



MEMO

TO: BC Transit
FROM: WSP Canada Group Limited
SUBJECT: Traffic Engineering Services – BC Transit HandyDART Operations and Maintenance Facility, View Royal, BC
DATE: June 2, 2020

WSP Canada Group Limited (WSP) was retained by BC Transit (the Client) to conduct an update to the previous traffic study with the up-to-date traffic information to update the previous *HandyDART Operations and Maintenance Facility Traffic Impact Study* that WSP completed in 2018. The purpose of this study is to investigate the potential changes in traffic patterns and intersection operations due to the traffic control upgrade at the intersection of Burnside Road West and Watkiss Way, from an all-way stop-controlled in 2018 to a full signalized intersection in 2020, as well as the opening of the Highway 1/McKenzie Interchange to the east. This memo presents the findings of this study for the opening day horizon of 2022, and the full build-out horizon of 2047.

DEVELOPMENT INFORMATION

Key development information updates is listed below in **Table 1**.

Table 1: Development Update

UPDATED ITEMS	PLANNED
Full Build-out Horizon Year	2047
Total Number of Buses	60
Total Number of Employees	75
Employee Parking Stalls	10
Visitor / Accessible Stalls	2
Total Number of Buses	110
Total Number of Employees	146
Employee Parking Stalls	10
Visitor / Accessible Stalls	2



TRIP GENERATION

Due to the updated number of buses, the trip generation needs to be updated accordingly. The new trips were determined by applying a linear factor to the previous trips generated. The linear factor is a ratio between the previous and the updated number of buses and employees. **Table 2 and 3** present the updated trip generation for the Opening Day and the Full Build-out scenarios, respectively.

Table 2: Trips for the Opening Day (2022)

	a.m. Peak Hour			p.m. Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Employees	27	3	30	3	10	13
Buses	3	27	30	3	3	6
Visitors	1	1	2	1	1	2
Total Trips:	31	31	62	7	14	21

Table 3: Trips for the Full Build-Out (2047)

	a.m. Peak Hour			p.m. Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Employees	53	5	58	5	19	24
Buses	5	48	53	5	5	10
Visitors	1	1	2	1	1	2
Total Trips:	59	54	113	11	25	36

TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution and assignment are shown in **Tables 4 and 5** for the Opening Day and the Full Build-out scenarios, respectively.



Table 4: Trip Distribution and Assignment for the Opening Day (2022)

Road	To / From	%Distribution	A.m. Peak Hour			P.m. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
Burnside Road West	North	25%	8	8	16	2	4	6
Burnside Road West	South	50%	16	19	35	4	9	13
Hwy 1 WB Off-Ramp	South	10%	3	n/a	3	1	n/a	1
Watkiss Way	East	15%	5	5	10	1	2	3
Watkiss Way	West	0%	0	0	0	0	0	0
Total:		100%	32	32	64	8	15	23

Table 5: Trip Distribution and Assignment for the Full Build-Out (2047)

Road	To / From	%Distribution	A.m. Peak Hour			P.m. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
Burnside Road West	North	25%	15	13	28	3	6	9
Burnside Road West	South	50%	29	32	61	5	15	20
Hwy 1 WB Off-Ramp	South	10%	6	n/a	6	1	n/a	1
Watkiss Way	East	15%	9	8	17	2	4	6
Watkiss Way	West	0%	0	0	0	0	0	0
Total:		100%	59	53	112	11	25	36

Figure 1 and 2 illustrate the new trips generated by the site development at Opening Day and Full Build-Out, respectively.

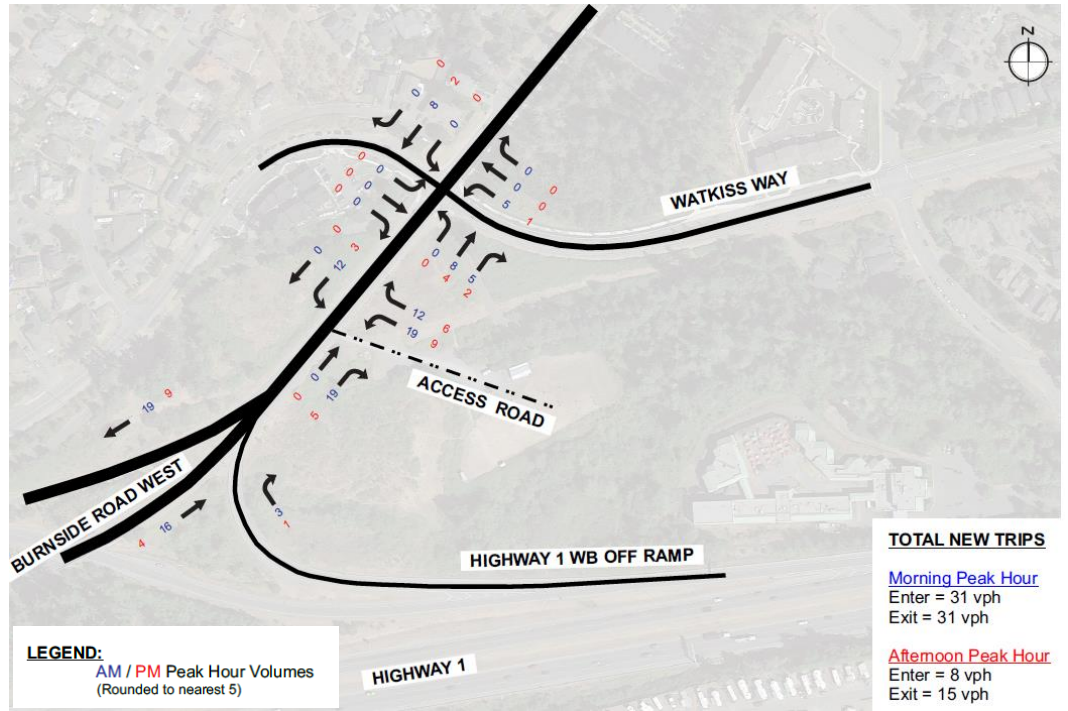


Figure 1: Opening Day (2022) Total New Trips

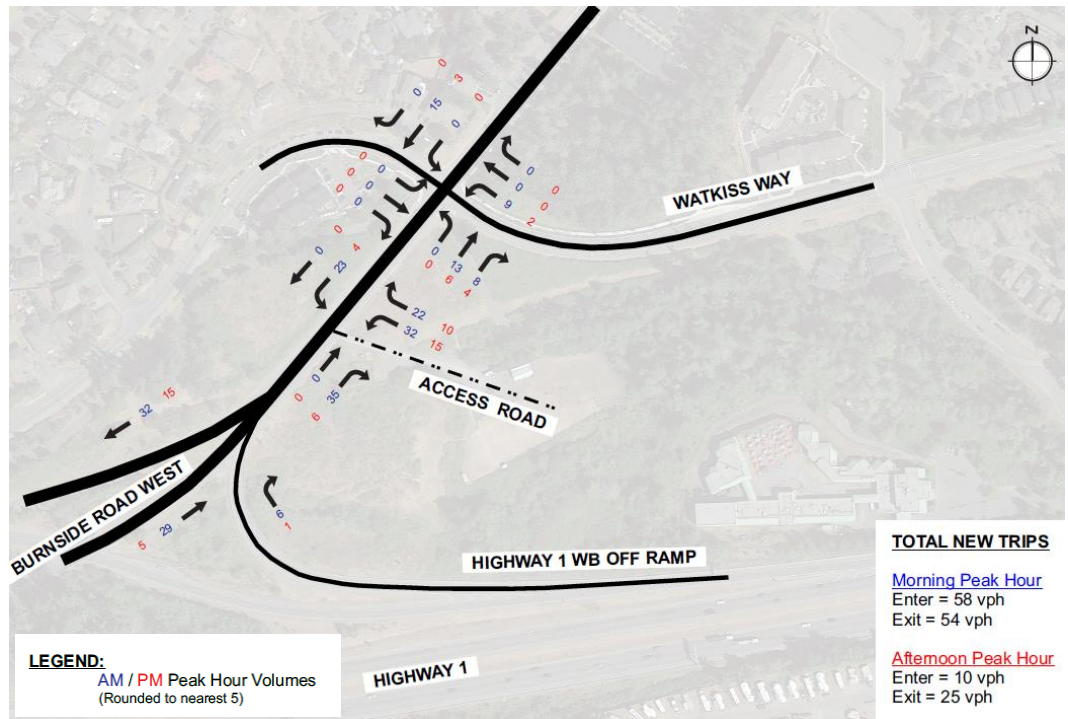


Figure 2: Full Build-Out (2047) Total New Trips

STUDY INTERSECTIONS

For the purpose of this study, traffic analysis and discussion are mainly focused at the intersection of Burnside Road West and Watkiss Way as this is where the traffic pattern has changed; however, all following intersections were included in the traffic analysis.

- Burnside Road West and Watkiss Way;
- Highway 1 westbound off-ramp at Burnside Road West; and
- Burnside Road West and Access Road (access point).

TRAFFIC VOLUMES

As part of scope of this study, a new traffic count was collected at the intersection of Burnside Road and Watkiss Way on Thursday, March 5th, 2020, during the a.m. (7:00 a.m. – 9:00 a.m.) and the p.m. (3:00 p.m. – 6:00 p.m.) peak periods to capture typical commuter traffic. It was discovered that the a.m. peak hour at this intersection occurred between 7:00 a.m. and 8:00 a.m. and p.m. peak hour occurred between 4:00 p.m. and 5:00 p.m. The detailed traffic count is included in **Appendix A**.

Figure 3 illustrates the new peak hour traffic volumes at the study intersections during existing weekday a.m. and p.m. peak hours based on the traffic count and Ministry of Transportation and Infrastructure data.

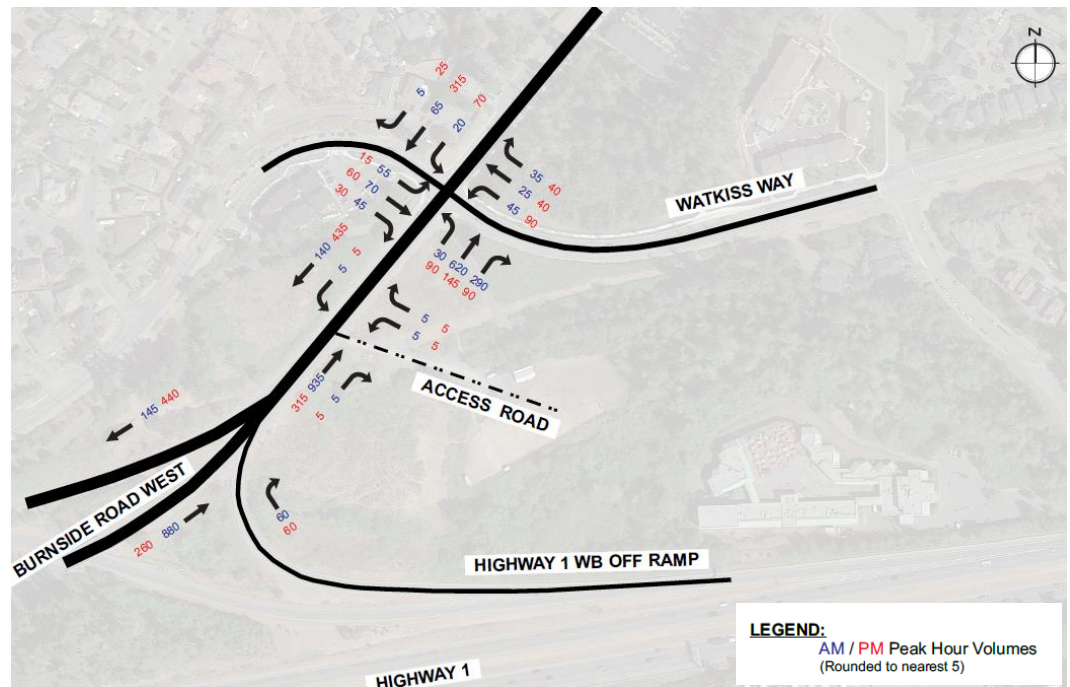


Figure 3: 2020 Existing Weekday Peak Hour Traffic Volumes

The new projected background traffic volumes for the study intersections were forecasted using two percent annual growth rate. **Figure 4 and 5** illustrates the 2023 and 2048 background forecast traffic volumes during weekday a.m. and p.m. peak hours, respectively.

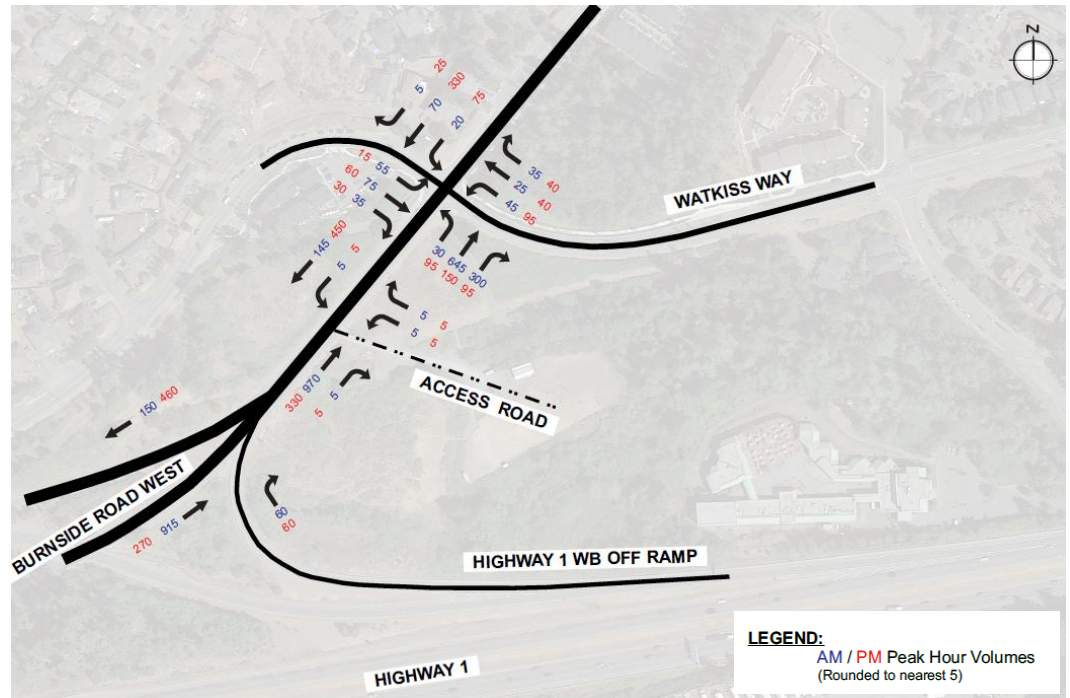


Figure 4: 2022 Background Weekday Peak Hour Traffic Volumes

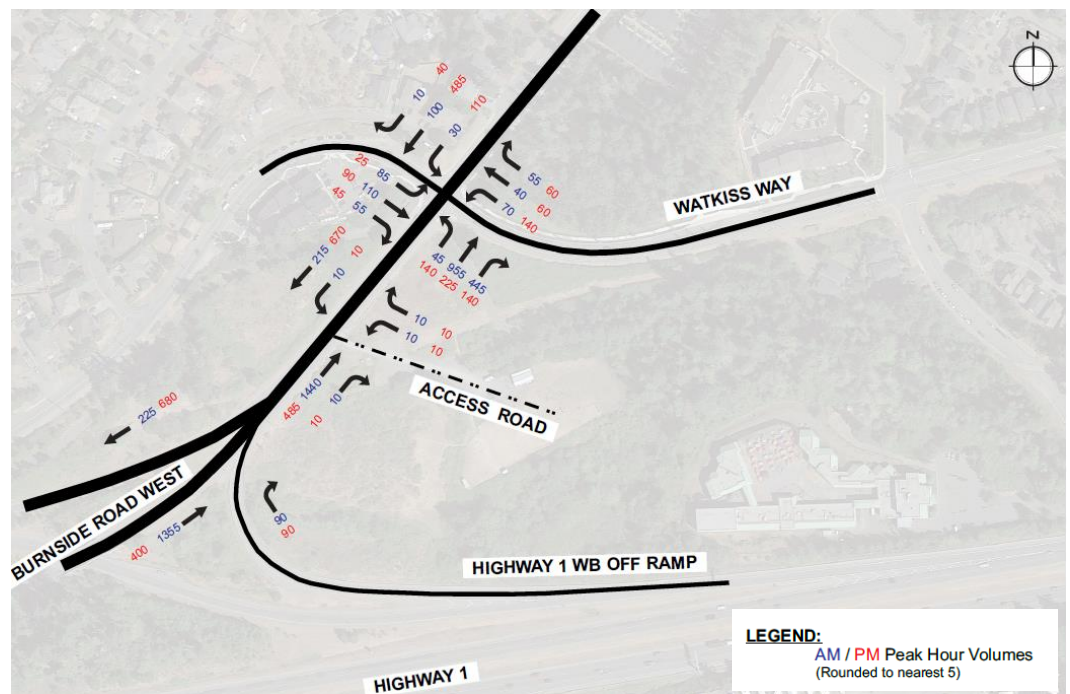


Figure 5: 2047 Background Weekday Peak Hour Traffic Volumes

The new total traffic volumes were obtained by combining the background traffic with the updated development trips. **Figure 6 and 7** illustrates the 2022 and 2047 total forecast traffic volumes during weekday a.m. and p.m. peak hours, respectively.

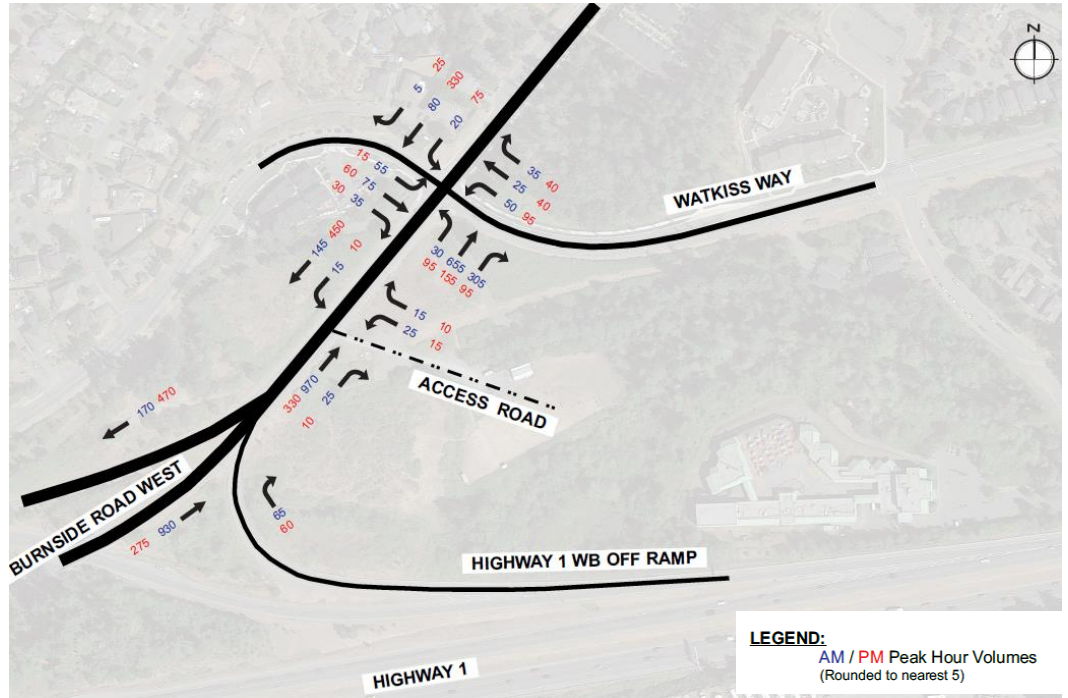


Figure 6: 2022 Total Weekday Peak Hour Traffic Volumes

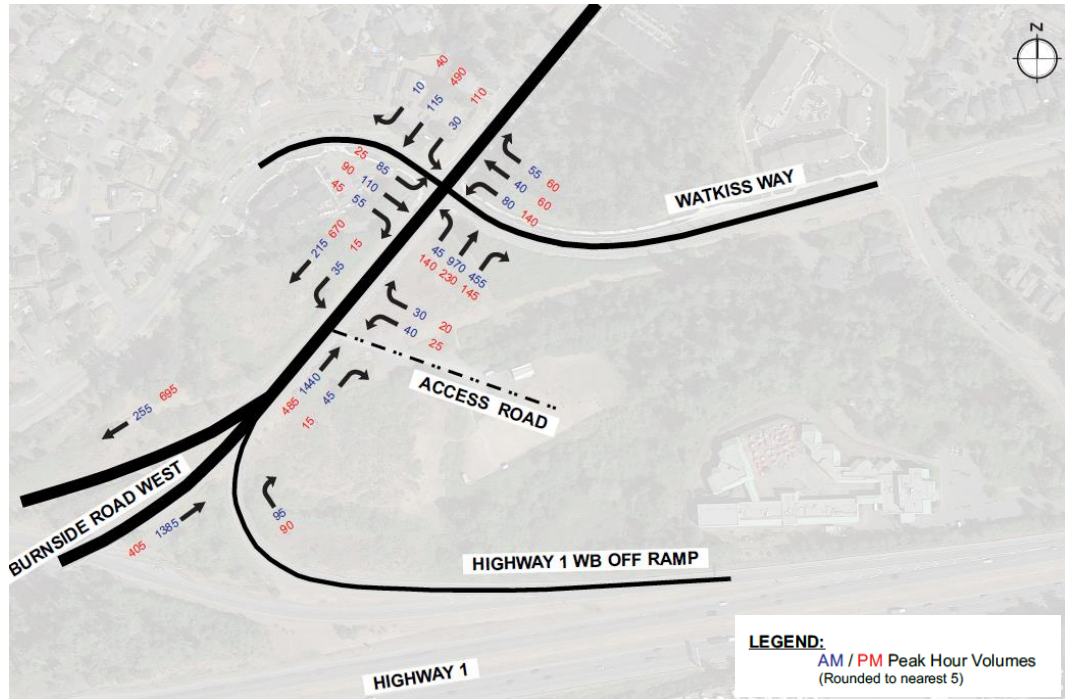


Figure 7: 2047 Total Weekday Peak Hour Traffic Volumes

TRAFFIC VOLUMES COMPARISON

As per the 2018 HandyDART Operations and Maintenance Facility Traffic Impact Study report, the turning movement counts at the study intersection was collected the week of September 10, 2017, during the same a.m. and p.m. peak periods. The previous analysis has shown that the a.m. peak hour for this intersection occurred between 7:45 a.m. and 8:45 a.m. and the p.m. peak hour occurred between 4:00 p.m. and 5:00 p.m. **Figure 8** illustrates the 2017 peak hour traffic volumes at the study intersections during weekday a.m. and p.m. peak hours.

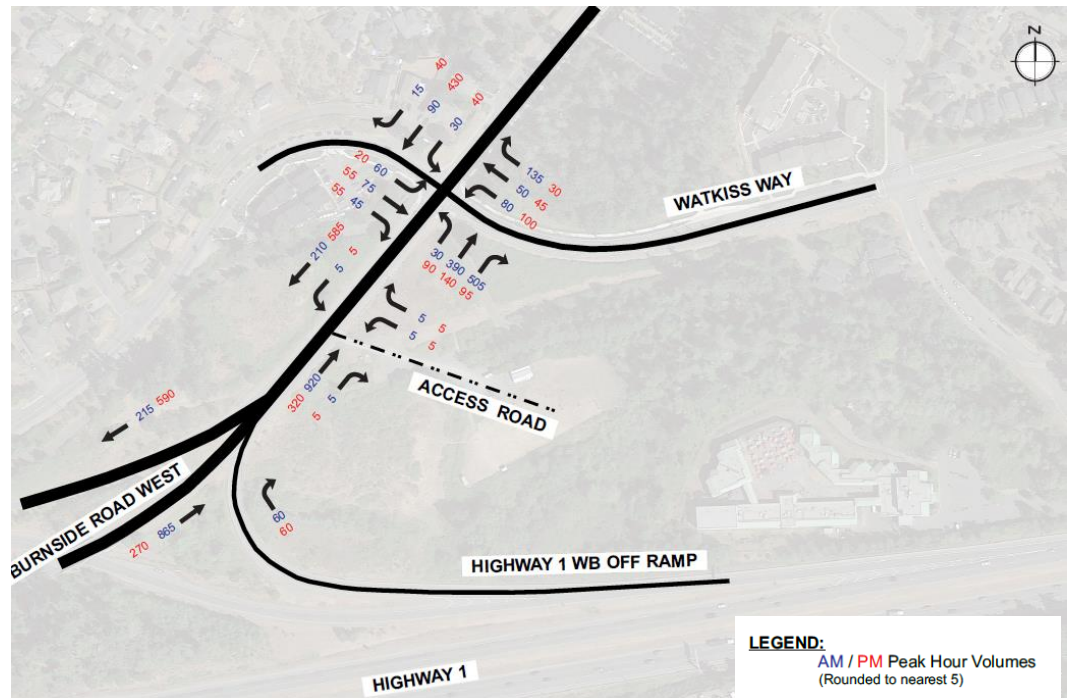


Figure 8: 2017 Weekday Peak Hour Traffic Volumes

By comparing the 2017 and 2020 weekday a.m. peak hour traffic volumes, the following significant changes were discovered at Burnside Road West/Watkiss Way:

- The a.m. peak hour has shifted earlier by 45 minutes;
- The northbound through traffic has increased by approximately 230 vehicles;
- The northbound right-turn traffic has decreased by approximately 215 vehicles; and
- The westbound right-turn traffic has decreased by approximately 100 vehicles.

By comparing the 2017 and 2020 weekday p.m. peak hour traffic volumes, the following significant changes were discovered at Burnside Road West/Watkiss Way:

- The southbound through traffic has decreased by 115 vehicles.

TRAFFIC ANALYSIS

Intersection analysis was conducted for the study intersections with the updated traffic volumes using Synchro 10 software. Synchro intersection report methodology was used for the signalized intersection, and Highway Capacity Manual (HCM) 2010 report methodology was used to conduct the capacity analysis for unsignalized intersections. The 95th percentile queue length for the study intersections was determined using SimTraffic simulation software. The detailed Synchro and SimTraffic reports are included in **Appendix B and C**, respectively.

Level of service (LOS) analysis assesses the effectiveness of a transportation system alphabetically from A to F, with LOS A equating to the best operating conditions with little delay and LOS F representing the failure of a movement or intersection with long delays. LOS E is typically considered the limit of acceptable operation for left-turn movements at a two-way stop-control intersection.

The volume-to-capacity (v/c) ratio is representative of congestion and available capacity, and may be used to identify a movement’s ability to accommodate fluctuations in traffic flow. V/C values of 0.90 or greater typically indicate a system that has reached its limit of operational effectiveness. The 95th percentile queue length, determined using SimTraffic, represents the maximum length of a queue a movement may experience with 95th percentile traffic volumes.

BURNSIDE ROAD WEST AND WATKISS WAY

The intersection of Burnside Road West and Watkiss Way operates acceptably during both a.m. and p.m. peak hours for all scenarios and future horizon years except the eastbound approach and northbound left/ through movement in the 2047 a.m. background scenario. The eastbound approach is anticipated to operate at Level of Service E with v/c of 0.91 and the northbound left/ through movement is anticipated to operate at Level of Service E with v/c of 0.92, in the 2047 a.m. background scenario, just slightly over the typical 0.90 threshold. The eastbound approach and the northbound left/ through movement are anticipated to operate with better or same v/c in the 2047 a.m. total scenario. **Table 6** summarizes the traffic analysis results for all movements performance at the intersection of Burnside Road West and Watkiss Way.

Table 6: Traffic Analysis Results for Burnside Road West and Watkiss Way

SCENARIOS	OVERALL INTERSECTION		ALL MOVEMENTS				
	LOS	Delay (s)	Movements	LOS	Delay (s)	V/C	95th Queue (m)
	2020 Existing AM	B	15	EBL/T/R	C	23	0.61
2020 Existing PM	B	13.4	WBL/T/R	B	18	0.45	26
			NBL/T	B	18	0.77	74
			NBR	A	3	0.35	28
			SBT	A	7	0.15	21
			EBL/T/R	B	12	0.34	21
2022 Background AM	B	11.6	WBL/T/R	B	20	0.62	32
			NBL/T	B	12	0.42	37
			NBR	A	3	0.17	16
			SBT	B	14	0.61	51
2022 Background AM	B	11.6	EBL/T/R	C	21	0.51	33
			WBL/T/R	B	15	0.34	26
			NBL/T	B	14	0.65	77
			NBR	A	2	0.33	34



			SBT	A	7	0.11	24
2022 Background PM	B	11.3	EBL/T/R	B	12	0.26	23
			WBL/T/R	B	18	0.51	32
			NBL/T	B	10	0.35	40
			NBR	A	3	0.13	16
			SBT	B	11	0.5	52
2022 Total AM	B	11.8	EBL/T/R	C	21	0.51	34
			WBL/T/R	B	16	0.36	27
			NBL/T	B	14	0.65	84
			NBR	A	2	0.34	36
			SBT	A	7	0.12	23
2022 Total PM	B	11.3	EBL/T/R	B	12	0.26	22
			WBL/T/R	B	18	0.51	33
			NBL/T	B	10	0.36	42
			NBR	A	3	0.13	16
			SBT	B	11	0.5	52
2047 Background AM	C	27	EBL/T/R	E	68	0.91	99
			WBL/T/R	D	47	0.72	74
			NBL/T	C	27	0.92	117
			NBR	A	3	0.46	50
			SBT	A	7	0.23	64
2047 Background PM	C	21.9	EBL/T/R	C	23	0.35	42
			WBL/T/R	C	35	0.7	63
			NBL/T	B	19	0.68	71
			NBR	A	2	0.19	26
			SBT	C	23	0.82	96
2047 Total AM	C	28.7	EBL/T/R	E	70	0.90	101
			WBL/T/R	E	58	0.79	84
			NBL/T	C	28	0.92	118
			NBR	A	3	0.47	51
			SBT	A	7	0.26	63
2047 Total PM	C	21.8	EBL/T/R	C	23	0.36	40
			WBL/T/R	D	36	0.71	65



			NBL/T	B	19	0.68	77
			NBR	A	2	0.2	18
			SBT	C	22	0.82	106

BURNSIDE ROAD WEST AND ACCESS ROAD

The intersection of Burnside Road West and Access Road operates acceptably during both a.m. and p.m. peak hours for all scenarios and future horizon years except the exiting movements in the 2047 horizon years which are anticipated to operate at Level of Service E under background conditions and F under combined conditions. It is estimated that the Level of Service will reach F by approximately 2027 based on projected traffic and bus volume growth. The exiting movements are also anticipated to operate over capacity ($v/c > 1.0$) under the combined conditions. **Table 7** summarizes the traffic analysis results for all movements performance at the intersection of Burnside Road West and Access Road.

Table 7: Traffic Analysis Results for Burnside Road West and Access Road

SCENARIOS	OVERALL INTERSECTION			ALL MOVEMENTS			
	LOS	Delay (s)	Movements	LOS	Delay (s)	V/C	95th Queue (m)
2020 Existing AM	A	0.2	WBL/R	C	18	0.04	8
			NBT/R	A	0	0	4
			SBL/T	B	10	0.01	7
2020 Existing PM	A	0.2	WBL/R	B	13	0.02	8
			NBT/R	A	0	0	2
			SBL/T	A	8	0.00	6
2022 Background AM	A	0.2	WBL/R	C	19	0.04	7
			NBT/R	A	0	0	5
			SBL/T	B	11	0.01	7
2022 Background PM	A	0.2	WBL/R	B	13	0.02	8
			NBT/R	A	0	0	0
			SBL/T	A	8	0.01	5
2022 Total AM	A	1.3	WBL/R	D	34	0.26	28
			NBT/R	A	0	0	11
			SBL/T	B	11	0.03	14
2022 Total PM	A	0.6	WBL/R	C	17	0.08	18
			NBT/R	A	0	0	1
			SBL/T	A	8	0.01	7

2047 Background AM	A	0.6	WBL/R	E	41	0.18	14
			NBT/R	A	0	0	56
			SBL/T	B	14	0.03	25
2047 Background PM	A	0.4	WBL/R	C	20	0.08	10
			NBT/R	A	0	0	6
			SBL/T	A	9	0.01	11
2047 Total AM	B	11.6	WBL/R	F	291	1.21	184
			NBT/R	A	0	0	56
			SBL/T	B	15	0.10	49
2047 Total PM	A	1.2	WBL/R	D	30	0.25	26
			NBT/R	A	0	0	7
			SBL/T	A	9	0.02	16

BURNSIDE ROAD WEST AND HIGHWAY 1 WESTBOUND OFF-RAMP

The intersection of Burnside Road West and Highway 1 Westbound off-ramp operates acceptably during both a.m. and p.m. peak hours for all scenarios and future horizon years. **Table 8** summarizes the traffic analysis results for all movements performance at the intersection of Burnside Road West and Highway 1 Westbound off-ramp.

Table 8: Traffic Analysis Results for Burnside Road West and Highway 1 Westbound Off-Ramp

SCENARIOS	OVERALL INTERSECTION		ALL MOVEMENTS				
	LOS	Delay (s)	Movements	LOS	Delay (s)	V/C	95th Queue (m)
	2020 Existing AM	A	0.7	WBR	B	13	0.12
NBT				A	0	0	5
SBT				A	0	0	n/a
2020 Existing PM	A	0.7	WBR	A	9	0.07	14
			NBT	A	0	0	2
			SBT	A	0	0	n/a
2022 Background AM	A	0.7	WBR	B	13	0.13	13
			NBT	A	0	0	n/a
			SBT	A	0	0	n/a
2022 Background PM	A	0.7	WBR	A	10	0.08	13
			NBT	A	0	0	n/a
			SBT	A	0	0	n/a
2022 Total AM	A	0.7	WBR	B	13	0.14	12



			NBT	A	0	0	1
			SBT	A	0	0	n/a
2022 Total PM	A	0.7	WBR	A	10	0.08	12
			NBT	A	0	0	n/a
			SBT	A	0	0	n/a
2047 Background AM	A	1.0	WBR	C	19	0.27	21
			NBT	A	0	0	13
			SBT	A	0	0	n/a
2047 Background PM	A	0.8	WBR	B	10	0.12	15
			NBT	A	0	0	n/a
			SBT	A	0	0	n/a
2047 Total AM	A	1.1	WBR	C	19	0.29	30
			NBT	A	0	0	13
			SBT	A	0	0	n/a
2047 Total PM	A	0.8	WBR	B	10	0.13	14
			NBT	A	0	0	n/a
			SBT	A	0	0	n/a

CONCLUSION

In conclusion, the analysis has indicated that the intersection of Burnside Road West and Watkiss Way is anticipated to operate acceptably in the Opening Day Horizon 2022 and Full Build-Out horizon 2047 with the HandyDART facility in place with the overall intersection delay increasing by an average of 2 seconds per vehicle as a result of the facility. The development is anticipated to add less than one vehicle every minute to this intersection in the 2047 a.m. peak hour.

This analysis indicates some delays are expected for traffic exiting the facility turning left or right onto Burnside Road West in the post development scenario; however, this is considered acceptable since the volume of traffic exiting the site is small and it is desirable to maintain free-flowing traffic on Burnside Road West.

PM Peak Period
All Vehicles Combined

Burnside Road @ Watkiss Way
Thursday, March 5, 2020

Time Period Begins	Burnside Rd				Burnside Rd				Watkiss Way				Watkiss Way				Total Volume		Peak @ 15 min	Crosswalks				Conflict	
	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				15-min	Hour		N	S	W	E	15 min	Hr
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total									
15:00	7	37	6	50	20	33	32	85	2	7	14	23	29	9	6	44	202		0	0	0	0	122		
15:15	9	75	8	92	16	28	17	61	2	9	12	23	23	8	2	33	209		2	3	3	0	143		
15:30	9	82	6	97	14	46	29	89	4	11	15	30	25	8	5	38	254		2	0	1	2	153		
15:45	16	59	5	80	20	37	33	90	5	13	6	24	27	13	9	49	243	908	0	5	0	2	132	550	
16:00	20	78	6	104	19	29	21	69	2	14	5	21	24	13	8	45	239	945*	0	1	0	0	146	574	
16:15	18	86	3	107	21	38	20	79	6	14	7	27	18	5	9	32	245	981*	0	0	0	0	149	580	
16:30	17	71	10	98	24	40	21	85	5	21	7	33	30	11	16	57	273	1000+	4	2	2	2	163	590	
16:45	14	81	5	100	24	36	28	88	1	12	12	25	20	9	5	34	247	1004*	0	0	0	0	154	612	
17:00	7	85	9	101	18	28	25	71	0	7	8	15	24	6	11	41	228	993	2	2	1	0	151	617	
17:15	9	85	8	102	16	24	17	57	2	6	7	15	24	8	2	34	208	956	0	2	1	1	146	614	
17:30	8	78	5	91	15	21	23	59	6	10	20	36	30	12	6	48	234	917	0	2	0	0	158	609	
17:45	4	47	4	55	17	23	15	55	1	9	11	21	33	15	6	54	185	855	0	0	1	0	121	576	
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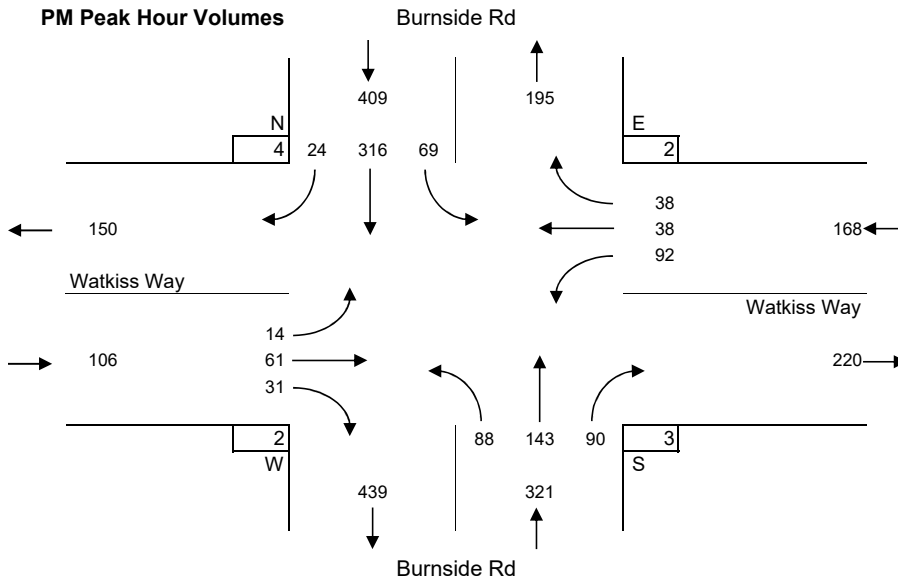
Total	138	864	75	1077	224	383	281	888	36	133	124	293	307	117	85	509	2767		10	17	9	7	1727
Avg Hr	46	288	25	359	75	128	94	296	12	44	41	98	102	39	28	170	922		3	6	3	2	

Peak hour of the intersection

Pk Hr	69	316	24	409	88	143	90	321	14	61	31	106	92	38	38	168	1004*		4	3	2	2	612
15x4	80	344	40	428	96	160	112	352	24	84	48	132	120	52	64	228	1092*		16	8	8	8	732
PHF	0.86	0.92	0.60	0.96	0.92	0.89	0.80	0.91	0.58	0.73	0.65	0.80	0.77	0.73	0.59	0.74	0.92		0.25	0.38	0.25	0.25	0.84


















Peak hour of conflicting volumes for the intersection

Pk Hr	56	323	27	406	87	142	94	323	12	54	34	100	92	31	41	164	993*		6	4	3	2	617
15x4	72	344	40	428	96	160	112	352	24	84	48	132	120	44	64	228	1092*		16	8	8	8	732
PHF	0.78	0.94	0.68	0.95	0.91	0.89	0.84	0.92	0.50	0.64	0.71	0.76	0.77	0.70	0.64	0.72	0.91		0.38	0.50	0.38	0.25	0.84



Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-25-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	70	35	45	25	35	30	620	290	20	65	5
Future Volume (vph)	55	70	35	45	25	35	30	620	290	20	65	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00	0.88		1.00	
Frt		0.965			0.961				0.850		0.990	
Flt Protected		0.983			0.982			0.997			0.989	
Satd. Flow (prot)	0	1729	0	0	1673	0	0	1842	1570	0	1821	0
Flt Permitted		0.854			0.804			0.977			0.826	
Satd. Flow (perm)	0	1492	0	0	1362	0	0	1802	1381	0	1519	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			35				309			9
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	16		16	13		13	19		19	12		12
Confl. Bikes (#/hr)			4			2			97			
Peak Hour Factor	0.72	0.77	0.59	0.78	0.48	0.77	0.66	0.89	0.94	0.75	0.73	0.58
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	76	91	59	58	52	45	45	697	309	27	89	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	226	0	0	155	0	0	742	309	0	125	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effect Green (s)		12.2			12.2			27.7	27.7		27.7	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-25-2020

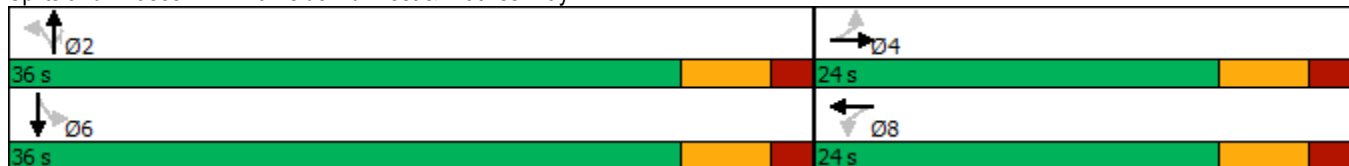


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.23			0.23			0.53	0.53		0.53	
v/c Ratio		0.61			0.45			0.77	0.35		0.15	
Control Delay		23.1			18.2			18.3	2.5		7.4	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		23.1			18.2			18.3	2.5		7.4	
LOS		C			B			B	A		A	
Approach Delay		23.1			18.2			13.7			7.4	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		17.2			10.0			49.0	0.0		4.9	
Queue Length 95th (m)		27.8			9.6			#122.7	9.9		10.7	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		543			501			1054	936		892	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.42			0.31			0.70	0.33		0.14	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	52.1
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	15.0
Intersection LOS:	B
Intersection Capacity Utilization:	58.6%
ICU Level of Service:	B
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	5	935	5	5	140
Future Vol, veh/h	5	5	935	5	5	140
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	1016	5	5	152

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1181	511	0	0	1021
Stage 1	1019	-	-	-	-
Stage 2	162	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13
Critical Hdwy Stg 1	5.83	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	196	509	-	-	678
Stage 1	310	-	-	-	-
Stage 2	866	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	194	509	-	-	678
Mov Cap-2 Maneuver	194	-	-	-	-
Stage 1	308	-	-	-	-
Stage 2	866	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	281	678
HCM Lane V/C Ratio	-	-	0.039	0.008
HCM Control Delay (s)	-	-	18.3	10.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 2010 TWSC
 3: Hwy 1 WB Off-Ramp & Burnside Rd West

03-13-2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	60	880	0	0	145
Future Vol, veh/h	0	60	880	0	0	145
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	65	957	0	0	158


















Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	479	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	534	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	534	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 534	-
HCM Lane V/C Ratio	- 0.122	-
HCM Control Delay (s)	- 12.7	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-13-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	60	30	90	40	40	90	145	90	70	315	25
Future Volume (vph)	15	60	30	90	40	40	90	145	90	70	315	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			1.00	0.85		1.00	
Frt		0.960			0.962				0.850		0.988	
Flt Protected		0.992			0.976			0.982			0.991	
Satd. Flow (prot)	0	1763	0	0	1724	0	0	1832	1585	0	1858	0
Flt Permitted		0.908			0.768			0.743			0.892	
Satd. Flow (perm)	0	1613	0	0	1356	0	0	1379	1353	0	1672	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			34				113			9
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	3		3	1		1	26		26	2		2
Confl. Bikes (#/hr)									119			
Peak Hour Factor	0.58	0.73	0.65	0.77	0.73	0.59	0.92	0.89	0.80	0.86	0.92	0.60
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	26	82	46	117	55	68	98	163	113	81	342	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	154	0	0	240	0	0	261	113	0	465	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		11.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		11.0	36.0	36.0	25.0	25.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		18.3%	60.0%	60.0%	41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min	Min	Min	Min	
Act Effect Green (s)		11.6			11.6			19.7	19.7		19.7	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-13-2020

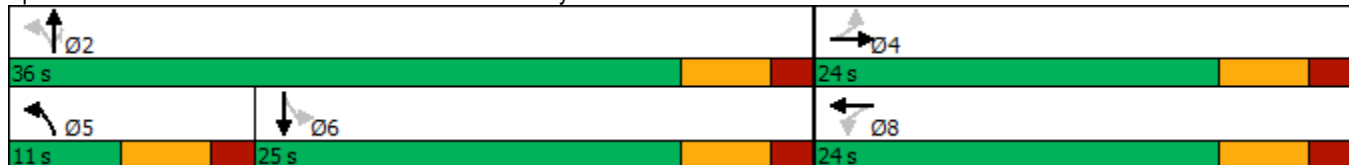


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.27			0.27			0.45	0.45		0.45	
v/c Ratio		0.34			0.62			0.42	0.17		0.61	
Control Delay		12.4			19.8			11.5	3.0		13.9	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		12.4			19.8			11.5	3.0		13.9	
LOS		B			B			B	A		B	
Approach Delay		12.4			19.8			8.9			13.9	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		6.7			12.9			11.8	0.0		23.1	
Queue Length 95th (m)		14.6			24.7			31.1	4.9		56.7	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		701			591			969	984		792	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.22			0.41			0.27	0.11		0.59	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	43.5
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	13.4
Intersection LOS:	B
Intersection Capacity Utilization:	67.2%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	5	5	315	5	5	435
Future Vol, veh/h	5	5	315	5	5	435
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	342	5	5	473

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	828	174	0	0	347
Stage 1	345	-	-	-	-
Stage 2	483	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13
Critical Hdwy Stg 1	5.83	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	325	840	-	-	1210
Stage 1	689	-	-	-	-
Stage 2	619	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	323	840	-	-	1210
Mov Cap-2 Maneuver	323	-	-	-	-
Stage 1	685	-	-	-	-
Stage 2	619	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	1210
HCM Lane V/C Ratio	-	-	0.023	0.004
HCM Control Delay (s)	-	-	12.9	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 2010 TWSC
 3: Hwy 1 WB Off-Ramp & Burnside Rd West

03-13-2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	60	260	0	0	440
Future Vol, veh/h	0	60	260	0	0	440
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	65	283	0	0	478


















Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	142	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	880	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	880	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 880	-
HCM Lane V/C Ratio	- 0.074	-
HCM Control Delay (s)	- 9.4	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.2	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-25-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	75	35	45	25	35	30	645	300	20	70	5
Future Volume (vph)	55	75	35	45	25	35	30	645	300	20	70	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00	0.88		1.00	
Fr _t		0.971			0.955				0.850		0.993	
Fl _t Protected		0.984			0.979			0.998			0.989	
Satd. Flow (prot)	0	1746	0	0	1654	0	0	1844	1570	0	1828	0
Fl _t Permitted		0.844			0.828			0.985			0.843	
Satd. Flow (perm)	0	1486	0	0	1389	0	0	1817	1381	0	1557	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			38				326			5
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	16		16	13		13	19		19	12		12
Confl. Bikes (#/hr)			4			2			97			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	60	82	38	49	27	38	33	701	326	22	76	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	0	0	114	0	0	734	326	0	103	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effect Green (s)		10.9			10.7			30.0	30.0		30.0	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-25-2020

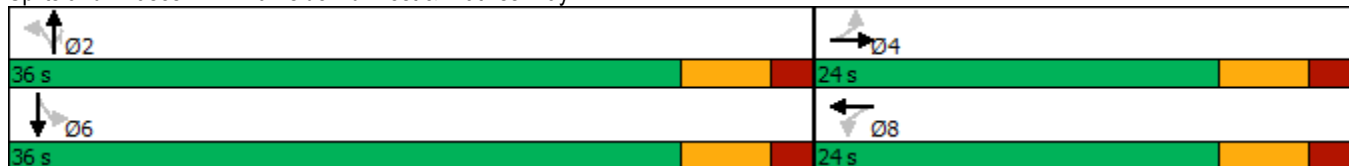


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.23			0.22			0.62	0.62		0.62	
v/c Ratio		0.51			0.34			0.65	0.33		0.11	
Control Delay		20.8			15.0			13.7	2.2		6.8	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		20.8			15.0			13.7	2.2		6.8	
LOS		C			B			B	A		A	
Approach Delay		20.8			15.0			10.1			6.8	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		12.9			5.9			43.5	0.0		3.7	
Queue Length 95th (m)		28.0			16.4			#122.3	10.1		11.9	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		599			570			1192	1018		1024	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.30			0.20			0.62	0.32		0.10	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	48.1
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	11.6
Intersection LOS:	B
Intersection Capacity Utilization:	60.2%
ICU Level of Service:	B
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↓
Traffic Vol, veh/h	5	5	970	5	5	145
Future Vol, veh/h	5	5	970	5	5	145
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	1054	5	5	158

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1225	530	0	0	1059
Stage 1	1057	-	-	-	-
Stage 2	168	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13
Critical Hdwy Stg 1	5.83	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	184	494	-	-	656
Stage 1	296	-	-	-	-
Stage 2	861	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	183	494	-	-	656
Mov Cap-2 Maneuver	183	-	-	-	-
Stage 1	294	-	-	-	-
Stage 2	861	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	267	656
HCM Lane V/C Ratio	-	-	0.041	0.008
HCM Control Delay (s)	-	-	19.1	10.5
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	60	915	0	0	150
Future Vol, veh/h	0	60	915	0	0	150
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	65	995	0	0	163


















Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	498	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	519	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	519	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 519	-
HCM Lane V/C Ratio	- 0.126	-
HCM Control Delay (s)	- 12.9	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-13-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	60	30	95	40	40	95	150	95	75	330	25
Future Volume (vph)	15	60	30	95	40	40	95	150	95	75	330	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			1.00	0.85		1.00	
Frt		0.961			0.969				0.850		0.992	
Flt Protected		0.993			0.973			0.981			0.991	
Satd. Flow (prot)	0	1767	0	0	1733	0	0	1830	1585	0	1867	0
Flt Permitted		0.930			0.769			0.724			0.894	
Satd. Flow (perm)	0	1654	0	0	1369	0	0	1344	1353	0	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			25				103			5
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	3		3	1		1	26		26	2		2
Confl. Bikes (#/hr)									119			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	16	65	33	103	43	43	103	163	103	82	359	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	189	0	0	266	103	0	468	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		11.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		11.0	36.0	36.0	25.0	25.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		18.3%	60.0%	60.0%	41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min	Min	Min	Min	
Act Effect Green (s)		10.4			10.6			23.2	23.2		23.2	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-13-2020

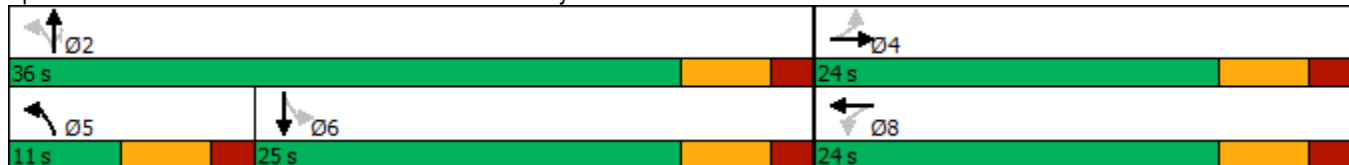


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.25			0.26			0.56	0.56		0.56	
v/c Ratio		0.26			0.51			0.35	0.13		0.50	
Control Delay		11.6			17.6			10.1	2.7		11.2	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		11.6			17.6			10.1	2.7		11.2	
LOS		B			B			B	A		B	
Approach Delay		11.6			17.6			8.0			11.2	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		4.5			9.7			11.3	0.0		21.8	
Queue Length 95th (m)		15.3			27.5			32.4	6.0		56.9	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		767			633			1015	1047		981	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.15			0.30			0.26	0.10		0.48	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	41.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	11.3
Intersection LOS:	B
Intersection Capacity Utilization:	68.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↔
Traffic Vol, veh/h	5	5	330	5	5	450
Future Vol, veh/h	5	5	330	5	5	450
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	359	5	5	489

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	861	182	0	0	364
Stage 1	362	-	-	-	-
Stage 2	499	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13
Critical Hdwy Stg 1	5.83	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	310	830	-	-	1193
Stage 1	676	-	-	-	-
Stage 2	609	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	308	830	-	-	1193
Mov Cap-2 Maneuver	308	-	-	-	-
Stage 1	672	-	-	-	-
Stage 2	609	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	449	1193
HCM Lane V/C Ratio	-	-	0.024	0.005
HCM Control Delay (s)	-	-	13.2	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	60	270	0	0	460
Future Vol, veh/h	0	60	270	0	0	460
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	65	293	0	0	500


















Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	147	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	874	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	874	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 874	-
HCM Lane V/C Ratio	- 0.075	-
HCM Control Delay (s)	- 9.5	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.2	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-25-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	75	35	50	25	35	30	655	305	20	80	5
Future Volume (vph)	55	75	35	50	25	35	30	655	305	20	80	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			1.00	0.88		1.00	
Frt		0.971			0.957				0.850		0.994	
Flt Protected		0.984			0.978			0.998			0.990	
Satd. Flow (prot)	0	1746	0	0	1657	0	0	1844	1570	0	1832	0
Flt Permitted		0.843			0.820			0.985			0.853	
Satd. Flow (perm)	0	1485	0	0	1379	0	0	1817	1381	0	1577	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			38				332			5
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	16		16	13		13	19		19	12		12
Confl. Bikes (#/hr)			4			2			97			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	60	82	38	54	27	38	33	712	332	22	87	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	0	0	119	0	0	745	332	0	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effect Green (s)		10.9			10.7			30.3	30.3		30.3	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-25-2020

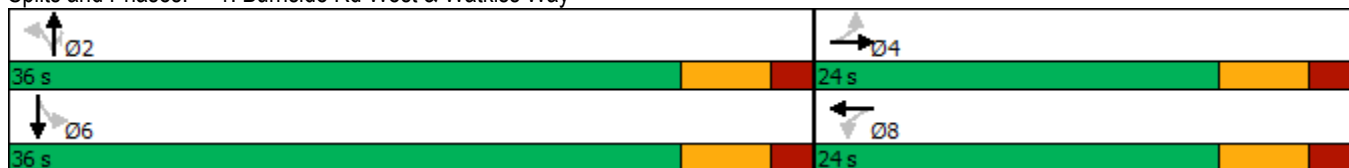


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.23			0.22			0.63	0.63		0.63	
v/c Ratio		0.51			0.36			0.65	0.34		0.12	
Control Delay		21.0			15.6			13.9	2.2		6.9	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		21.0			15.6			13.9	2.2		6.9	
LOS		C			B			B	A		A	
Approach Delay		21.0			15.6			10.3			6.9	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		13.1			6.5			44.6	0.0		4.2	
Queue Length 95th (m)		28.0			17.2			#125.4	10.3		12.9	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		594			562			1184	1015		1029	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.30			0.21			0.63	0.33		0.11	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 48.4
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 11.8
 Intersection Capacity Utilization 60.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓			↓
Traffic Vol, veh/h	25	15	970	25	15	145
Future Vol, veh/h	25	15	970	25	15	145
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	92	92	92	92	92	92
Heavy Vehicles, %	50	50	2	2	2	2
Mvmt Flow	27	16	1054	27	16	158

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1258	541	0	0	1081
Stage 1	1068	-	-	-	-
Stage 2	190	-	-	-	-
Critical Hdwy	7.35	7.65	-	-	4.13
Critical Hdwy Stg 1	6.55	-	-	-	-
Critical Hdwy Stg 2	6.15	-	-	-	-
Follow-up Hdwy	3.975	3.775	-	-	2.219
Pot Cap-1 Maneuver	128	396	-	-	643
Stage 1	221	-	-	-	-
Stage 2	726	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	125	396	-	-	643
Mov Cap-2 Maneuver	125	-	-	-	-
Stage 1	215	-	-	-	-
Stage 2	726	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.8	0	1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	168	643
HCM Lane V/C Ratio	-	-	0.259	0.025
HCM Control Delay (s)	-	-	33.8	10.7
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	1	0.1

HCM 2010 TWSC
 3: Hwy 1 WB Off-Ramp & Burnside Rd West

03-24-2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	65	930	0	0	170
Future Vol, veh/h	0	65	930	0	0	170
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	1011	0	0	185


















Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	506	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	512	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	512	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 512	-
HCM Lane V/C Ratio	- 0.138	-
HCM Control Delay (s)	- 13.2	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.5	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-24-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	60	30	95	40	40	95	155	95	75	330	25
Future Volume (vph)	15	60	30	95	40	40	95	155	95	75	330	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			1.00	0.85		1.00	
Frt		0.961			0.969				0.850		0.992	
Flt Protected		0.993			0.973			0.981			0.991	
Satd. Flow (prot)	0	1767	0	0	1733	0	0	1830	1585	0	1867	0
Flt Permitted		0.929			0.769			0.729			0.893	
Satd. Flow (perm)	0	1652	0	0	1369	0	0	1353	1353	0	1682	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			25				103			5
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	3		3	1		1	26		26	2		2
Confl. Bikes (#/hr)									119			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	16	65	33	103	43	43	103	168	103	82	359	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	189	0	0	271	103	0	468	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		11.0	24.0	24.0	24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		11.0	36.0	36.0	25.0	25.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		18.3%	60.0%	60.0%	41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min	Min	Min	Min	
Act Effect Green (s)		10.5			10.6			23.2	23.2		23.2	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-24-2020

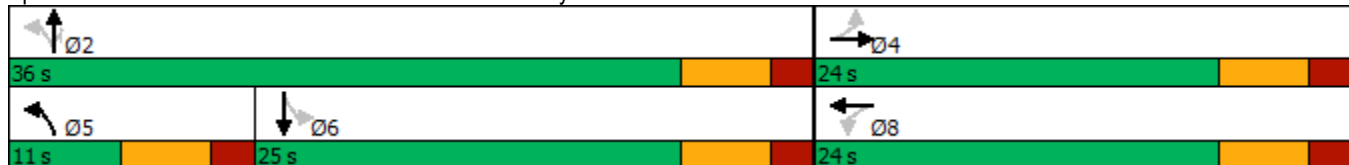


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.25			0.26			0.56	0.56		0.56	
v/c Ratio		0.26			0.51			0.36	0.13		0.50	
Control Delay		11.6			17.6			10.1	2.7		11.2	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		11.6			17.6			10.1	2.7		11.2	
LOS		B			B			B	A		B	
Approach Delay		11.6			17.6			8.1			11.2	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		4.5			9.8			11.5	0.0		21.8	
Queue Length 95th (m)		15.4			27.6			32.9	6.0		56.9	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		765			632			1019	1044		979	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.15			0.30			0.27	0.10		0.48	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	41.5
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	11.3
Intersection LOS:	B
Intersection Capacity Utilization:	68.9%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	15	10	330	10	10	450
Future Vol, veh/h	15	10	330	10	10	450
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	92	92	92	92	92	92
Heavy Vehicles, %	41	41	2	2	2	2
Mvmt Flow	16	11	359	11	11	489

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	876	185	0	0	370
Stage 1	365	-	-	-	-
Stage 2	511	-	-	-	-
Critical Hdwy	7.215	7.515	-	-	4.13
Critical Hdwy Stg 1	6.415	-	-	-	-
Critical Hdwy Stg 2	6.015	-	-	-	-
Follow-up Hdwy	3.8895	3.6895	-	-	2.219
Pot Cap-1 Maneuver	247	728	-	-	1187
Stage 1	584	-	-	-	-
Stage 2	513	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	244	728	-	-	1187
Mov Cap-2 Maneuver	244	-	-	-	-
Stage 1	576	-	-	-	-
Stage 2	513	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	332	1187
HCM Lane V/C Ratio	-	-	0.082	0.009
HCM Control Delay (s)	-	-	16.8	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 2010 TWSC
 3: Hwy 1 WB Off-Ramp & Burnside Rd West

03-24-2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	60	275	0	0	470
Future Vol, veh/h	0	60	275	0	0	470
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	65	299	0	0	511

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	150	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	870	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	-	870	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 870	-
HCM Lane V/C Ratio	- 0.075	-
HCM Control Delay (s)	- 9.5	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.2	-

Lanes, Volumes, Timings

1: Burnside Rd West & Watkiss Way

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	
Traffic Volume (vph)	85	110	55	70	40	55	45	955	445	30	100	10
Future Volume (vph)	85	110	55	70	40	55	45	955	445	30	100	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00	0.88		1.00	
Frt		0.970			0.955				0.850		0.990	
Flt Protected		0.983			0.979			0.998			0.989	
Satd. Flow (prot)	0	1736	0	0	1647	0	0	1844	1570	0	1820	0
Flt Permitted		0.803			0.659			0.981			0.550	
Satd. Flow (perm)	0	1405	0	0	1102	0	0	1809	1385	0	1012	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			25				409			9
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	16		16	13		13	19		19	12		12
Confl. Bikes (#/hr)			4			2			97			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	92	120	60	76	43	60	49	1038	484	33	109	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	272	0	0	179	0	0	1087	484	0	153	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6		6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0		24.0	24.0		66.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%		26.7%	26.7%		73.3%	73.3%	73.3%	73.3%	73.3%	73.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effect Green (s)		17.6			17.6			55.8	55.8		55.8	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

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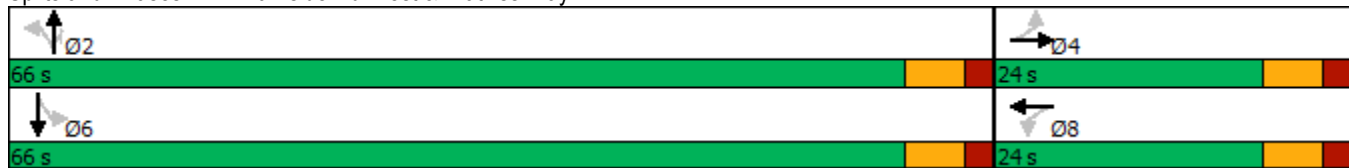


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.21			0.21			0.65	0.65		0.65	
v/c Ratio		0.91			0.72			0.92	0.46		0.23	
Control Delay		67.6			47.4			27.2	2.7		6.6	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		67.6			47.4			27.2	2.7		6.6	
LOS		E			D			C	A		A	
Approach Delay		67.6			47.4			19.7			6.6	
Approach LOS		E			D			B			A	
Queue Length 50th (m)		44.4			25.3			138.0	4.0		8.5	
Queue Length 95th (m)		#91.0			#56.8			#248.5	14.3		16.4	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		309			253			1279	1099		718	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.88			0.71			0.85	0.44		0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	85.6
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	27.0
Intersection LOS:	C
Intersection Capacity Utilization:	82.4%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	10	10	1440	10	10	215
Future Vol, veh/h	10	10	1440	10	10	215
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	1565	11	11	234

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1827	788	0	0	1576
Stage 1	1571	-	-	-	-
Stage 2	256	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13
Critical Hdwy Stg 1	5.83	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	76	335	-	-	416
Stage 1	157	-	-	-	-
Stage 2	786	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	74	335	-	-	416
Mov Cap-2 Maneuver	74	-	-	-	-
Stage 1	152	-	-	-	-
Stage 2	786	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	41.2	0	0.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	121	416
HCM Lane V/C Ratio	-	-	0.18	0.026
HCM Control Delay (s)	-	-	41.2	13.9
HCM Lane LOS	-	-	E	B
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	90	1355	0	0	225
Future Vol, veh/h	0	90	1355	0	0	225
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	98	1473	0	0	245


















Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	737	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	362	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	362	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 362	-
HCM Lane V/C Ratio	- 0.27	-
HCM Control Delay (s)	- 18.6	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 1.1	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-24-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	90	45	140	60	60	140	225	140	110	485	40
Future Volume (vph)	25	90	45	140	60	60	140	225	140	110	485	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99				0.85		1.00	
Frt		0.962			0.969				0.850		0.992	
Flt Protected		0.992			0.974			0.981			0.991	
Satd. Flow (prot)	0	1766	0	0	1734	0	0	1830	1585	0	1867	0
Flt Permitted		0.924			0.758			0.589			0.842	
Satd. Flow (perm)	0	1644	0	0	1349	0	0	1099	1348	0	1585	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			16				152			5
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	3		3	1		1	26		26	2		2
Confl. Bikes (#/hr)									119			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	98	49	152	65	65	152	245	152	120	527	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	174	0	0	282	0	0	397	152	0	690	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4			8			5	2			6
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		24.0	24.0		11.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	28.0	28.0		28.0	28.0		11.0	62.0	62.0	51.0	51.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		12.2%	68.9%	68.9%	56.7%	56.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min	Min	Min	Min	
Act Effect Green (s)		20.2			20.2			36.7	36.7		36.7	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-24-2020

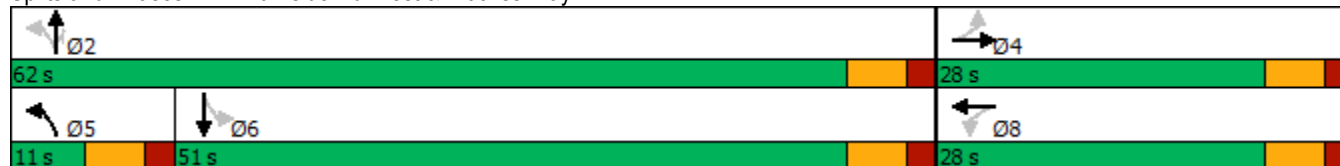


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.29			0.29			0.53	0.53			0.53
v/c Ratio		0.35			0.70			0.68	0.19			0.82
Control Delay		22.5			34.9			18.8	2.0			22.6
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		22.5			34.9			18.8	2.0			22.6
LOS		C			C			B	A			C
Approach Delay		22.5			34.9			14.1				22.6
Approach LOS		C			C			B				C
Queue Length 50th (m)		15.5			30.6			36.8	0.0			71.7
Queue Length 95th (m)		39.7			#83.2			63.9	6.5			113.1
Internal Link Dist (m)		86.6			141.3			93.3				186.0
Turn Bay Length (m)												
Base Capacity (vph)		560			458			885	1115			1111
Starvation Cap Reductn		0			0			0	0			0
Spillback Cap Reductn		0			0			0	0			0
Storage Cap Reductn		0			0			0	0			0
Reduced v/c Ratio		0.31			0.62			0.45	0.14			0.62

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	69.5
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	21.9
Intersection LOS:	C
Intersection Capacity Utilization:	97.8%
ICU Level of Service:	F
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	S	S
Traffic Vol, veh/h	10	10	485	10	10	670
Future Vol, veh/h	10	10	485	10	10	670
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	527	11	11	728

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1283	269	0	0	538
Stage 1	533	-	-	-	-
Stage 2	750	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13
Critical Hdwy Stg 1	5.83	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	169	730	-	-	1028
Stage 1	554	-	-	-	-
Stage 2	466	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	166	730	-	-	1028
Mov Cap-2 Maneuver	166	-	-	-	-
Stage 1	544	-	-	-	-
Stage 2	466	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	270	1028
HCM Lane V/C Ratio	-	-	0.081	0.011
HCM Control Delay (s)	-	-	19.5	8.5
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	90	400	0	0	680
Future Vol, veh/h	0	90	400	0	0	680
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	98	435	0	0	739


















Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	218	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	787	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	787	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 787	-
HCM Lane V/C Ratio	- 0.124	-
HCM Control Delay (s)	- 10.2	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-26-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	110	55	80	40	55	45	970	455	30	115	10
Future Volume (vph)	85	110	55	80	40	55	45	970	455	30	115	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.97			1.00	0.88		1.00	
Frt		0.970			0.957				0.850		0.991	
Flt Protected		0.983			0.978			0.998			0.990	
Satd. Flow (prot)	0	1734	0	0	1649	0	0	1844	1570	0	1824	0
Flt Permitted		0.794			0.636			0.980			0.541	
Satd. Flow (perm)	0	1388	0	0	1064	0	0	1807	1379	0	997	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			21				409			8
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	16		16	13		13	19		19	12		12
Confl. Bikes (#/hr)			4			2			97			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	92	120	60	87	43	60	49	1054	495	33	125	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	272	0	0	190	0	0	1103	495	0	169	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0	24.0	24.0	24.0	
Total Split (s)	26.0	26.0		26.0	26.0		74.0	74.0	74.0	74.0	74.0	
Total Split (%)	26.0%	26.0%		26.0%	26.0%		74.0%	74.0%	74.0%	74.0%	74.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effect Green (s)		19.7			19.7			62.2	62.2		62.2	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-26-2020

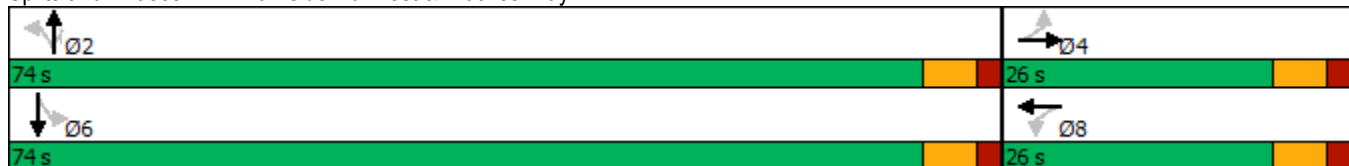


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.21			0.21			0.66	0.66		0.66	
v/c Ratio		0.90			0.79			0.92	0.47		0.26	
Control Delay		69.9			58.2			28.0	2.9		7.1	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		69.9			58.2			28.0	2.9		7.1	
LOS		E			E			C	A		A	
Approach Delay		69.9			58.2			20.2			7.1	
Approach LOS		E			E			C			A	
Queue Length 50th (m)		50.2			31.8			155.7	5.1		10.6	
Queue Length 95th (m)		#99.3			#69.3			#273.2	15.6		19.3	
Internal Link Dist (m)		86.6			141.3			93.3			186.0	
Turn Bay Length (m)												
Base Capacity (vph)		309			245			1321	1118		731	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.88			0.78			0.83	0.44		0.23	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 94.1
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 28.5
 Intersection LOS: C
 Intersection Capacity Utilization 83.1%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	11.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T	T		T
Traffic Vol, veh/h	40	30	1440	45	35	215
Future Vol, veh/h	40	30	1440	45	35	215
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	92	92	92	92	92	92
Heavy Vehicles, %	50	50	2	2	2	2
Mvmt Flow	43	33	1565	49	38	234

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1900	807	0	0	1614	0
Stage 1	1590	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Critical Hdwy	7.35	7.65	-	-	4.13	-
Critical Hdwy Stg 1	6.55	-	-	-	-	-
Critical Hdwy Stg 2	6.15	-	-	-	-	-
Follow-up Hdwy	3.975	3.775	-	-	2.219	-
Pot Cap-1 Maneuver	45	254	-	-	402	-
Stage 1	107	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	~ 40	254	-	-	402	-
Mov Cap-2 Maneuver	~ 40	-	-	-	-	-
Stage 1	95	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	291.2	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	63	402
HCM Lane V/C Ratio	-	-	1.208	0.095
HCM Control Delay (s)	-	-	291.2	14.9
HCM Lane LOS	-	-	F	B
HCM 95th %tile Q(veh)	-	-	6.2	0.3

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
 3: Hwy 1 WB Off-Ramp & Burnside Rd West

03-24-2020

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	95	1385	0	0	255
Future Vol, veh/h	0	95	1385	0	0	255
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	103	1505	0	0	277


















Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	753	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	353	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	353	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 353	-
HCM Lane V/C Ratio	- 0.293	-
HCM Control Delay (s)	- 19.4	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 1.2	-

Lanes, Volumes, Timings
1: Burnside Rd West & Watkiss Way

03-24-2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	90	45	140	60	60	140	230	145	110	490	40
Future Volume (vph)	25	90	45	140	60	60	140	230	145	110	490	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99				0.85		1.00	
Frt		0.962			0.969				0.850		0.992	
Flt Protected		0.992			0.974			0.981			0.991	
Satd. Flow (prot)	0	1766	0	0	1734	0	0	1830	1585	0	1867	0
Flt Permitted		0.925			0.755			0.592			0.842	
Satd. Flow (perm)	0	1646	0	0	1343	0	0	1104	1348	0	1586	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			16				158			5
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.6			165.3			117.3			210.0	
Travel Time (s)		8.0			11.9			8.4			15.1	
Confl. Peds. (#/hr)	3		3	1		1	26		26	2		2
Confl. Bikes (#/hr)									119			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	98	49	152	65	65	152	250	158	120	533	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	174	0	0	282	0	0	402	158	0	696	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		11.0	24.0	24.0	24.0	24.0	
Total Split (s)	28.0	28.0		28.0	28.0		11.0	62.0	62.0	51.0	51.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		12.2%	68.9%	68.9%	56.7%	56.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0			6.0	6.0		6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	Min	Min	Min	Min	
Act Effect Green (s)		20.2			20.2			37.7	37.7		37.7	

Lanes, Volumes, Timings
 1: Burnside Rd West & Watkiss Way

03-24-2020

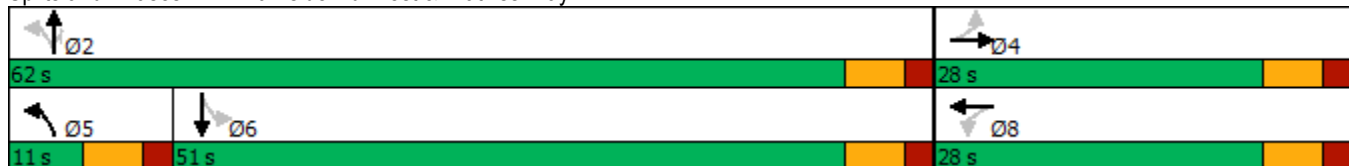


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.29			0.29			0.53	0.53			0.53
v/c Ratio		0.36			0.71			0.68	0.20			0.82
Control Delay		22.9			36.0			18.5	2.0			22.2
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		22.9			36.0			18.5	2.0			22.2
LOS		C			D			B	A			C
Approach Delay		22.9			36.0			13.8				22.2
Approach LOS		C			D			B				C
Queue Length 50th (m)		15.8			31.2			37.4	0.0			72.6
Queue Length 95th (m)		40.4			#85.0			64.9	6.5			114.5
Internal Link Dist (m)		86.6			141.3			93.3				186.0
Turn Bay Length (m)												
Base Capacity (vph)		550			448			882	1108			1096
Starvation Cap Reductn		0			0			0	0			0
Spillback Cap Reductn		0			0			0	0			0
Storage Cap Reductn		0			0			0	0			0
Reduced v/c Ratio		0.32			0.63			0.46	0.14			0.64

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 21.8
 Intersection LOS: C
 Intersection Capacity Utilization 98.3%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Burnside Rd West & Watkiss Way



Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↓
Traffic Vol, veh/h	25	20	485	15	15	670
Future Vol, veh/h	25	20	485	15	15	670
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	92	92	92	92	92	92
Heavy Vehicles, %	41	41	2	2	2	2
Mvmt Flow	27	22	527	16	16	728

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1295	272	0	0	543
Stage 1	535	-	-	-	-
Stage 2	760	-	-	-	-
Critical Hdwy	7.215	7.515	-	-	4.13
Critical Hdwy Stg 1	6.415	-	-	-	-
Critical Hdwy Stg 2	6.015	-	-	-	-
Follow-up Hdwy	3.8895	3.6895	-	-	2.219
Pot Cap-1 Maneuver	128	634	-	-	1024
Stage 1	470	-	-	-	-
Stage 2	381	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	125	634	-	-	1024
Mov Cap-2 Maneuver	125	-	-	-	-
Stage 1	458	-	-	-	-
Stage 2	381	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.7	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	194	1024
HCM Lane V/C Ratio	-	-	0.252	0.016
HCM Control Delay (s)	-	-	29.7	8.6
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1	0

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	90	405	0	0	695
Future Vol, veh/h	0	90	405	0	0	695
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	98	440	0	0	755

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	-	220	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	785	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	785	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 785	-
HCM Lane V/C Ratio	- 0.125	-
HCM Control Delay (s)	- 10.2	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1278	1354	1376	1337	1276	1323	1330
Vehs Exited	1277	1352	1374	1335	1278	1321	1342
Starting Vehs	16	13	19	19	22	24	26
Ending Vehs	17	15	21	21	20	26	14
Travel Distance (km)	648	695	701	677	643	667	669
Travel Time (hr)	18.7	20.1	20.5	19.8	18.4	19.2	19.5
Total Delay (hr)	4.7	5.1	5.3	5.2	4.5	4.8	5.0
Total Stops	754	771	817	804	725	798	803
Fuel Used (l)	58.4	62.5	63.1	60.8	57.5	59.7	60.5

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1271	1352	1361	1325
Vehs Exited	1267	1361	1370	1327
Starting Vehs	19	20	25	17
Ending Vehs	23	11	16	16
Travel Distance (km)	646	689	691	673
Travel Time (hr)	18.4	19.4	20.2	19.4
Total Delay (hr)	4.5	4.5	5.2	4.9
Total Stops	737	714	828	774
Fuel Used (l)	57.0	61.1	62.4	60.3

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1278	1354	1376	1337	1276	1323	1330
Vehs Exited	1277	1352	1374	1335	1278	1321	1342
Starting Vehs	16	13	19	19	22	24	26
Ending Vehs	17	15	21	21	20	26	14
Travel Distance (km)	648	695	701	677	643	667	669
Travel Time (hr)	18.7	20.1	20.5	19.8	18.4	19.2	19.5
Total Delay (hr)	4.7	5.1	5.3	5.2	4.5	4.8	5.0
Total Stops	754	771	817	804	725	798	803
Fuel Used (l)	58.4	62.5	63.1	60.8	57.5	59.7	60.5

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1271	1352	1361	1325
Vehs Exited	1267	1361	1370	1327
Starting Vehs	19	20	25	17
Ending Vehs	23	11	16	16
Travel Distance (km)	646	689	691	673
Travel Time (hr)	18.4	19.4	20.2	19.4
Total Delay (hr)	4.5	4.5	5.2	4.9
Total Stops	737	714	828	774
Fuel Used (l)	57.0	61.1	62.4	60.3

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	41.0	33.6	87.9	35.6	29.4
Average Queue (m)	17.4	13.5	44.6	15.6	9.6
95th Queue (m)	31.9	26.4	74.2	28.3	21.4
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	SB
Directions Served	LR	T	LT
Maximum Queue (m)	9.2	5.6	13.4
Average Queue (m)	2.1	0.2	1.1
95th Queue (m)	7.8	3.6	7.0
Link Distance (m)	157.9	36.3	102.6
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB	NB	NB	B6
Directions Served	R	T	T	T
Maximum Queue (m)	18.1	6.1	8.6	0.9
Average Queue (m)	8.5	0.3	0.8	0.0
95th Queue (m)	15.1	3.6	5.0	0.9
Link Distance (m)	269.1	9.5	9.5	154.9
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	977	1074	1050	1028	1026	986	1086
Vehs Exited	970	1068	1045	1033	1023	974	1094
Starting Vehs	9	11	9	21	18	7	21
Ending Vehs	16	17	14	16	21	19	13
Travel Distance (km)	492	536	517	518	509	482	532
Travel Time (hr)	14.0	15.6	14.9	14.8	15.1	13.6	15.5
Total Delay (hr)	3.3	4.0	3.7	3.6	3.9	3.2	3.9
Total Stops	663	740	736	691	735	627	756
Fuel Used (l)	45.0	48.5	47.3	47.4	47.3	43.8	49.0

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1075	1071	1011	1038
Vehs Exited	1080	1063	1011	1037
Starting Vehs	17	11	15	13
Ending Vehs	12	19	15	15
Travel Distance (km)	526	524	506	514
Travel Time (hr)	15.3	15.1	14.2	14.8
Total Delay (hr)	3.8	3.8	3.2	3.6
Total Stops	737	715	659	706
Fuel Used (l)	48.4	47.4	45.7	47.0

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	977	1074	1050	1028	1026	986	1086
Vehs Exited	970	1068	1045	1033	1023	974	1094
Starting Vehs	9	11	9	21	18	7	21
Ending Vehs	16	17	14	16	21	19	13
Travel Distance (km)	492	536	517	518	509	482	532
Travel Time (hr)	14.0	15.6	14.9	14.8	15.1	13.6	15.5
Total Delay (hr)	3.3	4.0	3.7	3.6	3.9	3.2	3.9
Total Stops	663	740	736	691	735	627	756
Fuel Used (l)	45.0	48.5	47.3	47.4	47.3	43.8	49.0

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1075	1071	1011	1038
Vehs Exited	1080	1063	1011	1037
Starting Vehs	17	11	15	13
Ending Vehs	12	19	15	15
Travel Distance (km)	526	524	506	514
Travel Time (hr)	15.3	15.1	14.2	14.8
Total Delay (hr)	3.8	3.8	3.2	3.6
Total Stops	737	715	659	706
Fuel Used (l)	48.4	47.4	45.7	47.0

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	24.0	40.0	44.4	18.8	65.1
Average Queue (m)	11.3	17.4	21.2	7.8	28.7
95th Queue (m)	21.1	31.6	36.9	16.4	50.5
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	8.0	3.1	0.7	11.7
Average Queue (m)	2.1	0.1	0.0	0.6
95th Queue (m)	7.7	2.2	0.7	5.9
Link Distance (m)	157.9	36.3	36.3	102.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB	NB	NB
Directions Served	R	T	T
Maximum Queue (m)	16.2	0.7	3.4
Average Queue (m)	8.2	0.0	0.2
95th Queue (m)	14.0	0.7	1.8
Link Distance (m)	269.1	9.5	9.5
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1331	1340	1457	1359	1369	1370	1373
Vehs Exited	1328	1329	1459	1355	1369	1352	1375
Starting Vehs	19	18	23	13	21	10	22
Ending Vehs	22	29	21	17	21	28	20
Travel Distance (km)	679	677	741	687	694	688	697
Travel Time (hr)	19.1	19.3	22.1	20.0	20.5	19.4	20.1
Total Delay (hr)	4.6	4.8	6.3	5.2	5.6	4.6	5.3
Total Stops	725	780	906	832	821	764	822
Fuel Used (l)	59.6	60.4	66.9	61.3	62.1	60.7	62.3

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1351	1421	1344	1370
Vehs Exited	1356	1420	1350	1368
Starting Vehs	21	15	24	16
Ending Vehs	16	16	18	18
Travel Distance (km)	692	728	680	696
Travel Time (hr)	19.8	21.1	19.3	20.1
Total Delay (hr)	5.0	5.6	4.7	5.2
Total Stops	775	808	747	798
Fuel Used (l)	61.2	65.0	59.7	61.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1331	1340	1457	1359	1369	1370	1373
Vehs Exited	1328	1329	1459	1355	1369	1352	1375
Starting Vehs	19	18	23	13	21	10	22
Ending Vehs	22	29	21	17	21	28	20
Travel Distance (km)	679	677	741	687	694	688	697
Travel Time (hr)	19.1	19.3	22.1	20.0	20.5	19.4	20.1
Total Delay (hr)	4.6	4.8	6.3	5.2	5.6	4.6	5.3
Total Stops	725	780	906	832	821	764	822
Fuel Used (l)	59.6	60.4	66.9	61.3	62.1	60.7	62.3

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1351	1421	1344	1370
Vehs Exited	1356	1420	1350	1368
Starting Vehs	21	15	24	16
Ending Vehs	16	16	18	18
Travel Distance (km)	692	728	680	696
Travel Time (hr)	19.8	21.1	19.3	20.1
Total Delay (hr)	5.0	5.6	4.7	5.2
Total Stops	775	808	747	798
Fuel Used (l)	61.2	65.0	59.7	61.9

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	38.8	34.0	85.9	41.4	34.7
Average Queue (m)	18.7	12.8	48.1	16.7	10.1
95th Queue (m)	32.6	25.6	77.4	34.3	24.4
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			1	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	10.1	5.6	2.1	16.0
Average Queue (m)	2.3	0.3	0.1	1.3
95th Queue (m)	8.4	7.0	2.1	7.8
Link Distance (m)	157.9	82.2	82.2	102.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB
Directions Served	R
Maximum Queue (m)	16.5
Average Queue (m)	7.4
95th Queue (m)	13.1
Link Distance (m)	251.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1057	1073	1057	1068	1079	1007	1103
Vehs Exited	1070	1075	1062	1061	1078	1004	1100
Starting Vehs	21	17	17	15	19	9	15
Ending Vehs	8	15	12	22	20	12	18
Travel Distance (km)	526	536	526	527	534	505	550
Travel Time (hr)	15.0	15.6	15.1	15.0	15.7	14.5	16.3
Total Delay (hr)	3.7	4.0	3.7	3.7	4.1	3.6	4.3
Total Stops	671	733	722	704	762	681	787
Fuel Used (l)	47.8	48.8	48.3	47.7	49.3	45.5	50.7

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1082	1100	1094	1072
Vehs Exited	1077	1092	1093	1070
Starting Vehs	7	14	16	14
Ending Vehs	12	22	17	15
Travel Distance (km)	542	543	548	534
Travel Time (hr)	15.6	15.7	15.8	15.4
Total Delay (hr)	3.9	3.9	3.9	3.9
Total Stops	704	754	747	728
Fuel Used (l)	49.1	49.5	50.7	48.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1057	1073	1057	1068	1079	1007	1103
Vehs Exited	1070	1075	1062	1061	1078	1004	1100
Starting Vehs	21	17	17	15	19	9	15
Ending Vehs	8	15	12	22	20	12	18
Travel Distance (km)	526	536	526	527	534	505	550
Travel Time (hr)	15.0	15.6	15.1	15.0	15.7	14.5	16.3
Total Delay (hr)	3.7	4.0	3.7	3.7	4.1	3.6	4.3
Total Stops	671	733	722	704	762	681	787
Fuel Used (l)	47.8	48.8	48.3	47.7	49.3	45.5	50.7

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1082	1100	1094	1072
Vehs Exited	1077	1092	1093	1070
Starting Vehs	7	14	16	14
Ending Vehs	12	22	17	15
Travel Distance (km)	542	543	548	534
Travel Time (hr)	15.6	15.7	15.8	15.4
Total Delay (hr)	3.9	3.9	3.9	3.9
Total Stops	704	754	747	728
Fuel Used (l)	49.1	49.5	50.7	48.7

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	28.5	35.8	45.4	19.0	63.5
Average Queue (m)	11.8	17.4	23.2	7.6	29.1
95th Queue (m)	22.8	31.6	40.3	16.0	51.6
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	8.0	12.1
Average Queue (m)	2.2	0.6
95th Queue (m)	7.7	5.1
Link Distance (m)	157.9	102.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB
Directions Served	R
Maximum Queue (m)	15.3
Average Queue (m)	7.0
95th Queue (m)	12.8
Link Distance (m)	280.4
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1426	1468	1417	1500	1536	1448	1492
Vehs Exited	1427	1458	1411	1484	1522	1457	1502
Starting Vehs	25	16	14	12	19	24	32
Ending Vehs	24	26	20	28	33	15	22
Travel Distance (km)	722	746	719	759	781	736	766
Travel Time (hr)	20.8	21.5	21.2	22.3	23.2	21.1	23.5
Total Delay (hr)	5.2	5.4	5.7	5.9	6.3	5.2	6.9
Total Stops	825	859	848	913	946	852	1009
Fuel Used (l)	64.8	66.7	64.7	68.7	70.7	65.4	69.8

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1427	1502	1489	1470
Vehs Exited	1415	1516	1484	1469
Starting Vehs	18	33	28	20
Ending Vehs	30	19	33	21
Travel Distance (km)	725	765	751	747
Travel Time (hr)	21.4	23.0	22.0	22.0
Total Delay (hr)	5.8	6.5	5.8	5.9
Total Stops	876	997	878	903
Fuel Used (l)	66.6	69.7	67.1	67.4

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1426	1468	1417	1500	1536	1448	1492
Vehs Exited	1427	1458	1411	1484	1522	1457	1502
Starting Vehs	25	16	14	12	19	24	32
Ending Vehs	24	26	20	28	33	15	22
Travel Distance (km)	722	746	719	759	781	736	766
Travel Time (hr)	20.8	21.5	21.2	22.3	23.2	21.1	23.5
Total Delay (hr)	5.2	5.4	5.7	5.9	6.3	5.2	6.9
Total Stops	825	859	848	913	946	852	1009
Fuel Used (l)	64.8	66.7	64.7	68.7	70.7	65.4	69.8

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1427	1502	1489	1470
Vehs Exited	1415	1516	1484	1469
Starting Vehs	18	33	28	20
Ending Vehs	30	19	33	21
Travel Distance (km)	725	765	751	747
Travel Time (hr)	21.4	23.0	22.0	22.0
Total Delay (hr)	5.8	6.5	5.8	5.9
Total Stops	876	997	878	903
Fuel Used (l)	66.6	69.7	67.1	67.4

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	42.4	34.2	93.6	52.4	30.8
Average Queue (m)	19.4	14.1	50.7	17.6	10.6
95th Queue (m)	33.8	27.1	84.3	35.8	23.2
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			1	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	33.8	17.8	5.4	26.0
Average Queue (m)	11.6	1.1	0.2	3.9
95th Queue (m)	26.0	10.1	2.9	15.1
Link Distance (m)	157.9	63.7	63.7	102.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB
Directions Served	R
Maximum Queue (m)	14.6
Average Queue (m)	6.3
95th Queue (m)	11.6
Link Distance (m)	283.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 2

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1018	1099	1042	1142	1131	1085	1159
Vehs Exited	1021	1094	1053	1154	1139	1079	1163
Starting Vehs	17	12	24	25	26	14	19
Ending Vehs	14	17	13	13	18	20	15
Travel Distance (km)	570	623	593	647	633	606	661
Travel Time (hr)	15.6	17.6	15.9	18.8	17.7	16.8	18.6
Total Delay (hr)	3.4	4.4	3.3	4.9	4.1	3.9	4.4
Total Stops	673	796	661	827	767	747	810
Fuel Used (l)	49.5	56.4	50.8	58.3	56.6	53.8	59.0

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1103	1142	1058	1098
Vehs Exited	1107	1137	1060	1102
Starting Vehs	15	18	24	19
Ending Vehs	11	23	22	17
Travel Distance (km)	623	641	592	619
Travel Time (hr)	17.5	18.3	16.3	17.3
Total Delay (hr)	4.0	4.5	3.7	4.1
Total Stops	779	802	691	755
Fuel Used (l)	55.5	57.1	52.0	54.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1018	1099	1042	1142	1131	1085	1159
Vehs Exited	1021	1094	1053	1154	1139	1079	1163
Starting Vehs	17	12	24	25	26	14	19
Ending Vehs	14	17	13	13	18	20	15
Travel Distance (km)	570	623	593	647	633	606	661
Travel Time (hr)	15.6	17.6	15.9	18.8	17.7	16.8	18.6
Total Delay (hr)	3.4	4.4	3.3	4.9	4.1	3.9	4.4
Total Stops	673	796	661	827	767	747	810
Fuel Used (l)	49.5	56.4	50.8	58.3	56.6	53.8	59.0

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1103	1142	1058	1098
Vehs Exited	1107	1137	1060	1102
Starting Vehs	15	18	24	19
Ending Vehs	11	23	22	17
Travel Distance (km)	623	641	592	619
Travel Time (hr)	17.5	18.3	16.3	17.3
Total Delay (hr)	4.0	4.5	3.7	4.1
Total Stops	779	802	691	755
Fuel Used (l)	55.5	57.1	52.0	54.9

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	24.4	41.5	51.3	19.4	68.2
Average Queue (m)	12.0	17.7	23.4	7.6	29.3
95th Queue (m)	21.5	32.7	42.4	15.7	52.3
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	SB
Directions Served	LR	T	LT
Maximum Queue (m)	22.4	1.3	16.3
Average Queue (m)	6.6	0.0	1.1
95th Queue (m)	17.8	0.9	7.4
Link Distance (m)	157.9	79.9	102.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB
Directions Served	R
Maximum Queue (m)	12.7
Average Queue (m)	6.9
95th Queue (m)	12.4
Link Distance (m)	292.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2100	2036	2008	2031	1970	2061	2171
Vehs Exited	2089	2049	2004	2028	1961	2054	2185
Starting Vehs	29	38	35	38	31	28	54
Ending Vehs	40	25	39	41	40	35	40
Travel Distance (km)	1050	1030	1025	1031	1002	1046	1111
Travel Time (hr)	44.8	35.4	36.1	40.9	36.7	40.2	51.4
Total Delay (hr)	22.1	13.2	14.1	18.7	15.2	17.6	27.6
Total Stops	1415	1262	1187	1290	1346	1350	1877
Fuel Used (l)	109.7	99.0	99.7	103.5	98.3	103.8	120.6

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2072	1997	2038	2047
Vehs Exited	2082	1994	2052	2051
Starting Vehs	39	29	53	35
Ending Vehs	29	32	39	36
Travel Distance (km)	1048	1010	1048	1040
Travel Time (hr)	43.5	38.3	39.7	40.7
Total Delay (hr)	20.9	16.5	17.2	18.3
Total Stops	1469	1306	1420	1391
Fuel Used (l)	109.0	100.4	104.9	104.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2100	2036	2008	2031	1970	2061	2171
Vehs Exited	2089	2049	2004	2028	1961	2054	2185
Starting Vehs	29	38	35	38	31	28	54
Ending Vehs	40	25	39	41	40	35	40
Travel Distance (km)	1050	1030	1025	1031	1002	1046	1111
Travel Time (hr)	44.8	35.4	36.1	40.9	36.7	40.2	51.4
Total Delay (hr)	22.1	13.2	14.1	18.7	15.2	17.6	27.6
Total Stops	1415	1262	1187	1290	1346	1350	1877
Fuel Used (l)	109.7	99.0	99.7	103.5	98.3	103.8	120.6

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2072	1997	2038	2047
Vehs Exited	2082	1994	2052	2051
Starting Vehs	39	29	53	35
Ending Vehs	29	32	39	36
Travel Distance (km)	1048	1010	1048	1040
Travel Time (hr)	43.5	38.3	39.7	40.7
Total Delay (hr)	20.9	16.5	17.2	18.3
Total Stops	1469	1306	1420	1391
Fuel Used (l)	109.0	100.4	104.9	104.9

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	97.0	89.1	109.9	67.3	84.7
Average Queue (m)	55.0	37.8	80.2	23.8	25.3
95th Queue (m)	99.2	73.8	117.1	49.5	64.4
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)	4		3	0	
Queuing Penalty (veh)	0		23	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	15.5	75.4	58.9	40.2
Average Queue (m)	4.4	14.6	5.9	5.5
95th Queue (m)	12.3	56.9	36.9	24.3
Link Distance (m)	157.9	82.2	82.2	102.6
Upstream Blk Time (%)		1	0	
Queuing Penalty (veh)		5	1	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB	NB	NB	B6
Directions Served	R	T	T	T
Maximum Queue (m)	23.2	25.8	17.4	3.7
Average Queue (m)	10.5	1.7	0.8	0.1
95th Queue (m)	18.6	15.1	10.1	2.6
Link Distance (m)	251.3	45.9	45.9	96.4
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 28

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1593	1586	1585	1602	1596	1597	1628
Vehs Exited	1585	1594	1577	1603	1597	1593	1620
Starting Vehs	20	28	20	24	32	19	20
Ending Vehs	28	20	28	23	31	23	28
Travel Distance (km)	787	791	786	792	783	780	801
Travel Time (hr)	27.5	28.4	26.3	27.7	26.9	27.1	28.1
Total Delay (hr)	10.6	11.3	9.3	10.5	10.1	10.3	10.9
Total Stops	1240	1260	1214	1275	1196	1273	1293
Fuel Used (l)	76.8	78.2	75.5	77.5	76.0	76.9	78.9

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1634	1586	1588	1600
Vehs Exited	1640	1581	1600	1599
Starting Vehs	31	37	28	25
Ending Vehs	25	42	16	25
Travel Distance (km)	811	780	794	790
Travel Time (hr)	27.2	26.0	27.4	27.3
Total Delay (hr)	9.6	9.2	10.3	10.2
Total Stops	1277	1189	1198	1239
Fuel Used (l)	78.2	75.5	77.4	77.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1593	1586	1585	1602	1596	1597	1628
Vehs Exited	1585	1594	1577	1603	1597	1593	1620
Starting Vehs	20	28	20	24	32	19	20
Ending Vehs	28	20	28	23	31	23	28
Travel Distance (km)	787	791	786	792	783	780	801
Travel Time (hr)	27.5	28.4	26.3	27.7	26.9	27.1	28.1
Total Delay (hr)	10.6	11.3	9.3	10.5	10.1	10.3	10.9
Total Stops	1240	1260	1214	1275	1196	1273	1293
Fuel Used (l)	76.8	78.2	75.5	77.5	76.0	76.9	78.9

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1634	1586	1588	1600
Vehs Exited	1640	1581	1600	1599
Starting Vehs	31	37	28	25
Ending Vehs	25	42	16	25
Travel Distance (km)	811	780	794	790
Travel Time (hr)	27.2	26.0	27.4	27.3
Total Delay (hr)	9.6	9.2	10.3	10.2
Total Stops	1277	1189	1198	1239
Fuel Used (l)	78.2	75.5	77.4	77.1

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	53.0	73.3	85.2	33.0	115.7
Average Queue (m)	22.5	37.1	40.2	9.6	56.5
95th Queue (m)	42.2	63.1	71.2	25.7	96.4
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)			1	0	
Queuing Penalty (veh)			1	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	10.6	9.1	2.4	22.7
Average Queue (m)	3.6	0.4	0.1	1.8
95th Queue (m)	10.1	5.7	1.8	11.4
Link Distance (m)	157.9	76.7	76.7	102.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB
Directions Served	R
Maximum Queue (m)	19.5
Average Queue (m)	8.6
95th Queue (m)	15.0
Link Distance (m)	280.4
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2227	2195	2120	2255	2178	2120	2168
Vehs Exited	2230	2183	2132	2245	2170	2126	2155
Starting Vehs	46	36	44	38	51	41	38
Ending Vehs	43	48	32	48	59	35	51
Travel Distance (km)	1128	1100	1079	1138	1094	1076	1095
Travel Time (hr)	54.7	48.5	46.9	49.9	49.7	39.0	47.9
Total Delay (hr)	30.3	24.6	23.5	25.3	26.1	15.7	24.2
Total Stops	1589	1520	1440	1543	1542	1343	1487
Fuel Used (l)	123.7	116.3	112.7	119.4	117.0	106.0	115.2

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2171	2200	2157	2179
Vehs Exited	2203	2177	2137	2176
Starting Vehs	63	41	32	42
Ending Vehs	31	64	52	47
Travel Distance (km)	1104	1104	1083	1100
Travel Time (hr)	53.7	44.6	43.5	47.8
Total Delay (hr)	29.7	20.7	20.1	24.0
Total Stops	1564	1552	1365	1496
Fuel Used (l)	120.5	113.1	109.8	115.4

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2227	2195	2120	2255	2178	2120	2168
Vehs Exited	2230	2183	2132	2245	2170	2126	2155
Starting Vehs	46	36	44	38	51	41	38
Ending Vehs	43	48	32	48	59	35	51
Travel Distance (km)	1128	1100	1079	1138	1094	1076	1095
Travel Time (hr)	54.7	48.5	46.9	49.9	49.7	39.0	47.9
Total Delay (hr)	30.3	24.6	23.5	25.3	26.1	15.7	24.2
Total Stops	1589	1520	1440	1543	1542	1343	1487
Fuel Used (l)	123.7	116.3	112.7	119.4	117.0	106.0	115.2

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2171	2200	2157	2179
Vehs Exited	2203	2177	2137	2176
Starting Vehs	63	41	32	42
Ending Vehs	31	64	52	47
Travel Distance (km)	1104	1104	1083	1100
Travel Time (hr)	53.7	44.6	43.5	47.8
Total Delay (hr)	29.7	20.7	20.1	24.0
Total Stops	1564	1552	1365	1496
Fuel Used (l)	120.5	113.1	109.8	115.4

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	105.8	92.7	110.0	70.8	80.0
Average Queue (m)	58.7	43.8	82.6	25.7	26.7
95th Queue (m)	100.5	84.1	117.8	50.8	63.3
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)	3		3	0	
Queuing Penalty (veh)	0		20	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	132.0	63.5	44.4	65.9
Average Queue (m)	57.0	13.7	3.6	16.9
95th Queue (m)	133.0	48.5	24.2	46.7
Link Distance (m)	157.9	63.7	63.7	102.6
Upstream Blk Time (%)	3	0	0	
Queuing Penalty (veh)	0	3	1	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB	NB	NB	B6
Directions Served	R	T	T	T
Maximum Queue (m)	38.4	27.2	17.4	10.3
Average Queue (m)	12.1	1.7	0.7	0.3
95th Queue (m)	27.0	15.0	10.2	10.1
Link Distance (m)	283.6	54.6	54.6	103.7
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 24

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1604	1633	1626	1596	1598	1607	1646
Vehs Exited	1597	1628	1627	1612	1596	1583	1628
Starting Vehs	22	25	31	52	33	13	23
Ending Vehs	29	30	30	36	35	37	41
Travel Distance (km)	904	926	912	907	896	897	928
Travel Time (hr)	29.1	30.3	30.7	30.0	29.9	29.4	31.0
Total Delay (hr)	9.7	10.5	11.2	10.5	10.7	10.2	11.1
Total Stops	1230	1238	1284	1298	1301	1223	1299
Fuel Used (l)	84.1	87.2	87.0	85.6	84.4	83.1	87.4

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:07	8:07	8:07	8:07
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1658	1633	1569	1617
Vehs Exited	1659	1622	1567	1613
Starting Vehs	24	23	33	27
Ending Vehs	23	34	35	32
Travel Distance (km)	930	915	881	909
Travel Time (hr)	31.6	30.1	27.4	30.0
Total Delay (hr)	11.6	10.5	8.5	10.4
Total Stops	1345	1304	1172	1268
Fuel Used (l)	88.6	86.8	81.4	85.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:07
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1604	1633	1626	1596	1598	1607	1646
Vehs Exited	1597	1628	1627	1612	1596	1583	1628
Starting Vehs	22	25	31	52	33	13	23
Ending Vehs	29	30	30	36	35	37	41
Travel Distance (km)	904	926	912	907	896	897	928
Travel Time (hr)	29.1	30.3	30.7	30.0	29.9	29.4	31.0
Total Delay (hr)	9.7	10.5	11.2	10.5	10.7	10.2	11.1
Total Stops	1230	1238	1284	1298	1301	1223	1299
Fuel Used (l)	84.1	87.2	87.0	85.6	84.4	83.1	87.4

Interval #1 Information Recording

Start Time	7:07
End Time	8:07
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1658	1633	1569	1617
Vehs Exited	1659	1622	1567	1613
Starting Vehs	24	23	33	27
Ending Vehs	23	34	35	32
Travel Distance (km)	930	915	881	909
Travel Time (hr)	31.6	30.1	27.4	30.0
Total Delay (hr)	11.6	10.5	8.5	10.4
Total Stops	1345	1304	1172	1268
Fuel Used (l)	88.6	86.8	81.4	85.6

Intersection: 1: Burnside Rd West & Watkiss Way

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	R	LTR
Maximum Queue (m)	48.6	77.1	92.1	21.1	133.1
Average Queue (m)	21.5	36.9	43.2	9.1	57.4
95th Queue (m)	39.8	65.0	76.9	17.6	106.1
Link Distance (m)	104.4	156.6	102.6	102.6	203.2
Upstream Blk Time (%)			0		0
Queuing Penalty (veh)			1		0
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Burnside Rd West & Access Rd

Movement	WB	NB	NB	SB
Directions Served	LR	T	TR	LT
Maximum Queue (m)	36.9	6.1	1.6	31.9
Average Queue (m)	11.6	0.4	0.1	2.7
95th Queue (m)	26.4	6.8	1.6	15.6
Link Distance (m)	157.9	79.9	79.9	102.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hwy 1 WB Off-Ramp & Burnside Rd West

Movement	WB
Directions Served	R
Maximum Queue (m)	18.2
Average Queue (m)	8.6
95th Queue (m)	14.2
Link Distance (m)	292.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1
