Ratio(X)	0.31	0.74	0.75	0.91	0.56	0.56	0.18	0.00	0.44	0.33	0.00	0.28
Avail Cap(c_a), veh/h	111	1020	1065	109	1094	1111	322	0	498	310	0	504
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.0	18.8	18.9	63.3	34.2	34.3	50.9	0.0	48.4	54.9	0.0	47.0
Incr Delay (d2), s/veh	10.5	4.9	4.8	46.6	1.5	1.4	0.4	0.0	1.0	1.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	21.0	21.9	5.0	20.0	20.3	1.2	0.0	4.4	2.1	0.0	2.8
LnGrp Delay(d),s/veh	74.6	23.7	23.6	109.9	35.7	35.7	51.3	0.0	49.3	55.9	0.0	47.5
LnGrp LOS	E	C	C	F	D	D	D		D	E		D
Approach Vol, veh/h		1559			1324			171			147	
Approach Delay, s/veh		23.9			41.2			49.8			50.9	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	92.3		30.6	14.0	85.4		30.6
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	8.0	64.5		35.5
Max Q Clear Time (g_c+I1), s	2.4	44.0		16.6	9.2	44.1		11.0
Green Ext Time (p_c), s	0.0	20.3		3.6	0.0	20.2		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	147	1386	1075	38	145	91		
Future Volume (veh/h)	147	1386	1075	38	145	91		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1827	1792	1698	1900	1810	1792		
Adj Flow Rate, veh/h	155	1459	1132	40	153	96		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	6	12	12	5	6		
Cap, veh/h	184	2599	1942	69	190	168		
Arrive On Green	0.11	0.76	0.20	0.20	0.11	0.11		
Sat Flow, veh/h	1740	3495	3263	112	1723	1524		
Grp Volume(v), veh/h	155	1459	575	597	153	96		
Grp Sat Flow(s),veh/h/ln	1740	1703	1614	1677	1723	1524		
Q Serve(g_s), s	11.4	23.1	41.9	41.9	11.3	7.8		
Cycle Q Clear(g_c), s	11.4	23.1	41.9	41.9	11.3	7.8		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	184	2599	986	1025	190	168		
V/C Ratio(X)	0.84	0.56	0.58	0.58	0.81	0.57		
Avail Cap(c_a), veh/h	294	2599	986	1025	331	293		
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00		
Upstream Filter(I)	0.54	0.54	0.28	0.28	1.00	1.00		
Uniform Delay (d), s/veh	57.1	6.4	36.9	36.9	56.5	54.9		
Incr Delay (d2), s/veh	6.6	0.5	0.7	0.7	7.9	3.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.8	10.9	19.0	19.7	5.8	3.4		
LnGrp Delay(d),s/veh	63.7	6.9	37.6	37.6	64.4	58.0		
LnGrp LOS	E	A	D	D	E	E		
Approach Vol, veh/h		1614	1172		249			
Approach Delay, s/veh		12.3	37.6		61.9			
Approach LOS		B	D		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.8	86.9		23.3		106.7		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	22.0	60.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	13.4	43.9		13.3		25.1		
Green Ext Time (p_c), s	0.4	16.5		1.0		61.7		
Intersection Summary								
HCM 2010 Ctrl Delay			26.1					
HCM 2010 LOS			C					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1045	313	91	581	149	306	533	58	90	454	144
Future Volume (veh/h)	179	1045	313	91	581	149	306	533	58	90	454	144
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1790	1900	1900	1760	1900	1771	1827	1900	1863	1858	1900
Adj Flow Rate, veh/h	188	1100	329	96	612	157	322	561	61	95	478	152
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	8	0	9	9	3	4	4	2	2	2
Cap, veh/h	214	886	262	111	743	190	316	1066	116	302	782	247
Arrive On Green	0.04	0.11	0.11	0.12	0.57	0.57	0.09	0.34	0.34	0.05	0.30	0.30
Sat Flow, veh/h	1757	2575	760	1810	2620	671	1687	3149	341	1774	2620	827
Grp Volume(v), veh/h	188	722	707	96	390	379	322	308	314	95	321	309
Grp Sat Flow(s),veh/h/ln	1757	1700	1635	1810	1672	1619	1687	1736	1755	1774	1765	1681
Q Serve(g_s), s	13.8	44.7	44.7	6.8	24.6	24.8	12.0	18.6	18.7	4.8	20.3	20.6
Cycle Q Clear(g_c), s	13.8	44.7	44.7	6.8	24.6	24.8	12.0	18.6	18.7	4.8	20.3	20.6
Prop In Lane	1.00		0.47	1.00		0.41	1.00		0.19	1.00		0.49
Lane Grp Cap(c), veh/h	214	585	562	111	474	459	316	588	594	302	527	502
V/C Ratio(X)	0.88	1.23	1.26	0.86	0.82	0.83	1.02	0.52	0.53	0.31	0.61	0.62
Avail Cap(c_a), veh/h	216	585	562	111	474	459	316	588	594	373	577	550
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	61.4	57.6	57.6	56.5	25.5	25.5	38.9	34.6	34.6	29.8	39.1	39.2
Incr Delay (d2), s/veh	25.2	116.4	126.9	45.6	14.8	15.5	55.7	0.9	0.9	0.5	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	40.0	40.1	4.8	13.0	12.9	10.6	9.1	9.2	2.4	10.1	9.8
LnGrp Delay(d),s/veh	86.6	174.1	184.5	102.1	40.3	41.0	94.7	35.4	35.5	30.3	40.6	40.8
LnGrp LOS	F	F	F	F	D	D	F	D	D	C	D	D
Approach Vol, veh/h		1617			865			944			725	
Approach Delay, s/veh		168.5			47.4			55.7			39.3	
Approach LOS		F			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.8	44.9	16.0	47.3	14.0	52.7	10.8	52.5				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	16.0	33.0	12.0	42.5	8.0	41.0	12.0	42.5				
Max Q Clear Time (g_c+I1), s	15.8	26.8	14.0	22.6	8.8	46.7	6.8	20.7				
Green Ext Time (p_c), s	0.0	6.2	0.0	14.7	0.0	0.0	0.1	17.4				
Intersection Summary												
HCM 2010 Ctrl Delay			95.0									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	761	295	157	475	199	187	200	176	86	226	83
Future Volume (veh/h)	132	761	295	157	475	199	187	200	176	86	226	83
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1848	1900	1557	1803	1900	1863	1597	1696	1473	1726	1900
Adj Flow Rate, veh/h	139	801	311	165	500	209	197	211	185	91	238	87
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	165	944	366	186	986	409	199	491	440	212	371	135
Arrive On Green	0.19	0.78	0.78	0.13	0.42	0.42	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	2420	938	1483	2333	969	1047	1597	1431	776	1204	440
Grp Volume(v), veh/h	139	580	532	165	366	343	197	211	185	91	0	325
Grp Sat Flow(s),veh/h/ln	1774	1755	1603	1483	1713	1589	1047	1597	1431	776	0	1645
Q Serve(g_s), s	9.8	28.0	28.2	14.2	20.4	20.6	17.8	13.7	13.4	13.8	0.0	22.2
Cycle Q Clear(g_c), s	9.8	28.0	28.2	14.2	20.4	20.6	40.0	13.7	13.4	27.5	0.0	22.2
Prop In Lane	1.00		0.59	1.00		0.61	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	165	684	625	186	724	671	199	491	440	212	0	506
V/C Ratio(X)	0.84	0.85	0.85	0.89	0.51	0.51	0.99	0.43	0.42	0.43	0.00	0.64
Avail Cap(c_a), veh/h	259	684	625	205	724	671	199	491	440	212	0	506
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	52.0	11.8	11.8	55.9	27.6	27.6	58.5	35.9	35.8	46.9	0.0	38.8
Incr Delay (d2), s/veh	13.5	12.4	13.6	32.1	2.5	2.8	60.7	0.6	0.6	1.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	15.2	14.2	7.5	10.2	9.6	10.4	6.1	5.4	3.0	0.0	10.4
LnGrp Delay(d),s/veh	65.5	24.3	25.5	88.0	30.1	30.4	119.2	36.5	36.4	48.1	0.0	41.3
LnGrp LOS	E	C	C	F	C	C	F	D	D	D		D
Approach Vol, veh/h		1251			874			593			416	
Approach Delay, s/veh		29.3			41.1			63.9			42.8	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.1	62.9		49.0	22.3	58.7		49.0
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	19.0	48.0		40.0	18.0	49.0		40.0
Max Q Clear Time (g_c+I1), s	11.8	22.6		29.5	16.2	30.2		42.0
Green Ext Time (p_c), s	0.3	23.3		7.1	0.1	17.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	478	351	69	770	173	165	522	51	99	402	41
Future Volume (veh/h)	120	478	351	69	770	173	165	522	51	99	402	41
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1847	1900	1863	1802	1900	1827	1846	1900	1845	1833	1900
Adj Flow Rate, veh/h	126	503	369	73	811	182	174	549	54	104	423	43
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	2	6	6	4	3	3	3	4	4
Cap, veh/h	317	1123	823	358	1615	362	235	899	88	188	890	90
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	570	1932	1415	632	2778	623	898	3222	316	801	3189	322
Grp Volume(v), veh/h	126	457	415	73	500	493	174	298	305	104	230	236
Grp Sat Flow(s),veh/h/ln	570	1755	1592	632	1712	1689	898	1754	1784	801	1742	1769
Q Serve(g_s), s	14.4	12.7	12.7	6.4	14.8	14.8	14.5	12.7	12.8	11.2	9.4	9.5
Cycle Q Clear(g_c), s	29.3	12.7	12.7	19.1	14.8	14.8	24.0	12.7	12.8	23.9	9.4	9.5
Prop In Lane	1.00		0.89	1.00		0.37	1.00		0.18	1.00		0.18
Lane Grp Cap(c), veh/h	317	1020	925	358	995	982	235	489	498	188	486	494
V/C Ratio(X)	0.40	0.45	0.45	0.20	0.50	0.50	0.74	0.61	0.61	0.55	0.47	0.48
Avail Cap(c_a), veh/h	317	1020	925	358	995	982	235	489	498	188	486	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	10.2	10.2	15.6	10.6	10.6	36.7	26.9	27.0	37.4	25.7	25.8
Incr Delay (d2), s/veh	3.7	1.4	1.6	1.3	1.8	1.8	14.1	3.3	3.3	6.0	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	6.5	5.9	1.2	7.4	7.4	5.0	6.6	6.7	2.8	4.7	4.9
LnGrp Delay(d),s/veh	23.0	11.6	11.8	16.9	12.5	12.5	50.9	30.2	30.2	43.3	27.3	27.3
LnGrp LOS	C	B	B	B	B	B	D	C	C	D	C	C
Approach Vol, veh/h		998			1066			777			570	
Approach Delay, s/veh		13.1			12.8			34.8			30.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		21.1		26.0		31.3		25.9
Green Ext Time (p_c), s		28.6		0.0		18.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	151	143	139	154	105	119	719	190	161	591	144
Future Volume (veh/h)	83	151	143	139	154	105	119	719	190	161	591	144
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.98		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1845	1900	1900	1860	1900	1845	1867	1900	1845	1841	1900
Adj Flow Rate, veh/h	87	159	151	146	162	111	125	757	200	169	622	152
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	3	3	1	1	1	3	2	2	3	4	4
Cap, veh/h	322	283	268	237	323	247	403	1436	380	284	1064	260
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1083	849	806	476	969	742	1757	2769	732	576	2779	678
Grp Volume(v), veh/h	87	0	310	192	0	227	125	485	472	169	391	383
Grp Sat Flow(s),veh/h/ln	1083	0	1655	668	0	1518	1757	1773	1727	576	1749	1708
Q Serve(g_s), s	5.5	0.0	12.4	11.9	0.0	9.5	3.1	14.7	14.7	22.2	14.4	14.4
Cycle Q Clear(g_c), s	15.1	0.0	12.4	24.4	0.0	9.5	3.1	14.7	14.7	25.9	14.4	14.4
Prop In Lane	1.00		0.49	0.76		0.49	1.00		0.42	1.00		0.40
Lane Grp Cap(c), veh/h	322	0	551	301	0	506	403	920	896	284	670	654
V/C Ratio(X)	0.27	0.00	0.56	0.64	0.00	0.45	0.31	0.53	0.53	0.60	0.58	0.59
Avail Cap(c_a), veh/h	323	0	552	301	0	506	403	920	896	284	670	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	22.2	30.8	0.0	21.2	12.7	12.9	12.9	25.1	19.9	19.9
Incr Delay (d2), s/veh	0.4	0.0	1.3	4.4	0.0	0.6	2.0	2.2	2.2	8.9	3.7	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.9	4.5	0.0	4.1	1.6	7.7	7.5	4.2	7.6	7.5
LnGrp Delay(d),s/veh	27.5	0.0	23.5	35.2	0.0	21.8	14.7	15.1	15.1	34.0	23.6	23.7
LnGrp LOS	C		C	D		C	B	B	B	C	C	C
Approach Vol, veh/h		397			419			1082			943	
Approach Delay, s/veh		24.4			27.9			15.0			25.5	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.1	27.9		26.4		16.7		17.1
Green Ext Time (p_c), s	0.1	3.1		0.5		24.1		6.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	9	35	24	11	79	19	598	11	84	657	80
Future Volume (veh/h)	63	9	35	24	11	79	19	598	11	84	657	80
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1867	1900	1900	1777	1900	1900	1826	1900	1900	1832	1900
Adj Flow Rate, veh/h	66	9	37	25	12	83	20	629	12	88	692	84
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	4	4	4
Cap, veh/h	266	52	104	117	61	215	93	1881	35	208	1478	175
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	768	254	504	168	298	1046	36	3316	62	222	2605	308
Grp Volume(v), veh/h	112	0	0	120	0	0	343	0	318	425	0	439
Grp Sat Flow(s),veh/h/ln	1527	0	0	1513	0	0	1765	0	1650	1526	0	1609
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	8.6
Cycle Q Clear(g_c), s	2.8	0.0	0.0	3.5	0.0	0.0	5.3	0.0	5.5	6.9	0.0	8.6
Prop In Lane	0.59		0.33	0.21		0.69	0.06		0.04	0.21		0.19
Lane Grp Cap(c), veh/h	422	0	0	393	0	0	1073	0	936	948	0	913
V/C Ratio(X)	0.27	0.00	0.00	0.31	0.00	0.00	0.32	0.00	0.34	0.45	0.00	0.48
Avail Cap(c_a), veh/h	877	0	0	868	0	0	1073	0	936	948	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	0.0	18.1	0.0	0.0	6.1	0.0	6.1	6.4	0.0	6.8
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.8	0.0	1.0	1.5	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	1.5	0.0	0.0	2.8	0.0	2.7	3.8	0.0	4.2
LnGrp Delay(d),s/veh	18.1	0.0	0.0	18.5	0.0	0.0	6.9	0.0	7.1	8.0	0.0	8.6
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		112			120			661			864	
Approach Delay, s/veh		18.1			18.5			7.0			8.3	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		16.9		36.0		16.9
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		7.5		5.5		10.6		4.8
Green Ext Time (p_c), s		19.7		3.5		17.2		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	35	53	21	231	15	771	19	61	478	11
Future Volume (veh/h)	3	6	35	53	21	231	15	771	19	61	478	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1860	1900	1900	1805	1900	1900	1809	1900	1900	1822	1900
Adj Flow Rate, veh/h	3	6	37	56	22	243	16	812	20	64	503	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	12	12	12	5	5	5	4	4	4
Cap, veh/h	85	92	410	139	64	368	85	1465	36	166	1182	29
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	26	290	1297	170	203	1162	22	3312	81	173	2671	65
Grp Volume(v), veh/h	46	0	0	321	0	0	444	0	404	276	0	303
Grp Sat Flow(s),veh/h/ln	1612	0	0	1536	0	0	1784	0	1631	1264	0	1645
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	9.1	0.8	0.0	6.3
Cycle Q Clear(g_c), s	1.0	0.0	0.0	8.8	0.0	0.0	9.0	0.0	9.1	9.9	0.0	6.3
Prop In Lane	0.07		0.80	0.17		0.76	0.04		0.05	0.23		0.04
Lane Grp Cap(c), veh/h	587	0	0	571	0	0	864	0	721	648	0	728
V/C Ratio(X)	0.08	0.00	0.00	0.56	0.00	0.00	0.51	0.00	0.56	0.43	0.00	0.42
Avail Cap(c_a), veh/h	911	0	0	882	0	0	864	0	721	648	0	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	0.0	14.6	0.0	0.0	10.2	0.0	10.3	9.2	0.0	9.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.9	0.0	0.0	2.2	0.0	3.1	2.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	3.9	0.0	0.0	5.0	0.0	4.7	2.8	0.0	3.1
LnGrp Delay(d),s/veh	12.0	0.0	0.0	15.5	0.0	0.0	12.4	0.0	13.4	11.3	0.0	11.2
LnGrp LOS	B			B			B		B	B		B
Approach Vol, veh/h		46			321			848			579	
Approach Delay, s/veh		12.0			15.5			12.9			11.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		21.7		28.0		21.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		11.1		3.0		11.9		10.8
Green Ext Time (p_c), s		9.8		6.2		9.1		4.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	3	56	61	15	32	79	751	75	18	519	28
Future Volume (veh/h)	21	3	56	61	15	32	79	751	75	18	519	28
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1801	1900	1900	1814	1900	1900	1838	1900	1900	1833	1900
Adj Flow Rate, veh/h	22	3	59	64	16	34	83	791	79	19	546	29
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	11	11	11	3	3	3	4	4	4
Cap, veh/h	147	52	269	286	80	111	176	1444	141	91	1663	87
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	243	202	1051	708	313	434	188	2772	270	37	3193	167
Grp Volume(v), veh/h	84	0	0	114	0	0	478	0	475	309	0	285
Grp Sat Flow(s),veh/h/ln	1496	0	0	1456	0	0	1607	0	1623	1760	0	1637
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	1.4	0.0	10.7	0.0	0.0	5.4
Cycle Q Clear(g_c), s	2.2	0.0	0.0	3.0	0.0	0.0	9.4	0.0	10.7	5.2	0.0	5.4
Prop In Lane	0.26		0.70	0.56		0.30	0.17		0.17	0.06		0.10
Lane Grp Cap(c), veh/h	467	0	0	477	0	0	916	0	846	988	0	853
V/C Ratio(X)	0.18	0.00	0.00	0.24	0.00	0.00	0.52	0.00	0.56	0.31	0.00	0.33
Avail Cap(c_a), veh/h	770	0	0	771	0	0	916	0	846	988	0	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	16.0	0.0	0.0	8.3	0.0	8.7	7.4	0.0	7.5
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	2.1	0.0	2.7	0.8	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.4	0.0	0.0	5.1	0.0	5.4	2.8	0.0	2.7
LnGrp Delay(d),s/veh	15.9	0.0	0.0	16.2	0.0	0.0	10.5	0.0	11.4	8.2	0.0	8.5
LnGrp LOS	B			B			B		B	A		A
Approach Vol, veh/h		84			114			953			594	
Approach Delay, s/veh		15.9			16.2			10.9			8.4	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.7		34.0		19.7		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		5.0		12.7		4.2		7.4
Green Ext Time (p_c), s		2.8		13.9		2.8		18.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	879	86	135	481	167	82	714	236	166	398	96
Future Volume (veh/h)	222	879	86	135	481	167	82	714	236	166	398	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1900	1900	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	234	925	91	142	506	176	86	752	248	175	419	101
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	1	1	0	0	1	1	1	1	1
Cap, veh/h	348	1247	558	247	1247	558	398	924	305	247	1041	249
Arrive On Green	0.06	0.35	0.35	0.02	0.12	0.12	0.06	0.35	0.35	0.07	0.36	0.36
Sat Flow, veh/h	1810	3574	1601	1792	3574	1601	1810	2630	867	1792	2854	681
Grp Volume(v), veh/h	234	925	91	142	506	176	86	511	489	175	261	259
Grp Sat Flow(s),veh/h/ln	1810	1787	1601	1792	1787	1601	1810	1787	1710	1792	1787	1748
Q Serve(g_s), s	7.0	25.0	4.3	5.5	14.5	11.1	3.2	28.6	28.6	6.8	11.9	12.2
Cycle Q Clear(g_c), s	7.0	25.0	4.3	5.5	14.5	11.1	3.2	28.6	28.6	6.8	11.9	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.39
Lane Grp Cap(c), veh/h	348	1247	558	247	1247	558	398	628	601	247	652	638
V/C Ratio(X)	0.67	0.74	0.16	0.57	0.41	0.32	0.22	0.81	0.81	0.71	0.40	0.41
Avail Cap(c_a), veh/h	348	1247	558	247	1247	558	407	634	606	247	652	638
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	31.5	24.7	25.6	38.1	36.6	20.7	32.4	32.4	25.4	26.0	26.0
Incr Delay (d2), s/veh	5.0	4.0	0.6	3.2	1.0	1.5	0.3	8.0	8.3	8.9	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	13.0	2.0	2.9	7.3	5.2	1.6	15.4	14.8	3.9	5.9	5.9
LnGrp Delay(d),s/veh	31.9	35.5	25.4	28.8	39.1	38.1	20.9	40.4	40.7	34.3	26.4	26.5
LnGrp LOS	C	D	C	C	D	D	C	D	D	C	C	C
Approach Vol, veh/h		1250			824			1086			695	
Approach Delay, s/veh		34.1			37.1			39.0			28.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	44.4	9.5	46.1	10.0	44.4	11.0	44.6
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	8.0	39.0
Max Q Clear Time (g_c+I1), s	7.5	27.0	5.2	14.2	9.0	16.5	8.8	30.6
Green Ext Time (p_c), s	0.0	10.4	0.0	22.4	0.0	19.7	0.0	7.8

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	74	1199	715	347	177	41
Future Volume (veh/h)	74	1199	715	347	177	41
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1863	1881	1881	1881
Adj Flow Rate, veh/h	78	1262	753	365	186	43
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	2	1	1	1
Cap, veh/h	471	2717	2390	1080	234	209
Arrive On Green	0.08	1.00	0.68	0.68	0.13	0.13
Sat Flow, veh/h	1810	3668	3632	1599	1792	1599
Grp Volume(v), veh/h	78	1262	753	365	186	43
Grp Sat Flow(s),veh/h/ln	1810	1787	1770	1599	1792	1599
Q Serve(g_s), s	1.2	0.0	9.7	10.6	11.1	2.6
Cycle Q Clear(g_c), s	1.2	0.0	9.7	10.6	11.1	2.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	471	2717	2390	1080	234	209
V/C Ratio(X)	0.17	0.46	0.32	0.34	0.79	0.21
Avail Cap(c_a), veh/h	481	2717	2390	1080	668	596
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.2	0.0	7.4	7.5	46.4	42.7
Incr Delay (d2), s/veh	0.2	0.6	0.3	0.8	6.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.2	4.8	4.9	5.9	2.5
LnGrp Delay(d),s/veh	4.4	0.6	7.7	8.4	52.4	43.2
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1340	1118		229	
Approach Delay, s/veh		0.8	7.9		50.7	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		89.6		20.4	9.4	80.3		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		2.0		13.1	3.2	12.6		
Green Ext Time (p_c), s		52.8		1.3	0.1	33.5		

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	927	321	168	623	163	300	1664	201	206	1469	79
Future Volume (veh/h)	78	927	321	168	623	163	300	1664	201	206	1469	79
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1845	1792	1810	1792	1845	1831	1900	1863	1812	1900
Adj Flow Rate, veh/h	82	976	338	177	656	172	316	1752	212	217	1546	83
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	3	6	5	6	3	4	4	2	5	5
Cap, veh/h	254	1144	498	181	1155	503	265	1672	201	165	1517	81
Arrive On Green	0.05	0.32	0.32	0.06	0.34	0.34	0.12	0.39	0.39	0.06	0.33	0.33
Sat Flow, veh/h	1774	3539	1540	1707	3438	1498	1757	4314	519	1774	4593	247
Grp Volume(v), veh/h	82	976	338	177	656	172	316	1261	703	217	1037	592
Grp Sat Flow(s),veh/h/ln	1774	1770	1540	1707	1719	1498	1757	1556	1721	1774	1540	1759
Q Serve(g_s), s	4.3	36.1	26.6	8.5	21.9	12.1	17.0	54.2	54.2	9.0	46.2	46.2
Cycle Q Clear(g_c), s	4.3	36.1	26.6	8.5	21.9	12.1	17.0	54.2	54.2	9.0	46.2	46.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.14
Lane Grp Cap(c), veh/h	254	1144	498	181	1155	503	265	1206	667	165	1018	581
V/C Ratio(X)	0.32	0.85	0.68	0.98	0.57	0.34	1.19	1.05	1.05	1.31	1.02	1.02
Avail Cap(c_a), veh/h	277	1163	506	181	1155	503	265	1206	667	165	1018	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	44.3	41.1	40.3	38.1	34.9	45.3	42.9	42.9	37.8	46.9	46.9
Incr Delay (d2), s/veh	0.7	6.2	3.6	46.5	0.4	0.3	118.0	38.8	49.8	176.5	33.1	42.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	18.6	11.8	6.9	10.5	5.0	18.9	29.8	35.0	14.5	24.3	29.3
LnGrp Delay(d),s/veh	31.4	50.5	44.6	86.8	38.6	35.1	163.4	81.7	92.7	214.3	79.9	89.2
LnGrp LOS	C	D	D	F	D	D	F	F	F	F	F	F
Approach Vol, veh/h		1396			1005			2280			1846	
Approach Delay, s/veh		48.0			46.5			96.4			98.7	
Approach LOS		D			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	53.7	12.5	52.8	13.0	61.7	10.7	54.5
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	17.0	45.5	8.5	46.0	9.0	53.5	8.5	46.0
Max Q Clear Time (g_c+I1), s	19.0	48.2	10.5	38.1	11.0	56.2	6.3	23.9
Green Ext Time (p_c), s	0.0	0.0	0.0	7.1	0.0	0.0	0.1	20.8

Intersection Summary	
HCM 2010 Ctrl Delay	79.0
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1260	106	85	795	173	413
Future Volume (veh/h)	1260	106	85	795	173	413
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1883	1900	1900	1866	1900	1845
Adj Flow Rate, veh/h	1326	112	89	837	182	435
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	0	3
Cap, veh/h	1928	162	117	1279	523	453
Arrive On Green	0.58	0.58	0.58	0.58	0.29	0.29
Sat Flow, veh/h	3432	281	117	2298	1810	1568
Grp Volume(v), veh/h	708	730	372	554	182	435
Grp Sat Flow(s),veh/h/ln	1789	1830	717	1613	1810	1568
Q Serve(g_s), s	24.9	25.2	20.2	19.9	7.2	24.6
Cycle Q Clear(g_c), s	24.9	25.2	45.4	19.9	7.2	24.6
Prop In Lane		0.15	0.24		1.00	1.00
Lane Grp Cap(c), veh/h	1033	1057	464	932	523	453
V/C Ratio(X)	0.69	0.69	0.80	0.59	0.35	0.96
Avail Cap(c_a), veh/h	1033	1057	464	932	523	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.21	0.21	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	13.3	17.9	12.2	25.3	31.5
Incr Delay (d2), s/veh	0.8	0.8	13.6	2.8	0.4	32.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	12.8	10.2	9.5	3.6	14.7
LnGrp Delay(d),s/veh	14.1	14.1	31.5	15.0	25.7	63.7
LnGrp LOS	B	B	C	B	C	E
Approach Vol, veh/h	1438			926	617	
Approach Delay, s/veh	14.1			21.6	52.5	
Approach LOS	B			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		58.0				58.0		32.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		52.0				52.0		26.0
Max Q Clear Time (g_c+I1), s		27.2				47.4		26.6
Green Ext Time (p_c), s		24.4				4.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	395	1273	70	16	671	554	31	18	8	392	37	204
Future Volume (veh/h)	395	1273	70	16	671	554	31	18	8	392	37	204
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1880	1900	1900	1863	1881	1900	1900	1900	1881	1853	1900
Adj Flow Rate, veh/h	416	1340	74	17	706	583	33	19	8	413	39	215
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	2	1	0	0	0	1	0	0
Cap, veh/h	352	1720	95	137	1298	578	360	464	195	571	90	495
Arrive On Green	0.07	0.34	0.34	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1810	3440	190	385	3539	1577	1135	1265	533	1374	245	1349
Grp Volume(v), veh/h	416	695	719	17	706	583	33	0	27	413	0	254
Grp Sat Flow(s),veh/h/ln	1810	1786	1843	385	1770	1577	1135	0	1798	1374	0	1594
Q Serve(g_s), s	9.0	31.5	31.6	3.5	14.2	33.0	2.0	0.0	0.9	24.9	0.0	10.8
Cycle Q Clear(g_c), s	9.0	31.5	31.6	23.2	14.2	33.0	12.8	0.0	0.9	25.7	0.0	10.8
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.30	1.00		0.85
Lane Grp Cap(c), veh/h	352	893	921	137	1298	578	360	0	659	571	0	584
V/C Ratio(X)	1.18	0.78	0.78	0.12	0.54	1.01	0.09	0.00	0.04	0.72	0.00	0.43
Avail Cap(c_a), veh/h	352	893	921	137	1298	578	360	0	659	571	0	584
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.00	0.96
Uniform Delay (d), s/veh	22.5	25.4	25.5	34.1	22.5	28.5	26.3	0.0	18.3	26.6	0.0	21.5
Incr Delay (d2), s/veh	107.6	6.6	6.5	1.8	1.6	39.5	0.5	0.0	0.1	4.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	17.2	17.8	0.4	7.2	20.6	0.7	0.0	0.4	10.1	0.0	4.8
LnGrp Delay(d),s/veh	130.1	32.0	32.0	36.0	24.2	68.0	26.8	0.0	18.4	30.9	0.0	22.0
LnGrp LOS	F	C	C	D	C	F	C		B	C		C
Approach Vol, veh/h		1830			1306			60			667	
Approach Delay, s/veh		54.3			43.9			23.0			27.5	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		51.0		39.0	12.0	39.0		39.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		45.0		33.0	9.0	33.0		33.0
Max Q Clear Time (g_c+I1), s		33.6		27.7	11.0	35.0		14.8
Green Ext Time (p_c), s		11.3		2.8	0.0	0.0		6.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	297	12	96	330	373	27	1237	35	159	1336	258
Future Volume (veh/h)	278	297	12	96	330	373	27	1237	35	159	1336	258
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1754	1757	1900	1900	1863	1810	1900	1795	1900	1845	1824	1900
Adj Flow Rate, veh/h	293	313	13	101	347	393	28	1302	37	167	1406	272
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0	2	5	0	6	6	3	4	4
Cap, veh/h	260	696	29	293	657	278	60	1378	39	176	1374	261
Arrive On Green	0.09	0.21	0.21	0.06	0.19	0.19	0.02	0.27	0.27	0.10	0.47	0.47
Sat Flow, veh/h	1670	3263	135	1810	3539	1498	1810	3386	96	1757	2900	551
Grp Volume(v), veh/h	293	160	166	101	347	393	28	655	684	167	830	848
Grp Sat Flow(s),veh/h/ln	1670	1669	1729	1810	1770	1498	1810	1705	1776	1757	1733	1717
Q Serve(g_s), s	12.0	11.6	11.7	6.3	12.4	26.0	2.1	52.7	52.8	13.2	66.4	66.4
Cycle Q Clear(g_c), s	12.0	11.6	11.7	6.3	12.4	26.0	2.1	52.7	52.8	13.2	66.4	66.4
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.05	1.00		0.32
Lane Grp Cap(c), veh/h	260	356	369	293	657	278	60	694	723	176	821	814
V/C Ratio(X)	1.13	0.45	0.45	0.34	0.53	1.41	0.47	0.94	0.95	0.95	1.01	1.04
Avail Cap(c_a), veh/h	260	356	369	305	657	278	103	694	723	176	821	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	47.9	47.9	42.6	51.5	57.0	67.2	49.3	49.4	62.7	36.8	36.8
Incr Delay (d2), s/veh	94.8	0.9	0.9	0.7	0.7	204.5	4.8	20.6	20.2	53.4	33.9	43.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.3	9.3	9.6	5.7	10.1	47.8	2.1	37.0	38.3	14.0	71.0	74.1
LnGrp Delay(d),s/veh	145.5	48.8	48.8	43.3	52.2	261.5	72.0	69.9	69.6	116.1	70.8	79.9
LnGrp LOS	F	D	D	D	D	F	E	E	E	F	F	F
Approach Vol, veh/h		619			841			1367			1845	
Approach Delay, s/veh		94.6			148.9			69.8			79.1	
Approach LOS		F			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	74.4	17.1	37.9	20.0	65.0	21.0	34.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	63.0	9.0	29.0	14.0	57.0	12.0	26.0
Max Q Clear Time (g_c+I1), s	4.1	68.4	8.3	13.7	15.2	54.8	14.0	28.0
Green Ext Time (p_c), s	0.0	0.0	0.0	9.9	0.0	2.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	91.0
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	197	146	12	675	137	62	22	8	19	22	63
Future Volume (veh/h)	145	197	146	12	675	137	62	22	8	19	22	63
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1834	1900	1900	1821	1900	1863	1781	1900	1810	1849	1900
Adj Flow Rate, veh/h	153	207	154	13	711	144	65	23	8	20	23	66
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	4	4	0	5	5	2	9	9	5	5	5
Cap, veh/h	398	1064	753	646	1565	317	365	276	96	410	92	263
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	648	1946	1377	1033	2865	580	1288	1259	438	1317	418	1199
Grp Volume(v), veh/h	153	184	177	13	429	426	65	0	31	20	0	89
Grp Sat Flow(s),veh/h/ln	648	1743	1581	1033	1730	1714	1288	0	1697	1317	0	1617
Q Serve(g_s), s	9.6	2.7	2.9	0.3	7.7	7.7	2.2	0.0	0.7	0.6	0.0	2.3
Cycle Q Clear(g_c), s	17.2	2.7	2.9	3.3	7.7	7.7	4.6	0.0	0.7	1.4	0.0	2.3
Prop In Lane	1.00		0.87	1.00		0.34	1.00		0.26	1.00		0.74
Lane Grp Cap(c), veh/h	398	952	864	646	945	937	365	0	372	410	0	355
V/C Ratio(X)	0.38	0.19	0.20	0.02	0.45	0.45	0.18	0.00	0.08	0.05	0.00	0.25
Avail Cap(c_a), veh/h	398	952	864	646	945	937	836	0	993	892	0	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	5.9	5.9	6.8	7.0	7.0	18.4	0.0	15.9	16.4	0.0	16.5
Incr Delay (d2), s/veh	2.8	0.5	0.5	0.1	1.6	1.6	0.2	0.0	0.1	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	2.5	2.5	0.2	7.2	7.1	1.5	0.0	0.6	0.4	0.0	1.9
LnGrp Delay(d),s/veh	15.0	6.3	6.5	6.8	8.6	8.6	18.6	0.0	16.0	16.5	0.0	16.9
LnGrp LOS	B	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		514			868			96			109	
Approach Delay, s/veh		9.0			8.6			17.8			16.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		17.2		34.0		17.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		9.7		6.6		19.2		4.3
Green Ext Time (p_c), s		15.4		2.2		7.8		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	202	187	44	309	91	203	485	42	95	547	334
Future Volume (veh/h)	127	202	187	44	309	91	203	485	42	95	547	334
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1872	1900	1827	1841	1900	1863	1833	1900	1900	1851	1900
Adj Flow Rate, veh/h	134	213	197	46	325	96	214	511	44	100	576	352
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	4	3	3	2	4	4	0	3	3
Cap, veh/h	233	306	283	233	467	138	276	1574	135	438	1015	620
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	950	893	826	951	1363	403	599	3242	278	862	2089	1276
Grp Volume(v), veh/h	134	0	410	46	0	421	214	274	281	100	485	443
Grp Sat Flow(s),veh/h/ln	950	0	1720	951	0	1766	599	1741	1779	862	1759	1606
Q Serve(g_s), s	9.6	0.0	14.4	3.1	0.0	14.4	20.3	6.7	6.8	5.6	13.7	13.7
Cycle Q Clear(g_c), s	24.0	0.0	14.4	17.5	0.0	14.4	34.0	6.7	6.8	12.4	13.7	13.7
Prop In Lane	1.00		0.48	1.00		0.23	1.00		0.16	1.00		0.79
Lane Grp Cap(c), veh/h	233	0	590	233	0	606	276	846	864	438	854	780
V/C Ratio(X)	0.57	0.00	0.70	0.20	0.00	0.70	0.77	0.32	0.33	0.23	0.57	0.57
Avail Cap(c_a), veh/h	233	0	590	233	0	606	276	846	864	438	854	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	19.8	27.4	0.0	19.8	26.8	11.0	11.0	14.8	12.8	12.8
Incr Delay (d2), s/veh	3.4	0.0	3.5	0.4	0.0	3.5	18.9	1.0	1.0	1.2	2.7	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.0	0.0	11.9	1.5	0.0	12.1	9.4	6.2	6.3	2.7	11.7	10.9
LnGrp Delay(d),s/veh	33.7	0.0	23.4	27.8	0.0	23.3	45.6	12.0	12.0	16.0	15.5	15.8
LnGrp LOS	C		C	C		C	D	B	B	B	B	B
Approach Vol, veh/h		544			467			769			1028	
Approach Delay, s/veh		25.9			23.7			21.4			15.7	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		30.0		40.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		36.0		26.0		15.7		19.5
Green Ext Time (p_c), s		0.0		0.0		16.9		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	58	133	1206	1357	79
Future Volume (veh/h)	88	58	133	1206	1357	79
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1792	1863	1776	1779	1900
Adj Flow Rate, veh/h	93	61	140	1269	1428	83
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	6	2	7	7	7
Cap, veh/h	126	109	127	2748	2273	132
Arrive On Green	0.07	0.07	0.07	0.81	0.93	0.93
Sat Flow, veh/h	1774	1524	1774	3463	3335	188
Grp Volume(v), veh/h	93	61	140	1269	741	770
Grp Sat Flow(s),veh/h/ln	1774	1524	1774	1687	1690	1744
Q Serve(g_s), s	7.2	5.4	10.0	15.7	10.1	10.3
Cycle Q Clear(g_c), s	7.2	5.4	10.0	15.7	10.1	10.3
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	126	109	127	2748	1183	1221
V/C Ratio(X)	0.74	0.56	1.10	0.46	0.63	0.63
Avail Cap(c_a), veh/h	437	375	127	2748	1183	1221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	63.7	62.9	65.0	3.9	1.8	1.8
Incr Delay (d2), s/veh	8.0	4.5	110.9	0.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.9	4.4	15.8	11.9	5.3	5.4
LnGrp Delay(d),s/veh	71.7	67.4	175.9	4.4	2.0	2.0
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	154			1409	1511	
Approach Delay, s/veh	70.0			21.5	2.0	
Approach LOS	E			C	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.0	105.5		18.5		121.5		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	10.0	73.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	12.0	12.3		9.2		17.7		
Green Ext Time (p_c), s	0.0	60.2		0.8		70.4		

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	123	232	128	732	451	162		
Future Volume (veh/h)	123	232	128	732	451	162		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1900	1900	1881	1827	1859	1900		
Adj Flow Rate, veh/h	129	244	135	771	475	171		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	1	4	3	3		
Cap, veh/h	364	325	523	2123	1555	556		
Arrive On Green	0.20	0.20	0.61	0.61	0.61	0.61		
Sat Flow, veh/h	1810	1615	786	3563	2636	909		
Grp Volume(v), veh/h	129	244	135	771	329	317		
Grp Sat Flow(s),veh/h/ln	1810	1615	786	1736	1766	1685		
Q Serve(g_s), s	3.9	9.1	6.3	7.1	5.7	5.8		
Cycle Q Clear(g_c), s	3.9	9.1	12.1	7.1	5.7	5.8		
Prop In Lane	1.00	1.00	1.00			0.54		
Lane Grp Cap(c), veh/h	364	325	523	2123	1080	1031		
V/C Ratio(X)	0.35	0.75	0.26	0.36	0.30	0.31		
Avail Cap(c_a), veh/h	678	605	582	2385	1213	1158		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.0	24.1	8.8	6.2	5.9	6.0		
Incr Delay (d2), s/veh	0.6	3.5	0.3	0.1	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	3.7	7.8	2.5	6.0	5.0	4.8		
LnGrp Delay(d),s/veh	22.6	27.6	9.1	6.3	6.1	6.1		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	373			906	646			
Approach Delay, s/veh	25.9			6.7	6.1			
Approach LOS	C			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.2		18.9		45.2		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		44.0		24.0		44.0		
Max Q Clear Time (g_c+I1), s		14.1		11.1		7.8		
Green Ext Time (p_c), s		25.1		1.8		29.5		
Intersection Summary								
HCM 2010 Ctrl Delay			10.2					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	7	31	222	40	75	70	282	178	22	137	65
Future Volume (veh/h)	29	7	31	222	40	75	70	282	178	22	137	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.93	0.96		0.93	0.97		0.92	0.99		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1776	1900	1900	1881	1844	1900	1900	1849	1900	1900	1770	1900
Adj Flow Rate, veh/h	31	7	33	234	42	79	74	297	187	23	144	68
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	0	0	1	5	5	0	2	2	0	7	7
Cap, veh/h	434	90	425	527	180	339	575	491	309	358	529	250
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1166	274	1290	1321	547	1029	1147	1025	645	913	1104	521
Grp Volume(v), veh/h	31	0	40	234	0	121	74	0	484	23	0	212
Grp Sat Flow(s),veh/h/ln	1166	0	1563	1321	0	1575	1147	0	1670	913	0	1626
Q Serve(g_s), s	1.2	0.0	1.1	9.3	0.0	3.5	2.6	0.0	13.3	1.2	0.0	4.9
Cycle Q Clear(g_c), s	4.7	0.0	1.1	10.4	0.0	3.5	7.5	0.0	13.3	14.5	0.0	4.9
Prop In Lane	1.00		0.82	1.00		0.65	1.00		0.39	1.00		0.32
Lane Grp Cap(c), veh/h	434	0	515	527	0	519	575	0	800	358	0	779
V/C Ratio(X)	0.07	0.00	0.08	0.44	0.00	0.23	0.13	0.00	0.60	0.06	0.00	0.27
Avail Cap(c_a), veh/h	534	0	649	640	0	654	575	0	800	358	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	14.5	18.0	0.0	15.3	12.0	0.0	12.0	17.3	0.0	9.8
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	0.5	0.5	0.0	3.4	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	0.9	6.4	0.0	2.8	1.6	0.0	11.1	0.6	0.0	4.3
LnGrp Delay(d),s/veh	17.1	0.0	14.6	19.3	0.0	15.7	12.5	0.0	15.3	17.6	0.0	10.6
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		71			355			558			235	
Approach Delay, s/veh		15.7			18.1			15.0			11.3	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		26.6		36.0		26.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0				
Max Q Clear Time (g_c+I1), s		15.3		6.7		16.5		12.4				
Green Ext Time (p_c), s		9.0		5.9		8.4		4.8				
Intersection Summary												
HCM 2010 Ctrl Delay			15.2									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	8	158	50	5	30	122	650	43	28	336	6
Future Volume (veh/h)	10	8	158	50	5	30	122	650	43	28	336	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1848	1900	1743	1819	1900	1900	1842	1900	1845	1828	1900
Adj Flow Rate, veh/h	11	8	166	53	5	32	128	684	45	29	354	6
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	20	20	9	33	33	0	3	3	3	4	4
Cap, veh/h	458	18	377	313	53	341	623	1749	115	422	1833	31
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1388	72	1504	1126	213	1360	1037	3335	219	716	3495	59
Grp Volume(v), veh/h	11	0	174	53	0	37	128	359	370	29	176	184
Grp Sat Flow(s),veh/h/ln	1388	0	1576	1126	0	1573	1037	1750	1804	716	1737	1818
Q Serve(g_s), s	0.3	0.0	5.0	2.2	0.0	1.0	4.0	6.5	6.6	1.3	2.9	2.9
Cycle Q Clear(g_c), s	1.3	0.0	5.0	7.2	0.0	1.0	6.8	6.5	6.6	7.9	2.9	2.9
Prop In Lane	1.00		0.95	1.00		0.86	1.00		0.12	1.00		0.03
Lane Grp Cap(c), veh/h	458	0	395	313	0	395	623	918	946	422	911	953
V/C Ratio(X)	0.02	0.00	0.44	0.17	0.00	0.09	0.21	0.39	0.39	0.07	0.19	0.19
Avail Cap(c_a), veh/h	916	0	915	684	0	913	623	918	946	422	911	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	16.8	19.9	0.0	15.3	8.5	7.6	7.6	10.0	6.7	6.7
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.3	0.0	0.1	0.7	1.3	1.2	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	4.0	1.3	0.0	0.8	2.3	6.1	6.3	0.5	2.7	2.8
LnGrp Delay(d),s/veh	15.9	0.0	17.6	20.1	0.0	15.4	9.3	8.8	8.8	10.3	7.2	7.2
LnGrp LOS	B		B	C		B	A	A	A	B	A	A
Approach Vol, veh/h		185			90			857			389	
Approach Delay, s/veh		17.5			18.2			8.9			7.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		19.4		34.0		19.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		8.8		9.2		9.9		7.0
Green Ext Time (p_c), s		14.7		3.7		14.0		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1443	33	94	1049	115	34	90	38	57	71	11
Future Volume (veh/h)	5	1443	33	94	1049	115	34	90	38	57	71	11
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1792	1900	1863	1766	1900	1652	1924	1900	1845	1894	1900
Adj Flow Rate, veh/h	5	1519	35	99	1104	121	36	95	40	60	75	12
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	6	6	2	8	8	15	3	3	3	5	5
Cap, veh/h	16	2039	47	109	1987	217	204	218	92	183	271	43
Arrive On Green	0.01	0.60	0.60	0.02	0.22	0.22	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	3402	78	1774	3048	334	1151	1284	540	1231	1592	255
Grp Volume(v), veh/h	5	759	795	99	607	618	36	0	135	60	0	87
Grp Sat Flow(s),veh/h/ln	1810	1702	1777	1774	1677	1704	1151	0	1824	1231	0	1847
Q Serve(g_s), s	0.4	41.9	42.1	7.2	41.9	42.0	3.7	0.0	8.6	6.0	0.0	5.3
Cycle Q Clear(g_c), s	0.4	41.9	42.1	7.2	41.9	42.0	9.0	0.0	8.6	14.6	0.0	5.3
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.30	1.00		0.14
Lane Grp Cap(c), veh/h	16	1020	1065	109	1094	1111	204	0	310	183	0	314
V/C Ratio(X)	0.31	0.74	0.75	0.91	0.56	0.56	0.18	0.00	0.44	0.33	0.00	0.28
Avail Cap(c_a), veh/h	111	1020	1065	109	1094	1111	322	0	498	310	0	504
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.0	18.8	18.9	63.3	34.2	34.3	50.9	0.0	48.4	54.9	0.0	47.0
Incr Delay (d2), s/veh	10.5	4.9	4.8	46.6	1.5	1.4	0.4	0.0	1.0	1.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	28.5	29.6	8.1	26.2	26.6	2.1	0.0	7.9	3.8	0.0	5.0
LnGrp Delay(d),s/veh	74.6	23.7	23.6	109.9	35.7	35.7	51.3	0.0	49.3	55.9	0.0	47.5
LnGrp LOS	E	C	C	F	D	D	D		D	E		D
Approach Vol, veh/h		1559			1324			171			147	
Approach Delay, s/veh		23.9			41.2			49.8			50.9	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	92.3		30.6	14.0	85.4		30.6
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	8.0	64.5		35.5
Max Q Clear Time (g_c+I1), s	2.4	44.0		16.6	9.2	44.1		11.0
Green Ext Time (p_c), s	0.0	20.3		3.6	0.0	20.2		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	147	1386	1075	38	145	91		
Future Volume (veh/h)	147	1386	1075	38	145	91		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1827	1792	1698	1900	1810	1792		
Adj Flow Rate, veh/h	155	1459	1132	40	153	96		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	6	12	12	5	6		
Cap, veh/h	184	2599	1942	69	190	168		
Arrive On Green	0.11	0.76	0.20	0.20	0.11	0.11		
Sat Flow, veh/h	1740	3495	3263	112	1723	1524		
Grp Volume(v), veh/h	155	1459	575	597	153	96		
Grp Sat Flow(s),veh/h/ln	1740	1703	1614	1677	1723	1524		
Q Serve(g_s), s	11.4	23.1	41.9	41.9	11.3	7.8		
Cycle Q Clear(g_c), s	11.4	23.1	41.9	41.9	11.3	7.8		
Prop In Lane	1.00			0.07	1.00	1.00		
Lane Grp Cap(c), veh/h	184	2599	986	1025	190	168		
V/C Ratio(X)	0.84	0.56	0.58	0.58	0.81	0.57		
Avail Cap(c_a), veh/h	294	2599	986	1025	331	293		
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00		
Upstream Filter(I)	0.54	0.54	0.28	0.28	1.00	1.00		
Uniform Delay (d), s/veh	57.1	6.4	36.9	36.9	56.5	54.9		
Incr Delay (d2), s/veh	6.6	0.5	0.7	0.7	7.9	3.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.7	14.9	22.7	23.5	9.7	6.2		
LnGrp Delay(d),s/veh	63.7	6.9	37.6	37.6	64.4	58.0		
LnGrp LOS	E	A	D	D	E	E		
Approach Vol, veh/h		1614	1172		249			
Approach Delay, s/veh		12.3	37.6		61.9			
Approach LOS		B	D		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.8	86.9		23.3		106.7		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	22.0	60.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	13.4	43.9		13.3		25.1		
Green Ext Time (p_c), s	0.4	16.5		1.0		61.7		
Intersection Summary								
HCM 2010 Ctrl Delay			26.1					
HCM 2010 LOS			C					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1045	313	91	581	149	306	533	58	90	454	144
Future Volume (veh/h)	179	1045	313	91	581	149	306	533	58	90	454	144
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1845	1790	1900	1900	1760	1900	1771	1827	1900	1863	1858	1900
Adj Flow Rate, veh/h	188	1100	329	96	612	157	322	561	61	95	478	152
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	8	8	0	9	9	3	4	4	2	2	2
Cap, veh/h	214	886	262	111	743	190	316	1066	116	302	782	247
Arrive On Green	0.04	0.11	0.11	0.12	0.57	0.57	0.09	0.34	0.34	0.05	0.30	0.30
Sat Flow, veh/h	1757	2575	760	1810	2620	671	1687	3149	341	1774	2620	827
Grp Volume(v), veh/h	188	722	707	96	390	379	322	308	314	95	321	309
Grp Sat Flow(s),veh/h/ln	1757	1700	1635	1810	1672	1619	1687	1736	1755	1774	1765	1681
Q Serve(g_s), s	13.8	44.7	44.7	6.8	24.6	24.8	12.0	18.6	18.7	4.8	20.3	20.6
Cycle Q Clear(g_c), s	13.8	44.7	44.7	6.8	24.6	24.8	12.0	18.6	18.7	4.8	20.3	20.6
Prop In Lane	1.00		0.47	1.00		0.41	1.00		0.19	1.00		0.49
Lane Grp Cap(c), veh/h	214	585	562	111	474	459	316	588	594	302	527	502
V/C Ratio(X)	0.88	1.23	1.26	0.86	0.82	0.83	1.02	0.52	0.53	0.31	0.61	0.62
Avail Cap(c_a), veh/h	216	585	562	111	474	459	316	588	594	373	577	550
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	61.4	57.6	57.6	56.5	25.5	25.5	38.9	34.6	34.6	29.8	39.1	39.2
Incr Delay (d2), s/veh	25.2	116.4	126.9	45.6	14.8	15.5	55.7	0.9	0.9	0.5	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.4	72.0	72.1	8.4	18.9	18.8	19.1	14.0	14.2	4.3	15.1	14.6
LnGrp Delay(d),s/veh	86.6	174.1	184.5	102.1	40.3	41.0	94.7	35.4	35.5	30.3	40.6	40.8
LnGrp LOS	F	F	F	F	D	D	F	D	D	C	D	D
Approach Vol, veh/h		1617			865			944			725	
Approach Delay, s/veh		168.5			47.4			55.7			39.3	
Approach LOS		F			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.8	44.9	16.0	47.3	14.0	52.7	10.8	52.5				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	16.0	33.0	12.0	42.5	8.0	41.0	12.0	42.5				
Max Q Clear Time (g_c+I1), s	15.8	26.8	14.0	22.6	8.8	46.7	6.8	20.7				
Green Ext Time (p_c), s	0.0	6.2	0.0	14.7	0.0	0.0	0.1	17.4				
Intersection Summary												
HCM 2010 Ctrl Delay			95.0									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	761	295	157	475	199	187	200	176	86	226	83
Future Volume (veh/h)	132	761	295	157	475	199	187	200	176	86	226	83
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1848	1900	1557	1803	1900	1863	1597	1696	1473	1726	1900
Adj Flow Rate, veh/h	139	801	311	165	500	209	197	211	185	91	238	87
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	22	3	3	2	19	12	29	13	13
Cap, veh/h	165	944	366	186	986	409	199	491	440	212	371	135
Arrive On Green	0.19	0.78	0.78	0.13	0.42	0.42	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	2420	938	1483	2333	969	1047	1597	1431	776	1204	440
Grp Volume(v), veh/h	139	580	532	165	366	343	197	211	185	91	0	325
Grp Sat Flow(s),veh/h/ln	1774	1755	1603	1483	1713	1589	1047	1597	1431	776	0	1645
Q Serve(g_s), s	9.8	28.0	28.2	14.2	20.4	20.6	17.8	13.7	13.4	13.8	0.0	22.2
Cycle Q Clear(g_c), s	9.8	28.0	28.2	14.2	20.4	20.6	40.0	13.7	13.4	27.5	0.0	22.2
Prop In Lane	1.00		0.59	1.00		0.61	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	165	684	625	186	724	671	199	491	440	212	0	506
V/C Ratio(X)	0.84	0.85	0.85	0.89	0.51	0.51	0.99	0.43	0.42	0.43	0.00	0.64
Avail Cap(c_a), veh/h	259	684	625	205	724	671	199	491	440	212	0	506
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	52.0	11.8	11.8	55.9	27.6	27.6	58.5	35.9	35.8	46.9	0.0	38.8
Incr Delay (d2), s/veh	13.5	12.4	13.6	32.1	2.5	2.8	60.7	0.6	0.6	1.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.2	21.6	20.3	12.0	15.4	14.6	15.7	10.2	9.2	5.5	0.0	15.4
LnGrp Delay(d),s/veh	65.5	24.3	25.5	88.0	30.1	30.4	119.2	36.5	36.4	48.1	0.0	41.3
LnGrp LOS	E	C	C	F	C	C	F	D	D	D		D
Approach Vol, veh/h		1251			874			593			416	
Approach Delay, s/veh		29.3			41.1			63.9			42.8	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.1	62.9		49.0	22.3	58.7		49.0
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	19.0	48.0		40.0	18.0	49.0		40.0
Max Q Clear Time (g_c+I1), s	11.8	22.6		29.5	16.2	30.2		42.0
Green Ext Time (p_c), s	0.3	23.3		7.1	0.1	17.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	478	351	69	770	173	165	522	51	99	402	41
Future Volume (veh/h)	120	478	351	69	770	173	165	522	51	99	402	41
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1847	1900	1863	1802	1900	1827	1846	1900	1845	1833	1900
Adj Flow Rate, veh/h	126	503	369	73	811	182	174	549	54	104	423	43
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	2	6	6	4	3	3	3	4	4
Cap, veh/h	317	1123	823	358	1615	362	235	899	88	188	890	90
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	570	1932	1415	632	2778	623	898	3222	316	801	3189	322
Grp Volume(v), veh/h	126	457	415	73	500	493	174	298	305	104	230	236
Grp Sat Flow(s),veh/h/ln	570	1755	1592	632	1712	1689	898	1754	1784	801	1742	1769
Q Serve(g_s), s	14.4	12.7	12.7	6.4	14.8	14.8	14.5	12.7	12.8	11.2	9.4	9.5
Cycle Q Clear(g_c), s	29.3	12.7	12.7	19.1	14.8	14.8	24.0	12.7	12.8	23.9	9.4	9.5
Prop In Lane	1.00		0.89	1.00		0.37	1.00		0.18	1.00		0.18
Lane Grp Cap(c), veh/h	317	1020	925	358	995	982	235	489	498	188	486	494
V/C Ratio(X)	0.40	0.45	0.45	0.20	0.50	0.50	0.74	0.61	0.61	0.55	0.47	0.48
Avail Cap(c_a), veh/h	317	1020	925	358	995	982	235	489	498	188	486	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	10.2	10.2	15.6	10.6	10.6	36.7	26.9	27.0	37.4	25.7	25.8
Incr Delay (d2), s/veh	3.7	1.4	1.6	1.3	1.8	1.8	14.1	3.3	3.3	6.0	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	10.7	9.9	2.2	11.9	11.8	8.7	10.8	11.0	5.0	8.3	8.5
LnGrp Delay(d),s/veh	23.0	11.6	11.8	16.9	12.5	12.5	50.9	30.2	30.2	43.3	27.3	27.3
LnGrp LOS	C	B	B	B	B	B	D	C	C	D	C	C
Approach Vol, veh/h		998			1066			777			570	
Approach Delay, s/veh		13.1			12.8			34.8			30.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		30.0		56.0		30.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		21.1		26.0		31.3		25.9
Green Ext Time (p_c), s		28.6		0.0		18.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	151	143	139	154	105	119	719	190	161	591	144
Future Volume (veh/h)	83	151	143	139	154	105	119	719	190	161	591	144
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.98		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1845	1900	1900	1860	1900	1845	1867	1900	1845	1841	1900
Adj Flow Rate, veh/h	87	159	151	146	162	111	125	757	200	169	622	152
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	3	3	1	1	1	3	2	2	3	4	4
Cap, veh/h	322	283	268	237	323	247	403	1436	380	284	1064	260
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.38	0.38	0.38
Sat Flow, veh/h	1083	849	806	476	969	742	1757	2769	732	576	2779	678
Grp Volume(v), veh/h	87	0	310	192	0	227	125	485	472	169	391	383
Grp Sat Flow(s),veh/h/ln	1083	0	1655	668	0	1518	1757	1773	1727	576	1749	1708
Q Serve(g_s), s	5.5	0.0	12.4	11.9	0.0	9.5	3.1	14.7	14.7	22.2	14.4	14.4
Cycle Q Clear(g_c), s	15.1	0.0	12.4	24.4	0.0	9.5	3.1	14.7	14.7	25.9	14.4	14.4
Prop In Lane	1.00		0.49	0.76		0.49	1.00		0.42	1.00		0.40
Lane Grp Cap(c), veh/h	322	0	551	301	0	506	403	920	896	284	670	654
V/C Ratio(X)	0.27	0.00	0.56	0.64	0.00	0.45	0.31	0.53	0.53	0.60	0.58	0.59
Avail Cap(c_a), veh/h	323	0	552	301	0	506	403	920	896	284	670	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	22.2	30.8	0.0	21.2	12.7	12.9	12.9	25.1	19.9	19.9
Incr Delay (d2), s/veh	0.4	0.0	1.3	4.4	0.0	0.6	2.0	2.2	2.2	8.9	3.7	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	0.0	9.9	8.0	0.0	7.3	3.0	12.2	12.0	7.6	12.2	12.0
LnGrp Delay(d),s/veh	27.5	0.0	23.5	35.2	0.0	21.8	14.7	15.1	15.1	34.0	23.6	23.7
LnGrp LOS	C		C	D		C	B	B	B	C	C	C
Approach Vol, veh/h		397			419			1082			943	
Approach Delay, s/veh		24.4			27.9			15.0			25.5	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		33.0		48.0		33.0
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	5.1	27.9		26.4		16.7		17.1
Green Ext Time (p_c), s	0.1	3.1		0.5		24.1		6.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	9	35	24	11	79	19	598	11	84	657	80
Future Volume (veh/h)	63	9	35	24	11	79	19	598	11	84	657	80
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1867	1900	1900	1777	1900	1900	1826	1900	1900	1832	1900
Adj Flow Rate, veh/h	66	9	37	25	12	83	20	629	12	88	692	84
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	4	4	4
Cap, veh/h	266	52	104	117	61	215	93	1881	35	208	1478	175
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	768	254	504	168	298	1046	36	3316	62	222	2605	308
Grp Volume(v), veh/h	112	0	0	120	0	0	343	0	318	425	0	439
Grp Sat Flow(s),veh/h/ln	1527	0	0	1513	0	0	1765	0	1650	1526	0	1609
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	8.6
Cycle Q Clear(g_c), s	2.8	0.0	0.0	3.5	0.0	0.0	5.3	0.0	5.5	6.9	0.0	8.6
Prop In Lane	0.59		0.33	0.21		0.69	0.06		0.04	0.21		0.19
Lane Grp Cap(c), veh/h	422	0	0	393	0	0	1073	0	936	948	0	913
V/C Ratio(X)	0.27	0.00	0.00	0.31	0.00	0.00	0.32	0.00	0.34	0.45	0.00	0.48
Avail Cap(c_a), veh/h	877	0	0	868	0	0	1073	0	936	948	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	0.0	18.1	0.0	0.0	6.1	0.0	6.1	6.4	0.0	6.8
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.8	0.0	1.0	1.5	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.0	0.0	2.8	0.0	0.0	5.0	0.0	4.9	6.9	0.0	7.6
LnGrp Delay(d),s/veh	18.1	0.0	0.0	18.5	0.0	0.0	6.9	0.0	7.1	8.0	0.0	8.6
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		112			120			661			864	
Approach Delay, s/veh		18.1			18.5			7.0			8.3	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		16.9		36.0		16.9
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		7.5		5.5		10.6		4.8
Green Ext Time (p_c), s		19.7		3.5		17.2		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	35	53	21	231	15	771	19	61	478	11
Future Volume (veh/h)	3	6	35	53	21	231	15	771	19	61	478	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1860	1900	1900	1805	1900	1900	1809	1900	1900	1822	1900
Adj Flow Rate, veh/h	3	6	37	56	22	243	16	812	20	64	503	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	12	12	12	5	5	5	4	4	4
Cap, veh/h	85	92	410	139	64	368	85	1465	36	166	1182	29
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	26	290	1297	170	203	1162	22	3312	81	173	2671	65
Grp Volume(v), veh/h	46	0	0	321	0	0	444	0	404	276	0	303
Grp Sat Flow(s),veh/h/ln	1612	0	0	1536	0	0	1784	0	1631	1264	0	1645
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	9.1	0.8	0.0	6.3
Cycle Q Clear(g_c), s	1.0	0.0	0.0	8.8	0.0	0.0	9.0	0.0	9.1	9.9	0.0	6.3
Prop In Lane	0.07		0.80	0.17		0.76	0.04		0.05	0.23		0.04
Lane Grp Cap(c), veh/h	587	0	0	571	0	0	864	0	721	648	0	728
V/C Ratio(X)	0.08	0.00	0.00	0.56	0.00	0.00	0.51	0.00	0.56	0.43	0.00	0.42
Avail Cap(c_a), veh/h	911	0	0	882	0	0	864	0	721	648	0	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	0.0	14.6	0.0	0.0	10.2	0.0	10.3	9.2	0.0	9.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.9	0.0	0.0	2.2	0.0	3.1	2.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.0	7.0	0.0	0.0	8.6	0.0	8.2	5.1	0.0	5.6
LnGrp Delay(d),s/veh	12.0	0.0	0.0	15.5	0.0	0.0	12.4	0.0	13.4	11.3	0.0	11.2
LnGrp LOS	B			B			B		B	B		B
Approach Vol, veh/h		46			321			848			579	
Approach Delay, s/veh		12.0			15.5			12.9			11.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		21.7		28.0		21.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		11.1		3.0		11.9		10.8
Green Ext Time (p_c), s		9.8		6.2		9.1		4.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	3	56	61	15	32	79	751	75	18	519	28
Future Volume (veh/h)	21	3	56	61	15	32	79	751	75	18	519	28
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1801	1900	1900	1814	1900	1900	1838	1900	1900	1833	1900
Adj Flow Rate, veh/h	22	3	59	64	16	34	83	791	79	19	546	29
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	11	11	11	3	3	3	4	4	4
Cap, veh/h	147	52	269	286	80	111	176	1444	141	91	1663	87
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	243	202	1051	708	313	434	188	2772	270	37	3193	167
Grp Volume(v), veh/h	84	0	0	114	0	0	478	0	475	309	0	285
Grp Sat Flow(s),veh/h/ln	1496	0	0	1456	0	0	1607	0	1623	1760	0	1637
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	1.4	0.0	10.7	0.0	0.0	5.4
Cycle Q Clear(g_c), s	2.2	0.0	0.0	3.0	0.0	0.0	9.4	0.0	10.7	5.2	0.0	5.4
Prop In Lane	0.26		0.70	0.56		0.30	0.17		0.17	0.06		0.10
Lane Grp Cap(c), veh/h	467	0	0	477	0	0	916	0	846	988	0	853
V/C Ratio(X)	0.18	0.00	0.00	0.24	0.00	0.00	0.52	0.00	0.56	0.31	0.00	0.33
Avail Cap(c_a), veh/h	770	0	0	771	0	0	916	0	846	988	0	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	0.0	16.0	0.0	0.0	8.3	0.0	8.7	7.4	0.0	7.5
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	2.1	0.0	2.7	0.8	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	0.0	0.0	2.5	0.0	0.0	8.7	0.0	9.2	5.0	0.0	4.9
LnGrp Delay(d),s/veh	15.9	0.0	0.0	16.2	0.0	0.0	10.5	0.0	11.4	8.2	0.0	8.5
LnGrp LOS	B			B			B		B	A		A
Approach Vol, veh/h		84			114			953			594	
Approach Delay, s/veh		15.9			16.2			10.9			8.4	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.7		34.0		19.7		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		5.0		12.7		4.2		7.4
Green Ext Time (p_c), s		2.8		13.9		2.8		18.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	879	86	135	481	167	82	714	236	166	398	96
Future Volume (veh/h)	222	879	86	135	481	167	82	714	236	166	398	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.98	1.00		0.98
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1900	1900	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	234	925	91	142	506	176	86	752	248	175	419	101
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	1	1	0	0	1	1	1	1	1
Cap, veh/h	348	1247	558	247	1247	558	398	924	305	247	1041	249
Arrive On Green	0.06	0.35	0.35	0.02	0.12	0.12	0.06	0.35	0.35	0.07	0.36	0.36
Sat Flow, veh/h	1810	3574	1601	1792	3574	1601	1810	2630	867	1792	2854	681
Grp Volume(v), veh/h	234	925	91	142	506	176	86	511	489	175	261	259
Grp Sat Flow(s),veh/h/ln	1810	1787	1601	1792	1787	1601	1810	1787	1710	1792	1787	1748
Q Serve(g_s), s	7.0	25.0	4.3	5.5	14.5	11.1	3.2	28.6	28.6	6.8	11.9	12.2
Cycle Q Clear(g_c), s	7.0	25.0	4.3	5.5	14.5	11.1	3.2	28.6	28.6	6.8	11.9	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.39
Lane Grp Cap(c), veh/h	348	1247	558	247	1247	558	398	628	601	247	652	638
V/C Ratio(X)	0.67	0.74	0.16	0.57	0.41	0.32	0.22	0.81	0.81	0.71	0.40	0.41
Avail Cap(c_a), veh/h	348	1247	558	247	1247	558	407	634	606	247	652	638
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	31.5	24.7	25.6	38.1	36.6	20.7	32.4	32.4	25.4	26.0	26.0
Incr Delay (d2), s/veh	5.0	4.0	0.6	3.2	1.0	1.5	0.3	8.0	8.3	8.9	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.2	18.9	3.6	5.3	11.8	8.9	2.9	21.9	21.2	7.1	9.9	9.9
LnGrp Delay(d),s/veh	31.9	35.5	25.4	28.8	39.1	38.1	20.9	40.4	40.7	34.3	26.4	26.5
LnGrp LOS	C	D	C	C	D	D	C	D	D	C	C	C
Approach Vol, veh/h		1250			824			1086			695	
Approach Delay, s/veh		34.1			37.1			39.0			28.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	44.4	9.5	46.1	10.0	44.4	11.0	44.6
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	38.0	7.0	40.0	7.0	38.0	8.0	39.0
Max Q Clear Time (g_c+I1), s	7.5	27.0	5.2	14.2	9.0	16.5	8.8	30.6
Green Ext Time (p_c), s	0.0	10.4	0.0	22.4	0.0	19.7	0.0	7.8

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	74	1199	715	347	177	41
Future Volume (veh/h)	74	1199	715	347	177	41
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1863	1881	1881	1881
Adj Flow Rate, veh/h	78	1262	753	365	186	43
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	2	1	1	1
Cap, veh/h	471	2717	2390	1080	234	209
Arrive On Green	0.08	1.00	0.68	0.68	0.13	0.13
Sat Flow, veh/h	1810	3668	3632	1599	1792	1599
Grp Volume(v), veh/h	78	1262	753	365	186	43
Grp Sat Flow(s),veh/h/ln	1810	1787	1770	1599	1792	1599
Q Serve(g_s), s	1.2	0.0	9.7	10.6	11.1	2.6
Cycle Q Clear(g_c), s	1.2	0.0	9.7	10.6	11.1	2.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	471	2717	2390	1080	234	209
V/C Ratio(X)	0.17	0.46	0.32	0.34	0.79	0.21
Avail Cap(c_a), veh/h	481	2717	2390	1080	668	596
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.2	0.0	7.4	7.5	46.4	42.7
Incr Delay (d2), s/veh	0.2	0.6	0.3	0.8	6.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.4	8.4	8.6	9.8	4.4
LnGrp Delay(d),s/veh	4.4	0.6	7.7	8.4	52.4	43.2
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1340	1118		229	
Approach Delay, s/veh		0.8	7.9		50.7	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		89.6		20.4	9.4	80.3		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		2.0		13.1	3.2	12.6		
Green Ext Time (p_c), s		52.8		1.3	0.1	33.5		

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	927	321	168	623	163	300	1664	201	206	1469	79
Future Volume (veh/h)	78	927	321	168	623	163	300	1664	201	206	1469	79
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1863	1845	1792	1810	1792	1845	1831	1900	1863	1812	1900
Adj Flow Rate, veh/h	82	976	338	177	656	172	316	1752	212	217	1546	83
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	3	6	5	6	3	4	4	2	5	5
Cap, veh/h	254	1144	498	181	1155	503	265	1672	201	165	1517	81
Arrive On Green	0.05	0.32	0.32	0.06	0.34	0.34	0.12	0.39	0.39	0.06	0.33	0.33
Sat Flow, veh/h	1774	3539	1540	1707	3438	1498	1757	4314	519	1774	4593	247
Grp Volume(v), veh/h	82	976	338	177	656	172	316	1261	703	217	1037	592
Grp Sat Flow(s),veh/h/ln	1774	1770	1540	1707	1719	1498	1757	1556	1721	1774	1540	1759
Q Serve(g_s), s	4.3	36.1	26.6	8.5	21.9	12.1	17.0	54.2	54.2	9.0	46.2	46.2
Cycle Q Clear(g_c), s	4.3	36.1	26.6	8.5	21.9	12.1	17.0	54.2	54.2	9.0	46.2	46.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.14
Lane Grp Cap(c), veh/h	254	1144	498	181	1155	503	265	1206	667	165	1018	581
V/C Ratio(X)	0.32	0.85	0.68	0.98	0.57	0.34	1.19	1.05	1.05	1.31	1.02	1.02
Avail Cap(c_a), veh/h	277	1163	506	181	1155	503	265	1206	667	165	1018	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	44.3	41.1	40.3	38.1	34.9	45.3	42.9	42.9	37.8	46.9	46.9
Incr Delay (d2), s/veh	0.7	6.2	3.6	46.5	0.4	0.3	118.0	38.8	49.8	176.5	33.1	42.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	25.7	17.5	10.3	14.7	7.9	34.0	53.6	63.0	26.1	43.8	52.7
LnGrp Delay(d),s/veh	31.4	50.5	44.6	86.8	38.6	35.1	163.4	81.7	92.7	214.3	79.9	89.2
LnGrp LOS	C	D	D	F	D	D	F	F	F	F	F	F
Approach Vol, veh/h		1396			1005			2280			1846	
Approach Delay, s/veh		48.0			46.5			96.4			98.7	
Approach LOS		D			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	53.7	12.5	52.8	13.0	61.7	10.7	54.5
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	17.0	45.5	8.5	46.0	9.0	53.5	8.5	46.0
Max Q Clear Time (g_c+I1), s	19.0	48.2	10.5	38.1	11.0	56.2	6.3	23.9
Green Ext Time (p_c), s	0.0	0.0	0.0	7.1	0.0	0.0	0.1	20.8

Intersection Summary	
HCM 2010 Ctrl Delay	79.0
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1260	106	85	795	173	413
Future Volume (veh/h)	1260	106	85	795	173	413
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1883	1900	1900	1866	1900	1845
Adj Flow Rate, veh/h	1326	112	89	837	182	435
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	0	3
Cap, veh/h	1928	162	117	1279	523	453
Arrive On Green	0.58	0.58	0.58	0.58	0.29	0.29
Sat Flow, veh/h	3432	281	117	2298	1810	1568
Grp Volume(v), veh/h	708	730	372	554	182	435
Grp Sat Flow(s),veh/h/ln	1789	1830	717	1613	1810	1568
Q Serve(g_s), s	24.9	25.2	20.2	19.9	7.2	24.6
Cycle Q Clear(g_c), s	24.9	25.2	45.4	19.9	7.2	24.6
Prop In Lane		0.15	0.24		1.00	1.00
Lane Grp Cap(c), veh/h	1033	1057	464	932	523	453
V/C Ratio(X)	0.69	0.69	0.80	0.59	0.35	0.96
Avail Cap(c_a), veh/h	1033	1057	464	932	523	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.21	0.21	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	13.3	17.9	12.2	25.3	31.5
Incr Delay (d2), s/veh	0.8	0.8	13.6	2.8	0.4	32.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.1	15.5	15.5	14.6	6.6	21.0
LnGrp Delay(d),s/veh	14.1	14.1	31.5	15.0	25.7	63.7
LnGrp LOS	B	B	C	B	C	E
Approach Vol, veh/h	1438			926	617	
Approach Delay, s/veh	14.1			21.6	52.5	
Approach LOS	B			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		58.0				58.0		32.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		52.0				52.0		26.0
Max Q Clear Time (g_c+I1), s		27.2				47.4		26.6
Green Ext Time (p_c), s		24.4				4.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	395	1273	70	16	671	554	31	18	8	392	37	204
Future Volume (veh/h)	395	1273	70	16	671	554	31	18	8	392	37	204
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1880	1900	1900	1863	1881	1900	1900	1900	1881	1853	1900
Adj Flow Rate, veh/h	416	1340	74	17	706	583	33	19	8	413	39	215
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	0	2	1	0	0	0	1	0	0
Cap, veh/h	352	1720	95	137	1298	578	360	464	195	571	90	495
Arrive On Green	0.07	0.34	0.34	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1810	3440	190	385	3539	1577	1135	1265	533	1374	245	1349
Grp Volume(v), veh/h	416	695	719	17	706	583	33	0	27	413	0	254
Grp Sat Flow(s),veh/h/ln	1810	1786	1843	385	1770	1577	1135	0	1798	1374	0	1594
Q Serve(g_s), s	9.0	31.5	31.6	3.5	14.2	33.0	2.0	0.0	0.9	24.9	0.0	10.8
Cycle Q Clear(g_c), s	9.0	31.5	31.6	23.2	14.2	33.0	12.8	0.0	0.9	25.7	0.0	10.8
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.30	1.00		0.85
Lane Grp Cap(c), veh/h	352	893	921	137	1298	578	360	0	659	571	0	584
V/C Ratio(X)	1.18	0.78	0.78	0.12	0.54	1.01	0.09	0.00	0.04	0.72	0.00	0.43
Avail Cap(c_a), veh/h	352	893	921	137	1298	578	360	0	659	571	0	584
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.00	0.96
Uniform Delay (d), s/veh	22.5	25.4	25.5	34.1	22.5	28.5	26.3	0.0	18.3	26.6	0.0	21.5
Incr Delay (d2), s/veh	107.6	6.6	6.5	1.8	1.6	39.5	0.5	0.0	0.1	4.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	35.9	24.0	24.7	0.8	11.5	37.2	1.2	0.0	0.8	15.2	0.0	8.3
LnGrp Delay(d),s/veh	130.1	32.0	32.0	36.0	24.2	68.0	26.8	0.0	18.4	30.9	0.0	22.0
LnGrp LOS	F	C	C	D	C	F	C		B	C		C
Approach Vol, veh/h		1830			1306			60			667	
Approach Delay, s/veh		54.3			43.9			23.0			27.5	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		51.0		39.0	12.0	39.0		39.0
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		45.0		33.0	9.0	33.0		33.0
Max Q Clear Time (g_c+I1), s		33.6		27.7	11.0	35.0		14.8
Green Ext Time (p_c), s		11.3		2.8	0.0	0.0		6.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.7
HCM 2010 LOS	D

HCM 2010 AWSC
91: Promenade Circle & North Promenade

10/21/2019

Intersection	
Intersection Delay, s/veh	23.1
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	274	130	113	299	296	387
Future Vol, veh/h	274	130	113	299	296	387
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	6	2	10	0	0	6
Mvmt Flow	288	137	119	315	312	407
Number of Lanes	0	2	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	26.2	17.3	24.8
HCM LOS	D	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	86%	0%	0%	0%	100%	0%
Vol Thru, %	14%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	317	87	113	299	296	387
LT Vol	274	0	0	0	296	0
Through Vol	43	87	113	0	0	0
RT Vol	0	0	0	299	0	387
Lane Flow Rate	334	91	119	315	312	407
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.739	0.189	0.253	0.592	0.662	0.738
Departure Headway (Hd)	7.967	7.453	7.672	6.776	7.644	6.524
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	454	482	469	532	477	558
Service Time	5.702	5.188	5.407	4.511	5.344	4.224
HCM Lane V/C Ratio	0.736	0.189	0.254	0.592	0.654	0.729
HCM Control Delay	30.1	11.9	13	18.9	24.1	25.4
HCM Lane LOS	D	B	B	C	C	D
HCM 95th-tile Q	6	0.7	1	3.8	4.7	6.3

HCM 2010 AWSC
92: Promenade Circle & West Promenade

10/21/2019

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	276	228	214	81	150	182
Future Vol, veh/h	276	228	214	81	150	182
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	0	3	2	1	0
Mvmt Flow	291	240	225	85	158	192
Number of Lanes	1	1	0	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.3	15.6	12.4
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	89%	0%	100%	0%	0%	0%
Vol Thru, %	11%	100%	0%	0%	100%	22%
Vol Right, %	0%	0%	0%	100%	0%	78%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	241	54	276	228	100	232
LT Vol	214	0	276	0	0	0
Through Vol	27	54	0	0	100	50
RT Vol	0	0	0	228	0	182
Lane Flow Rate	254	57	291	240	105	244
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.5	0.105	0.557	0.379	0.193	0.41
Departure Headway (Hd)	7.095	6.625	6.901	5.687	6.617	6.039
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	539	523	631	541	593
Service Time	4.858	4.387	4.657	3.442	4.379	3.801
HCM Lane V/C Ratio	0.501	0.106	0.556	0.38	0.194	0.411
HCM Control Delay	16.8	10.2	18.1	11.9	11	13
HCM Lane LOS	C	B	C	B	B	B
HCM 95th-tile Q	2.8	0.3	3.4	1.8	0.7	2

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	117	255	26	31	147
Future Vol, veh/h	159	117	255	26	31	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	2	3	0	23	0
Mvmt Flow	167	123	268	27	33	155
Number of Lanes	1	0	2	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	11.3	9.9	10
HCM LOS	B	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	58%	100%	0%
Vol Thru, %	100%	77%	0%	0%	100%
Vol Right, %	0%	23%	42%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	170	111	276	31	147
LT Vol	0	0	159	31	0
Through Vol	170	85	0	0	147
RT Vol	0	26	117	0	0
Lane Flow Rate	179	117	291	33	155
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.273	0.172	0.398	0.059	0.239
Departure Headway (Hd)	5.502	5.285	4.927	6.465	5.563
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	646	672	726	549	638
Service Time	3.292	3.075	2.991	4.263	3.361
HCM Lane V/C Ratio	0.277	0.174	0.401	0.06	0.243
HCM Control Delay	10.4	9.2	11.3	9.7	10.1
HCM Lane LOS	B	A	B	A	B
HCM 95th-tile Q	1.1	0.6	1.9	0.2	0.9

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	76	0	1510	1480	71
Future Vol, veh/h	0	76	0	1510	1480	71
Conflicting Peds, #/hr	0	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	9	8	7
Mvmt Flow	0	80	0	1589	1558	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2400	826	-	0	-	0
Stage 1	1605	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Critical Hdwy	6.8	6.92	-	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.31	-	-	-	-
Pot Cap-1 Maneuver	29	317	0	-	-	-
Stage 1	153	-	0	-	-	-
Stage 2	410	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	314	-	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	152	-	-	-	-	-
Stage 2	406	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	314	-	-
HCM Lane V/C Ratio	-	0.255	-	-
HCM Control Delay (s)	-	20.3	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1165	24	0	779	0	20
Future Vol, veh/h	1165	24	0	779	0	20
Conflicting Peds, #/hr	0	15	10	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	100	0	3	0	100
Mvmt Flow	1226	25	0	820	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	641
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	8.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.3
Pot Cap-1 Maneuver	-	-	0	-	0	246
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	243
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	243	-	-	-
HCM Lane V/C Ratio	0.087	-	-	-
HCM Control Delay (s)	21.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1017	12	0	831	0	10
Future Vol, veh/h	1017	12	0	831	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	0	0	5	0	0
Mvmt Flow	1071	13	0	875	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	542
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	490
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	490
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	490	-	-	-
HCM Lane V/C Ratio	0.021	-	-	-
HCM Control Delay (s)	12.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	58	0	1717	1476	310
Future Vol, veh/h	0	58	0	1717	1476	310
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	11	0	3	0	4
Mvmt Flow	0	61	0	1807	1554	326

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	940	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.32	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.01	-	-	-	-
Pot Cap-1 Maneuver	0	214	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	214	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	214	-	-
HCM Lane V/C Ratio	-	0.285	-	-
HCM Control Delay (s)	-	28.4	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	0	1849	1737	30
Future Vol, veh/h	0	11	0	1849	1737	30
Conflicting Peds, #/hr	0	0	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	12	0	1946	1828	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	945	1875	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	5.3	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	3.1	-	-	-
Pot Cap-1 Maneuver	0	229	148	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	226	148	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	148	-	226	-	-
HCM Lane V/C Ratio	-	-	0.051	-	-
HCM Control Delay (s)	0	-	21.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	1324	998	67	30	35
Future Vol, veh/h	49	1324	998	67	30	35
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	400	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	2	3	0
Mvmt Flow	52	1394	1051	71	32	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1056	0	-	0	1856	530
Stage 1	-	-	-	-	1056	-
Stage 2	-	-	-	-	800	-
Critical Hdwy	4.1	-	-	-	6.86	6.9
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.2	-	-	-	3.53	3.3
Pot Cap-1 Maneuver	667	-	-	-	64	499
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	400	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	667	-	-	-	58	497
Mov Cap-2 Maneuver	-	-	-	-	58	-
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	367	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	64.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	667	-	-	-	58	497
HCM Lane V/C Ratio	0.077	-	-	-	0.544	0.074
HCM Control Delay (s)	10.8	-	-	-	124.9	12.8
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.3	-	-	-	2.2	0.2

HCM Signalized Intersection Capacity Analysis
47: Bathurst Street & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	604	288	178	687	111	278	1323	120	192	1286	106
Future Volume (vph)	139	604	288	178	687	111	278	1323	120	192	1286	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1407	3292	1453	1631	3249		3193	3323	1440	1631	3323	1101
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1407	3292	1453	1631	3249		3193	3323	1440	1631	3323	1101
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	146	636	303	187	723	117	293	1393	126	202	1354	112
RTOR Reduction (vph)	0	0	219	0	8	0	0	0	90	0	0	77
Lane Group Flow (vph)	146	636	84	187	832	0	293	1393	36	202	1354	35
Confl. Peds. (#/hr)	13		15	15		13	16		16	16		16
Heavy Vehicles (%)	24%	6%	4%	7%	5%	3%	6%	5%	4%	7%	5%	36%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4						6			2
Actuated Green, G (s)	12.0	26.9	26.9	12.0	26.9		23.8	45.1	45.1	28.6	49.9	49.9
Effective Green, g (s)	12.0	26.9	26.9	12.0	26.9		23.8	45.1	45.1	28.6	49.9	49.9
Actuated g/C Ratio	0.08	0.17	0.17	0.08	0.17		0.15	0.28	0.28	0.18	0.31	0.31
Clearance Time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	553	244	122	546		474	936	405	291	1036	343
v/s Ratio Prot	0.10	0.19		c0.11	c0.26		0.09	c0.42		c0.12	c0.41	
v/s Ratio Perm			0.06						0.02			0.03
v/c Ratio	1.39	1.15	0.35	1.53	1.52		0.62	1.49	0.09	0.69	1.31	0.10
Uniform Delay, d1	74.0	66.5	58.8	74.0	66.5		63.8	57.5	42.3	61.6	55.1	39.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	223.7	86.9	3.8	276.6	244.7		2.4	225.4	0.1	7.0	145.2	0.1
Delay (s)	297.7	153.5	62.6	350.6	311.2		66.2	282.9	42.4	68.6	200.2	39.3
Level of Service	F	F	E	F	F		E	F	D	E	F	D
Approach Delay (s)		147.5			318.4			231.1			173.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	213.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	46.0
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Bathurst Street & East Promenade

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	118	208	321	1523	1507	50
Future Volume (vph)	118	208	321	1523	1507	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	*0.85	*0.85	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	0.94	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3056	1531	1646	4460	4476	
Flt Permitted	0.95	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	3056	1531	127	4460	4476	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	124	219	338	1603	1586	53
RTOR Reduction (vph)	0	201	0	0	1	0
Lane Group Flow (vph)	124	18	338	1603	1638	0
Confl. Peds. (#/hr)	17		13			13
Heavy Vehicles (%)	4%	2%	6%	5%	4%	5%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			7	4	8	
Permitted Phases	1	6	4			
Actuated Green, G (s)	11.7	11.7	114.3	114.3	75.9	
Effective Green, g (s)	11.7	11.7	114.3	114.3	75.9	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.54	
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	127	476	3641	2426	
v/s Ratio Prot			c0.17	0.36	0.37	
v/s Ratio Perm	c0.04	0.01	c0.41			
v/c Ratio	0.49	0.14	0.71	0.44	0.68	
Uniform Delay, d1	61.3	59.5	34.6	3.7	23.1	
Progression Factor	1.00	1.00	0.95	3.00	1.00	
Incremental Delay, d2	1.5	0.5	0.5	0.0	1.5	
Delay (s)	62.7	60.0	33.4	11.1	24.7	
Level of Service	E	E	C	B	C	
Approach Delay (s)	61.0			15.0	24.7	
Approach LOS	E			B	C	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
93: Promenade Circle & East Promenade

10/21/2019

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	129	240	59	114	214	75
Future Volume (Veh/h)	129	240	59	114	214	75
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	136	253	62	120	225	79
Pedestrians			5			20
Lane Width (m)			3.3			3.3
Walking Speed (m/s)			1.0			1.0
Percent Blockage			0			2
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	1					
Upstream signal (m)	75					
pX, platoon unblocked						
vC, conflicting volume	5		550	5	323	297
vC1, stage 1 conf vol			5		292	292
vC2, stage 2 conf vol			545		31	5
vCu, unblocked vol	5		550	5	323	297
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	92		85	89	56	85
cM capacity (veh/h)	1615		416	1076	509	543

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	136	253	62	120	225	79
Volume Left	136	0	0	0	225	0
Volume Right	0	253	0	120	0	0
cSH	1615	1700	416	1076	509	543
Volume to Capacity	0.08	0.15	0.15	0.11	0.44	0.15
Queue Length 95th (m)	2.1	0.0	3.9	2.9	17.0	3.8
Control Delay (s)	7.4	0.0	15.2	8.8	17.6	12.7
Lane LOS	A		C	A	C	B
Approach Delay (s)	2.6		10.9		16.3	
Approach LOS			B		C	

Intersection Summary				
Average Delay	9.1			
Intersection Capacity Utilization	35.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
94: South Promenade & Promenade Circle

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	38	97	141	128	275	137
Future Volume (Veh/h)	38	97	141	128	275	137
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	102	148	135	289	144
Pedestrians				5		
Lane Width (m)				3.3		
Walking Speed (m/s)				1.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					129	
pX, platoon unblocked						
vC, conflicting volume	727	0	603	583	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	727	0	603	583	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	86	91	48	61	82	
cM capacity (veh/h)	287	1088	287	349	1617	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	40	102	148	135	289	144
Volume Left	0	0	148	0	289	0
Volume Right	0	102	0	0	0	144
cSH	287	1088	287	349	1617	1700
Volume to Capacity	0.14	0.09	0.52	0.39	0.18	0.08
Queue Length 95th (m)	3.6	2.4	21.0	13.5	4.9	0.0
Control Delay (s)	19.6	8.7	30.2	21.7	7.7	0.0
Lane LOS	C	A	D	C	A	
Approach Delay (s)	11.7		26.2		5.1	
Approach LOS	B		D			

Intersection Summary				
Average Delay	13.2			
Intersection Capacity Utilization	36.4%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: NB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Clark Avenue	84	130.5	157.9	0.5	11
SE Apartment Access	54	7.9	18.1	0.2	32
East Promenade	53	50.2	65.6	0.2	14
Promenade Circle	52	69.3	89.5	0.2	9
Centre Street	47	121.5	156.7	0.2	6
SmartCentres East Ac	33	5.7	17.7	0.2	39
Beverley Glen Boulev	22	7.1	20.3	0.2	43
Atkinson Avenue	11	36.4	53.1	0.3	19
Total		428.6	579.0	2.0	13

Arterial Level of Service: SB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
New Westminster Driv	11	116.7	169.8	0.3	9
Beverley Glen Boulev	22	14.7	31.8	0.3	33
SmartCentres East Ac	33	41.5	58.5	0.2	16
Centre Street	47	81.9	93.1	0.2	7
Promenade Circle	52	4.4	17.8	0.2	46
East Promenade	53	23.7	34.4	0.2	20
SE Apartment Access	54	26.4	42.7	0.2	22
Clark Avenue	84	47.2	96.0	0.2	10
Total		356.5	544.1	1.9	15

Arterial Level of Service: EB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Carl Tennen Street	41	178.5	435.1	0.4	6
Taiga Drive	42	162.0	178.8	0.3	6
New Westminster Driv	43	186.7	205.0	0.3	5
York Region Transit	44	5.1	16.7	0.2	42
North Promenade	45	21.8	27.5	0.1	14
Promenade Village Ac	46	3.1	13.6	0.2	46
Bathurst Street	47	51.0	58.5	0.1	9
Atkinson Avenue	48	16.6	46.2	0.5	43
Total		624.7	981.3	2.1	10

Arterial Level of Service: WB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Atkinson Avenue	48	43.2	73.9	0.4	22
Bathurst Street	47	271.6	303.9	0.5	7
Promenade Village Ac	46	4.0	12.7	0.1	41
Disera Drive	45	26.9	36.5	0.2	17
York Region Transit	44	2.6	8.9	0.1	42
New Westminster Driv	43	37.8	48.4	0.2	14
Taiga Drive	42	16.3	33.0	0.3	32
Vaughan Boulevard	41	6.9	23.0	0.3	46
Total		409.3	540.2	2.1	15

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	201	20	53	204	258	58	772	41	201	1364	427
Future Volume (veh/h)	300	201	20	53	204	258	58	772	41	201	1364	427
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1771	1796	1900	1900	1792	1845	1827	1828	1900	1827	1814	1900
Adj Flow Rate, veh/h	316	212	21	56	215	272	61	813	43	212	1436	449
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	0	6	3	4	4	4	4	5	5
Cap, veh/h	307	712	70	327	632	284	79	1342	71	186	1207	360
Arrive On Green	0.09	0.23	0.23	0.04	0.19	0.19	0.09	0.80	0.80	0.11	0.46	0.46
Sat Flow, veh/h	1687	3134	307	1810	3406	1530	1740	3354	177	1740	2613	779
Grp Volume(v), veh/h	316	114	119	56	215	272	61	421	435	212	923	962
Grp Sat Flow(s),veh/h/ln	1687	1707	1735	1810	1703	1530	1740	1736	1795	1740	1723	1669
Q Serve(g_s), s	12.0	7.8	7.9	3.4	7.7	24.6	4.8	13.2	13.2	15.0	64.7	64.7
Cycle Q Clear(g_c), s	12.0	7.8	7.9	3.4	7.7	24.6	4.8	13.2	13.2	15.0	64.7	64.7
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.10	1.00		0.47
Lane Grp Cap(c), veh/h	307	388	394	327	632	284	79	695	718	186	796	771
V/C Ratio(X)	1.03	0.30	0.30	0.17	0.34	0.96	0.77	0.61	0.61	1.14	1.16	1.25
Avail Cap(c_a), veh/h	307	388	394	402	632	284	99	695	718	186	796	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	44.8	44.9	42.8	49.5	56.5	62.9	9.7	9.7	62.5	37.7	37.7
Incr Delay (d2), s/veh	58.7	0.4	0.4	0.2	0.3	41.5	23.4	3.7	3.5	107.6	85.9	122.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	3.7	3.9	1.7	3.6	13.7	2.8	6.8	7.0	12.8	49.7	55.9
LnGrp Delay(d),s/veh	110.3	45.2	45.3	43.1	49.9	97.9	86.3	13.4	13.3	170.1	123.6	159.8
LnGrp LOS	F	D	D	D	D	F	F	B	B	F	F	F
Approach Vol, veh/h		549			543			917			2097	
Approach Delay, s/veh		82.7			73.2			18.2			144.9	
Approach LOS		F			E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	72.7	15.2	39.8	21.0	64.0	21.0	34.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	63.0	12.0	26.0	15.0	56.0	12.0	26.0
Max Q Clear Time (g_c+I1), s	6.8	66.7	5.4	9.9	17.0	15.2	14.0	26.6
Green Ext Time (p_c), s	0.0	0.0	0.1	7.2	0.0	40.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	98.8
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	232	100	6	371	20	76	1	1	12	2	87
Future Volume (veh/h)	116	232	100	6	371	20	76	1	1	12	2	87
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1829	1900	1900	1831	1900	1845	1900	1900	1900	1828	1900
Adj Flow Rate, veh/h	122	244	105	6	391	21	80	1	1	13	2	92
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	4	4	3	0	0	0	0	0
Cap, veh/h	608	1316	548	662	1853	99	346	183	183	441	7	319
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	945	2382	993	1041	3355	180	1274	868	868	1423	33	1511
Grp Volume(v), veh/h	122	176	173	6	202	210	80	0	2	13	0	94
Grp Sat Flow(s),veh/h/ln	945	1737	1638	1041	1739	1796	1274	0	1737	1423	0	1544
Q Serve(g_s), s	3.8	2.6	2.7	0.1	3.0	3.0	2.9	0.0	0.0	0.4	0.0	2.6
Cycle Q Clear(g_c), s	6.8	2.6	2.7	2.8	3.0	3.0	5.4	0.0	0.0	0.4	0.0	2.6
Prop In Lane	1.00		0.61	1.00		0.10	1.00		0.50	1.00		0.98
Lane Grp Cap(c), veh/h	608	959	905	662	960	992	346	0	367	441	0	326
V/C Ratio(X)	0.20	0.18	0.19	0.01	0.21	0.21	0.23	0.00	0.01	0.03	0.00	0.29
Avail Cap(c_a), veh/h	608	959	905	662	960	992	831	0	1027	983	0	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.5	5.7	5.7	6.4	5.8	5.8	19.1	0.0	15.8	16.0	0.0	16.8
Incr Delay (d2), s/veh	0.7	0.4	0.5	0.0	0.5	0.5	0.3	0.0	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.3	1.3	0.0	1.5	1.6	1.0	0.0	0.0	0.1	0.0	1.1
LnGrp Delay(d),s/veh	8.2	6.1	6.2	6.4	6.2	6.2	19.4	0.0	15.8	16.0	0.0	17.3
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		471			418			82			107	
Approach Delay, s/veh		6.7			6.2			19.3			17.1	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		16.7		34.0		16.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		5.0		7.4		8.8		4.6
Green Ext Time (p_c), s		12.8		1.9		11.3		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	122	179	42	152	62	140	421	52	47	480	123
Future Volume (veh/h)	97	122	179	42	152	62	140	421	52	47	480	123
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.99		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1759	1847	1900	1845	1845	1900	1900	1852	1900
Adj Flow Rate, veh/h	102	128	188	44	160	65	147	443	55	49	505	129
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	3	8	4	4	3	3	3	0	3	3
Cap, veh/h	349	209	307	257	390	159	413	1584	196	490	1399	355
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1130	663	974	986	1238	503	775	3130	386	903	2763	702
Grp Volume(v), veh/h	102	0	316	44	0	225	147	247	251	49	320	314
Grp Sat Flow(s),veh/h/ln	1130	0	1638	986	0	1741	775	1752	1764	903	1759	1706
Q Serve(g_s), s	5.2	0.0	11.0	2.7	0.0	6.8	9.5	5.4	5.5	2.2	7.4	7.5
Cycle Q Clear(g_c), s	12.1	0.0	11.0	13.7	0.0	6.8	17.0	5.4	5.5	7.7	7.4	7.5
Prop In Lane	1.00		0.59	1.00		0.29	1.00		0.22	1.00		0.41
Lane Grp Cap(c), veh/h	349	0	516	257	0	549	413	887	893	490	891	863
V/C Ratio(X)	0.29	0.00	0.61	0.17	0.00	0.41	0.36	0.28	0.28	0.10	0.36	0.36
Avail Cap(c_a), veh/h	396	0	585	298	0	622	413	887	893	490	891	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	19.5	25.3	0.0	18.1	15.2	9.5	9.6	11.8	10.0	10.0
Incr Delay (d2), s/veh	0.5	0.0	1.5	0.3	0.0	0.5	2.4	0.8	0.8	0.4	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.1	0.7	0.0	3.3	2.3	2.8	2.8	0.6	3.8	3.8
LnGrp Delay(d),s/veh	23.3	0.0	21.0	25.6	0.0	18.6	17.6	10.3	10.3	12.2	11.1	11.2
LnGrp LOS	C		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		418			269			645			683	
Approach Delay, s/veh		21.6			19.7			12.0			11.3	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		27.2		40.0		27.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		19.0		14.1		9.7		15.7
Green Ext Time (p_c), s		12.4		5.6		18.6		4.9

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	149	50	85	737	1302	122
Future Volume (veh/h)	149	50	85	737	1302	122
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1863	1845	1792	1827	1900
Adj Flow Rate, veh/h	157	53	89	776	1371	128
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	3	6	4	4
Cap, veh/h	192	174	110	2641	2151	200
Arrive On Green	0.11	0.11	0.06	0.78	1.00	1.00
Sat Flow, veh/h	1740	1583	1757	3495	3302	298
Grp Volume(v), veh/h	157	53	89	776	738	761
Grp Sat Flow(s),veh/h/ln	1740	1583	1757	1703	1736	1774
Q Serve(g_s), s	12.4	4.3	7.0	9.3	0.0	0.0
Cycle Q Clear(g_c), s	12.4	4.3	7.0	9.3	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	192	174	110	2641	1163	1189
V/C Ratio(X)	0.82	0.30	0.81	0.29	0.63	0.64
Avail Cap(c_a), veh/h	429	390	138	2641	1163	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	60.9	57.3	64.8	4.6	0.0	0.0
Incr Delay (d2), s/veh	8.3	1.0	23.9	0.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	1.9	4.1	4.4	0.1	0.1
LnGrp Delay(d),s/veh	69.2	58.3	88.7	4.9	0.2	0.2
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	210			865	1499	
Approach Delay, s/veh	66.5			13.5	0.2	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.8	101.3		23.9		116.1		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	11.0	72.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	9.0	2.0		14.4		11.3		
Green Ext Time (p_c), s	0.1	66.0		1.1		72.7		

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	150	270	207	395	632	188		
Future Volume (veh/h)	150	270	207	395	632	188		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1845	1863	1845	1835	1900		
Adj Flow Rate, veh/h	158	284	218	416	665	198		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	3	2	3	4	4		
Cap, veh/h	374	331	418	2208	1670	497		
Arrive On Green	0.21	0.21	0.63	0.63	0.63	0.63		
Sat Flow, veh/h	1774	1568	638	3597	2742	789		
Grp Volume(v), veh/h	158	284	218	416	437	426		
Grp Sat Flow(s),veh/h/ln	1774	1568	638	1752	1743	1696		
Q Serve(g_s), s	5.8	13.2	19.3	3.8	9.3	9.4		
Cycle Q Clear(g_c), s	5.8	13.2	28.7	3.8	9.3	9.4		
Prop In Lane	1.00	1.00	1.00			0.47		
Lane Grp Cap(c), veh/h	374	331	418	2208	1098	1068		
V/C Ratio(X)	0.42	0.86	0.52	0.19	0.40	0.40		
Avail Cap(c_a), veh/h	424	374	440	2325	1156	1125		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.8	28.7	14.0	5.9	6.9	6.9		
Incr Delay (d2), s/veh	0.8	16.4	1.0	0.0	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	7.2	3.5	1.8	4.4	4.3		
LnGrp Delay(d),s/veh	26.5	45.0	15.0	5.9	7.1	7.1		
LnGrp LOS	C	D	B	A	A	A		
Approach Vol, veh/h	442			634	863			
Approach Delay, s/veh	38.4			9.0	7.1			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		53.5		21.9		53.5		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		50.0		18.0		50.0		
Max Q Clear Time (g_c+I1), s		30.7		15.2		11.4		
Green Ext Time (p_c), s		16.8		0.7		30.5		
Intersection Summary								
HCM 2010 Ctrl Delay			14.9					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	6	37	173	21	54	41	194	166	14	144	50
Future Volume (veh/h)	39	6	37	173	21	54	41	194	166	14	144	50
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.91	0.94		0.91	0.94		0.88	0.96		0.88
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1851	1900	1881	1847	1900	1845	1873	1900	1900	1862	1900
Adj Flow Rate, veh/h	41	6	39	182	22	57	43	204	175	15	152	53
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	20	20	1	0	0	3	1	1	0	1	1
Cap, veh/h	466	65	423	513	140	363	558	417	357	428	607	212
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1195	197	1280	1288	425	1101	1086	871	747	981	1269	442
Grp Volume(v), veh/h	41	0	45	182	0	79	43	0	379	15	0	205
Grp Sat Flow(s),veh/h/ln	1195	0	1477	1288	0	1526	1086	0	1618	981	0	1711
Q Serve(g_s), s	1.6	0.0	1.3	7.1	0.0	2.3	1.5	0.0	10.0	0.7	0.0	4.4
Cycle Q Clear(g_c), s	3.9	0.0	1.3	8.4	0.0	2.3	6.0	0.0	10.0	10.7	0.0	4.4
Prop In Lane	1.00		0.87	1.00		0.72	1.00		0.46	1.00		0.26
Lane Grp Cap(c), veh/h	466	0	488	513	0	504	558	0	774	428	0	819
V/C Ratio(X)	0.09	0.00	0.09	0.35	0.00	0.16	0.08	0.00	0.49	0.04	0.00	0.25
Avail Cap(c_a), veh/h	567	0	613	622	0	633	558	0	774	428	0	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	14.5	17.4	0.0	14.8	11.5	0.0	11.1	14.8	0.0	9.7
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.9	0.0	0.3	0.3	0.0	2.2	0.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.6	2.7	0.0	1.0	0.5	0.0	4.9	0.2	0.0	2.3
LnGrp Delay(d),s/veh	16.4	0.0	14.7	18.3	0.0	15.1	11.7	0.0	13.3	14.9	0.0	10.4
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		86			261			422			220	
Approach Delay, s/veh		15.5			17.4			13.2			10.7	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		26.7		36.0		26.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0				
Max Q Clear Time (g_c+I1), s		12.0		5.9		12.7		10.4				
Green Ext Time (p_c), s		8.8		4.9		8.5		4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			13.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	31	22	22	2	17	68	342	23	61	456	12
Future Volume (veh/h)	5	31	22	22	2	17	68	342	23	61	456	12
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1520	1900	1900	1810	1900	1900	1827	1865	1900	1827	1829	1900
Adj Flow Rate, veh/h	5	33	23	23	2	18	72	360	24	64	480	13
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	25	0	0	5	0	0	4	2	2	4	4	4
Cap, veh/h	315	162	113	318	25	228	612	1991	132	676	2041	55
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1121	1040	725	1293	163	1464	877	3370	224	968	3455	93
Grp Volume(v), veh/h	5	0	56	23	0	20	72	189	195	64	241	252
Grp Sat Flow(s),veh/h/ln	1121	0	1764	1293	0	1626	877	1772	1822	968	1737	1811
Q Serve(g_s), s	0.2	0.0	1.3	0.7	0.0	0.5	2.0	2.3	2.3	1.5	3.1	3.1
Cycle Q Clear(g_c), s	0.7	0.0	1.3	2.1	0.0	0.5	5.1	2.3	2.3	3.9	3.1	3.1
Prop In Lane	1.00		0.41	1.00		0.90	1.00		0.12	1.00		0.05
Lane Grp Cap(c), veh/h	315	0	275	318	0	254	612	1047	1076	676	1026	1070
V/C Ratio(X)	0.02	0.00	0.20	0.07	0.00	0.08	0.12	0.18	0.18	0.09	0.23	0.24
Avail Cap(c_a), veh/h	873	0	1154	962	0	1064	612	1047	1076	676	1026	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	17.4	18.3	0.0	17.1	5.8	4.4	4.4	5.3	4.6	4.6
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.1	0.4	0.4	0.4	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.7	0.3	0.0	0.2	0.5	1.2	1.3	0.5	1.6	1.7
LnGrp Delay(d),s/veh	17.4	0.0	17.8	18.4	0.0	17.2	6.2	4.8	4.8	5.6	5.1	5.1
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		61			43			456			557	
Approach Delay, s/veh		17.8			17.9			5.0			5.2	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		13.4		34.0		13.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		7.1		4.1		5.9		3.3
Green Ext Time (p_c), s		13.4		1.2		14.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	642	41	80	517	105	42	60	79	42	31	16
Future Volume (veh/h)	1	642	41	80	517	105	42	60	79	42	31	16
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1824	1900	1845	1801	1900	1900	1954	1900	1900	1976	1900
Adj Flow Rate, veh/h	1	676	43	84	544	111	44	63	83	44	33	17
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	3	6	6	0	0	0	0	0	0
Cap, veh/h	3	1963	125	107	1848	376	264	134	177	183	216	111
Arrive On Green	0.00	0.59	0.59	0.06	0.65	0.65	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	3308	210	1757	2832	576	1360	760	1001	1251	1224	631
Grp Volume(v), veh/h	1	354	365	84	328	327	44	0	146	44	0	50
Grp Sat Flow(s),veh/h/ln	1810	1733	1786	1757	1711	1697	1360	0	1761	1251	0	1854
Q Serve(g_s), s	0.1	13.6	13.6	6.1	10.7	10.8	3.7	0.0	9.7	4.3	0.0	3.0
Cycle Q Clear(g_c), s	0.1	13.6	13.6	6.1	10.7	10.8	6.6	0.0	9.7	13.9	0.0	3.0
Prop In Lane	1.00		0.12	1.00		0.34	1.00		0.57	1.00		0.34
Lane Grp Cap(c), veh/h	3	1028	1060	107	1117	1107	264	0	310	183	0	327
V/C Ratio(X)	0.29	0.34	0.34	0.78	0.29	0.30	0.17	0.00	0.47	0.24	0.00	0.15
Avail Cap(c_a), veh/h	111	1028	1060	257	1117	1107	396	0	481	304	0	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	13.5	13.5	60.2	9.7	9.7	48.1	0.0	48.1	54.3	0.0	45.3
Incr Delay (d2), s/veh	40.7	0.9	0.9	10.9	0.6	0.6	0.3	0.0	1.1	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.7	7.0	3.3	5.2	5.2	1.4	0.0	4.8	1.5	0.0	1.5
LnGrp Delay(d),s/veh	105.4	14.4	14.4	71.1	10.3	10.4	48.4	0.0	49.2	55.0	0.0	45.5
LnGrp LOS	F	B	B	E	B	B	D		D	E		D
Approach Vol, veh/h		720			739			190			94	
Approach Delay, s/veh		14.5			17.3			49.0			50.0	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	92.3		31.4	13.9	84.6		31.4
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	19.0	53.5		35.5
Max Q Clear Time (g_c+I1), s	2.1	12.8		15.9	8.1	15.6		11.7
Green Ext Time (p_c), s	0.0	34.1		3.2	0.2	27.4		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	280	506	633	34	51	35		
Future Volume (veh/h)	280	506	633	34	51	35		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1810	1814	1900	1827	1863		
Adj Flow Rate, veh/h	295	533	666	36	54	37		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	5	5	5	4	2		
Cap, veh/h	315	2747	1914	103	129	117		
Arrive On Green	0.35	1.00	1.00	1.00	0.07	0.07		
Sat Flow, veh/h	1774	3529	3417	180	1740	1583		
Grp Volume(v), veh/h	295	533	345	357	54	37		
Grp Sat Flow(s),veh/h/ln	1774	1719	1723	1782	1740	1583		
Q Serve(g_s), s	20.9	0.0	0.0	0.0	3.9	2.9		
Cycle Q Clear(g_c), s	20.9	0.0	0.0	0.0	3.9	2.9		
Prop In Lane	1.00			0.10	1.00	1.00		
Lane Grp Cap(c), veh/h	315	2747	992	1026	129	117		
V/C Ratio(X)	0.94	0.19	0.35	0.35	0.42	0.32		
Avail Cap(c_a), veh/h	328	2747	992	1026	335	304		
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.95	0.95	0.82	0.82	1.00	1.00		
Uniform Delay (d), s/veh	41.2	0.0	0.0	0.0	57.5	57.1		
Incr Delay (d2), s/veh	31.9	0.1	0.8	0.8	2.2	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	12.9	0.1	0.2	0.2	1.9	1.3		
LnGrp Delay(d),s/veh	73.1	0.1	0.8	0.8	59.7	58.6		
LnGrp LOS	E	A	A	A	E	E		
Approach Vol, veh/h		828	702		91			
Approach Delay, s/veh		26.2	0.8		59.2			
Approach LOS		C	A		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	29.1	82.3		18.6		111.4		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	24.0	58.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	22.9	2.0		5.9		2.0		
Green Ext Time (p_c), s	0.2	32.5		0.4		40.1		
Intersection Summary								
HCM 2010 Ctrl Delay			17.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	330	130	62	382	149	125	337	45	175	618	127
Future Volume (veh/h)	120	330	130	62	382	149	125	337	45	175	618	127
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1810	1819	1900	1863	1817	1900	1754	1852	1900	1863	1839	1900
Adj Flow Rate, veh/h	126	347	137	65	402	157	132	355	47	184	651	134
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	2	4	4	4	2	2	2	3	3
Cap, veh/h	150	885	342	86	791	305	240	995	131	387	898	185
Arrive On Green	0.17	0.73	0.73	0.10	0.66	0.66	0.07	0.32	0.32	0.06	0.31	0.31
Sat Flow, veh/h	1723	2414	934	1774	2413	929	1670	3115	409	1774	2868	589
Grp Volume(v), veh/h	126	246	238	65	286	273	132	199	203	184	396	389
Grp Sat Flow(s),veh/h/ln	1723	1728	1620	1774	1726	1615	1670	1760	1764	1774	1747	1711
Q Serve(g_s), s	9.2	6.9	7.2	4.6	11.1	11.4	6.9	11.3	11.5	8.0	26.2	26.3
Cycle Q Clear(g_c), s	9.2	6.9	7.2	4.6	11.1	11.4	6.9	11.3	11.5	8.0	26.2	26.3
Prop In Lane	1.00		0.58	1.00		0.58	1.00		0.23	1.00		0.34
Lane Grp Cap(c), veh/h	150	633	594	86	566	530	240	562	564	387	547	536
V/C Ratio(X)	0.84	0.39	0.40	0.75	0.51	0.52	0.55	0.35	0.36	0.48	0.72	0.73
Avail Cap(c_a), veh/h	239	633	594	136	566	530	242	589	590	387	571	559
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	52.8	11.9	12.0	57.9	16.9	17.0	30.4	33.9	34.0	30.2	39.7	39.7
Incr Delay (d2), s/veh	13.4	1.8	2.0	12.3	3.2	3.6	2.6	0.4	0.4	0.8	3.7	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.5	3.5	2.6	5.6	5.5	3.4	5.5	5.6	1.5	13.2	13.0
LnGrp Delay(d),s/veh	66.2	13.7	13.9	70.2	20.1	20.6	33.0	34.3	34.4	31.0	43.4	43.5
LnGrp LOS	E	B	B	E	C	C	C	C	C	C	D	D
Approach Vol, veh/h		610			624			534			969	
Approach Delay, s/veh		24.6			25.5			34.0			41.1	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	50.6	12.8	49.2	12.3	55.6	12.0	50.0				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	18.0	34.0	9.0	42.5	10.0	42.0	8.0	43.5				
Max Q Clear Time (g_c+I1), s	11.2	13.4	8.9	28.3	6.6	9.2	10.0	13.5				
Green Ext Time (p_c), s	0.3	14.0	0.0	11.7	0.1	19.4	0.0	21.7				
Intersection Summary												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	266	167	132	359	78	103	224	159	102	188	85
Future Volume (veh/h)	108	266	167	132	359	78	103	224	159	102	188	85
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	0.96		0.92	0.96		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1804	1900	1696	1859	1900	1743	1900	1881	1900	1864	1900
Adj Flow Rate, veh/h	114	280	176	139	378	82	108	236	167	107	198	89
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	8	8	12	2	2	9	0	1	0	1	1
Cap, veh/h	141	868	525	165	1311	281	199	550	426	236	343	154
Arrive On Green	0.13	0.72	0.72	0.10	0.46	0.46	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1792	2011	1215	1616	2878	617	978	1900	1473	961	1184	532
Grp Volume(v), veh/h	114	237	219	139	230	230	108	236	167	107	0	287
Grp Sat Flow(s),veh/h/ln	1792	1714	1511	1616	1767	1728	978	1900	1473	961	0	1716
Q Serve(g_s), s	8.0	6.5	6.9	11.0	10.6	10.9	13.8	13.1	11.8	13.2	0.0	18.6
Cycle Q Clear(g_c), s	8.0	6.5	6.9	11.0	10.6	10.9	32.3	13.1	11.8	26.3	0.0	18.6
Prop In Lane	1.00		0.80	1.00		0.36	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	141	740	653	165	804	787	199	550	426	236	0	496
V/C Ratio(X)	0.81	0.32	0.34	0.84	0.29	0.29	0.54	0.43	0.39	0.45	0.00	0.58
Avail Cap(c_a), veh/h	289	740	653	261	804	787	209	570	442	247	0	515
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	55.5	11.2	11.3	57.3	22.2	22.2	53.2	37.5	37.0	48.2	0.0	39.4
Incr Delay (d2), s/veh	10.5	1.1	1.4	13.2	0.9	0.9	2.6	0.5	0.6	1.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	3.3	3.1	5.5	5.4	5.4	3.9	7.0	4.9	3.6	0.0	9.0
LnGrp Delay(d),s/veh	66.1	12.3	12.7	70.6	23.1	23.2	55.8	38.0	37.6	49.5	0.0	40.9
LnGrp LOS	E	B	B	E	C	C	E	D	D	D		D
Approach Vol, veh/h		570			599			511			394	
Approach Delay, s/veh		23.2			34.1			41.6			43.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.2	67.2		46.6	19.3	64.1		46.6
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	21.0	47.0		39.0	21.0	47.0		39.0
Max Q Clear Time (g_c+I1), s	10.0	12.9		28.3	13.0	8.9		34.3
Green Ext Time (p_c), s	0.3	17.4		6.6	0.4	18.4		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	355	129	42	426	143	91	224	25	121	339	39
Future Volume (veh/h)	66	355	129	42	426	143	91	224	25	121	339	39
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1854	1900	1900	1858	1900	1776	1859	1900	1845	1832	1900
Adj Flow Rate, veh/h	69	374	136	44	448	151	96	236	26	127	357	41
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	2	2	7	2	2	3	3	3
Cap, veh/h	481	1484	532	545	1517	507	251	880	96	317	863	98
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	798	2538	910	901	2596	867	920	3200	348	1077	3136	357
Grp Volume(v), veh/h	69	258	252	44	303	296	96	129	133	127	197	201
Grp Sat Flow(s),veh/h/ln	798	1762	1686	901	1765	1698	920	1766	1782	1077	1740	1753
Q Serve(g_s), s	4.1	6.1	6.2	2.1	7.4	7.5	8.2	4.9	5.0	9.0	7.9	8.0
Cycle Q Clear(g_c), s	11.6	6.1	6.2	8.4	7.4	7.5	16.2	4.9	5.0	14.0	7.9	8.0
Prop In Lane	1.00		0.54	1.00		0.51	1.00		0.20	1.00		0.20
Lane Grp Cap(c), veh/h	481	1030	986	545	1032	992	251	486	490	317	479	482
V/C Ratio(X)	0.14	0.25	0.26	0.08	0.29	0.30	0.38	0.27	0.27	0.40	0.41	0.42
Avail Cap(c_a), veh/h	481	1030	986	545	1032	992	256	496	500	323	488	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	8.6	8.7	10.7	8.9	8.9	32.0	24.2	24.3	29.8	25.3	25.4
Incr Delay (d2), s/veh	0.6	0.6	0.6	0.3	0.7	0.8	2.0	0.6	0.6	1.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.1	3.0	0.6	3.7	3.7	2.2	2.4	2.5	2.8	3.9	4.0
LnGrp Delay(d),s/veh	12.5	9.2	9.3	11.0	9.6	9.7	34.1	24.9	24.9	31.5	26.5	26.6
LnGrp LOS	B	A	A	B	A	A	C	C	C	C	C	C
Approach Vol, veh/h		579			643			358			525	
Approach Delay, s/veh		9.6			9.8			27.3			27.8	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		29.5		56.0		29.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		10.4		18.2		13.6		16.0
Green Ext Time (p_c), s		32.4		4.7		30.2		6.4

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	154	117	131	104	114	58	359	209	181	555	82
Future Volume (veh/h)	72	154	117	131	104	114	58	359	209	181	555	82
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1900	1900	1900	1834	1900	1863	1869	1900	1863	1831	1900
Adj Flow Rate, veh/h	76	162	123	138	109	120	61	378	220	191	584	86
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	0	4	4	4	2	2	2	2	4	4
Cap, veh/h	344	325	247	263	243	297	448	1133	650	403	1172	172
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.39	0.39	0.39
Sat Flow, veh/h	1125	989	751	555	738	905	1774	2170	1244	813	3040	446
Grp Volume(v), veh/h	76	0	285	171	0	196	61	308	290	191	334	336
Grp Sat Flow(s),veh/h/ln	1125	0	1739	723	0	1476	1774	1776	1637	813	1740	1746
Q Serve(g_s), s	4.5	0.0	10.6	10.4	0.0	8.3	1.4	8.1	8.3	15.2	11.7	11.8
Cycle Q Clear(g_c), s	12.8	0.0	10.6	21.0	0.0	8.3	1.4	8.1	8.3	15.2	11.7	11.8
Prop In Lane	1.00		0.43	0.81		0.61	1.00		0.76	1.00		0.26
Lane Grp Cap(c), veh/h	344	0	571	318	0	485	448	928	855	403	671	673
V/C Ratio(X)	0.22	0.00	0.50	0.54	0.00	0.40	0.14	0.33	0.34	0.47	0.50	0.50
Avail Cap(c_a), veh/h	352	0	584	327	0	495	448	928	855	403	671	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	21.7	29.1	0.0	20.9	11.3	11.1	11.2	19.9	18.8	18.8
Incr Delay (d2), s/veh	0.3	0.0	0.7	1.7	0.0	0.5	0.6	1.0	1.1	4.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	5.2	3.7	0.0	3.4	0.7	4.2	4.0	3.8	6.1	6.2
LnGrp Delay(d),s/veh	26.2	0.0	22.4	30.8	0.0	21.4	11.9	12.1	12.2	23.8	21.4	21.4
LnGrp LOS	C		C	C		C	B	B	B	C	C	C
Approach Vol, veh/h		361			367			659			861	
Approach Delay, s/veh		23.2			25.8			12.1			22.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		32.4		48.0		32.4
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	3.4	17.2		23.0		10.3		14.8
Green Ext Time (p_c), s	0.1	12.4		2.8		26.0		7.2

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2	14	8	1	33	15	300	11	52	412	47
Future Volume (veh/h)	28	2	14	8	1	33	15	300	11	52	412	47
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.98		0.94	0.97		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1853	1900	1900	1856	1900	1900	1833	1900	1900	1815	1900
Adj Flow Rate, veh/h	29	2	15	8	1	35	16	316	12	55	434	49
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	5	5	5
Cap, veh/h	249	36	82	104	35	215	120	1892	71	221	1582	175
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	776	209	477	117	203	1247	73	3199	119	229	2675	296
Grp Volume(v), veh/h	46	0	0	44	0	0	179	0	165	277	0	261
Grp Sat Flow(s),veh/h/ln	1462	0	0	1567	0	0	1753	0	1638	1623	0	1578
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	4.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.2	0.0	0.0	2.2	0.0	2.3	3.7	0.0	4.1
Prop In Lane	0.63		0.33	0.18		0.80	0.09		0.07	0.20		0.19
Lane Grp Cap(c), veh/h	367	0	0	354	0	0	1114	0	969	1045	0	933
V/C Ratio(X)	0.13	0.00	0.00	0.12	0.00	0.00	0.16	0.00	0.17	0.26	0.00	0.28
Avail Cap(c_a), veh/h	906	0	0	930	0	0	1114	0	969	1045	0	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	0.0	17.9	0.0	0.0	4.7	0.0	4.7	5.0	0.0	5.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.4	0.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.5	0.0	0.0	1.2	0.0	1.2	2.0	0.0	1.9
LnGrp Delay(d),s/veh	18.0	0.0	0.0	18.0	0.0	0.0	5.0	0.0	5.1	5.6	0.0	5.8
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		46			44			344			538	
Approach Delay, s/veh		18.0			18.0			5.0			5.7	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		14.7		36.0		14.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		4.3		3.2		6.1		3.1
Green Ext Time (p_c), s		14.7		1.2		14.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	25	25	1	37	13	309	22	46	499	6
Future Volume (veh/h)	8	1	25	25	1	37	13	309	22	46	499	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.98		0.94	0.97		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1817	1900	1900	1871	1900	1900	1866	1900	1900	1836	1900
Adj Flow Rate, veh/h	8	1	26	26	1	39	14	325	23	48	525	6
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	3	3	3
Cap, veh/h	136	48	233	200	47	187	113	1641	113	177	1630	18
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	160	232	1132	400	228	907	44	3194	220	155	3173	35
Grp Volume(v), veh/h	35	0	0	66	0	0	190	0	172	297	0	282
Grp Sat Flow(s),veh/h/ln	1524	0	0	1535	0	0	1814	0	1644	1702	0	1662
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	4.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	1.4	0.0	0.0	2.4	0.0	2.4	4.0	0.0	4.3
Prop In Lane	0.23		0.74	0.39		0.59	0.07		0.13	0.16		0.02
Lane Grp Cap(c), veh/h	417	0	0	433	0	0	1022	0	845	972	0	854
V/C Ratio(X)	0.08	0.00	0.00	0.15	0.00	0.00	0.19	0.00	0.20	0.31	0.00	0.33
Avail Cap(c_a), veh/h	1005	0	0	1024	0	0	1022	0	845	972	0	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	14.1	0.0	0.0	5.6	0.0	5.7	6.0	0.0	6.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.5	0.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.7	0.0	0.0	1.3	0.0	1.2	2.2	0.0	2.1
LnGrp Delay(d),s/veh	13.9	0.0	0.0	14.2	0.0	0.0	6.0	0.0	6.2	6.9	0.0	7.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		35			66			362			579	
Approach Delay, s/veh		13.9			14.2			6.1			7.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		14.8		28.0		14.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		4.4		2.8		6.3		3.4
Green Ext Time (p_c), s		11.8		1.3		10.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	13	24	1	25	42	311	46	29	490	26
Future Volume (veh/h)	8	1	13	24	1	25	42	311	46	29	490	26
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.96		0.96	0.99		0.94	0.98		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1818	1900	1900	1821	1900	1900	1845	1900	1900	1834	1900
Adj Flow Rate, veh/h	8	1	14	25	1	26	44	327	48	31	516	27
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	4	4	4
Cap, veh/h	191	54	243	254	38	195	193	1306	189	118	1593	81
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	375	196	889	575	139	714	224	2569	371	90	3133	160
Grp Volume(v), veh/h	23	0	0	52	0	0	214	0	205	299	0	275
Grp Sat Flow(s),veh/h/ln	1460	0	0	1429	0	0	1577	0	1587	1753	0	1629
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	5.5
Cycle Q Clear(g_c), s	0.6	0.0	0.0	1.3	0.0	0.0	3.5	0.0	4.0	5.3	0.0	5.5
Prop In Lane	0.35		0.61	0.48		0.50	0.21		0.23	0.10		0.10
Lane Grp Cap(c), veh/h	488	0	0	488	0	0	881	0	807	964	0	828
V/C Ratio(X)	0.05	0.00	0.00	0.11	0.00	0.00	0.24	0.00	0.25	0.31	0.00	0.33
Avail Cap(c_a), veh/h	743	0	0	739	0	0	881	0	807	964	0	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	15.0	0.0	0.0	7.5	0.0	7.6	7.9	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.8	0.8	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.6	0.0	0.0	1.9	0.0	1.9	2.9	0.0	2.7
LnGrp Delay(d),s/veh	14.8	0.0	0.0	15.1	0.0	0.0	8.2	0.0	8.4	8.8	0.0	9.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		23			52			419			574	
Approach Delay, s/veh		14.8			15.1			8.3			8.9	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.1		34.0		21.1		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		3.3		6.0		2.6		7.5
Green Ext Time (p_c), s		0.9		14.6		0.9		13.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	221	721	46	119	481	160	30	253	75	128	434	129
Future Volume (veh/h)	221	721	46	119	481	160	30	253	75	128	434	129
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1845	1900	1881	1827	1881	1900	1871	1900	1900	1835	1900
Adj Flow Rate, veh/h	233	759	48	125	506	168	32	266	79	135	457	136
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	4	1	0	2	2	0	4	4
Cap, veh/h	379	1374	616	328	1356	608	305	860	249	431	903	266
Arrive On Green	0.06	0.39	0.39	0.02	0.13	0.13	0.04	0.32	0.32	0.06	0.34	0.34
Sat Flow, veh/h	1810	3505	1573	1792	3471	1557	1810	2699	782	1810	2636	777
Grp Volume(v), veh/h	233	759	48	125	506	168	32	173	172	135	301	292
Grp Sat Flow(s),veh/h/ln	1810	1752	1573	1792	1736	1557	1810	1778	1704	1810	1743	1671
Q Serve(g_s), s	7.0	18.5	2.1	4.5	14.7	10.7	1.3	8.1	8.4	5.3	15.1	15.3
Cycle Q Clear(g_c), s	7.0	18.5	2.1	4.5	14.7	10.7	1.3	8.1	8.4	5.3	15.1	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.47
Lane Grp Cap(c), veh/h	379	1374	616	328	1356	608	305	566	543	431	597	572
V/C Ratio(X)	0.62	0.55	0.08	0.38	0.37	0.28	0.10	0.31	0.32	0.31	0.50	0.51
Avail Cap(c_a), veh/h	379	1374	616	331	1356	608	349	630	604	431	618	592
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	26.0	21.0	20.5	35.6	33.9	23.8	28.3	28.4	22.1	28.7	28.8
Incr Delay (d2), s/veh	3.0	1.6	0.2	0.7	0.8	1.1	0.1	0.3	0.3	0.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	9.3	1.0	2.3	7.2	4.8	0.6	4.0	4.0	2.7	7.4	7.2
LnGrp Delay(d),s/veh	25.8	27.6	21.2	21.2	36.4	35.0	24.0	28.6	28.7	22.5	29.4	29.5
LnGrp LOS	C	C	C	C	D	C	C	C	C	C	C	C
Approach Vol, veh/h		1040			799			377			728	
Approach Delay, s/veh		26.9			33.7			28.3			28.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	49.1	7.4	43.7	10.0	49.0	10.0	41.0
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	39.0	7.0	39.0	7.0	39.0	7.0	39.0
Max Q Clear Time (g_c+I1), s	6.5	20.5	3.3	17.3	9.0	16.7	7.3	10.4
Green Ext Time (p_c), s	0.0	16.3	0.0	14.4	0.0	19.2	0.0	17.5

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	835	704	309	191	64
Future Volume (veh/h)	86	835	704	309	191	64
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1863	1863	1863	1863	1810
Adj Flow Rate, veh/h	91	879	741	325	201	67
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	2	2	5
Cap, veh/h	468	2651	2343	1026	252	218
Arrive On Green	0.02	0.25	0.66	0.66	0.14	0.14
Sat Flow, veh/h	1757	3632	3632	1550	1774	1538
Grp Volume(v), veh/h	91	879	741	325	201	67
Grp Sat Flow(s),veh/h/ln	1757	1770	1770	1550	1774	1538
Q Serve(g_s), s	1.6	22.4	9.8	9.9	12.1	4.3
Cycle Q Clear(g_c), s	1.6	22.4	9.8	9.9	12.1	4.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	468	2651	2343	1026	252	218
V/C Ratio(X)	0.19	0.33	0.32	0.32	0.80	0.31
Avail Cap(c_a), veh/h	475	2651	2343	1026	661	573
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.9	18.8	7.9	8.0	45.7	42.3
Incr Delay (d2), s/veh	0.2	0.3	0.4	0.8	5.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	11.2	4.8	4.4	6.3	3.8
LnGrp Delay(d),s/veh	5.1	19.2	8.3	8.8	51.4	43.1
LnGrp LOS	A	B	A	A	D	D
Approach Vol, veh/h		970	1066		268	
Approach Delay, s/veh		17.8	8.4		49.3	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		88.4		21.6	9.6	78.8		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		24.4		14.1	3.6	11.9		
Green Ext Time (p_c), s		30.3		1.6	0.1	32.5		

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	680	247	180	591	182	310	1273	181	237	1099	96
Future Volume (veh/h)	83	680	247	180	591	182	310	1273	181	237	1099	96
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.94	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1827	1827	1845	1863	1863	1845	1900	1863	1831	1900
Adj Flow Rate, veh/h	87	716	260	189	622	192	326	1340	191	249	1157	101
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	4	3	2	2	3	3	2	4	4
Cap, veh/h	288	1231	522	252	1239	535	249	1408	201	213	1486	130
Arrive On Green	0.05	0.35	0.35	0.05	0.35	0.35	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	1774	3505	1485	1740	3505	1515	1774	4224	602	1774	4456	389
Grp Volume(v), veh/h	87	716	260	189	622	192	326	995	536	249	808	450
Grp Sat Flow(s),veh/h/ln	1774	1752	1485	1740	1752	1515	1774	1568	1690	1774	1556	1731
Q Serve(g_s), s	4.0	21.7	17.9	7.0	18.1	12.2	11.0	40.3	40.3	11.0	30.4	30.4
Cycle Q Clear(g_c), s	4.0	21.7	17.9	7.0	18.1	12.2	11.0	40.3	40.3	11.0	30.4	30.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.22
Lane Grp Cap(c), veh/h	288	1231	522	252	1239	535	249	1046	564	213	1038	577
V/C Ratio(X)	0.30	0.58	0.50	0.75	0.50	0.36	1.31	0.95	0.95	1.17	0.78	0.78
Avail Cap(c_a), veh/h	292	1254	531	252	1254	542	249	1046	564	213	1038	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	34.4	33.2	34.2	33.0	31.1	34.4	42.3	42.3	35.4	39.0	39.0
Incr Delay (d2), s/veh	0.6	0.7	0.7	10.8	0.3	0.4	165.2	18.3	27.6	113.8	5.8	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	10.6	7.4	4.0	8.9	5.2	15.0	20.1	23.1	14.4	13.9	16.1
LnGrp Delay(d),s/veh	26.4	35.1	33.9	44.9	33.3	31.5	199.6	60.6	69.9	149.1	44.8	49.0
LnGrp LOS	C	D	C	D	C	C	F	E	E	F	D	D
Approach Vol, veh/h		1063			1003			1857			1507	
Approach Delay, s/veh		34.1			35.2			87.7			63.3	
Approach LOS		C			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	50.8	11.0	53.2	15.0	50.8	10.7	53.5
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	11.0	42.5	7.0	46.5	11.0	42.5	7.0	46.5
Max Q Clear Time (g_c+I1), s	13.0	32.4	9.0	23.7	13.0	42.3	6.0	20.1
Green Ext Time (p_c), s	0.0	10.0	0.0	20.1	0.0	0.2	0.0	22.8

Intersection Summary	
HCM 2010 Ctrl Delay	60.7
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1004	61	31	955	43	44
Future Volume (veh/h)	1004	61	31	955	43	44
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.93	0.99		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1865	1900	1900	1864	1900	1900
Adj Flow Rate, veh/h	1057	64	33	1005	45	46
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2663	161	87	2542	185	165
Arrive On Green	0.79	0.79	1.00	1.00	0.10	0.10
Sat Flow, veh/h	3471	204	67	3309	1810	1615
Grp Volume(v), veh/h	554	567	530	508	45	46
Grp Sat Flow(s),veh/h/ln	1772	1810	1679	1611	1810	1615
Q Serve(g_s), s	10.6	10.6	0.0	0.0	2.5	2.9
Cycle Q Clear(g_c), s	10.6	10.6	0.0	0.0	2.5	2.9
Prop In Lane		0.11	0.06		1.00	1.00
Lane Grp Cap(c), veh/h	1397	1427	1359	1271	185	165
V/C Ratio(X)	0.40	0.40	0.39	0.40	0.24	0.28
Avail Cap(c_a), veh/h	1397	1427	1359	1271	510	455
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.6	3.6	0.0	0.0	45.5	45.6
Incr Delay (d2), s/veh	0.5	0.5	0.8	0.9	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	5.4	0.3	0.3	1.3	1.3
LnGrp Delay(d),s/veh	4.1	4.1	0.8	0.9	46.1	46.5
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1121			1038	91	
Approach Delay, s/veh	4.1			0.9	46.3	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		92.7				92.7		17.3
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		67.0				67.0		31.0
Max Q Clear Time (g_c+I1), s		12.6				2.0		4.9
Green Ext Time (p_c), s		50.9				60.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	4.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	881	62	12	799	245	33	17	7	284	22	222
Future Volume (veh/h)	105	881	62	12	799	245	33	17	7	284	22	222
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.97		0.94	0.94		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1863	1900	1900	1863	1863	1900	1821	1900	1845	1789	1900
Adj Flow Rate, veh/h	111	927	65	13	841	258	35	18	7	299	23	234
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	2	0	2	2	0	6	6	3	8	8
Cap, veh/h	346	1981	139	353	1780	783	231	367	143	439	39	398
Arrive On Green	0.12	1.00	1.00	0.50	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1740	3349	235	573	3539	1557	1106	1226	477	1291	131	1328
Grp Volume(v), veh/h	111	490	502	13	841	258	35	0	25	299	0	257
Grp Sat Flow(s),veh/h/ln	1740	1770	1815	573	1770	1557	1106	0	1703	1291	0	1459
Q Serve(g_s), s	3.1	0.0	0.0	1.3	17.0	10.9	3.1	0.0	1.1	23.6	0.0	16.5
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.3	17.0	10.9	19.5	0.0	1.1	24.7	0.0	16.5
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.28	1.00		0.91
Lane Grp Cap(c), veh/h	346	1047	1073	353	1780	783	231	0	510	439	0	437
V/C Ratio(X)	0.32	0.47	0.47	0.04	0.47	0.33	0.15	0.00	0.05	0.68	0.00	0.59
Avail Cap(c_a), veh/h	382	1047	1073	353	1780	783	332	0	666	557	0	570
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	11.5	0.0	0.0	13.9	17.8	16.3	41.1	0.0	27.4	36.2	0.0	32.8
Incr Delay (d2), s/veh	0.5	1.5	1.5	0.2	0.9	1.1	0.3	0.0	0.0	2.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.4	0.4	0.2	8.5	4.9	1.0	0.0	0.5	8.7	0.0	6.8
LnGrp Delay(d),s/veh	12.0	1.5	1.5	14.1	18.7	17.4	41.4	0.0	27.4	38.5	0.0	34.0
LnGrp LOS	B	A	A	B	B	B	D		C	D		C
Approach Vol, veh/h		1103			1112			60			556	
Approach Delay, s/veh		2.5			18.4			35.6			36.4	
Approach LOS		A			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		71.1		38.9	9.8	61.3		38.9
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		55.0		43.0	9.0	43.0		43.0
Max Q Clear Time (g_c+I1), s		2.0		26.7	5.1	19.0		21.5
Green Ext Time (p_c), s		51.7		5.8	0.1	23.6		6.8

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
11: Bathurst Street & New Westminster Drive/Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	201	20	53	204	258	58	772	41	201	1364	427
Future Volume (veh/h)	300	201	20	53	204	258	58	772	41	201	1364	427
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1771	1796	1900	1900	1792	1845	1827	1828	1900	1827	1814	1900
Adj Flow Rate, veh/h	316	212	21	56	215	272	61	813	43	212	1436	449
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	0	6	3	4	4	4	4	5	5
Cap, veh/h	307	712	70	327	632	284	79	1342	71	186	1207	360
Arrive On Green	0.09	0.23	0.23	0.04	0.19	0.19	0.09	0.80	0.80	0.11	0.46	0.46
Sat Flow, veh/h	1687	3134	307	1810	3406	1530	1740	3354	177	1740	2613	779
Grp Volume(v), veh/h	316	114	119	56	215	272	61	421	435	212	923	962
Grp Sat Flow(s),veh/h/ln	1687	1707	1735	1810	1703	1530	1740	1736	1795	1740	1723	1669
Q Serve(g_s), s	12.0	7.8	7.9	3.4	7.7	24.6	4.8	13.2	13.2	15.0	64.7	64.7
Cycle Q Clear(g_c), s	12.0	7.8	7.9	3.4	7.7	24.6	4.8	13.2	13.2	15.0	64.7	64.7
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.10	1.00		0.47
Lane Grp Cap(c), veh/h	307	388	394	327	632	284	79	695	718	186	796	771
V/C Ratio(X)	1.03	0.30	0.30	0.17	0.34	0.96	0.77	0.61	0.61	1.14	1.16	1.25
Avail Cap(c_a), veh/h	307	388	394	402	632	284	99	695	718	186	796	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	44.8	44.9	42.8	49.5	56.5	62.9	9.7	9.7	62.5	37.7	37.7
Incr Delay (d2), s/veh	58.7	0.4	0.4	0.2	0.3	41.5	23.4	3.7	3.5	107.6	85.9	122.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.0	6.7	7.0	3.1	6.6	19.7	5.1	10.9	11.2	23.0	89.5	100.6
LnGrp Delay(d),s/veh	110.3	45.2	45.3	43.1	49.9	97.9	86.3	13.4	13.3	170.1	123.6	159.8
LnGrp LOS	F	D	D	D	D	F	F	B	B	F	F	F
Approach Vol, veh/h		549			543			917			2097	
Approach Delay, s/veh		82.7			73.2			18.2			144.9	
Approach LOS		F			E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	72.7	15.2	39.8	21.0	64.0	21.0	34.0
Change Period (Y+Rc), s	6.0	8.0	9.0	8.0	6.0	8.0	9.0	8.0
Max Green Setting (Gmax), s	8.0	63.0	12.0	26.0	15.0	56.0	12.0	26.0
Max Q Clear Time (g_c+I1), s	6.8	66.7	5.4	9.9	17.0	15.2	14.0	26.6
Green Ext Time (p_c), s	0.0	0.0	0.1	7.2	0.0	40.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	98.8
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
12: Rosedale Heights Drive/Highcliffe Drive & Atkinson Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	232	100	6	371	20	76	1	1	12	2	87
Future Volume (veh/h)	116	232	100	6	371	20	76	1	1	12	2	87
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1829	1900	1900	1831	1900	1845	1900	1900	1900	1828	1900
Adj Flow Rate, veh/h	122	244	105	6	391	21	80	1	1	13	2	92
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	4	4	3	0	0	0	0	0
Cap, veh/h	608	1316	548	662	1853	99	346	183	183	441	7	319
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	945	2382	993	1041	3355	180	1274	868	868	1423	33	1511
Grp Volume(v), veh/h	122	176	173	6	202	210	80	0	2	13	0	94
Grp Sat Flow(s),veh/h/ln	945	1737	1638	1041	1739	1796	1274	0	1737	1423	0	1544
Q Serve(g_s), s	3.8	2.6	2.7	0.1	3.0	3.0	2.9	0.0	0.0	0.4	0.0	2.6
Cycle Q Clear(g_c), s	6.8	2.6	2.7	2.8	3.0	3.0	5.4	0.0	0.0	0.4	0.0	2.6
Prop In Lane	1.00		0.61	1.00		0.10	1.00		0.50	1.00		0.98
Lane Grp Cap(c), veh/h	608	959	905	662	960	992	346	0	367	441	0	326
V/C Ratio(X)	0.20	0.18	0.19	0.01	0.21	0.21	0.23	0.00	0.01	0.03	0.00	0.29
Avail Cap(c_a), veh/h	608	959	905	662	960	992	831	0	1027	983	0	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.5	5.7	5.7	6.4	5.8	5.8	19.1	0.0	15.8	16.0	0.0	16.8
Incr Delay (d2), s/veh	0.7	0.4	0.5	0.0	0.5	0.5	0.3	0.0	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	2.4	2.4	0.1	2.8	2.9	1.9	0.0	0.0	0.3	0.0	2.1
LnGrp Delay(d),s/veh	8.2	6.1	6.2	6.4	6.2	6.2	19.4	0.0	15.8	16.0	0.0	17.3
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		471			418			82			107	
Approach Delay, s/veh		6.7			6.2			19.3			17.1	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		16.7		34.0		16.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		30.0		28.0		30.0
Max Q Clear Time (g_c+I1), s		5.0		7.4		8.8		4.6
Green Ext Time (p_c), s		12.8		1.9		11.3		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
21: New Westminster Drive & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	122	179	42	152	62	140	421	52	47	480	123
Future Volume (veh/h)	97	122	179	42	152	62	140	421	52	47	480	123
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.99		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1900	1759	1847	1900	1845	1845	1900	1900	1852	1900
Adj Flow Rate, veh/h	102	128	188	44	160	65	147	443	55	49	505	129
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	3	8	4	4	3	3	3	0	3	3
Cap, veh/h	349	209	307	257	390	159	413	1584	196	490	1399	355
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1130	663	974	986	1238	503	775	3130	386	903	2763	702
Grp Volume(v), veh/h	102	0	316	44	0	225	147	247	251	49	320	314
Grp Sat Flow(s),veh/h/ln	1130	0	1638	986	0	1741	775	1752	1764	903	1759	1706
Q Serve(g_s), s	5.2	0.0	11.0	2.7	0.0	6.8	9.5	5.4	5.5	2.2	7.4	7.5
Cycle Q Clear(g_c), s	12.1	0.0	11.0	13.7	0.0	6.8	17.0	5.4	5.5	7.7	7.4	7.5
Prop In Lane	1.00		0.59	1.00		0.29	1.00		0.22	1.00		0.41
Lane Grp Cap(c), veh/h	349	0	516	257	0	549	413	887	893	490	891	863
V/C Ratio(X)	0.29	0.00	0.61	0.17	0.00	0.41	0.36	0.28	0.28	0.10	0.36	0.36
Avail Cap(c_a), veh/h	396	0	585	298	0	622	413	887	893	490	891	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	19.5	25.3	0.0	18.1	15.2	9.5	9.6	11.8	10.0	10.0
Incr Delay (d2), s/veh	0.5	0.0	1.5	0.3	0.0	0.5	2.4	0.8	0.8	0.4	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	8.8	1.3	0.0	6.0	4.1	5.0	5.1	1.1	6.9	6.8
LnGrp Delay(d),s/veh	23.3	0.0	21.0	25.6	0.0	18.6	17.6	10.3	10.3	12.2	11.1	11.2
LnGrp LOS	C		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		418			269			645			683	
Approach Delay, s/veh		21.6			19.7			12.0			11.3	
Approach LOS		C			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		27.2		40.0		27.2
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		34.0		24.0		34.0		24.0
Max Q Clear Time (g_c+I1), s		19.0		14.1		9.7		15.7
Green Ext Time (p_c), s		12.4		5.6		18.6		4.9

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
22: Bathurst Street & Beverley Glen Boulevard

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	149	50	85	737	1302	122
Future Volume (veh/h)	149	50	85	737	1302	122
Number	7	14	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1863	1845	1792	1827	1900
Adj Flow Rate, veh/h	157	53	89	776	1371	128
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	3	6	4	4
Cap, veh/h	192	174	110	2641	2151	200
Arrive On Green	0.11	0.11	0.06	0.78	1.00	1.00
Sat Flow, veh/h	1740	1583	1757	3495	3302	298
Grp Volume(v), veh/h	157	53	89	776	738	761
Grp Sat Flow(s),veh/h/ln	1740	1583	1757	1703	1736	1774
Q Serve(g_s), s	12.4	4.3	7.0	9.3	0.0	0.0
Cycle Q Clear(g_c), s	12.4	4.3	7.0	9.3	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	192	174	110	2641	1163	1189
V/C Ratio(X)	0.82	0.30	0.81	0.29	0.63	0.64
Avail Cap(c_a), veh/h	429	390	138	2641	1163	1189
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.09	0.09
Uniform Delay (d), s/veh	60.9	57.3	64.8	4.6	0.0	0.0
Incr Delay (d2), s/veh	8.3	1.0	23.9	0.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.5	3.5	7.5	7.9	0.1	0.1
LnGrp Delay(d),s/veh	69.2	58.3	88.7	4.9	0.2	0.2
LnGrp LOS	E	E	F	A	A	A
Approach Vol, veh/h	210			865	1499	
Approach Delay, s/veh	66.5			13.5	0.2	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.8	101.3		23.9		116.1		
Change Period (Y+Rc), s	6.0	7.5		8.5		7.5		
Max Green Setting (Gmax), s	11.0	72.5		34.5		89.5		
Max Q Clear Time (g_c+I1), s	9.0	2.0		14.4		11.3		
Green Ext Time (p_c), s	0.1	66.0		1.1		72.7		

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
31: New Westminster Drive & No Frills East Access

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	150	270	207	395	632	188		
Future Volume (veh/h)	150	270	207	395	632	188		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1845	1863	1845	1835	1900		
Adj Flow Rate, veh/h	158	284	218	416	665	198		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	3	2	3	4	4		
Cap, veh/h	374	331	418	2208	1670	497		
Arrive On Green	0.21	0.21	0.63	0.63	0.63	0.63		
Sat Flow, veh/h	1774	1568	638	3597	2742	789		
Grp Volume(v), veh/h	158	284	218	416	437	426		
Grp Sat Flow(s),veh/h/ln	1774	1568	638	1752	1743	1696		
Q Serve(g_s), s	5.8	13.2	19.3	3.8	9.3	9.4		
Cycle Q Clear(g_c), s	5.8	13.2	28.7	3.8	9.3	9.4		
Prop In Lane	1.00	1.00	1.00			0.47		
Lane Grp Cap(c), veh/h	374	331	418	2208	1098	1068		
V/C Ratio(X)	0.42	0.86	0.52	0.19	0.40	0.40		
Avail Cap(c_a), veh/h	424	374	440	2325	1156	1125		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.8	28.7	14.0	5.9	6.9	6.9		
Incr Delay (d2), s/veh	0.8	16.4	1.0	0.0	0.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	5.3	11.6	6.3	3.2	7.9	7.7		
LnGrp Delay(d),s/veh	26.5	45.0	15.0	5.9	7.1	7.1		
LnGrp LOS	C	D	B	A	A	A		
Approach Vol, veh/h	442			634	863			
Approach Delay, s/veh	38.4			9.0	7.1			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		53.5		21.9		53.5		
Change Period (Y+Rc), s		6.0		6.0		6.0		
Max Green Setting (Gmax), s		50.0		18.0		50.0		
Max Q Clear Time (g_c+I1), s		30.7		15.2		11.4		
Green Ext Time (p_c), s		16.8		0.7		30.5		
Intersection Summary								
HCM 2010 Ctrl Delay			14.9					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
32: Disera Drive & Smart Centres Access

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	6	37	173	21	54	41	194	166	14	144	50
Future Volume (veh/h)	39	6	37	173	21	54	41	194	166	14	144	50
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.91	0.94		0.91	0.94		0.88	0.96		0.88
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1792	1851	1900	1881	1847	1900	1845	1873	1900	1900	1862	1900
Adj Flow Rate, veh/h	41	6	39	182	22	57	43	204	175	15	152	53
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	20	20	1	0	0	3	1	1	0	1	1
Cap, veh/h	466	65	423	513	140	363	558	417	357	428	607	212
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1195	197	1280	1288	425	1101	1086	871	747	981	1269	442
Grp Volume(v), veh/h	41	0	45	182	0	79	43	0	379	15	0	205
Grp Sat Flow(s),veh/h/ln	1195	0	1477	1288	0	1526	1086	0	1618	981	0	1711
Q Serve(g_s), s	1.6	0.0	1.3	7.1	0.0	2.3	1.5	0.0	10.0	0.7	0.0	4.4
Cycle Q Clear(g_c), s	3.9	0.0	1.3	8.4	0.0	2.3	6.0	0.0	10.0	10.7	0.0	4.4
Prop In Lane	1.00		0.87	1.00		0.72	1.00		0.46	1.00		0.26
Lane Grp Cap(c), veh/h	466	0	488	513	0	504	558	0	774	428	0	819
V/C Ratio(X)	0.09	0.00	0.09	0.35	0.00	0.16	0.08	0.00	0.49	0.04	0.00	0.25
Avail Cap(c_a), veh/h	567	0	613	622	0	633	558	0	774	428	0	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	14.5	17.4	0.0	14.8	11.5	0.0	11.1	14.8	0.0	9.7
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.9	0.0	0.3	0.3	0.0	2.2	0.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	1.0	4.8	0.0	1.8	0.9	0.0	8.5	0.4	0.0	4.1
LnGrp Delay(d),s/veh	16.4	0.0	14.7	18.3	0.0	15.1	11.7	0.0	13.3	14.9	0.0	10.4
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		86			261			422			220	
Approach Delay, s/veh		15.5			17.4			13.2			10.7	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.0		26.7		36.0		26.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		30.0		26.0		30.0		26.0				
Max Q Clear Time (g_c+I1), s		12.0		5.9		12.7		10.4				
Green Ext Time (p_c), s		8.8		4.9		8.5		4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			13.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
34: Atkinson Avenue & Rosedale Heights Drive

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	31	22	22	2	17	68	342	23	61	456	12
Future Volume (veh/h)	5	31	22	22	2	17	68	342	23	61	456	12
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1520	1900	1900	1810	1900	1900	1827	1865	1900	1827	1829	1900
Adj Flow Rate, veh/h	5	33	23	23	2	18	72	360	24	64	480	13
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	25	0	0	5	0	0	4	2	2	4	4	4
Cap, veh/h	315	162	113	318	25	228	612	1991	132	676	2041	55
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1121	1040	725	1293	163	1464	877	3370	224	968	3455	93
Grp Volume(v), veh/h	5	0	56	23	0	20	72	189	195	64	241	252
Grp Sat Flow(s),veh/h/ln	1121	0	1764	1293	0	1626	877	1772	1822	968	1737	1811
Q Serve(g_s), s	0.2	0.0	1.3	0.7	0.0	0.5	2.0	2.3	2.3	1.5	3.1	3.1
Cycle Q Clear(g_c), s	0.7	0.0	1.3	2.1	0.0	0.5	5.1	2.3	2.3	3.9	3.1	3.1
Prop In Lane	1.00		0.41	1.00		0.90	1.00		0.12	1.00		0.05
Lane Grp Cap(c), veh/h	315	0	275	318	0	254	612	1047	1076	676	1026	1070
V/C Ratio(X)	0.02	0.00	0.20	0.07	0.00	0.08	0.12	0.18	0.18	0.09	0.23	0.24
Avail Cap(c_a), veh/h	873	0	1154	962	0	1064	612	1047	1076	676	1026	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	17.4	18.3	0.0	17.1	5.8	4.4	4.4	5.3	4.6	4.6
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.1	0.0	0.1	0.4	0.4	0.4	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	1.2	0.5	0.0	0.4	1.0	2.2	2.3	0.8	2.9	3.0
LnGrp Delay(d),s/veh	17.4	0.0	17.8	18.4	0.0	17.2	6.2	4.8	4.8	5.6	5.1	5.1
LnGrp LOS	B		B	B		B	A	A	A	A	A	A
Approach Vol, veh/h		61			43			456			557	
Approach Delay, s/veh		17.8			17.9			5.0			5.2	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.0		13.4		34.0		13.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		28.0		31.0		28.0		31.0
Max Q Clear Time (g_c+I1), s		7.1		4.1		5.9		3.3
Green Ext Time (p_c), s		13.4		1.2		14.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
41: Carl Tennen Street/Vaughan Boulevard & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	642	41	80	517	105	42	60	79	42	31	16
Future Volume (veh/h)	1	642	41	80	517	105	42	60	79	42	31	16
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1824	1900	1845	1801	1900	1900	1954	1900	1900	1976	1900
Adj Flow Rate, veh/h	1	676	43	84	544	111	44	63	83	44	33	17
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	3	6	6	0	0	0	0	0	0
Cap, veh/h	3	1963	125	107	1848	376	264	134	177	183	216	111
Arrive On Green	0.00	0.59	0.59	0.06	0.65	0.65	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	3308	210	1757	2832	576	1360	760	1001	1251	1224	631
Grp Volume(v), veh/h	1	354	365	84	328	327	44	0	146	44	0	50
Grp Sat Flow(s),veh/h/ln	1810	1733	1786	1757	1711	1697	1360	0	1761	1251	0	1854
Q Serve(g_s), s	0.1	13.6	13.6	6.1	10.7	10.8	3.7	0.0	9.7	4.3	0.0	3.0
Cycle Q Clear(g_c), s	0.1	13.6	13.6	6.1	10.7	10.8	6.6	0.0	9.7	13.9	0.0	3.0
Prop In Lane	1.00		0.12	1.00		0.34	1.00		0.57	1.00		0.34
Lane Grp Cap(c), veh/h	3	1028	1060	107	1117	1107	264	0	310	183	0	327
V/C Ratio(X)	0.29	0.34	0.34	0.78	0.29	0.30	0.17	0.00	0.47	0.24	0.00	0.15
Avail Cap(c_a), veh/h	111	1028	1060	257	1117	1107	396	0	481	304	0	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	13.5	13.5	60.2	9.7	9.7	48.1	0.0	48.1	54.3	0.0	45.3
Incr Delay (d2), s/veh	40.7	0.9	0.9	10.9	0.6	0.6	0.3	0.0	1.1	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	11.0	11.3	6.0	8.8	8.8	2.5	0.0	8.4	2.7	0.0	2.8
LnGrp Delay(d),s/veh	105.4	14.4	14.4	71.1	10.3	10.4	48.4	0.0	49.2	55.0	0.0	45.5
LnGrp LOS	F	B	B	E	B	B	D		D	E		D
Approach Vol, veh/h		720			739			190			94	
Approach Delay, s/veh		14.5			17.3			49.0			50.0	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	92.3		31.4	13.9	84.6		31.4
Change Period (Y+Rc), s	6.0	7.5		8.5	6.0	7.5		8.5
Max Green Setting (Gmax), s	8.0	64.5		35.5	19.0	53.5		35.5
Max Q Clear Time (g_c+I1), s	2.1	12.8		15.9	8.1	15.6		11.7
Green Ext Time (p_c), s	0.0	34.1		3.2	0.2	27.4		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
42: Centre Street & Taiga Drive

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	280	506	633	34	51	35		
Future Volume (veh/h)	280	506	633	34	51	35		
Number	1	6	2	12	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1810	1814	1900	1827	1863		
Adj Flow Rate, veh/h	295	533	666	36	54	37		
Adj No. of Lanes	1	2	2	0	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	5	5	5	4	2		
Cap, veh/h	315	2747	1914	103	129	117		
Arrive On Green	0.35	1.00	1.00	1.00	0.07	0.07		
Sat Flow, veh/h	1774	3529	3417	180	1740	1583		
Grp Volume(v), veh/h	295	533	345	357	54	37		
Grp Sat Flow(s),veh/h/ln	1774	1719	1723	1782	1740	1583		
Q Serve(g_s), s	20.9	0.0	0.0	0.0	3.9	2.9		
Cycle Q Clear(g_c), s	20.9	0.0	0.0	0.0	3.9	2.9		
Prop In Lane	1.00			0.10	1.00	1.00		
Lane Grp Cap(c), veh/h	315	2747	992	1026	129	117		
V/C Ratio(X)	0.94	0.19	0.35	0.35	0.42	0.32		
Avail Cap(c_a), veh/h	328	2747	992	1026	335	304		
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.95	0.95	0.82	0.82	1.00	1.00		
Uniform Delay (d), s/veh	41.2	0.0	0.0	0.0	57.5	57.1		
Incr Delay (d2), s/veh	31.9	0.1	0.8	0.8	2.2	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	18.7	0.1	0.4	0.4	3.5	2.4		
LnGrp Delay(d),s/veh	73.1	0.1	0.8	0.8	59.7	58.6		
LnGrp LOS	E	A	A	A	E	E		
Approach Vol, veh/h		828	702		91			
Approach Delay, s/veh		26.2	0.8		59.2			
Approach LOS		C	A		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	29.1	82.3		18.6		111.4		
Change Period (Y+Rc), s	6.0	7.5		9.0		7.5		
Max Green Setting (Gmax), s	24.0	58.5		25.0		88.5		
Max Q Clear Time (g_c+I1), s	22.9	2.0		5.9		2.0		
Green Ext Time (p_c), s	0.2	32.5		0.4		40.1		
Intersection Summary								
HCM 2010 Ctrl Delay			17.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
43: New Westminster Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	330	130	62	382	149	125	337	45	175	618	127
Future Volume (veh/h)	120	330	130	62	382	149	125	337	45	175	618	127
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1810	1819	1900	1863	1817	1900	1754	1852	1900	1863	1839	1900
Adj Flow Rate, veh/h	126	347	137	65	402	157	132	355	47	184	651	134
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	5	5	5	2	4	4	4	2	2	2	3	3
Cap, veh/h	150	885	342	86	791	305	240	995	131	387	898	185
Arrive On Green	0.17	0.73	0.73	0.10	0.66	0.66	0.07	0.32	0.32	0.06	0.31	0.31
Sat Flow, veh/h	1723	2414	934	1774	2413	929	1670	3115	409	1774	2868	589
Grp Volume(v), veh/h	126	246	238	65	286	273	132	199	203	184	396	389
Grp Sat Flow(s),veh/h/ln	1723	1728	1620	1774	1726	1615	1670	1760	1764	1774	1747	1711
Q Serve(g_s), s	9.2	6.9	7.2	4.6	11.1	11.4	6.9	11.3	11.5	8.0	26.2	26.3
Cycle Q Clear(g_c), s	9.2	6.9	7.2	4.6	11.1	11.4	6.9	11.3	11.5	8.0	26.2	26.3
Prop In Lane	1.00		0.58	1.00		0.58	1.00		0.23	1.00		0.34
Lane Grp Cap(c), veh/h	150	633	594	86	566	530	240	562	564	387	547	536
V/C Ratio(X)	0.84	0.39	0.40	0.75	0.51	0.52	0.55	0.35	0.36	0.48	0.72	0.73
Avail Cap(c_a), veh/h	239	633	594	136	566	530	242	589	590	387	571	559
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	52.8	11.9	12.0	57.9	16.9	17.0	30.4	33.9	34.0	30.2	39.7	39.7
Incr Delay (d2), s/veh	13.4	1.8	2.0	12.3	3.2	3.6	2.6	0.4	0.4	0.8	3.7	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	6.2	6.3	4.6	9.5	9.4	6.1	9.4	9.5	2.6	18.7	18.5
LnGrp Delay(d),s/veh	66.2	13.7	13.9	70.2	20.1	20.6	33.0	34.3	34.4	31.0	43.4	43.5
LnGrp LOS	E	B	B	E	C	C	C	C	C	C	D	D
Approach Vol, veh/h		610			624			534			969	
Approach Delay, s/veh		24.6			25.5			34.0			41.1	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	50.6	12.8	49.2	12.3	55.6	12.0	50.0				
Change Period (Y+Rc), s	6.0	8.0	4.0	8.5	6.0	8.0	4.0	8.5				
Max Green Setting (Gmax), s	18.0	34.0	9.0	42.5	10.0	42.0	8.0	43.5				
Max Q Clear Time (g_c+I1), s	11.2	13.4	8.9	28.3	6.6	9.2	10.0	13.5				
Green Ext Time (p_c), s	0.3	14.0	0.0	11.7	0.1	19.4	0.0	21.7				
Intersection Summary												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
45: North Promenade/Disera Drive & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	266	167	132	359	78	103	224	159	102	188	85
Future Volume (veh/h)	108	266	167	132	359	78	103	224	159	102	188	85
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	0.96		0.92	0.96		0.92
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1881	1804	1900	1696	1859	1900	1743	1900	1881	1900	1864	1900
Adj Flow Rate, veh/h	114	280	176	139	378	82	108	236	167	107	198	89
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	8	8	12	2	2	9	0	1	0	1	1
Cap, veh/h	141	868	525	165	1311	281	199	550	426	236	343	154
Arrive On Green	0.13	0.72	0.72	0.10	0.46	0.46	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1792	2011	1215	1616	2878	617	978	1900	1473	961	1184	532
Grp Volume(v), veh/h	114	237	219	139	230	230	108	236	167	107	0	287
Grp Sat Flow(s),veh/h/ln	1792	1714	1511	1616	1767	1728	978	1900	1473	961	0	1716
Q Serve(g_s), s	8.0	6.5	6.9	11.0	10.6	10.9	13.8	13.1	11.8	13.2	0.0	18.6
Cycle Q Clear(g_c), s	8.0	6.5	6.9	11.0	10.6	10.9	32.3	13.1	11.8	26.3	0.0	18.6
Prop In Lane	1.00		0.80	1.00		0.36	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	141	740	653	165	804	787	199	550	426	236	0	496
V/C Ratio(X)	0.81	0.32	0.34	0.84	0.29	0.29	0.54	0.43	0.39	0.45	0.00	0.58
Avail Cap(c_a), veh/h	289	740	653	261	804	787	209	570	442	247	0	515
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	55.5	11.2	11.3	57.3	22.2	22.2	53.2	37.5	37.0	48.2	0.0	39.4
Incr Delay (d2), s/veh	10.5	1.1	1.4	13.2	0.9	0.9	2.6	0.5	0.6	1.3	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.8	5.9	5.5	9.4	9.2	9.2	7.0	11.3	8.5	6.5	0.0	13.7
LnGrp Delay(d),s/veh	66.1	12.3	12.7	70.6	23.1	23.2	55.8	38.0	37.6	49.5	0.0	40.9
LnGrp LOS	E	B	B	E	C	C	E	D	D	D		D
Approach Vol, veh/h		570			599			511			394	
Approach Delay, s/veh		23.2			34.1			41.6			43.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.2	67.2		46.6	19.3	64.1		46.6
Change Period (Y+Rc), s	6.0	8.0		9.0	6.0	8.0		9.0
Max Green Setting (Gmax), s	21.0	47.0		39.0	21.0	47.0		39.0
Max Q Clear Time (g_c+I1), s	10.0	12.9		28.3	13.0	8.9		34.3
Green Ext Time (p_c), s	0.3	17.4		6.6	0.4	18.4		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
48: Atkinson Avenue & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	355	129	42	426	143	91	224	25	121	339	39
Future Volume (veh/h)	66	355	129	42	426	143	91	224	25	121	339	39
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.98		0.96	0.98		0.96
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1854	1900	1900	1858	1900	1776	1859	1900	1845	1832	1900
Adj Flow Rate, veh/h	69	374	136	44	448	151	96	236	26	127	357	41
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	3	3	0	2	2	7	2	2	3	3	3
Cap, veh/h	481	1484	532	545	1517	507	251	880	96	317	863	98
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	798	2538	910	901	2596	867	920	3200	348	1077	3136	357
Grp Volume(v), veh/h	69	258	252	44	303	296	96	129	133	127	197	201
Grp Sat Flow(s),veh/h/ln	798	1762	1686	901	1765	1698	920	1766	1782	1077	1740	1753
Q Serve(g_s), s	4.1	6.1	6.2	2.1	7.4	7.5	8.2	4.9	5.0	9.0	7.9	8.0
Cycle Q Clear(g_c), s	11.6	6.1	6.2	8.4	7.4	7.5	16.2	4.9	5.0	14.0	7.9	8.0
Prop In Lane	1.00		0.54	1.00		0.51	1.00		0.20	1.00		0.20
Lane Grp Cap(c), veh/h	481	1030	986	545	1032	992	251	486	490	317	479	482
V/C Ratio(X)	0.14	0.25	0.26	0.08	0.29	0.30	0.38	0.27	0.27	0.40	0.41	0.42
Avail Cap(c_a), veh/h	481	1030	986	545	1032	992	256	496	500	323	488	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	8.6	8.7	10.7	8.9	8.9	32.0	24.2	24.3	29.8	25.3	25.4
Incr Delay (d2), s/veh	0.6	0.6	0.6	0.3	0.7	0.8	2.0	0.6	0.6	1.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	5.6	5.5	1.0	6.7	6.6	4.0	4.4	4.5	5.0	7.1	7.2
LnGrp Delay(d),s/veh	12.5	9.2	9.3	11.0	9.6	9.7	34.1	24.9	24.9	31.5	26.5	26.6
LnGrp LOS	B	A	A	B	A	A	C	C	C	C	C	C
Approach Vol, veh/h		579			643			358			525	
Approach Delay, s/veh		9.6			9.8			27.3			27.8	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		56.0		29.5		56.0		29.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		24.0		50.0		24.0
Max Q Clear Time (g_c+I1), s		10.4		18.2		13.6		16.0
Green Ext Time (p_c), s		32.4		4.7		30.2		6.4

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
51: New Westminster Drive & Brownridge Drive/West Promenade

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	154	117	131	104	114	58	359	209	181	555	82
Future Volume (veh/h)	72	154	117	131	104	114	58	359	209	181	555	82
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1900	1900	1900	1834	1900	1863	1869	1900	1863	1831	1900
Adj Flow Rate, veh/h	76	162	123	138	109	120	61	378	220	191	584	86
Adj No. of Lanes	1	1	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	0	4	4	4	2	2	2	2	4	4
Cap, veh/h	344	325	247	263	243	297	448	1133	650	403	1172	172
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.39	0.39	0.39
Sat Flow, veh/h	1125	989	751	555	738	905	1774	2170	1244	813	3040	446
Grp Volume(v), veh/h	76	0	285	171	0	196	61	308	290	191	334	336
Grp Sat Flow(s),veh/h/ln	1125	0	1739	723	0	1476	1774	1776	1637	813	1740	1746
Q Serve(g_s), s	4.5	0.0	10.6	10.4	0.0	8.3	1.4	8.1	8.3	15.2	11.7	11.8
Cycle Q Clear(g_c), s	12.8	0.0	10.6	21.0	0.0	8.3	1.4	8.1	8.3	15.2	11.7	11.8
Prop In Lane	1.00		0.43	0.81		0.61	1.00		0.76	1.00		0.26
Lane Grp Cap(c), veh/h	344	0	571	318	0	485	448	928	855	403	671	673
V/C Ratio(X)	0.22	0.00	0.50	0.54	0.00	0.40	0.14	0.33	0.34	0.47	0.50	0.50
Avail Cap(c_a), veh/h	352	0	584	327	0	495	448	928	855	403	671	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	21.7	29.1	0.0	20.9	11.3	11.1	11.2	19.9	18.8	18.8
Incr Delay (d2), s/veh	0.3	0.0	0.7	1.7	0.0	0.5	0.6	1.0	1.1	4.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.0	8.9	6.6	0.0	6.2	1.3	7.5	7.1	6.9	10.2	10.3
LnGrp Delay(d),s/veh	26.2	0.0	22.4	30.8	0.0	21.4	11.9	12.1	12.2	23.8	21.4	21.4
LnGrp LOS	C		C	C		C	B	B	B	C	C	C
Approach Vol, veh/h		361			367			659			861	
Approach Delay, s/veh		23.2			25.8			12.1			22.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.0	37.0		32.4		48.0		32.4
Change Period (Y+Rc), s	3.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	8.0	31.0		27.0		42.0		27.0
Max Q Clear Time (g_c+I1), s	3.4	17.2		23.0		10.3		14.8
Green Ext Time (p_c), s	0.1	12.4		2.8		26.0		7.2

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
55: Atkinson Avenue & Campbell Avenue/Manor Gate

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2	14	8	1	33	15	300	11	52	412	47
Future Volume (veh/h)	28	2	14	8	1	33	15	300	11	52	412	47
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.98		0.94	0.97		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1853	1900	1900	1856	1900	1900	1833	1900	1900	1815	1900
Adj Flow Rate, veh/h	29	2	15	8	1	35	16	316	12	55	434	49
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	5	5	5
Cap, veh/h	249	36	82	104	35	215	120	1892	71	221	1582	175
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	776	209	477	117	203	1247	73	3199	119	229	2675	296
Grp Volume(v), veh/h	46	0	0	44	0	0	179	0	165	277	0	261
Grp Sat Flow(s),veh/h/ln	1462	0	0	1567	0	0	1753	0	1638	1623	0	1578
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	4.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.2	0.0	0.0	2.2	0.0	2.3	3.7	0.0	4.1
Prop In Lane	0.63		0.33	0.18		0.80	0.09		0.07	0.20		0.19
Lane Grp Cap(c), veh/h	367	0	0	354	0	0	1114	0	969	1045	0	933
V/C Ratio(X)	0.13	0.00	0.00	0.12	0.00	0.00	0.16	0.00	0.17	0.26	0.00	0.28
Avail Cap(c_a), veh/h	906	0	0	930	0	0	1114	0	969	1045	0	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	0.0	17.9	0.0	0.0	4.7	0.0	4.7	5.0	0.0	5.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.4	0.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	0.0	1.0	0.0	0.0	2.1	0.0	2.1	3.6	0.0	3.5
LnGrp Delay(d),s/veh	18.0	0.0	0.0	18.0	0.0	0.0	5.0	0.0	5.1	5.6	0.0	5.8
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		46			44			344			538	
Approach Delay, s/veh		18.0			18.0			5.0			5.7	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		14.7		36.0		14.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		30.0		28.0		30.0		28.0
Max Q Clear Time (g_c+I1), s		4.3		3.2		6.1		3.1
Green Ext Time (p_c), s		14.7		1.2		14.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
61: Atkinson Avenue & Arnold Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	25	25	1	37	13	309	22	46	499	6
Future Volume (veh/h)	8	1	25	25	1	37	13	309	22	46	499	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	0.98		0.94	0.97		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1817	1900	1900	1871	1900	1900	1866	1900	1900	1836	1900
Adj Flow Rate, veh/h	8	1	26	26	1	39	14	325	23	48	525	6
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	3	3	3
Cap, veh/h	136	48	233	200	47	187	113	1641	113	177	1630	18
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	160	232	1132	400	228	907	44	3194	220	155	3173	35
Grp Volume(v), veh/h	35	0	0	66	0	0	190	0	172	297	0	282
Grp Sat Flow(s),veh/h/ln	1524	0	0	1535	0	0	1814	0	1644	1702	0	1662
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	4.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	1.4	0.0	0.0	2.4	0.0	2.4	4.0	0.0	4.3
Prop In Lane	0.23		0.74	0.39		0.59	0.07		0.13	0.16		0.02
Lane Grp Cap(c), veh/h	417	0	0	433	0	0	1022	0	845	972	0	854
V/C Ratio(X)	0.08	0.00	0.00	0.15	0.00	0.00	0.19	0.00	0.20	0.31	0.00	0.33
Avail Cap(c_a), veh/h	1005	0	0	1024	0	0	1022	0	845	972	0	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	14.1	0.0	0.0	5.6	0.0	5.7	6.0	0.0	6.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.5	0.8	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.0	0.0	1.2	0.0	0.0	2.4	0.0	2.2	4.0	0.0	3.8
LnGrp Delay(d),s/veh	13.9	0.0	0.0	14.2	0.0	0.0	6.0	0.0	6.2	6.9	0.0	7.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		35			66			362			579	
Approach Delay, s/veh		13.9			14.2			6.1			7.0	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.0		14.8		28.0		14.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		22.0		26.0		22.0		26.0
Max Q Clear Time (g_c+I1), s		4.4		2.8		6.3		3.4
Green Ext Time (p_c), s		11.8		1.3		10.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
71: Atkinson Avenue & Spring Gate Boulevard

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	13	24	1	25	42	311	46	29	490	26
Future Volume (veh/h)	8	1	13	24	1	25	42	311	46	29	490	26
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.96		0.96	0.99		0.94	0.98		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1818	1900	1900	1821	1900	1900	1845	1900	1900	1834	1900
Adj Flow Rate, veh/h	8	1	14	25	1	26	44	327	48	31	516	27
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	4	4	4
Cap, veh/h	191	54	243	254	38	195	193	1306	189	118	1593	81
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	375	196	889	575	139	714	224	2569	371	90	3133	160
Grp Volume(v), veh/h	23	0	0	52	0	0	214	0	205	299	0	275
Grp Sat Flow(s),veh/h/ln	1460	0	0	1429	0	0	1577	0	1587	1753	0	1629
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	5.5
Cycle Q Clear(g_c), s	0.6	0.0	0.0	1.3	0.0	0.0	3.5	0.0	4.0	5.3	0.0	5.5
Prop In Lane	0.35		0.61	0.48		0.50	0.21		0.23	0.10		0.10
Lane Grp Cap(c), veh/h	488	0	0	488	0	0	881	0	807	964	0	828
V/C Ratio(X)	0.05	0.00	0.00	0.11	0.00	0.00	0.24	0.00	0.25	0.31	0.00	0.33
Avail Cap(c_a), veh/h	743	0	0	739	0	0	881	0	807	964	0	828
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	15.0	0.0	0.0	7.5	0.0	7.6	7.9	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.8	0.8	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	0.0	1.1	0.0	0.0	3.5	0.0	3.4	5.2	0.0	4.8
LnGrp Delay(d),s/veh	14.8	0.0	0.0	15.1	0.0	0.0	8.2	0.0	8.4	8.8	0.0	9.1
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		23			52			419			574	
Approach Delay, s/veh		14.8			15.1			8.3			8.9	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.1		34.0		21.1		34.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		25.0		28.0		25.0		28.0
Max Q Clear Time (g_c+I1), s		3.3		6.0		2.6		7.5
Green Ext Time (p_c), s		0.9		14.6		0.9		13.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
81: New Westminster Drive & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	221	721	46	119	481	160	30	253	75	128	434	129
Future Volume (veh/h)	221	721	46	119	481	160	30	253	75	128	434	129
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.99		0.97	0.98		0.97
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1900	1845	1900	1881	1827	1881	1900	1871	1900	1900	1835	1900
Adj Flow Rate, veh/h	233	759	48	125	506	168	32	266	79	135	457	136
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	1	4	1	0	2	2	0	4	4
Cap, veh/h	379	1374	616	328	1356	608	305	860	249	431	903	266
Arrive On Green	0.06	0.39	0.39	0.02	0.13	0.13	0.04	0.32	0.32	0.06	0.34	0.34
Sat Flow, veh/h	1810	3505	1573	1792	3471	1557	1810	2699	782	1810	2636	777
Grp Volume(v), veh/h	233	759	48	125	506	168	32	173	172	135	301	292
Grp Sat Flow(s),veh/h/ln	1810	1752	1573	1792	1736	1557	1810	1778	1704	1810	1743	1671
Q Serve(g_s), s	7.0	18.5	2.1	4.5	14.7	10.7	1.3	8.1	8.4	5.3	15.1	15.3
Cycle Q Clear(g_c), s	7.0	18.5	2.1	4.5	14.7	10.7	1.3	8.1	8.4	5.3	15.1	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.47
Lane Grp Cap(c), veh/h	379	1374	616	328	1356	608	305	566	543	431	597	572
V/C Ratio(X)	0.62	0.55	0.08	0.38	0.37	0.28	0.10	0.31	0.32	0.31	0.50	0.51
Avail Cap(c_a), veh/h	379	1374	616	331	1356	608	349	630	604	431	618	592
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	26.0	21.0	20.5	35.6	33.9	23.8	28.3	28.4	22.1	28.7	28.8
Incr Delay (d2), s/veh	3.0	1.6	0.2	0.7	0.8	1.1	0.1	0.3	0.3	0.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	14.3	1.7	4.1	11.6	8.4	1.1	7.2	7.2	4.9	11.8	11.6
LnGrp Delay(d),s/veh	25.8	27.6	21.2	21.2	36.4	35.0	24.0	28.6	28.7	22.5	29.4	29.5
LnGrp LOS	C	C	C	C	D	C	C	C	C	C	C	C
Approach Vol, veh/h		1040			799			377			728	
Approach Delay, s/veh		26.9			33.7			28.3			28.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	49.1	7.4	43.7	10.0	49.0	10.0	41.0
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	39.0	7.0	39.0	7.0	39.0	7.0	39.0
Max Q Clear Time (g_c+I1), s	6.5	20.5	3.3	17.3	9.0	16.7	7.3	10.4
Green Ext Time (p_c), s	0.0	16.3	0.0	14.4	0.0	19.2	0.0	17.5

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
82: Clark Avenue & South Promenade

10/21/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	835	704	309	191	64
Future Volume (veh/h)	86	835	704	309	191	64
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1863	1863	1863	1863	1810
Adj Flow Rate, veh/h	91	879	741	325	201	67
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	2	2	5
Cap, veh/h	468	2651	2343	1026	252	218
Arrive On Green	0.02	0.25	0.66	0.66	0.14	0.14
Sat Flow, veh/h	1757	3632	3632	1550	1774	1538
Grp Volume(v), veh/h	91	879	741	325	201	67
Grp Sat Flow(s),veh/h/ln	1757	1770	1770	1550	1774	1538
Q Serve(g_s), s	1.6	22.4	9.8	9.9	12.1	4.3
Cycle Q Clear(g_c), s	1.6	22.4	9.8	9.9	12.1	4.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	468	2651	2343	1026	252	218
V/C Ratio(X)	0.19	0.33	0.32	0.32	0.80	0.31
Avail Cap(c_a), veh/h	475	2651	2343	1026	661	573
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.9	18.8	7.9	8.0	45.7	42.3
Incr Delay (d2), s/veh	0.2	0.3	0.4	0.8	5.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	16.6	8.5	7.8	10.4	6.9
LnGrp Delay(d),s/veh	5.1	19.2	8.3	8.8	51.4	43.1
LnGrp LOS	A	B	A	A	D	D
Approach Vol, veh/h		970	1066		268	
Approach Delay, s/veh		17.8	8.4		49.3	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		88.4		21.6	9.6	78.8		
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		
Max Green Setting (Gmax), s		57.0		41.0	7.0	47.0		
Max Q Clear Time (g_c+I1), s		24.4		14.1	3.6	11.9		
Green Ext Time (p_c), s		30.3		1.6	0.1	32.5		

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
84: Bathurst Street & Clark Avenue

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	680	247	180	591	182	310	1273	181	237	1099	96
Future Volume (veh/h)	83	680	247	180	591	182	310	1273	181	237	1099	96
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.94	1.00		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1863	1845	1827	1827	1845	1863	1863	1845	1900	1863	1831	1900
Adj Flow Rate, veh/h	87	716	260	189	622	192	326	1340	191	249	1157	101
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	4	4	3	2	2	3	3	2	4	4
Cap, veh/h	288	1231	522	252	1239	535	249	1408	201	213	1486	130
Arrive On Green	0.05	0.35	0.35	0.05	0.35	0.35	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	1774	3505	1485	1740	3505	1515	1774	4224	602	1774	4456	389
Grp Volume(v), veh/h	87	716	260	189	622	192	326	995	536	249	808	450
Grp Sat Flow(s),veh/h/ln	1774	1752	1485	1740	1752	1515	1774	1568	1690	1774	1556	1731
Q Serve(g_s), s	4.0	21.7	17.9	7.0	18.1	12.2	11.0	40.3	40.3	11.0	30.4	30.4
Cycle Q Clear(g_c), s	4.0	21.7	17.9	7.0	18.1	12.2	11.0	40.3	40.3	11.0	30.4	30.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		0.22
Lane Grp Cap(c), veh/h	288	1231	522	252	1239	535	249	1046	564	213	1038	577
V/C Ratio(X)	0.30	0.58	0.50	0.75	0.50	0.36	1.31	0.95	0.95	1.17	0.78	0.78
Avail Cap(c_a), veh/h	292	1254	531	252	1254	542	249	1046	564	213	1038	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	34.4	33.2	34.2	33.0	31.1	34.4	42.3	42.3	35.4	39.0	39.0
Incr Delay (d2), s/veh	0.6	0.7	0.7	10.8	0.3	0.4	165.2	18.3	27.6	113.8	5.8	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	15.9	11.9	7.1	13.5	8.7	26.9	27.4	31.0	25.9	20.0	22.7
LnGrp Delay(d),s/veh	26.4	35.1	33.9	44.9	33.3	31.5	199.6	60.6	69.9	149.1	44.8	49.0
LnGrp LOS	C	D	C	D	C	C	F	E	E	F	D	D
Approach Vol, veh/h		1063			1003			1857			1507	
Approach Delay, s/veh		34.1			35.2			87.7			63.3	
Approach LOS		C			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	50.8	11.0	53.2	15.0	50.8	10.7	53.5
Change Period (Y+Rc), s	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5
Max Green Setting (Gmax), s	11.0	42.5	7.0	46.5	11.0	42.5	7.0	46.5
Max Q Clear Time (g_c+I1), s	13.0	32.4	9.0	23.7	13.0	42.3	6.0	20.1
Green Ext Time (p_c), s	0.0	10.0	0.0	20.1	0.0	0.2	0.0	22.8

Intersection Summary	
HCM 2010 Ctrl Delay	60.7
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
85: York Hill Boulevard & Clark Avenue

10/21/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1004	61	31	955	43	44
Future Volume (veh/h)	1004	61	31	955	43	44
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.93	0.99		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1865	1900	1900	1864	1900	1900
Adj Flow Rate, veh/h	1057	64	33	1005	45	46
Adj No. of Lanes	2	0	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	2663	161	87	2542	185	165
Arrive On Green	0.79	0.79	1.00	1.00	0.10	0.10
Sat Flow, veh/h	3471	204	67	3309	1810	1615
Grp Volume(v), veh/h	554	567	530	508	45	46
Grp Sat Flow(s),veh/h/ln	1772	1810	1679	1611	1810	1615
Q Serve(g_s), s	10.6	10.6	0.0	0.0	2.5	2.9
Cycle Q Clear(g_c), s	10.6	10.6	0.0	0.0	2.5	2.9
Prop In Lane		0.11	0.06		1.00	1.00
Lane Grp Cap(c), veh/h	1397	1427	1359	1271	185	165
V/C Ratio(X)	0.40	0.40	0.39	0.40	0.24	0.28
Avail Cap(c_a), veh/h	1397	1427	1359	1271	510	455
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.6	3.6	0.0	0.0	45.5	45.6
Incr Delay (d2), s/veh	0.5	0.5	0.8	0.9	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.1	8.3	0.6	0.6	2.3	2.4
LnGrp Delay(d),s/veh	4.1	4.1	0.8	0.9	46.1	46.5
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1121			1038	91	
Approach Delay, s/veh	4.1			0.9	46.3	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		92.7				92.7		17.3
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		67.0				67.0		31.0
Max Q Clear Time (g_c+I1), s		12.6				2.0		4.9
Green Ext Time (p_c), s		50.9				60.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	4.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	881	62	12	799	245	33	17	7	284	22	222
Future Volume (veh/h)	105	881	62	12	799	245	33	17	7	284	22	222
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	0.97		0.94	0.94		0.94
Parking Bus, Adj	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 Sat Flow, veh/h/ln	1827	1863	1900	1900	1863	1863	1900	1821	1900	1845	1789	1900
Adj Flow Rate, veh/h	111	927	65	13	841	258	35	18	7	299	23	234
Adj No. of Lanes	1	2	0	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	2	2	0	2	2	0	6	6	3	8	8
Cap, veh/h	346	1981	139	353	1780	783	231	367	143	439	39	398
Arrive On Green	0.12	1.00	1.00	0.50	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1740	3349	235	573	3539	1557	1106	1226	477	1291	131	1328
Grp Volume(v), veh/h	111	490	502	13	841	258	35	0	25	299	0	257
Grp Sat Flow(s),veh/h/ln	1740	1770	1815	573	1770	1557	1106	0	1703	1291	0	1459
Q Serve(g_s), s	3.1	0.0	0.0	1.3	17.0	10.9	3.1	0.0	1.1	23.6	0.0	16.5
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.3	17.0	10.9	19.5	0.0	1.1	24.7	0.0	16.5
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.28	1.00		0.91
Lane Grp Cap(c), veh/h	346	1047	1073	353	1780	783	231	0	510	439	0	437
V/C Ratio(X)	0.32	0.47	0.47	0.04	0.47	0.33	0.15	0.00	0.05	0.68	0.00	0.59
Avail Cap(c_a), veh/h	382	1047	1073	353	1780	783	332	0	666	557	0	570
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	11.5	0.0	0.0	13.9	17.8	16.3	41.1	0.0	27.4	36.2	0.0	32.8
Incr Delay (d2), s/veh	0.5	1.5	1.5	0.2	0.9	1.1	0.3	0.0	0.0	2.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.8	0.8	0.4	13.3	8.5	1.7	0.0	1.0	13.4	0.0	11.0
LnGrp Delay(d),s/veh	12.0	1.5	1.5	14.1	18.7	17.4	41.4	0.0	27.4	38.5	0.0	34.0
LnGrp LOS	B	A	A	B	B	B	D		C	D		C
Approach Vol, veh/h		1103			1112			60			556	
Approach Delay, s/veh		2.5			18.4			35.6			36.4	
Approach LOS		A			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		71.1		38.9	9.8	61.3		38.9
Change Period (Y+Rc), s		6.0		6.0	3.0	6.0		6.0
Max Green Setting (Gmax), s		55.0		43.0	9.0	43.0		43.0
Max Q Clear Time (g_c+I1), s		2.0		26.7	5.1	19.0		21.5
Green Ext Time (p_c), s		51.7		5.8	0.1	23.6		6.8

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

HCM 2010 AWSC
91: Promenade Circle & North Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	18
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	315	171	93	159	195	292
Future Vol, veh/h	315	171	93	159	195	292
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	2	6	2	2	5
Mvmt Flow	332	180	98	167	205	307
Number of Lanes	0	2	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	24.3	11.5	15.2
HCM LOS	C	B	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	85%	0%	0%	0%	100%	0%
Vol Thru, %	15%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	372	114	93	159	195	292
LT Vol	315	0	0	0	195	0
Through Vol	57	114	93	0	0	0
RT Vol	0	0	0	159	0	292
Lane Flow Rate	392	120	98	167	205	307
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.756	0.217	0.19	0.289	0.413	0.519
Departure Headway (Hd)	6.946	6.498	6.996	6.209	7.241	6.077
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	521	551	510	576	495	590
Service Time	4.71	4.261	4.772	3.985	5.009	3.843
HCM Lane V/C Ratio	0.752	0.218	0.192	0.29	0.414	0.52
HCM Control Delay	28.3	11.1	11.4	11.5	15.1	15.3
HCM Lane LOS	D	B	B	B	C	C
HCM 95th-tile Q	6.6	0.8	0.7	1.2	2	3

HCM 2010 AWSC
92: Promenade Circle & West Promenade 10/21/2019

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	346	163	117	148	134	232
Future Vol, veh/h	346	163	117	148	134	232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	0	1	4	1	2	3
Mvmt Flow	364	172	123	156	141	244
Number of Lanes	1	1	0	2	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	19.8	12.8	13.8
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	70%	0%	100%	0%	0%	0%
Vol Thru, %	30%	100%	0%	0%	100%	16%
Vol Right, %	0%	0%	0%	100%	0%	84%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	99	346	163	89	277
LT Vol	117	0	346	0	0	0
Through Vol	49	99	0	0	89	45
RT Vol	0	0	0	163	0	232
Lane Flow Rate	175	104	364	172	94	291
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.349	0.195	0.697	0.271	0.174	0.493
Departure Headway (Hd)	7.184	6.772	6.889	5.693	6.677	6.095
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	499	528	524	630	535	588
Service Time	4.956	4.544	4.641	3.444	4.444	3.862
HCM Lane V/C Ratio	0.351	0.197	0.695	0.273	0.176	0.495
HCM Control Delay	13.8	11.2	24.1	10.6	10.9	14.7
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	1.5	0.7	5.4	1.1	0.6	2.7

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	121	130	156	11	78	141
Future Vol, veh/h	121	130	156	11	78	141
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	1	5	0	4	1
Mvmt Flow	127	137	164	12	82	148
Number of Lanes	1	0	2	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	10.3	9.1	9.6
HCM LOS	B	A	A

Lane	NBLn1	NBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	48%	100%	0%
Vol Thru, %	100%	83%	0%	0%	100%
Vol Right, %	0%	17%	52%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	104	63	251	78	141
LT Vol	0	0	121	78	0
Through Vol	104	52	0	0	141
RT Vol	0	11	130	0	0
Lane Flow Rate	109	66	264	82	148
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.167	0.097	0.346	0.135	0.221
Departure Headway (Hd)	5.488	5.278	4.717	5.906	5.35
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	649	674	761	604	666
Service Time	3.259	3.049	2.763	3.673	3.117
HCM Lane V/C Ratio	0.168	0.098	0.347	0.136	0.222
HCM Control Delay	9.4	8.6	10.3	9.6	9.6
HCM Lane LOS	A	A	B	A	A
HCM 95th-tile Q	0.6	0.3	1.5	0.5	0.8

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	136	0	880	1021	98
Future Vol, veh/h	0	136	0	880	1021	98
Conflicting Peds, #/hr	0	14	16	0	0	16
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	0	4	5	4
Mvmt Flow	0	143	0	926	1075	103

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1605	619	-	0	-	0
Stage 1	1142	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	-	-
Pot Cap-1 Maneuver	98	432	0	-	-	-
Stage 1	271	-	0	-	-	-
Stage 2	606	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	95	420	-	-	-	-
Mov Cap-2 Maneuver	95	-	-	-	-	-
Stage 1	267	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	420	-	-
HCM Lane V/C Ratio	-	0.341	-	-
HCM Control Delay (s)	-	17.9	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1.5	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	524	6	0	573	0	44
Future Vol, veh/h	524	6	0	573	0	44
Conflicting Peds, #/hr	0	18	18	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	6	2	2
Mvmt Flow	552	6	0	603	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	297
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	699
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	687
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	687	-	-	-
HCM Lane V/C Ratio	0.067	-	-	-
HCM Control Delay (s)	10.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	518	12	0	581	0	5
Future Vol, veh/h	518	12	0	581	0	5
Conflicting Peds, #/hr	0	10	10	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	0	6	0	0
Mvmt Flow	545	13	0	612	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	289
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	714
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	707
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	707	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-
HCM Control Delay (s)	10.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	87	0	1248	1042	251
Future Vol, veh/h	0	87	0	1248	1042	251
Conflicting Peds, #/hr	0	0	0	0	0	25
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	0	3	4	2
Mvmt Flow	0	92	0	1314	1097	264

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	706	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	324	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	316	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	316	-	-
HCM Lane V/C Ratio	-	0.29	-	-
HCM Control Delay (s)	-	21	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	3	1438	1377	19
Future Vol, veh/h	0	6	3	1438	1377	19
Conflicting Peds, #/hr	0	0	47	0	0	47
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	3	3	7
Mvmt Flow	0	6	3	1514	1449	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	782	1516	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	5.3	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	3.1	-	-	-
Pot Cap-1 Maneuver	0	293	223	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	280	223	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	223	-	280	-	-
HCM Lane V/C Ratio	0.014	-	0.023	-	-
HCM Control Delay (s)	21.4	-	18.2	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	979	957	72	29	43
Future Vol, veh/h	42	979	957	72	29	43
Conflicting Peds, #/hr	28	0	0	28	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	400	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	44	1031	1007	76	31	45

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1035	0	-	0	1639	532
Stage 1	-	-	-	-	1035	-
Stage 2	-	-	-	-	604	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	679	-	-	-	93	497
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	514	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	679	-	-	-	82	484
Mov Cap-2 Maneuver	-	-	-	-	82	-
Stage 1	-	-	-	-	300	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	37.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	679	-	-	-	82	484
HCM Lane V/C Ratio	0.065	-	-	-	0.372	0.094
HCM Control Delay (s)	10.7	-	-	-	72.9	13.2
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.5	0.3

HCM Signalized Intersection Capacity Analysis
47: Bathurst Street & Centre Street

10/21/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	288	143	88	400	33	315	778	111	149	989	104
Future Volume (vph)	95	288	143	88	400	33	315	778	111	149	989	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.84	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1586	3323	1426	1745	3310		3351	3388	1294	1694	3388	1158
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1586	3323	1426	1745	3310		3351	3388	1294	1694	3388	1158
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	303	151	93	421	35	332	819	117	157	1041	109
RTOR Reduction (vph)	0	0	125	0	4	0	0	0	78	0	0	76
Lane Group Flow (vph)	100	303	26	93	452	0	332	819	39	157	1041	33
Confl. Peds. (#/hr)	10		15	15		10	50		53	53		50
Heavy Vehicles (%)	10%	5%	4%	0%	4%	3%	1%	3%	1%	3%	3%	14%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4						6			2
Actuated Green, G (s)	9.0	26.9	26.9	9.0	26.9		24.2	51.1	51.1	20.6	47.5	47.5
Effective Green, g (s)	9.0	26.9	26.9	9.0	26.9		24.2	51.1	51.1	20.6	47.5	47.5
Actuated g/C Ratio	0.06	0.17	0.17	0.06	0.17		0.16	0.33	0.33	0.13	0.31	0.31
Clearance Time (s)	6.0	8.5	8.5	6.0	8.5		10.5	9.0	9.0	10.5	9.0	9.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	92	576	247	101	574		523	1116	426	225	1038	354
v/s Ratio Prot	c0.06	0.09		0.05	c0.14		c0.10	c0.24		0.09	c0.31	
v/s Ratio Perm			0.02						0.03			0.03
v/c Ratio	1.09	0.53	0.11	0.92	0.79		0.63	0.73	0.09	0.70	1.00	0.09
Uniform Delay, d1	73.0	58.3	53.9	72.6	61.3		61.3	45.9	35.9	64.2	53.8	38.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	119.3	3.4	0.9	64.4	10.5		2.5	2.5	0.1	9.1	28.6	0.1
Delay (s)	192.3	61.7	54.8	137.0	71.8		63.8	48.5	36.0	73.3	82.4	38.5
Level of Service	F	E	D	F	E		E	D	D	E	F	D
Approach Delay (s)		83.4			82.8			51.3			77.6	
Approach LOS		F			F			D			E	

Intersection Summary				
HCM 2000 Control Delay	70.2	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	46.0	
Intersection Capacity Utilization	85.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
53: Bathurst Street & East Promenade

10/21/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	176	350	1073	1158	52
Future Volume (vph)	83	176	350	1073	1158	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	*0.85	*0.85	
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	
Flpb, ped/bikes	0.95	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3180	1428	1710	4547	4518	
Flt Permitted	0.95	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	3180	1428	197	4547	4518	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	87	185	368	1129	1219	55
RTOR Reduction (vph)	0	167	0	0	3	0
Lane Group Flow (vph)	87	18	368	1129	1271	0
Confl. Peds. (#/hr)	15	11	16			16
Heavy Vehicles (%)	1%	4%	2%	3%	3%	0%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			7	4	8	
Permitted Phases	1	6	4			
Actuated Green, G (s)	11.0	11.0	100.0	100.0	54.3	
Effective Green, g (s)	11.0	11.0	100.0	100.0	54.3	
Actuated g/C Ratio	0.09	0.09	0.80	0.80	0.43	
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	279	125	662	3637	1962	
v/s Ratio Prot			c0.19	0.25	c0.28	
v/s Ratio Perm	c0.03	0.01	0.26			
v/c Ratio	0.31	0.14	0.56	0.31	0.65	
Uniform Delay, d1	53.5	52.7	20.2	3.3	27.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.5	1.0	0.2	1.7	
Delay (s)	54.1	53.2	21.2	3.5	29.5	
Level of Service	D	D	C	A	C	
Approach Delay (s)	53.5			7.9	29.5	
Approach LOS	D			A	C	

Intersection Summary				
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	74.4%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
93: Promenade Circle & East Promenade

10/21/2019

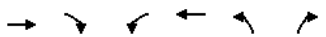
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	92	309	24	21	235	60
Future Volume (Veh/h)	92	309	24	21	235	60
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	97	325	25	22	247	63
Pedestrians	1		14			33
Lane Width (m)	3.3		3.3			3.3
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		1			3
Right turn flare (veh)						
Median type	Raised					
Median storage veh)	1					
Upstream signal (m)	75					
pX, platoon unblocked						
vC, conflicting volume	14		566	15	240	241
vC1, stage 1 conf vol			14		227	227
vC2, stage 2 conf vol			552		14	14
vCu, unblocked vol	14		566	15	240	241
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	94		94	98	60	89
cM capacity (veh/h)	1584		420	1053	615	582

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	97	325	25	22	247	63
Volume Left	97	0	0	0	247	0
Volume Right	0	325	0	22	0	0
cSH	1584	1700	420	1053	615	582
Volume to Capacity	0.06	0.19	0.06	0.02	0.40	0.11
Queue Length 95th (m)	1.5	0.0	1.4	0.5	14.7	2.8
Control Delay (s)	7.4	0.0	14.1	8.5	14.7	11.9
Lane LOS	A		B	A	B	B
Approach Delay (s)	1.7		11.5		14.2	
Approach LOS			B		B	

Intersection Summary				
Average Delay	7.3			
Intersection Capacity Utilization	36.9%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
94: South Promenade & Promenade Circle

10/21/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	33	185	89	71	279	118
Future Volume (Veh/h)	33	185	89	71	279	118
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	35	195	94	75	294	124
Pedestrians	4			14	5	
Lane Width (m)	3.3			3.3	3.3	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			1	0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					129	
pX, platoon unblocked						
vC, conflicting volume	730	9	624	606	4	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	9	624	606	4	
tC, single (s)	6.5	6.2	7.2	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.6	4.0	2.2	
p0 queue free %	88	82	61	77	82	
cM capacity (veh/h)	283	1067	240	331	1605	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	35	195	94	75	294	124
Volume Left	0	0	94	0	294	0
Volume Right	0	195	0	0	0	124
cSH	283	1067	240	331	1605	1700
Volume to Capacity	0.12	0.18	0.39	0.23	0.18	0.07
Queue Length 95th (m)	3.2	5.1	13.4	6.5	5.1	0.0
Control Delay (s)	19.5	9.1	29.3	19.1	7.7	0.0
Lane LOS	C	A	D	C	A	
Approach Delay (s)	10.7		24.8		5.4	
Approach LOS	B		C			

Intersection Summary				
Average Delay	10.9			
Intersection Capacity Utilization	33.7%	ICU Level of Service		A
Analysis Period (min)	15			

Arterial Level of Service: NB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Clark Avenue	84	81.6	156.1	0.5	16
SE Apartment Access	54	4.6	14.7	0.2	39
East Promenade	53	5.5	19.7	0.2	45
Promenade Circle	52	1.8	13.2	0.2	53
Centre Street	47	39.0	51.4	0.2	16
SmartCentres East Ac	33	4.8	17.1	0.2	40
Beverley Glen Boulev	22	9.1	22.4	0.2	39
Atkinson Avenue	11	27.5	44.4	0.3	23
Total		173.9	338.9	2.0	25

Arterial Level of Service: SB Bathurst Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
New Westminster Driv	11	142.5	556.4	0.3	8
Beverley Glen Boulev	22	7.5	24.9	0.3	41
SmartCentres East Ac	33	3.0	16.6	0.2	52
Centre Street	47	44.7	55.2	0.2	13
Promenade Circle	52	4.0	17.8	0.2	46
East Promenade	53	11.6	22.0	0.2	32
SE Apartment Access	54	5.2	20.1	0.2	44
Clark Avenue	84	39.5	53.6	0.2	12
Total		258.1	766.7	1.9	19

Arterial Level of Service: EB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Carl Tennen Street	41	14.7	35.8	0.4	36
Taiga Drive	42	8.5	25.6	0.3	41
New Westminster Driv	43	24.9	41.8	0.3	26
York Region Transit	44	3.4	15.4	0.2	45
North Promenade	45	16.7	21.9	0.1	17
Promenade Village Ac	46	2.7	13.4	0.2	47
Bathurst Street	47	44.4	51.7	0.1	10
Atkinson Avenue	48	14.5	47.6	0.5	41
Total		129.7	253.2	2.1	30

Arterial Level of Service: WB Centre Street

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (km)	Arterial Speed
Atkinson Avenue	48	9.7	33.4	0.4	43
Bathurst Street	47	45.9	76.3	0.5	26
Promenade Village Ac	46	3.4	12.0	0.1	43
Disera Drive	45	24.8	34.7	0.2	18
York Region Transit	44	2.3	8.7	0.1	43
New Westminster Driv	43	28.9	39.5	0.2	18
Taiga Drive	42	4.8	22.1	0.3	48
Vaughan Boulevard	41	7.0	23.9	0.3	44
Total		126.9	250.7	2.1	31