Appendix 2

City of Saskatoon

22nd Street West and Confederation Drive Intersection Improvements – Follow-up

Functional Design Report

January 13, 2025

Executive Summary

Safety and operational issues exist on 22nd Street West between Diefenbaker Drive and Confederation Drive in the eastbound direction.

At its regular meeting held on August 6, 2024, SPCT received the 22nd Street and Confederation Drive Intersection Improvements report and passed the following motion: “That the matter be referred back to the Administration to report back on the implications of removing the right out on Fairlight Crescent.”

The transportation network would generally operate well with the removal of the Fairlight Crescent access to 22nd Street West except for a significant increase in the queue lengths for northbound left-turns at the Fairmont Drive and Fairlight Drive intersection. To mitigate this impact, additional recommendations for the intersection of Fairmont Drive and Fairlight Drive, including a left-turn signal for northbound traffic, have been included in the traffic plan.

The recommended improvements for the 22nd Street West and Confederation Drive intersection improvements include:

- Construct an eastbound slotted left-turn lane and an exclusive eastbound right-turn lane at the intersection of 22nd Street West and Confederation Drive.
- Convert the existing access at Fairmont Drive from a right-out access to a right-in access from 22nd Street West.
- Relocate the existing overhead guide sign and roadside safety system located between Confederation Drive and Fairmont Drive farther west.
- Construct a third eastbound travel lane with curb and gutter between Diefenbaker Drive and Confederation Drive.
- Realign the pedestrian crosswalk, adjust pedestrian accessible ramps, and correct drainage deficiencies on the southwest corner of the intersection at 22nd Street West and Confederation Drive.
- Install a shared-use pathway on the south side of 22nd Street West between Diefenbaker Drive and Confederation Drive.

The following improvements are recommended for the Fairlight Drive and Fairmont Drive intersection to accommodate the anticipated changes in travel patterns:

- Traffic signal upgrades, and
- Geometric changes for the eastbound right turn.

A high-level cost estimate for each of the improvements is shown below:

Improvement	Cost Estimate
Construct an eastbound slotted left-turn lane	$ 800,000.00
Construct an eastbound right-turn lane	$ 390,000.00
Convert Fairmont Drive access to right-in configuration from 22nd Street West	$ 150,000.00
Relocate overhead guide sign and roadside safety system	$ 595,000.00
Construct third eastbound through lane with curb and gutter	$ 345,000.00
Correct pedestrian accessible ramps and drainage deficiencies	$ 15,000.00
Install shared-use pathway on the south side of 22nd Street West	$ 250,000.00
Install signal upgrades and geometric changes for eastbound right turn at Fairlight Drive and Fairmont Drive	$ 355,000.00
Total	**$ 2,900,000.00**

It is recommended that the functional plan for these improvements be approved, and the project proceed to the detailed design and construction phases when funding is available.

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Appendix A – Traffic Operations Analysis of Existing Conditions

Appendix B – Traffic Operations Analysis of Proposed Changes

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1. INTRODUCTION

1.1 Background

At its regular meeting held on August 6, 2024, the Standing Policy Committee on Transportation (SPCT) received the 22nd Street and Confederation Drive Intersection Improvements report. The traffic plan that was presented at this meeting included a recommendation to reconfigure Fairmont Drive as a right-in access for traffic turning from 22nd Street West onto Fairmont Drive and included a new right-out access approximately 175 m west of Fairmont Drive that would allow turning movements onto 22nd Street West from Fairlight Crescent, as shown in Figure 1-1.

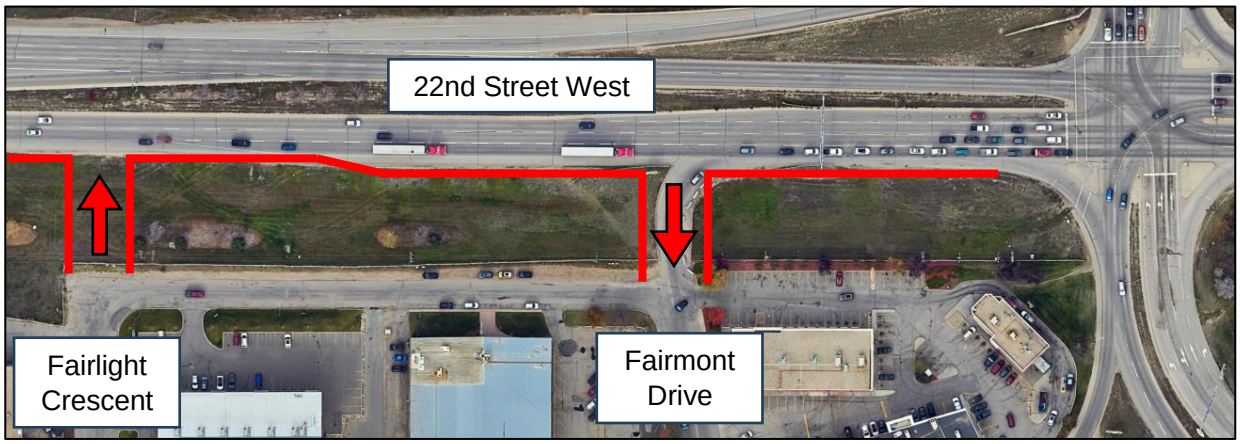


Figure 1-1: Fairmont Drive Access Configuration

After presenting the recommended plan, members of the SPCT raised concerns with creating a new right-out access at Fairlight Crescent and questioned if it was necessary with the nearby intersection of Diefenbaker Drive and 22nd Street West. Following this discussion, the SPCT passed the following motion:

> "That the matter be referred back to the Administration to report back on the implications of removing the right out on Fairlight Crescent."

This new right-out access at Fairlight Crescent was recommended based on feedback received during the public engagement period and to align with the approved plans from the Circle Drive West functional planning study. With the Fairlight Crescent access, traffic would have three routes to access the eastbound lanes on 22nd Street West from Fairmont Drive:

1. Northbound left from Fairmont Drive onto Fairlight Drive and turn right onto Diefenbaker Drive to the channelized right-turn at 22nd Street West (yellow route shown in Figure 1-2).
2. Northbound on Fairmont Drive, turn left onto Fairlight Crescent, and right onto the new access (blue route shown in Figure 1-2).
3. Northbound left from Fairmont Drive onto Fairlight Drive and turn right onto Fairlight Crescent to the new access (green route shown in Figure 1-2).

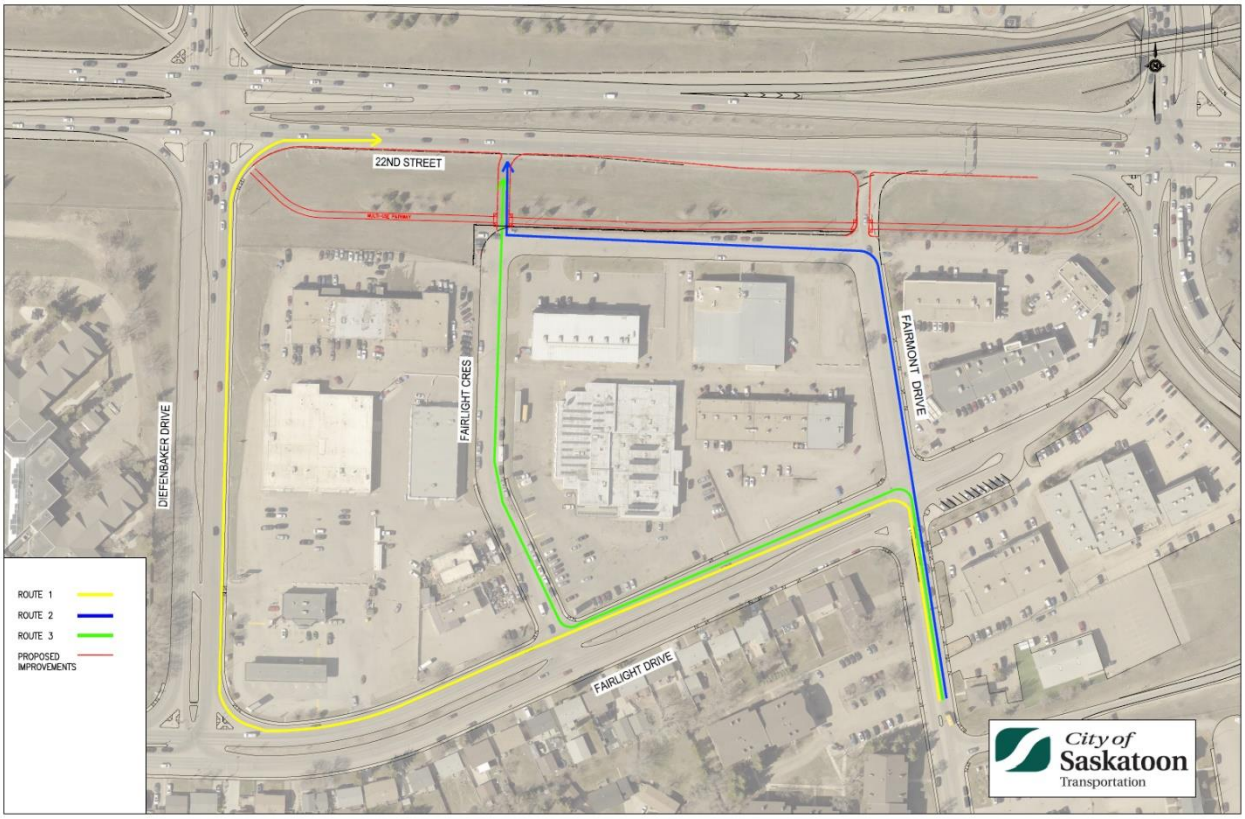


Figure 1-2: Routes to 22nd Street West with Fairlight Crescent Access

1.2 Study Objectives

The objective of this study is to analyze the implications that removing the right out on Fairlight Crescent from the proposed functional plan would have on the transportation network.

2. DATA COLLECTION UPDATE

2.1 Traffic Data

Removing the Fairlight Crescent access would force drivers to use Route 1, the yellow route shown on Figure 1-2, to access 22nd Street West rather than splitting the volumes between Routes 1, 2, and 3. Additionally, changing the 22nd Street West and Fairmont Drive intersection from a right out to a right in access will reverse the traffic patterns along Fairmont Drive near 22nd Street West from predominantly northbound movements to southbound movements.

Traffic volumes at the major intersections along these routes were either collected in 2024 or projected to 2024 using the most recent traffic counts and applying a 2% annual growth factor. A summary of the existing turning movement volumes are shown in Figure 2-1.

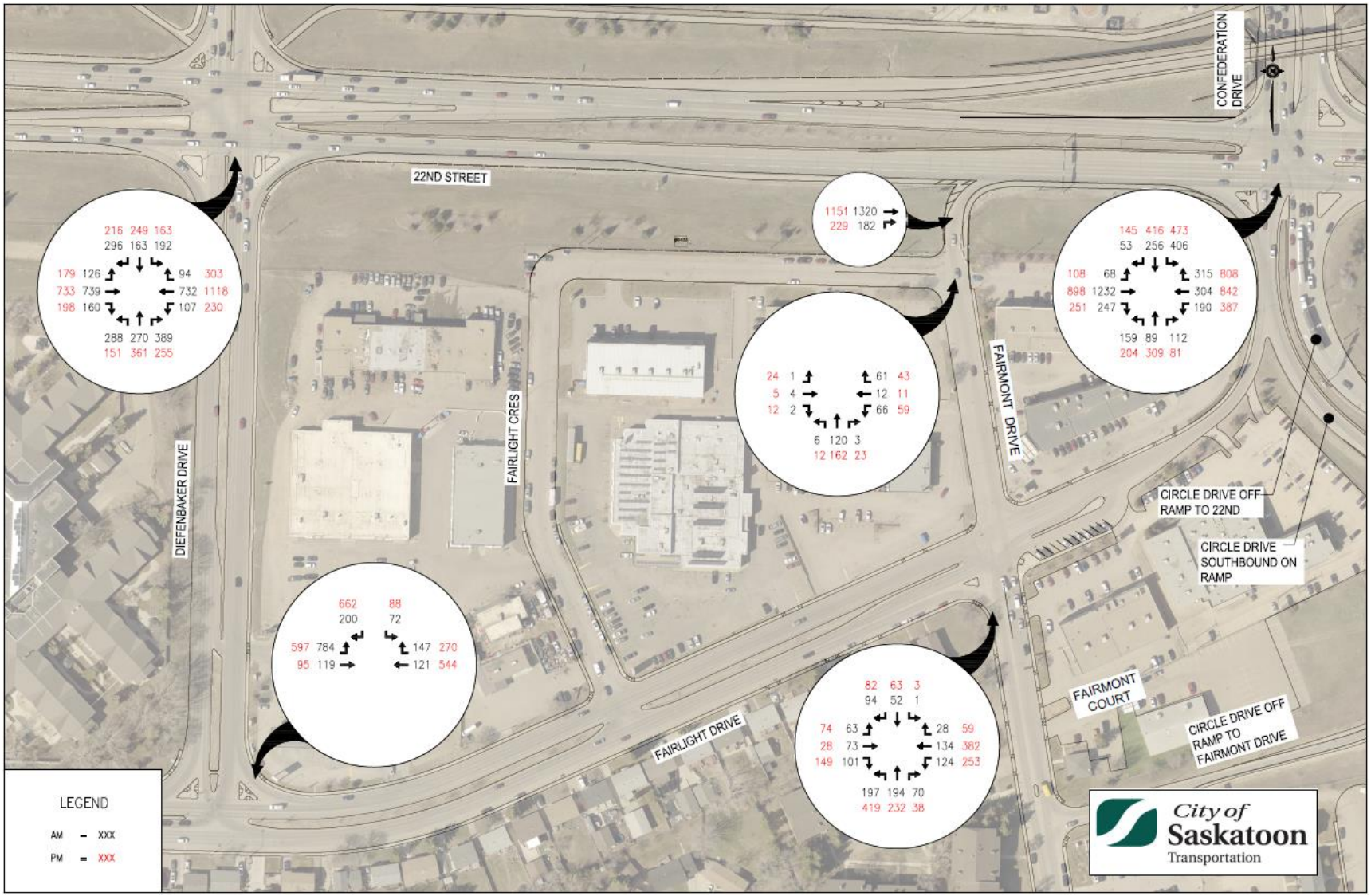


Figure 2-1: Existing Traffic Volumes (2024)

2.2 Traffic Routing

To analyse the impacts of the proposed changes without the Fairlight Crescent access, a model was developed to estimate the change in traffic patterns and traffic volumes in the study area. The model used the existing traffic volumes, the adjacent land uses, and the overall traffic patterns to reroute traffic through the proposed road network.

For example, a percentage of drivers on 22nd Street West that currently make eastbound right turns at Diefenbaker Drive to access the commercial area were reassigned to the new right in access at the 22nd Street West and Fairmont Drive intersection. This change in traffic patterns is illustrated in Figure 2-2.

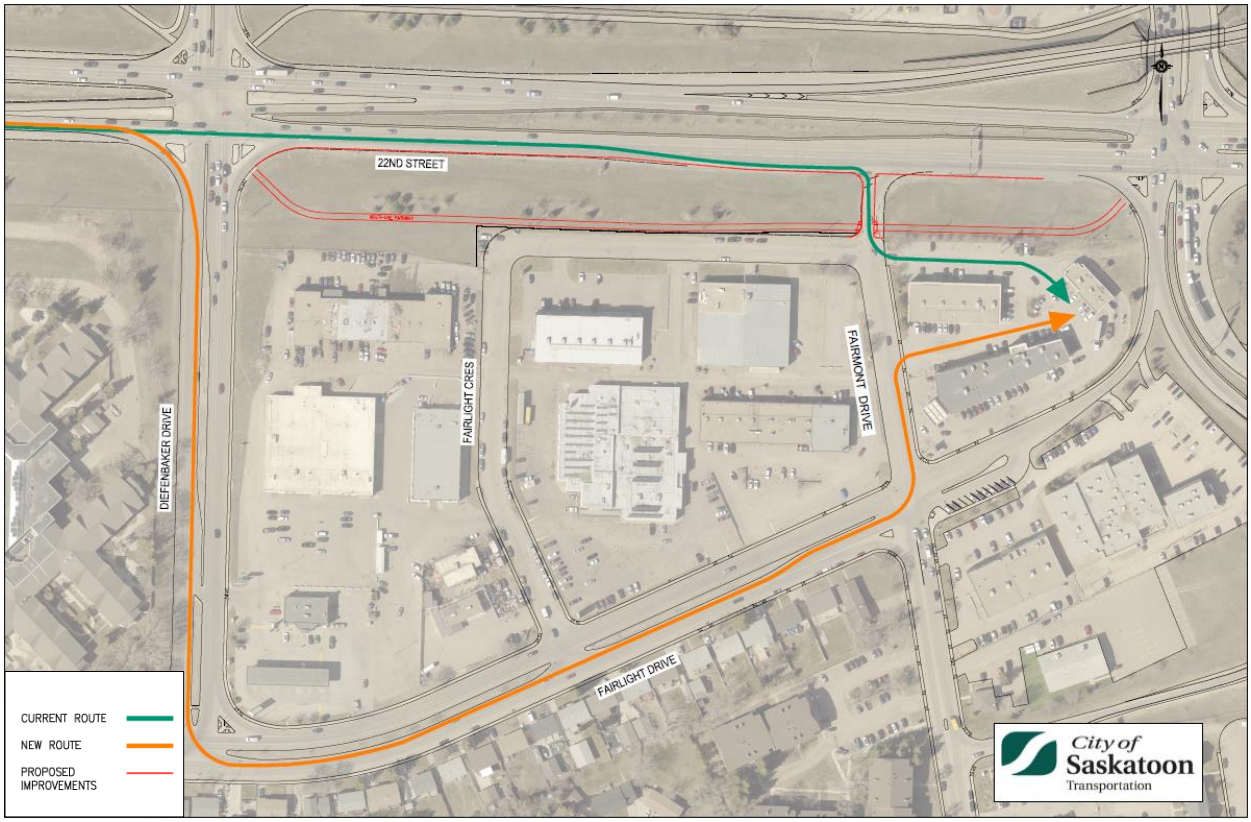


Figure 2-2: Example of Traffic Rerouting

Figure 2-3 shows the estimated traffic volumes at each of the study intersections if the proposed changes were implemented.

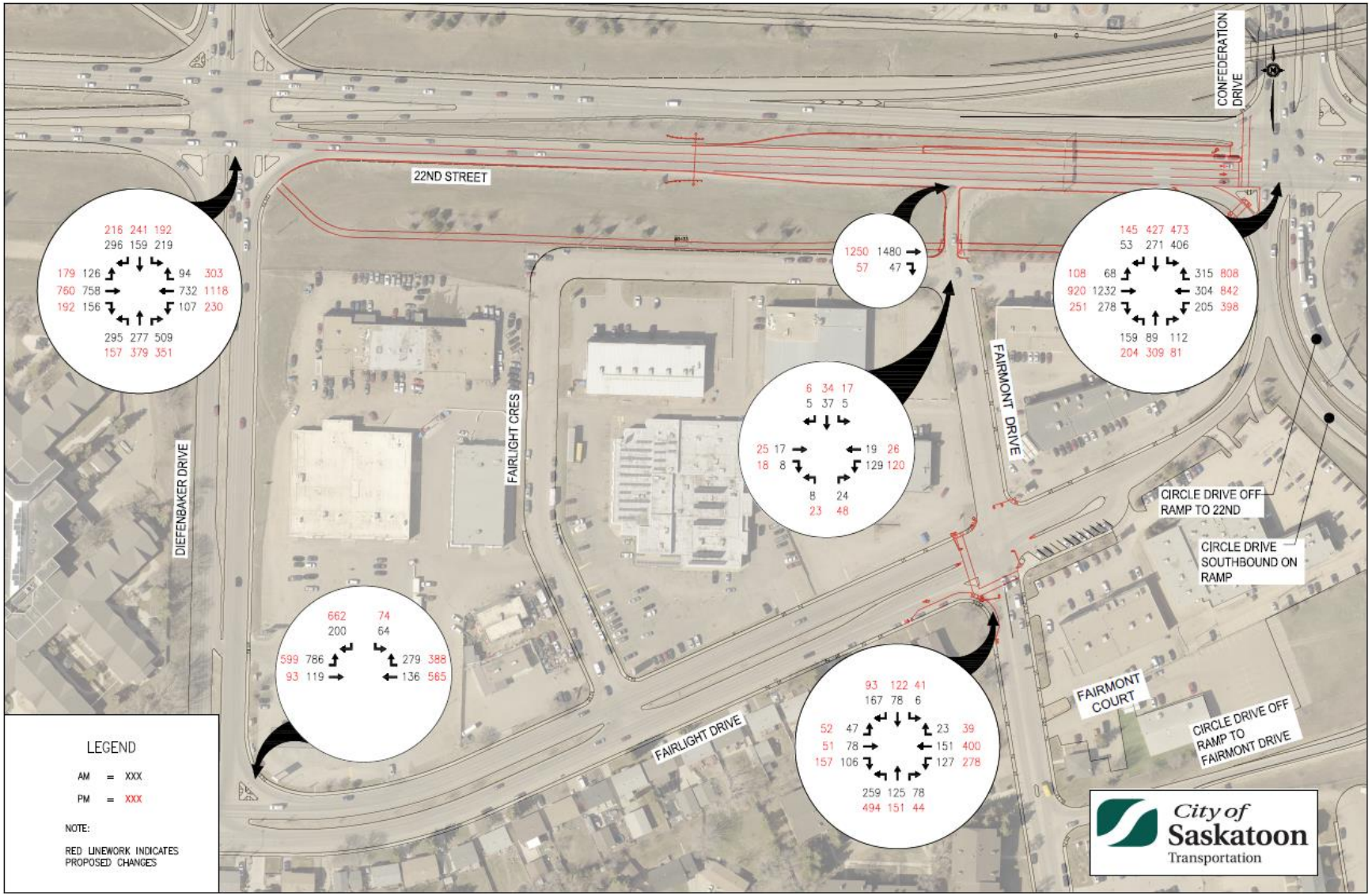


Figure 2-3: Traffic Volumes with the Proposed Changes

3. TRAFFIC OPERATIONS

3.1 Existing Conditions

To analyse the impact of the proposed changes, an assessment of the existing conditions of all effected intersections was completed. The level of service values for signalized and unsignalized intersections are defined in Table 3-1 and Table 3-2.

Table 3-3 to 3-8 summarize the existing traffic operations at each of the study intersections. Complete summary reports are included in Appendix A.

Table 3-1: Level-of-Service Definition for Signalized Intersections

Average Control Delay (sec/veh)	Level of Service	General Description
<= 10	A	Free Flow
>10 - 20	B	Stable Flow (slight delays)
>20 - 35	C	Stable Flow (acceptable delays)
>35 - 55	D	Approaching unstable flow (tolerable delay, occasional wait through more than one signal cycle before proceeding)
>55 - 80	E	Unstable flow (intolerable delay)
>80	F	Forced flow (jammed)

Table 3-2: Level-of-Service Definition for Unsignalized Intersections

Average Control Delay (sec/veh)	Level of Service	General Description
<= 10	A	Free Flow
>10 - 15	B	Stable Flow (slight delays)
>15-25	C	Stable Flow (acceptable delays)
>25-35	D	Approaching unstable flow (tolerable delay, occasional wait through more than one signal cycle before proceeding)
>35-50	E	Unstable flow (intolerable delay)
>50	F	Forced flow (jammed)

**How to read the tables? The North American Traffic Engineering standard for measuring the performance of a signalized intersection is to measure the *average delay* in seconds a driver will experience in completing a maneuver. The software used to analyze the intersection calculates an average delay to each movement based on the traffic volumes, permitted movements and signal timing. This average delay corresponds to established Levels of Service (LOS). The LOS can range from A to F (the shorter the average delay the better the LOS, the longer the average delay the worse the LOS). Generally, the City prefers to avoid LOS E and F. However, a LOS E or F does not indicate the need for, or trigger, improvements. Other considerations include: the traffic volume performing the problematic movement with LOS E or F, intersection geometrics and signal operation, intersection spacing, road classification, availability of alternate routes, pedestrian movements, access management, type of adjacent land use, future development in the area and of course, cost.

Table 3-3: Existing Conditions - 22nd Street West & Confederation Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
22nd Street West & Confederation Drive	NB	LT	D	51	0.45	18	D	54	0.69	38
		Thru	D	52	0.49	19	D	56	0.76	41
		RT	E	59	0.70	27	E	48	0.38	17
	SB	LT	D	51	0.83	44	D	50	0.82	52
		Thru	D	48	0.60	33	E	64	0.94	74
		RT	D	48	0.60	32	E	65	0.94	69
	EB	LT	E	62	0.69	16	E	63	0.78	26
		Thru	C	28	0.65	83	D	41	0.72	79
		RT	C	30	0.65	83	D	45	0.72	79
	WB	LT	E	56	0.74	21	D	55	0.86	44
		Thru	B	19	0.19	19	C	34	0.66	78
		RT	A	-	-	-	A	-	-	-
	Intersection Summary		D	**38**	**0.52**	**-**	D	**48**	**0.59**	**-**

Table 3-4: Existing Conditions - 22nd Street West & Fairmont Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
22nd Street West & Fairmont Drive	NB	RT	D	32	0.614	27	C	22	0.472	18

Table 3-5: Existing Conditions - 22nd Street West & Diefenbaker Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
22nd Street West & Diefenbaker Drive	NB	LT	C	34	0.56	48	C	32	0.42	25
		Thru	C	32	0.28	22	D	42	0.53	35
		RT	D	47	0.89	84	D	50	0.84	56
	SB	LT	C	23	0.40	26	C	30	0.43	26
		Thru	D	37	0.38	29	D	44	0.69	50
		RT	D	45	0.81	62	D	45	0.70	44
	EB	LT	C	21	0.35	16	C	26	0.59	22
		Thru	D	37	0.69	89	C	26	0.58	77
		RT	D	37	0.69	84	C	27	0.58	72
	WB	LT	C	22	0.31	13	C	22	0.56	27
		Thru	C	28	0.42	43	C	25	0.61	75
		RT	C	29	0.43	45	C	27	0.61	74
	Intersection Summary		C	**34**	**0.61**	**-**	C	**31**	**0.56**	**-**

Table 3-6: Existing Conditions - Diefenbaker Drive & Fairlight Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Diefenbaker Drive & Fairlight Drive	SB	LT	F	166	0.9	34	F	364	1.10	69
		RT	A	-	-	-	A	-	-	-
	EB	LT	C	29	0.88	105	C	28	0.85	69
		Thru	A	7	0.06	3.3	A	7	0.05	2.6
	WB	Thru	C	23	0.13	7.3	C	29	0.57	39
		RT	A	-	-	-	-	-	-	-
	Intersection Summary		C	**29**	**0.43**	**-**	C	**33**	**0.44**	**-**

Table 3-7: Existing Conditions - Fairmont Drive & Fairlight Crescent

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Fairmont Drive & Fairlight Crescent	NB	LT	A	-	-	-	A	-	-	-
		Thru	A	-	-	-	A	-	-	-
		RT	A	-	-	-	A	-	-	-
	EB	LT	A	10	0.00	0.03	B	11	0.04	0.17
		Thru	A	10	0.01	0.03	B	11	0.01	0.17
		RT	A	8	0.00	0.03	A	9	0.01	0.17
	WB	LT	B	10	0.08	0.58	B	11	0.08	0.51
		Thru	B	11	0.02	0.58	B	11	0.02	0.51
		RT	A	10	0.07	0.58	A	10	0.05	0.51
	Intersection Summary		B	**5.3**	**0.02**	**-**	B	**4.5**	**0.02**	**-**

Table 3-8: Existing Conditions - Fairmont Drive & Fairlight Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Fairmont Drive & Fairlight Drive	NB	LT	B	16	0.37	17	C	33	0.80	57
		Thru	B	16	0.38	24	B	17	0.40	26
		RT	B	16	0.38	24	B	17	0.40	26
	SB	LT	B	17	0.24	14	B	19	0.25	15
		Thru	B	17	0.24	14	B	19	0.25	15
		RT	B	17	0.24	14	B	19	0.25	15
	EB	LT	B	14	0.10	5.3	B	14	0.14	6.4
		Thru	C	23	0.16	8.6	C	23	0.07	3.3
		RT	C	25	0.27	13	C	29	0.41	20
	WB	LT	B	14	0.19	10	B	16	0.37	24
		Thru	C	22	0.12	5.8	C	23	0.31	17
		RT	C	22	0.12	6.2	C	24	0.32	18
	Intersection Summary		B	**18**	**0.29**	**-**	C	**23**	**0.38**	**-**

3.2 Recommended Plan Without Fairlight Crescent Access

Using the traffic model that incorporated the proposed changes and rerouted traffic volumes, the intersections were analyzed to determine the impact of those changes. Table 3-9 to 3-13 summarize the traffic operations with the proposed changes at each of the intersections. Complete summary reports are included in Appendix B.

The reconfigured 22nd Street West and Fairmont Drive intersection is not included because the right in movement is free flowing and does not experience any delays or queuing in the model.

Table 3-9: Proposed Changes - 22nd Street West & Confederation Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
22nd Street West & Confederation Drive	NB	LT	D	52	0.45	18	D	53	0.69	37
		Thru	D	52	0.49	19	E	55	0.76	40
		RT	E	59	0.70	27	D	47	0.38	17
	SB	LT	D	51	0.83	44	D	48	0.48	50
		Thru	D	49	0.83	35	E	63	0.94	74
		RT	D	49	0.63	33	E	64	0.94	69
	EB	LT	E	62	0.69	16	E	63	0.80	26
		Thru	C	26	0.56	64	C	34	0.58	55
		RT	C	24	0.41	41	D	36	0.50	47
	WB	LT	E	56	0.75	23	D	54	0.87	45
		Thru	B	19	0.19	19	C	32	0.64	75
		RT	A	-	-	-	A	-	-	-
	Intersection Summary		D	**35**	**0.49**	**-**	D	**45**	**0.56**	**-**

The proposed eastbound right-turn lane at 22nd Street West and Confederation Drive will noticeably improve traffic operations for the eastbound through and right-turn movements. In the PM peak hour, average queue lengths will be reduced from 79 m for both movements to 55 m for through movements and 47 m for right turns. The LOS for through movements will improve from a LOS D to a LOS C, while the average delay for right turns will improve from 45 s to 36 s.

Table 3-10: Proposed Changes - 22nd Street West & Diefenbaker Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
22nd Street West & Diefenbaker Drive	NB	LT	D	36	0.68	51	D	35	0.47	28
		Thru	C	34	0.31	23	D	46	0.69	39
		RT	A	-	-	-	A	-	-	-
	SB	LT	C	25	0.40	31	C	34	0.51	32
		Thru	D	38	0.40	29	D	50	0.79	52
		RT	D	50	0.87	65	D	52	0.83	48
	EB	LT	C	20	0.34	16	C	23	0.56	20
		Thru	D	35	0.68	88	C	24	0.56	74
		RT	D	35	0.68	83	C	24	0.56	70
	WB	LT	C	21	0.30	13	C	20	0.54	25
		Thru	C	27	0.41	42	C	23	0.57	70
		RT	C	28	0.41	44	C	24	0.57	69
	Intersection Summary		C	**33**	**0.60**	**-**	C	**30**	**0.54**	**-**

The third through lane proposed for the eastbound direction on 22nd Street West starts at Diefenbaker Drive and will allow free-flowing movements for the northbound right-turns. This

eliminates any delays or queuing for this movement. The northbound left-turn delay increases from 34 s to 36 s, which operates at a LOS D. This increase in delay is due to the changes in traffic routing.

Table 3-11: Proposed Changes - Diefenbaker Drive & Fairlight Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Diefenbaker Drive & Fairlight Drive	SB	LT	F	120	0.80	24	F	182	0.93	37
		RT	A	-	-	-	A	-	-	-
	EB	LT	C	25	0.85	120	C	25	0.83	66
		Thru	A	7	0.06	3.3	A	6.8	0.05	2.5
	WB	Thru	C	24	0.14	8.3	C	30	0.60	41
		RT	A	-	-	-	-	-	-	-
	Intersection Summary		C	**28**	**0.37**	**-**	C	**33**	**0.44**	**-**

While the southbound left-turn maintains a LOS of F, the delay goes down from 166 s to 120 s in the AM peak hour and from 364 s to 182 s in the PM peak hour. The volume to capacity ratio has also improved to 0.93 in the PM peak hour. These improvements are mainly due to the new right in movement at Fairmont Drive that has redistributed the traffic volumes previously making this southbound left-turn.

Table 3-12: Proposed Changes - Fairmont Drive & Fairlight Crescent

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Fairmont Drive & Fairlight Crescent	SB	LT	A	-	-	-	A	-	-	-
		Thru	A	-	-	-	A	-	-	-
		RT	A	-	-	-	A	-	-	-
	EB	Thru	A	9.3	0.02	0.69	B	10	0.03	0.16
		RT	A	9.3	0.01	0.09	A	8.7	0.02	0.16
	WB	LT	B	10	0.15	0.63	B	11	0.16	0.73
		Thru	B	10	0.02	0.63	B	11	0.04	0.73
	Intersection Summary		B	**7.2**	**0.04**	**-**	B	**7**	**0.04**	**-**

There are no significant changes in the traffic operations at the Fairmont Drive and Fairlight Crescent intersection other than vehicles heading southbound from 22nd Street West rather than northbound to 22nd Street West.

Table 3-13: Proposed Changes - Fairmont Drive & Fairlight Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Fairlight Drive & Fairmont Drive	NB	LT	B	19	0.58	25	F	306	1.14	307
		Thru	B	15	0.30	18	B	17	0.29	18
		RT	B	15	0.30	18	B	17	0.29	18
	SB	LT	B	19	0.41	26	C	21	0.43	28
		Thru	B	19	0.41	26	C	21	0.43	28
		RT	B	19	0.41	26	C	21	0.43	28
	EB	LT	B	14	0.08	3.9	B	13	0.10	4.4
		Thru	C	24	0.18	9.2	C	24	0.12	6.3
		RT	C	25	0.28	13	C	30	0.43	22
	WB	LT	B	14	0.20	10	B	17	0.41	28
		Thru	C	21	0.12	6.1	C	22	0.29	16
		RT	C	21	0.13	6.5	C	23	0.29	18
	Intersection Summary		B	**19**	**0.30**	**-**	F	**94**	**0.41**	

With no access to 22nd Street West from Fairlight Crescent or Fairmont Drive, the volumes making the northbound left-turn movement at the intersection of Fairlight Drive and Fairmont Drive is estimated to increase to 260 vehicles in the AM peak hour and 500 vehicles in the PM peak hour. The LOS will be maintained at LOS B in the AM peak hour; however, the LOS deteriorates from LOS C to LOS F in the PM peak hour. The queue lengths for the northbound left turn will be approximately 307 m, extending beyond the Circle Drive off-ramp, in the PM peak hour.

To alleviate the impact from the additional northbound left turns, a protected left-turn phase and signal timing upgrades are recommended. As shown in Table 3-14, adding a northbound protected left-turn phase will help to balance delays across all movements at the intersection. This will keep all movements at LOS D or better and will reduce the queue lengths for the northbound left turns to 71 m in the PM peak hour. While a 71 m queue would extend past the Fairmont Court intersection, it would not extend past the Circle Drive ramp intersection located 100 m to the south.

Table 3-14: Traffic Signal Upgrades at Fairmont Drive & Fairlight Drive

Intersection	Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS	Delay (s)	v/c ratio	Queue (m)	LOS	Delay (s)	v/c ratio	Queue (m)
Fairmont Drive & Fairlight Drive	NB	LT	B	15	0.46	25	C	25	0.76	71
		Thru	B	13	0.26	18	B	13	0.22	19
		RT	B	13	0.26	18	B	13	0.57	19
	SB	LT	C	26	0.47	33	D	35	0.57	45
		Thru	C	26	0.47	33	D	35	0.57	45
		RT	C	26	0.47	33	D	35	0.57	45
	EB	LT	B	19	0.09	5.1	C	25	0.13	7.4
		Thru	C	30	0.20	11	D	37	0.16	9.3
		RT	C	32	0.32	16	D	48	0.57	34
	WB	LT	B	20	0.23	14	C	32	0.54	47
		Thru	C	27	0.14	7.6	D	36	0.38	26
		RT	C	27	0.15	8.2	D	38	0.39	27
	Intersection Summary		C	**21**	**0.40**	**-**	C	**31**	**0.62**	**-**

Any changes to the traffic signal infrastructure at the Fairmont Drive and Fairlight Drive intersection, such as adding a protected left-turn signal, will also require upgrading the entire intersection to current standards. These upgrades will be factored into the cost estimate for the installation of the left-turn signal.

4. OTHER OPERATIONAL ISSUES

4.1 Weaving on 22nd Street West

A right-out access connecting from Fairlight Crescent to 22nd Street West would still be able to weave across three lanes to make an eastbound left-turn onto Confederation Drive but with a longer distance to make the movement than from the existing access at Fairmont Drive. The existing Fairmont Drive access is approximately 120 m from the intersection with Confederation Drive while the Fairlight Crescent access would be approximately 300 m from the intersection with Confederation Drive.

The Transportation Association of Canada (TAC) recommends access points be 400 m upstream from the intersection to allow adequate distance and time to make safe lane changes. The Fairlight Crescent access at 300 m from Confederation Drive would not meet the recommended spacing for access.

If there was no access from Fairlight Crescent to 22nd Street West, traffic would use the northbound channelized right-turn on Diefenbaker Drive to gain access onto 22nd Street West. The spacing between Diefenbaker Drive and Confederation Drive is approximately 400 m, which means that drivers would have adequate space to safely perform the weaving movement into the eastbound left turn lane at Confederation Drive.

4.2 Access Management for 22nd Street West

The section of 22nd Street West between Diefenbaker Drive and Confederation Drive is classified as an expressway. The City of Saskatoon Design and Development Standards state that expressways should form connections with arterial streets and that access to individual properties is prohibited. The standards also show that the minimum spacing between intersections on an expressway is 800 m. The 400 m spacing between the Diefenbaker Drive and Confederation Drive intersections does not meet the minimum spacing requirements.

An additional access to 22nd Street West at Fairlight Crescent would further reduce the intersection spacing and may impact traffic mobility for eastbound through movements.

Although the right-in access at Fairmont Drive will also reduce the intersection spacing, the access will utilize the proposed eastbound right-turn lane at Confederation Drive. It will have negligible impacts on eastbound through movements at Confederation Drive and will reduce delays for eastbound right turns.

4.3 Accessibility of Fairlight Drive and Fairmont Drive Intersection

The existing conditions at the intersection of Fairlight Drive and Fairmont Drive does not meet the current standards for pedestrians crossing the west or south legs of the intersection as recommended by TAC. Removing the channelized island in the southwest corner and extending the curb farther into the intersection will increase pedestrian safety and accessibility. This will allow for the pedestrians to have a shorter crossing distance along the west and south legs and not have to cross a channelized right turn lane. Removing the channelized right-turn will not have an impact on this intersection since the channelized right-turn was not free-flow. With the curb being extended out farther, the traffic signal upgrades will allow for accessible pedestrian

pushbuttons. Pedestrian ramps will also be installed in the new curb and in the northwest corner.

While these geometric changes were originally outside of the scope of this study, installing the protected left-turn signal at the Fairlight Drive and Fairmont Drive intersection will also require upgrading the traffic signal infrastructure at this location to current standards. Combining the geometric improvements and the traffic signal upgrades would result in cost savings and would eliminate the need to relocate the signals if the geometric changes were to be completed later.

5. RECOMMENDED TRAFFIC PLAN

5.1 Overview

After investigating the impact that removing the access to 22nd Street West from Fairlight Crescent would have on the traffic network, it was found that the transportation network would generally operate well with the removal of the Fairlight Crescent access to 22nd Street West except for a significant increase in the queue lengths for northbound left-turns at the Fairmont Drive and Fairlight Drive intersection. To mitigate this impact, additional recommendations for the intersection of Fairmont Drive and Fairlight Drive, including a left-turn signal for northbound traffic, have been included in the traffic plan.

Based on the results of the analysis, it is recommended to remove the right-out access to 22nd Street West from Fairlight Crescent from the recommended plan for the following reasons:

- The distance between the access and the Confederation Drive intersection would not meet the TAC spacing standards for vehicles weaving across three lanes of traffic.
- The intersection of Fairlight Drive and Fairmont Drive will be able to handle the increased traffic volumes that will be re-routing to Diefenbaker Drive for access to 22nd Street West.
- The section of 22nd Street West between Diefenbaker Drive and Confederation Drive is classified as an expressway and adding an access would not meet the City of Saskatoon standards for that classification of roadway.

The recommended improvements for the 22nd Street West and Confederation Drive intersection improvements include:

- Construct an eastbound slotted left-turn lane and an exclusive eastbound right-turn lane at the intersection of 22nd Street West and Confederation Drive.
- Convert the existing access at Fairmont Drive from a right-out access to a right-in access from 22nd Street West.
- Relocate the existing overhead guide sign and roadside safety system located between Confederation Drive and Fairmont Drive farther west.
- Construct a third eastbound travel lane with curb and gutter between Diefenbaker Drive and Confederation Drive.
- Realign the pedestrian crosswalk, adjust pedestrian accessible ramps, and correct drainage deficiencies on the southwest corner of the intersection at 22nd Street West and Confederation Drive.
- Install a shared-use pathway on the south side of 22nd Street West between Diefenbaker Drive and Confederation Drive.

The following improvements are recommended for the Fairlight Drive and Fairmont Drive intersection to accommodate the anticipated changes in travel patterns:

- Traffic signal upgrades and geometric changes for the eastbound right turn.

The recommended functional plan, including the removal of the Fairlight Crescent access, is shown in Appendix C.

5.2 Cost Estimate

Removing the recommendation for a right-out access from Fairlight Crescent would reduce the previous estimated cost of the project by $70,000.

The traffic signal and geometric upgrades recommended for the Fairlight Drive and Fairmont Drive intersection will cost increase the estimated cost by $355,000.

Table 5-1 summarizes the high-level cost estimates for each of the improvements included in the recommended plan. These estimates include costs for internal project management and a 15% contingency.

Table 5-1: Recommended Plan Cost Estimate

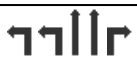
Improvement	Cost Estimate
Construct an eastbound slotted left-turn lane	$ 800,000.00
Construct an eastbound right-turn lane	$ 390,000.00
Convert Fairmont Drive access to right-in configuration from 22nd Street West	$ 150,000.00
Relocate overhead guide sign and roadside safety system	$ 595,000.00
Construct third eastbound through lane with curb and gutter	$ 345,000.00
Correct pedestrian accessible ramps and drainage deficiencies	$ 15,000.00
Install shared-use pathway on the south side of 22nd Street West	$ 250,000.00
Install signal upgrades and geometric changes for eastbound right turn at Fairlight Drive and Fairmont Drive	$ 355,000.00
Total	**$ 2,900,000.00**

Appendix A – Traffic Operations Analysis of Existing Conditions

Intersection Level Of Service Report
Intersection 1: 22nd Street & Confederation Drive

Control Type:	Signalized	Delay (sec / veh):	37.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.523

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	2	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [m]	50.00	30.48	50.00	80.00	30.48	30.48	100.00	30.48	30.48	100.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	No			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	159	89	112	406	256	53	68	1232	247	190	304	315
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	89	112	406	256	53	68	1232	247	190	304	315
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	22	28	102	64	13	17	308	62	48	76	79
Total Analysis Volume [veh/h]	159	89	112	406	256	53	68	1232	247	190	304	315
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	80.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Unsigna
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	0	35	0	15	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	0.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.3	0.0	0.0	3.3	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Split [s]	0	24	0	0	26	0	21	39	0	21	39	0
Vehicle Extension [s]	3.0	4.5	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	23	0	0	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.6	0.0	0.0	4.6	0.0	3.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	4.0	4.0	0.0	0.0	6.0	0.0	6.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C
C, Cycle Length [s]	114	114	114	114	114	114	114	114	114	114	114	114
L, Total Lost Time per Cycle [s]	6.60	6.60	6.60	6.60	6.60	6.60	6.60	5.00	6.20	6.20	5.00	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.00	4.20	4.20	3.00	4.20
g_i, Effective Green Time [s]	11	11	11	11	16	16	16	6	49	49	8	52
g / C, Green / Cycle	0.10	0.10	0.10	0.10	0.14	0.14	0.14	0.05	0.43	0.43	0.07	0.45
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.05	0.07	0.12	0.08	0.09	0.04	0.28	0.28	0.05	0.09
s, saturation flow rate [veh/h]	1781	1786	1702	1589	3459	1870	1760	1781	3560	1715	3459	3560
c, Capacity [veh/h]	180	180	172	160	490	265	249	98	1544	744	257	1614
d1, Uniform Delay [s]	48.29	48.29	48.47	49.56	47.58	45.89	45.91	52.93	25.39	25.40	51.67	18.63
k, delay calibration	0.19	0.19	0.19	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering 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
d2, Incremental Delay [s]	3.09	3.07	3.72	9.44	3.79	2.19	2.35	8.91	2.12	4.40	4.22	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.45	0.45	0.49	0.70	0.83	0.60	0.60	0.69	0.65	0.65	0.74	0.19
d, Delay for Lane Group [s/veh]	51.38	51.36	52.20	59.01	51.36	48.08	48.26	61.84	27.52	29.79	55.88	18.89
Lane Group LOS	D	D	D	E	D	D	D	E	C	C	E	B
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.34	2.35	2.44	3.50	5.83	4.37	4.14	2.15	10.85	10.92	2.80	2.45
50th-Percentile Queue Length [m/ln]	17.86	17.89	18.61	26.66	44.46	33.30	31.57	16.39	82.67	83.23	21.36	18.63
95th-Percentile Queue Length [veh/ln]	4.22	4.23	4.40	6.30	9.80	7.80	7.46	3.87	16.25	16.34	5.04	4.40
95th-Percentile Queue Length [m/ln]	32.15	32.19	33.49	47.98	74.65	59.43	56.83	29.51	123.83	124.53	38.44	33.54

Movement, Approach, & Intersection Results

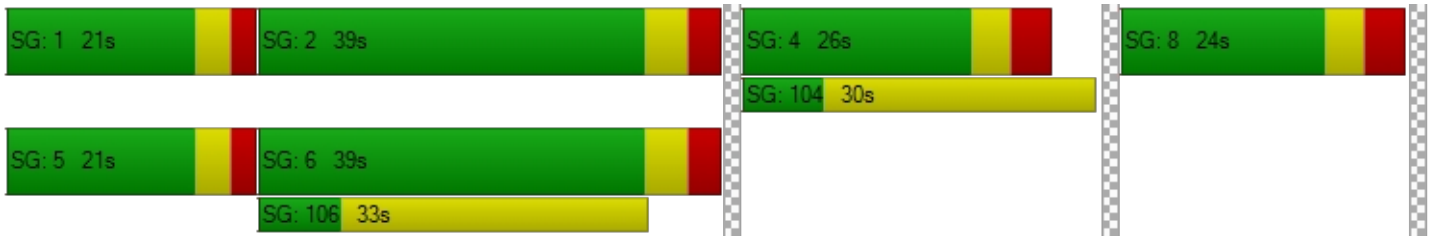
d_M, Delay for Movement [s/veh]	51.37	52.15	59.01	51.36	48.15	48.26	61.84	27.95	29.79	55.88	18.89	0.00
Movement LOS	D	D	E	D	D	D	E	C	C	E	B	
d_A, Approach Delay [s/veh]	53.94			49.98			29.73			33.12		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	37.71											
Intersection LOS	D											
Intersection V/C	0.523											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	11.0	0.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	49.28	46.53	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.810	3.023	0.000
Crosswalk LOS	F	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	305	340	575	575
d_b, Bicycle Delay [s]	40.93	39.25	28.92	28.92
I_b,int, Bicycle LOS Score for Intersection	1.857	2.149	2.410	1.967
Bicycle LOS	A	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 22nd St & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	40.00	30.48	30.48	70.00	30.48	30.48	130.00	30.48	30.48	150.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	288	270	389	192	163	296	126	739	160	107	732	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	288	270	389	192	163	296	126	739	160	107	732	94
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	72	68	97	48	41	74	32	185	40	27	183	24
Total Analysis Volume [veh/h]	288	270	389	192	163	296	126	739	160	107	732	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	64.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	10	0	7	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	10	35	0	10	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.8	0.0	1.0	3.8	0.0	1.0	2.5	0.0	2.0	2.5	0.0
Split [s]	20	54	0	13	47	0	12	33	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	32	0	0	32	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.1	0.0	2.0	5.1	0.0	2.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	Yes		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	112	112	112	112	112	112	112	112	112	112	112	112
L, Total Lost Time per Cycle [s]	7.10	7.10	7.10	7.10	7.10	7.10	6.20	6.20	6.20	6.20	6.20	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.10	5.10	0.00	5.10	5.10	0.00	4.20	4.20	0.00	4.20	4.20
g_i, Effective Green Time [s]	45	31	31	45	26	26	52	40	40	52	41	41
g / C, Green / Cycle	0.40	0.27	0.27	0.40	0.23	0.23	0.46	0.36	0.36	0.46	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.23	0.08	0.24	0.18	0.09	0.19	0.18	0.25	0.25	0.13	0.15	0.16
s, saturation flow rate [veh/h]	1253	3560	1589	1044	1870	1589	689	1870	1756	837	3560	1764
c, Capacity [veh/h]	443	979	437	475	432	367	360	671	631	349	1304	646
d1, Uniform Delay [s]	26.27	31.85	38.98	22.79	36.28	40.69	18.46	30.59	30.59	20.36	26.61	26.64
k, delay calibration	0.50	0.11	0.12	0.11	0.11	0.11	0.50	0.50	0.50	0.34	0.50	0.50
I, Upstream Filtering 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
d2, Incremental Delay [s]	7.45	0.15	7.73	0.56	0.55	4.35	2.69	5.92	6.30	1.55	1.01	2.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.65	0.28	0.89	0.40	0.38	0.81	0.35	0.69	0.69	0.31	0.42	0.43
d, Delay for Lane Group [s/veh]	33.72	32.00	46.70	23.35	36.82	45.04	21.16	36.50	36.89	21.91	27.61	28.70
Lane Group LOS	C	C	D	C	D	D	C	D	D	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.34	2.90	11.08	3.47	3.82	8.10	2.14	11.62	10.99	1.72	5.67	5.85
50th-Percentile Queue Length [m/ln]	48.30	22.07	84.41	26.43	29.14	61.73	16.32	88.58	83.71	13.12	43.20	44.60
95th-Percentile Queue Length [veh/ln]	10.47	5.21	16.54	6.24	6.88	12.77	3.85	17.22	16.42	3.10	9.57	9.82
95th-Percentile Queue Length [m/ln]	79.76	39.73	126.00	47.58	52.46	97.30	29.37	131.19	125.13	23.62	72.96	74.84

Movement, Approach, & Intersection Results

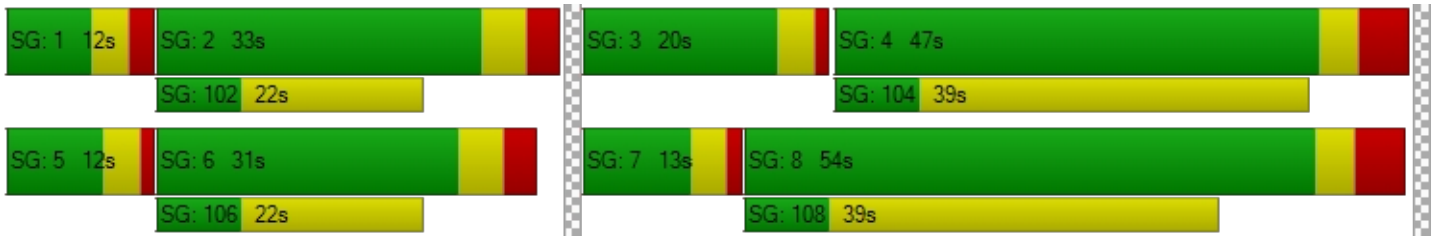
d_M, Delay for Movement [s/veh]	33.72	32.00	46.70	23.35	36.82	45.04	21.16	36.65	36.89	21.91	27.88	28.70
Movement LOS	C	C	D	C	D	D	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	38.56			36.58			34.78			27.28		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	34.15											
Intersection LOS	C											
Intersection V/C	0.606											

Other Modes

g_Walk,mi, Effective Walk Time [s]	19.0	19.0	11.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.61	38.61	45.54	45.54
I_p,int, Pedestrian LOS Score for Intersection	2.964	2.823	3.177	3.132
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	838	713	479	443
d_b, Bicycle Delay [s]	18.92	23.21	32.41	33.95
I_b,int, Bicycle LOS Score for Intersection	2.341	2.097	2.405	2.073
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Fairlight Dr & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.360

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [m]	30.48	30.48	50.00	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Curb Present	Yes		Yes		Yes	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	72	200	784	119	121	147
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	200	784	119	121	147
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	50	196	30	30	37
Total Analysis Volume [veh/h]	72	200	784	119	121	147
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Unsignalized	ProtPerm	Permissive	Permissive	Unsignalized
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	10	0	9	15	15	0
Maximum Green [s]	30	0	20	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.9	0.0	2.1	1.9	1.9	0.0
Split [s]	29	0	29	61	32	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	Yes	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	3.6	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	Yes	
Detector Location [m]	0.0	0.0	25.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	6.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	L	C	C
C, Cycle Length [s]	90	90	90	90
L, Total Lost Time per Cycle [s]	0.00	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	3.40	3.40
g_i, Effective Green Time [s]	0	56	56	27
g / C, Green / Cycle	0.00	0.62	0.62	0.30
(v / s)_i Volume / Saturation Flow Rate	0.07	0.57	0.04	0.04
s, saturation flow rate [veh/h]	1026	1366	3204	3204
c, Capacity [veh/h]	80	928	1980	947
d1, Uniform Delay [s]	45.00	13.79	6.83	23.21
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	121.07	10.18	0.06	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.84	0.06	0.13
d, Delay for Lane Group [s/veh]	166.07	23.96	6.89	23.49
Lane Group LOS	F	C	A	C
Critical Lane Group	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.40	12.86	0.43	0.96
50th-Percentile Queue Length [m/ln]	33.55	98.01	3.26	7.33
95th-Percentile Queue Length [veh/ln]	7.84	18.74	0.77	1.73
95th-Percentile Queue Length [m/ln]	59.77	142.83	5.87	13.20

Movement, Approach, & Intersection Results

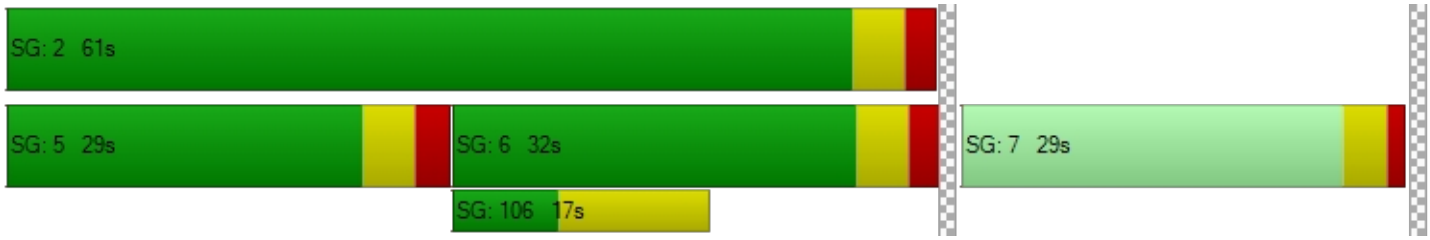
d_M, Delay for Movement [s/veh]	166.07	0.00	23.96	6.89	23.49	0.00
Movement LOS	F		C	A	C	
d_A, Approach Delay [s/veh]	166.07		21.71		23.49	
Approach LOS	F		C		C	
d_I, Intersection Delay [s/veh]	31.39					
Intersection LOS	C					
Intersection V/C	0.360					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	0.00	34.67
I_p,int, Pedestrian LOS Score for Intersection	3.057	0.000	2.500
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1236	591
d_b, Bicycle Delay [s]	45.00	6.57	22.33
I_b,int, Bicycle LOS Score for Intersection	1.560	2.305	1.770
Bicycle LOS	A	B	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Fairlight Dr & Fairmont Cr

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.015

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [m]	30.48	30.48	30.48	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	9	18	23	178	290	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	18	23	178	290	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	5	6	45	73	5
Total Analysis Volume [veh/h]	9	18	23	178	290	19
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.40	10.12	9.35	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.04	0.02	0.00	0.00
95th-Percentile Queue Length [m/ln]	0.95	0.95	0.30	0.15	0.00	0.00
d_A, Approach Delay [s/veh]	10.55		1.07		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.93					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Fairlight Dr & Fairmont Dr

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.290

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	90.00	30.48	30.48	30.48	30.48	30.48	40.00	30.48	30.48	20.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	197	194	70	1	52	94	63	73	101	124	134	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	194	70	1	52	94	63	73	101	124	134	28
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	49	18	0	13	24	16	18	25	31	34	7
Total Analysis Volume [veh/h]	197	194	70	1	52	94	63	73	101	124	134	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	9	15	0	9	15	0
Maximum Green [s]	30	31	0	0	31	0	12	21	0	12	21	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	1.0	2.2	0.0	0.0	2.2	0.0	2.0	2.1	0.0	2.0	2.1	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	15	0	0	7	0	0	7	0	0	10	0
Pedestrian Clearance [s]	0	15	0	0	23	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.7	0.0	0.0	3.7	0.0	3.0	3.6	0.0	3.0	3.6	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		Yes			Yes		No	Yes		No	Yes	
Detector Location [m]	4.0	4.0	0.0	0.0	2.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0
Detector Length [m]	6.0	6.0	0.0	0.0	4.0	0.0	6.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.70	5.70	5.70	5.60	5.60	5.60	5.60	5.60	5.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.70	3.70	0.00	3.60	3.60	0.00	3.60	3.60
g_i, Effective Green Time [s]	34	34	30	34	21	21	34	23	23
g / C, Green / Cycle	0.43	0.43	0.38	0.43	0.26	0.26	0.43	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.17	0.16	0.10	0.05	0.04	0.07	0.10	0.03	0.04
s, saturation flow rate [veh/h]	1139	1608	1511	1244	1683	1431	1260	3204	1543
c, Capacity [veh/h]	540	687	613	637	442	376	637	908	437
d1, Uniform Delay [s]	15.45	15.68	17.25	13.47	22.68	23.35	14.05	21.23	21.27
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.13	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.41	0.35	0.20	0.31	0.80	1.75	0.17	0.27	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.38	0.24	0.10	0.16	0.27	0.19	0.12	0.12
d, Delay for Lane Group [s/veh]	15.86	16.03	17.45	13.78	23.49	25.10	14.22	21.50	21.86
Lane Group LOS	B	B	B	B	C	C	B	C	C
Critical Lane Group	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.27	3.17	1.82	0.69	1.13	1.64	1.34	0.76	0.81
50th-Percentile Queue Length [m/ln]	17.28	24.15	13.84	5.27	8.57	12.53	10.18	5.76	6.15
95th-Percentile Queue Length [veh/ln]	4.08	5.71	3.27	1.25	2.03	2.96	2.41	1.36	1.45
95th-Percentile Queue Length [m/ln]	31.11	43.48	24.92	9.49	15.43	22.56	18.33	10.36	11.08

Movement, Approach, & Intersection Results

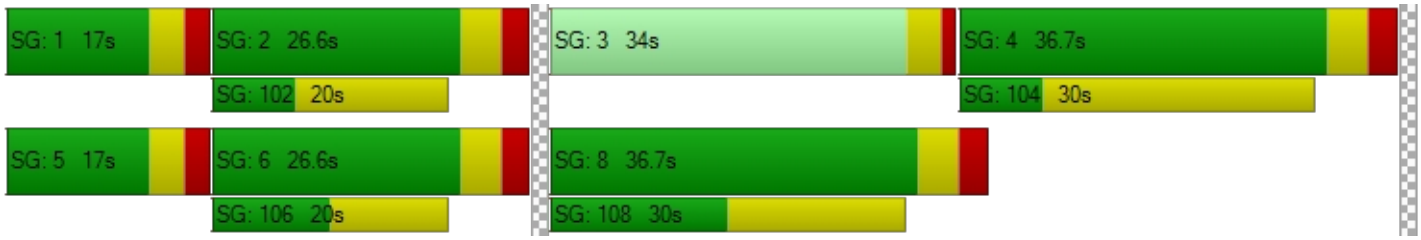
d_M, Delay for Movement [s/veh]	15.86	16.03	16.03	17.45	17.45	17.45	13.78	23.49	25.10	14.22	21.57	21.86
Movement LOS	B	B	B	B	B	B	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	15.96			17.45			21.60			18.41		
Approach LOS	B			B			C			B		
d_I, Intersection Delay [s/veh]	17.95											
Intersection LOS	B											
Intersection V/C	0.290											

Other Modes

g_Walk,mi, Effective Walk Time [s]	21.0	24.0	11.0	19.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.66	19.51	29.66	23.16
I_p,int, Pedestrian LOS Score for Intersection	2.358	2.058	2.782	2.420
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	777	777	526	526
d_b, Bicycle Delay [s]	14.92	14.92	21.66	21.66
I_b,int, Bicycle LOS Score for Intersection	2.431	1.802	1.951	1.717
Bicycle LOS	B	A	A	A

Sequence

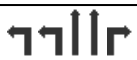
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: 22nd Street & Confederation Drive

Control Type:	Signalized	Delay (sec / veh):	47.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.591

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	2	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [m]	50.00	30.48	50.00	80.00	30.48	30.48	100.00	30.48	30.48	100.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	No			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	204	309	81	473	416	145	108	898	251	387	842	808
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	309	81	473	416	145	108	898	251	387	842	808
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	51	77	20	118	104	36	27	225	63	97	211	202
Total Analysis Volume [veh/h]	204	309	81	473	416	145	108	898	251	387	842	808
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	80.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Unsigna
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	0	35	0	15	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	0.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.3	0.0	0.0	3.3	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Split [s]	0	24	0	0	26	0	22	40	0	22	40	0
Vehicle Extension [s]	3.0	4.5	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	23	0	0	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.6	0.0	0.0	4.6	0.0	3.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0
Detector Length [m]	7.0	7.0	0.0	0.0	7.0	0.0	7.0	0.0	0.0	7.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	C	L	C
C, Cycle Length [s]	116	116	116	116	116	116	116	116	116	116	116	116
L, Total Lost Time per Cycle [s]	6.60	6.60	6.60	6.60	6.60	6.60	6.60	5.00	6.20	6.20	5.00	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.00	4.20	4.20	3.00	4.20
g_i, Effective Green Time [s]	16	16	16	16	19	19	19	9	35	35	15	42
g / C, Green / Cycle	0.14	0.14	0.14	0.14	0.17	0.17	0.17	0.08	0.31	0.31	0.13	0.36
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.10	0.05	0.14	0.16	0.16	0.06	0.22	0.22	0.11	0.24
s, saturation flow rate [veh/h]	1781	1850	1702	1589	3459	1870	1707	1781	3560	1669	3459	3560
c, Capacity [veh/h]	241	250	230	215	578	313	285	138	1089	510	450	1277
d1, Uniform Delay [s]	47.86	47.83	48.32	45.71	46.59	47.70	47.71	52.56	35.81	35.84	49.41	31.24
k, delay calibration	0.19	0.19	0.19	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering 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
d2, Incremental Delay [s]	6.18	5.85	8.81	1.88	2.99	16.33	17.78	10.00	4.18	8.89	5.16	2.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.69	0.69	0.76	0.38	0.82	0.94	0.94	0.78	0.72	0.72	0.86	0.66
d, Delay for Lane Group [s/veh]	54.04	53.68	57.12	47.58	49.58	64.03	65.48	62.56	39.99	44.73	54.57	33.96
Lane Group LOS	D	D	E	D	D	E	E	E	D	D	D	C
Critical Lane Group	No	No	Yes	No	No	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	5.00	5.14	5.39	2.24	6.79	9.73	9.00	3.47	10.37	10.41	5.79	10.25
50th-Percentile Queue Length [m/ln]	38.13	39.20	41.09	17.07	51.73	74.15	68.58	26.42	78.99	79.32	44.13	78.07
95th-Percentile Queue Length [veh/ln]	8.67	8.86	9.20	4.03	11.06	14.85	13.92	6.24	15.65	15.70	9.74	15.49
95th-Percentile Queue Length [m/ln]	66.08	67.55	70.11	30.73	84.29	113.13	106.07	47.55	119.22	119.64	74.21	118.07

Movement, Approach, & Intersection Results

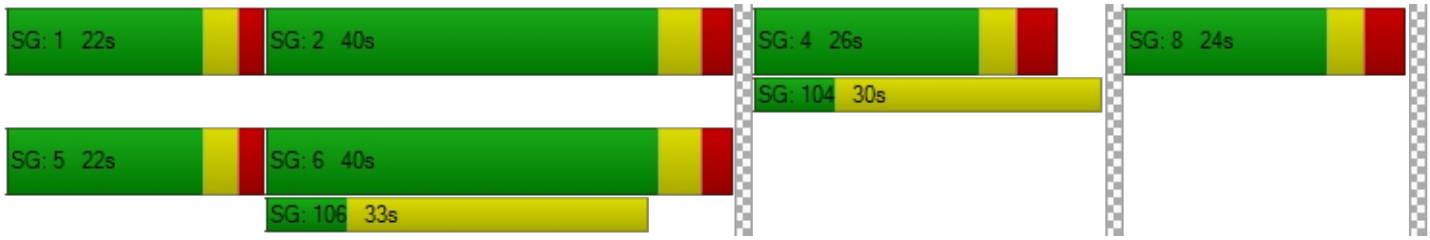
d_M, Delay for Movement [s/veh]	53.98	55.62	47.58	49.58	64.46	65.48	62.56	40.60	44.73	54.57	33.96	0.00
Movement LOS	D	E	D	D	E	E	E	D	D	D	C	
d_A, Approach Delay [s/veh]	53.96			57.80			43.31			40.45		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	47.63											
Intersection LOS	D											
Intersection V/C	0.591											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	11.0	0.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	50.28	47.52	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.945	3.128	0.000
Crosswalk LOS	F	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	300	334	583	583
d_b, Bicycle Delay [s]	41.91	40.22	29.12	29.12
I_b,int, Bicycle LOS Score for Intersection	2.050	2.413	2.251	2.574
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 22nd St & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.561

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	40.00	30.48	30.48	70.00	30.48	30.48	130.00	30.48	30.48	150.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	151	361	255	163	249	216	179	733	198	230	1118	303
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	151	361	255	163	249	216	179	733	198	230	1118	303
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	90	64	41	62	54	45	183	50	58	280	76
Total Analysis Volume [veh/h]	151	361	255	163	249	216	179	733	198	230	1118	303
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	64.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	10	0	7	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	10	35	0	10	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.8	0.0	1.0	3.8	0.0	1.0	2.5	0.0	2.0	2.5	0.0
Split [s]	20	54	0	13	47	0	12	33	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	32	0	0	32	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.1	0.0	2.0	5.1	0.0	2.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	Yes		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	112	112	112	112	112	112	112	112	112	112	112	112
L, Total Lost Time per Cycle [s]	7.10	7.10	7.10	7.10	7.10	7.10	6.20	6.20	6.20	6.20	6.20	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.10	5.10	0.00	5.10	5.10	0.00	4.20	4.20	0.00	4.20	4.20
g_i, Effective Green Time [s]	35	21	21	35	22	22	62	50	50	62	50	50
g / C, Green / Cycle	0.31	0.19	0.19	0.31	0.19	0.19	0.55	0.44	0.44	0.55	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.13	0.10	0.16	0.14	0.13	0.14	0.39	0.26	0.26	0.29	0.27	0.27
s, saturation flow rate [veh/h]	1202	3560	1589	1131	1870	1589	457	1870	1735	792	3560	1673
c, Capacity [veh/h]	359	678	303	383	363	308	305	831	771	411	1593	749
d1, Uniform Delay [s]	29.93	40.85	43.72	29.64	41.97	42.11	17.48	23.29	23.30	16.65	23.46	23.48
k, delay calibration	0.33	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering 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
d2, Incremental Delay [s]	2.38	0.65	6.73	0.75	2.34	2.94	8.33	2.99	3.23	5.52	1.74	3.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.42	0.53	0.84	0.43	0.69	0.70	0.59	0.58	0.58	0.56	0.61	0.61
d, Delay for Lane Group [s/veh]	32.31	41.50	50.45	30.39	44.31	45.04	25.81	26.28	26.53	22.17	25.20	27.18
Lane Group LOS	C	D	D	C	D	D	C	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.29	4.55	7.35	3.40	6.61	5.80	2.91	10.06	9.40	3.55	9.86	9.70
50th-Percentile Queue Length [m/ln]	25.10	34.64	55.98	25.93	50.38	44.19	22.16	76.63	71.62	27.08	75.14	73.91
95th-Percentile Queue Length [veh/ln]	5.93	8.04	11.79	6.13	10.83	9.75	5.23	15.26	14.43	6.40	15.01	14.81
95th-Percentile Queue Length [m/ln]	45.18	61.28	89.85	46.68	82.51	74.29	39.88	116.26	109.93	48.74	114.39	112.84

Movement, Approach, & Intersection Results

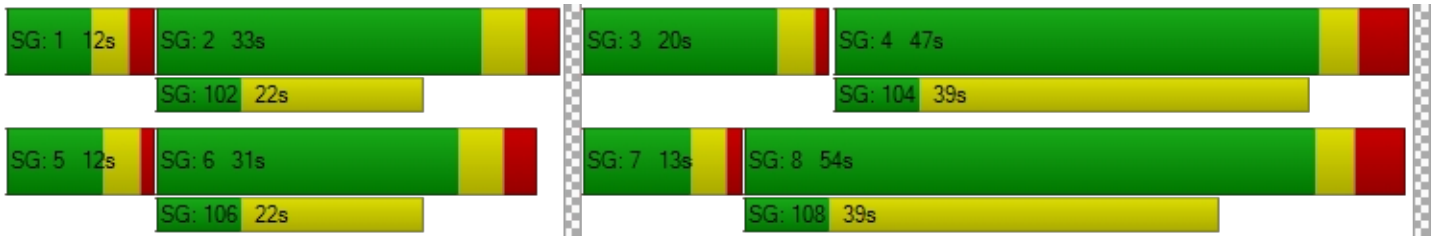
d_M, Delay for Movement [s/veh]	32.31	41.50	50.45	30.39	44.31	45.04	25.81	26.37	26.53	22.17	25.47	27.18
Movement LOS	C	D	D	C	D	D	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	42.67			40.95			26.31			25.32		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	31.15											
Intersection LOS	C											
Intersection V/C	0.561											

Other Modes

g_Walk,mi, Effective Walk Time [s]	19.0	19.0	11.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.61	38.61	45.54	45.54
I_p,int, Pedestrian LOS Score for Intersection	3.073	2.959	3.187	3.244
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	838	713	479	443
d_b, Bicycle Delay [s]	18.92	23.21	32.41	33.95
I_b,int, Bicycle LOS Score for Intersection	2.192	2.078	2.475	2.468
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Fairlight Dr & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	47.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.424

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [m]	30.48	30.48	50.00	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Curb Present	Yes		Yes		Yes	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	88	662	597	95	544	270
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	662	597	95	544	270
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	166	149	24	136	68
Total Analysis Volume [veh/h]	88	662	597	95	544	270
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Unsignalized	ProtPerm	Permissive	Permissive	Unsignalized
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	10	0	9	15	15	0
Maximum Green [s]	30	0	20	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.9	0.0	2.1	1.9	1.9	0.0
Split [s]	29	0	29	61	32	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	Yes	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	3.6	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	Yes	
Detector Location [m]	0.0	0.0	25.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	6.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	L	C	C
C, Cycle Length [s]	90	90	90	90
L, Total Lost Time per Cycle [s]	0.00	4.00	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	3.40	3.40
g_i, Effective Green Time [s]	0	56	56	27
g / C, Green / Cycle	0.00	0.62	0.62	0.30
(v / s)_i Volume / Saturation Flow Rate	0.12	0.51	0.03	0.17
s, saturation flow rate [veh/h]	711	1177	3204	3204
c, Capacity [veh/h]	80	731	1980	947
d1, Uniform Delay [s]	45.00	13.26	6.78	26.90
k, delay calibration	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	319.46	10.60	0.05	2.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.82	0.05	0.57
d, Delay for Lane Group [s/veh]	364.46	23.86	6.82	29.45
Lane Group LOS	F	C	A	C
Critical Lane Group	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	9.09	8.50	0.34	5.16
50th-Percentile Queue Length [m/ln]	69.29	64.78	2.58	39.33
95th-Percentile Queue Length [veh/ln]	14.04	13.28	0.61	8.89
95th-Percentile Queue Length [m/ln]	106.97	101.21	4.65	67.72

Movement, Approach, & Intersection Results

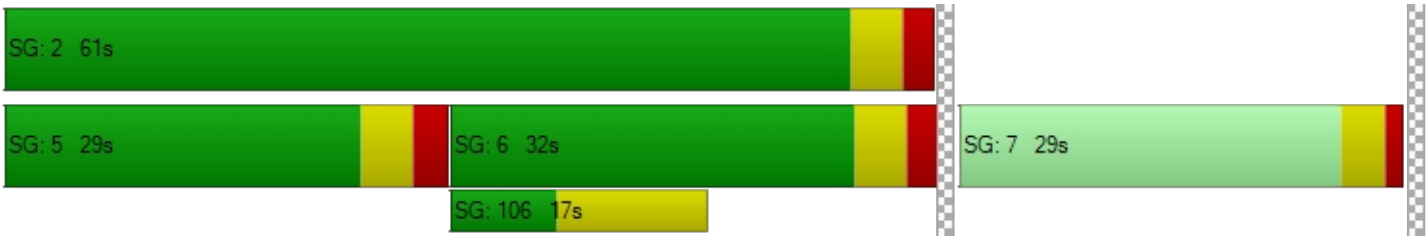
d_M, Delay for Movement [s/veh]	364.46	0.00	23.86	6.82	29.45	0.00
Movement LOS	F		C	A	C	
d_A, Approach Delay [s/veh]	364.46		21.52		29.45	
Approach LOS	F		C		C	
d_I, Intersection Delay [s/veh]	47.57					
Intersection LOS	D					
Intersection V/C	0.424					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	0.00	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.901	0.000	2.653
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1236	591
d_b, Bicycle Delay [s]	45.00	6.57	22.33
I_b,int, Bicycle LOS Score for Intersection	1.560	2.131	2.119
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Fairlight Dr & Fairmont Cr

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.047

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [m]	30.48	30.48	30.48	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	20	54	21	207	555	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	54	21	207	555	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	14	5	52	139	8
Total Analysis Volume [veh/h]	20	54	21	207	555	30
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.09	0.03	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	14.55	12.06	10.85	0.00	0.00	0.00
Movement LOS	B	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.48	0.48	0.04	0.02	0.00	0.00
95th-Percentile Queue Length [m/ln]	3.62	3.62	0.27	0.13	0.00	0.00
d_A, Approach Delay [s/veh]	12.73		1.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.32					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Fairlight Dr & Fairmont Dr

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.382

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	90.00	30.48	30.48	30.48	30.48	30.48	40.00	30.48	30.48	20.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	419	232	38	3	63	82	74	28	149	253	382	59
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	419	232	38	3	63	82	74	28	149	253	382	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	105	58	10	1	16	21	19	7	37	63	96	15
Total Analysis Volume [veh/h]	419	232	38	3	63	82	74	28	149	253	382	59
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	9	15	0	9	15	0
Maximum Green [s]	30	31	0	0	31	0	12	21	0	12	21	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	1.0	2.2	0.0	0.0	2.2	0.0	2.0	2.1	0.0	2.0	2.1	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	15	0	0	7	0	0	7	0	0	10	0
Pedestrian Clearance [s]	0	15	0	0	23	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.7	0.0	0.0	3.7	0.0	3.0	3.6	0.0	3.0	3.6	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		Yes			Yes		No	Yes		No	Yes	
Detector Location [m]	4.0	4.0	0.0	0.0	2.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0
Detector Length [m]	6.0	6.0	0.0	0.0	4.0	0.0	6.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	82	82	82	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	5.70	5.70	5.70	5.60	5.60	5.60	5.60	5.60	5.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.70	3.70	0.00	3.60	3.60	0.00	3.60	3.60
g_i, Effective Green Time [s]	34	34	30	37	21	21	37	24	24
g / C, Green / Cycle	0.42	0.42	0.37	0.45	0.26	0.26	0.45	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.37	0.16	0.10	0.07	0.02	0.10	0.20	0.09	0.09
s, saturation flow rate [veh/h]	1140	1642	1529	1065	1683	1431	1279	3204	1572
c, Capacity [veh/h]	522	682	603	540	430	366	685	949	465
d1, Uniform Delay [s]	21.84	16.80	18.31	13.41	23.14	25.40	14.92	22.40	22.44
k, delay calibration	0.40	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.85	0.37	0.21	0.53	0.29	3.37	1.54	0.85	1.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.40	0.25	0.14	0.07	0.41	0.37	0.31	0.32
d, Delay for Lane Group [s/veh]	32.69	17.17	18.52	13.94	23.43	28.77	16.46	23.25	24.22
Lane Group LOS	C	B	B	B	C	C	B	C	C
Critical Lane Group	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.49	3.44	1.93	0.83	0.44	2.68	3.21	2.24	2.36
50th-Percentile Queue Length [m/ln]	57.10	26.24	14.70	6.35	3.32	20.44	24.47	17.08	17.99
95th-Percentile Queue Length [veh/ln]	11.98	6.20	3.47	1.50	0.78	4.83	5.78	4.03	4.25
95th-Percentile Queue Length [m/ln]	91.31	47.23	26.46	11.43	5.97	36.79	44.05	30.74	32.39

Movement, Approach, & Intersection Results

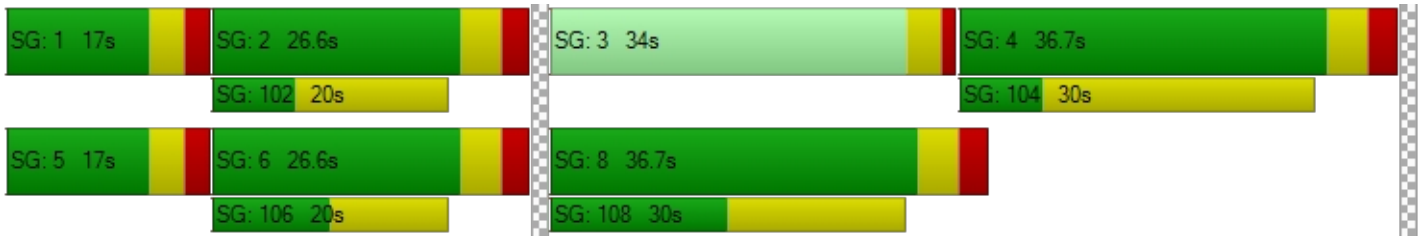
d_M, Delay for Movement [s/veh]	32.69	17.17	17.17	18.52	18.52	18.52	13.94	23.43	28.77	16.46	23.48	24.22
Movement LOS	C	B	B	B	B	B	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	26.61			18.52			23.80			20.98		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	23.35											
Intersection LOS	C											
Intersection V/C	0.382											

Other Modes

g_Walk,mi, Effective Walk Time [s]	21.0	24.0	11.0	19.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.70	20.52	30.75	24.21
I_p,int, Pedestrian LOS Score for Intersection	2.627	2.130	3.226	2.529
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	756	512	512
d_b, Bicycle Delay [s]	15.87	15.87	22.70	22.70
I_b,int, Bicycle LOS Score for Intersection	2.807	1.804	1.974	1.941
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↱
Traffic Vol, veh/h	1303	0	0	0	0	135
Future Vol, veh/h	1303	0	0	0	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	68
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1416	0	0	0	0	199

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	-	-	708
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pot Cap-1 Maneuver	-	0	0	323
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-			
Mov Cap-1 Maneuver	-	-	-	323
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Ctrl Dly, s/v	0	32.31
HCM LOS		D

Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	323	-
HCM Lane V/C Ratio	0.614	-
HCM Ctrl Dly (s/v)	32.3	-
HCM Lane LOS	D	-
HCM 95th %tile Q(veh)	3.8	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑					↱
Traffic Vol, veh/h	1019	0	0	0	0	182
Future Vol, veh/h	1019	0	0	0	0	182
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	95
Heavy Vehicles, %	2	2	2	2	2	3
Mvmt Flow	1108	0	0	0	0	192

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	-	-	554
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.16
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.93
Pot Cap-1 Maneuver	-	0	0	406
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %	-			
Mov Cap-1 Maneuver	-	-	-	406
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Ctrl Dly, s/v	0	21.56
HCM LOS		C

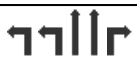
Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	406	-
HCM Lane V/C Ratio	0.472	-
HCM Ctrl Dly (s/v)	21.6	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	2.5	-

Appendix B – Traffic Operations Analysis of Proposed Changes

Intersection Level Of Service Report
Intersection 1: 22nd Street & Confederation Drive

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	2	0	1	1	0	0	0	0	0	2	0	0
Entry Pocket Length [m]	50.00	30.48	50.00	80.00	30.48	30.48	30.48	30.48	30.48	100.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	No			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	159	89	112	406	271	53	68	1232	278	205	304	315
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	89	112	406	271	53	68	1232	278	205	304	315
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	22	28	102	68	13	17	308	70	51	76	79
Total Analysis Volume [veh/h]	159	89	112	406	271	53	68	1232	278	205	304	315
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	80.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	0	35	0	15	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	0.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.3	0.0	0.0	3.3	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Split [s]	0	24	0	0	26	0	21	39	0	21	39	0
Vehicle Extension [s]	3.0	4.5	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	23	0	0	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.6	0.0	0.0	4.6	0.0	3.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	4.0	4.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	114	114	114	114	114	114	114	114	114	114	114	114	114
L, Total Lost Time per Cycle [s]	6.60	6.60	6.60	6.60	6.60	6.60	6.60	5.00	6.20	6.20	5.00	6.20	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.00	4.20	4.20	3.00	4.20	4.20
g_i, Effective Green Time [s]	11	11	11	11	16	16	16	6	49	49	9	52	52
g / C, Green / Cycle	0.10	0.10	0.10	0.10	0.14	0.14	0.14	0.05	0.43	0.43	0.08	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.05	0.07	0.12	0.09	0.09	0.04	0.24	0.17	0.06	0.09	0.20
s, saturation flow rate [veh/h]	1781	1786	1702	1589	3459	1870	1765	1781	5094	1589	3459	3560	1589
c, Capacity [veh/h]	180	180	172	160	491	265	250	98	2186	682	273	1613	720
d1, Uniform Delay [s]	48.29	48.29	48.47	49.56	47.55	46.07	46.09	52.93	24.50	22.51	51.41	18.64	21.26
k, delay calibration	0.19	0.19	0.19	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering 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	1.00
d2, Incremental Delay [s]	3.09	3.07	3.72	9.45	3.75	2.46	2.63	8.91	1.06	1.81	4.27	0.26	1.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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	1.00

Lane Group Results

X, volume / capacity	0.45	0.45	0.49	0.70	0.83	0.63	0.63	0.69	0.56	0.41	0.75	0.19	0.44
d, Delay for Lane Group [s/veh]	51.38	51.36	52.20	59.01	51.31	48.53	48.71	61.84	25.56	24.32	55.67	18.90	23.20
Lane Group LOS	D	D	D	E	D	D	D	E	C	C	E	B	C
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.34	2.35	2.44	3.50	5.83	4.61	4.38	2.15	8.41	5.44	3.02	2.45	6.03
50th-Percentile Queue Length [m/ln]	17.86	17.89	18.61	26.66	44.44	35.12	33.36	16.39	64.10	41.47	23.02	18.64	45.98
95th-Percentile Queue Length [veh/ln]	4.22	4.23	4.40	6.30	9.79	8.13	7.81	3.87	13.17	9.27	5.44	4.40	10.06
95th-Percentile Queue Length [m/ln]	32.15	32.20	33.49	47.98	74.61	61.95	59.51	29.51	100.35	70.63	41.43	33.55	76.67

Movement, Approach, & Intersection Results

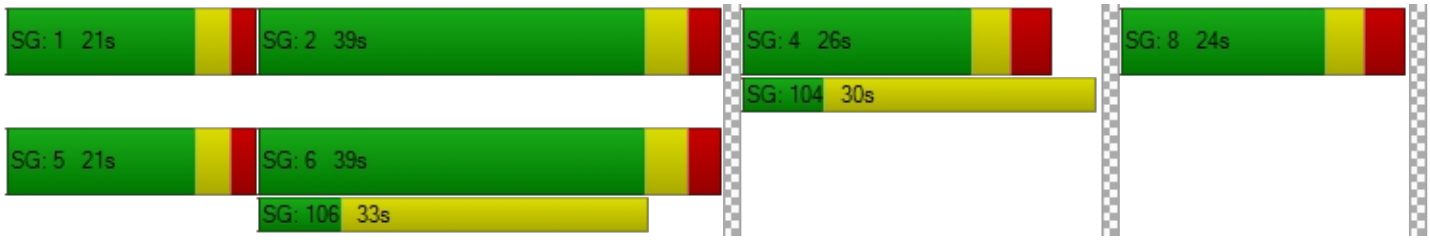
d_M, Delay for Movement [s/veh]	51.37	52.15	59.01	51.31	48.60	48.71	61.84	25.56	24.32	55.67	18.90	23.20
Movement LOS	D	D	E	D	D	D	E	C	C	E	B	C
d_A, Approach Delay [s/veh]	53.94			50.11			26.91			29.69		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	35.20											
Intersection LOS	D											
Intersection V/C	0.489											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	11.0	0.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	49.28	46.53	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.887	3.091	0.000
Crosswalk LOS	F	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	305	340	575	575
d_b, Bicycle Delay [s]	40.93	39.25	28.92	28.92
I_b,int, Bicycle LOS Score for Intersection	1.857	2.162	2.428	2.239
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 22nd St & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	40.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.692

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	40.00	30.48	30.48	70.00	30.48	30.48	130.00	30.48	30.48	150.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	295	277	509	219	159	296	126	758	156	107	732	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	295	277	509	219	159	296	126	758	156	107	732	94
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	69	127	55	40	74	32	190	39	27	183	24
Total Analysis Volume [veh/h]	295	277	509	219	159	296	126	758	156	107	732	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	64.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	10	0	7	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	10	35	0	10	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.8	0.0	1.0	3.8	0.0	1.0	2.5	0.0	2.0	2.5	0.0
Split [s]	20	54	0	13	47	0	12	33	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	32	0	0	32	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.1	0.0	2.0	5.1	0.0	2.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	Yes		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	112	112	112	112	112	112	112	112	112	112	112	112
L, Total Lost Time per Cycle [s]	7.10	7.10	7.10	7.10	7.10	7.10	6.20	6.20	6.20	6.20	6.20	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.10	5.10	0.00	5.10	5.10	0.00	4.20	4.20	0.00	4.20	4.20
g_i, Effective Green Time [s]	53	39	39	53	35	35	44	32	32	44	32	32
g / C, Green / Cycle	0.47	0.35	0.35	0.47	0.31	0.31	0.39	0.28	0.28	0.39	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.25	0.08	0.32	0.23	0.09	0.19	0.19	0.25	0.25	0.12	0.15	0.16
s, saturation flow rate [veh/h]	1189	3560	1589	938	1870	1589	668	1870	1761	871	3560	1764
c, Capacity [veh/h]	518	1239	553	508	588	500	307	534	502	287	1034	512
d1, Uniform Delay [s]	20.44	25.81	35.02	17.84	28.77	32.34	23.85	38.23	38.23	26.18	33.37	33.42
k, delay calibration	0.50	0.11	0.25	0.15	0.11	0.11	0.50	0.50	0.50	0.32	0.50	0.50
I, Upstream Filtering 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
d2, Incremental Delay [s]	4.57	0.09	16.55	0.81	0.25	1.13	4.08	22.83	24.16	2.34	1.98	4.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.57	0.22	0.92	0.43	0.27	0.59	0.41	0.88	0.88	0.37	0.53	0.54
d, Delay for Lane Group [s/veh]	25.01	25.90	51.56	18.65	29.01	33.47	27.94	61.05	62.39	28.52	35.36	37.48
Lane Group LOS	C	C	D	B	C	C	C	E	E	C	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.42	2.63	15.58	3.48	3.24	6.86	2.53	15.57	14.85	2.02	6.54	6.83
50th-Percentile Queue Length [m/ln]	41.29	20.04	118.72	26.49	24.71	52.28	19.30	118.65	113.16	15.40	49.87	52.07
95th-Percentile Queue Length [veh/ln]	9.24	4.74	22.05	6.26	5.84	11.16	4.56	22.04	21.17	3.64	10.74	11.12
95th-Percentile Queue Length [m/ln]	70.38	36.08	168.05	47.69	44.48	85.02	34.75	167.96	161.32	27.73	81.83	84.73

Movement, Approach, & Intersection Results

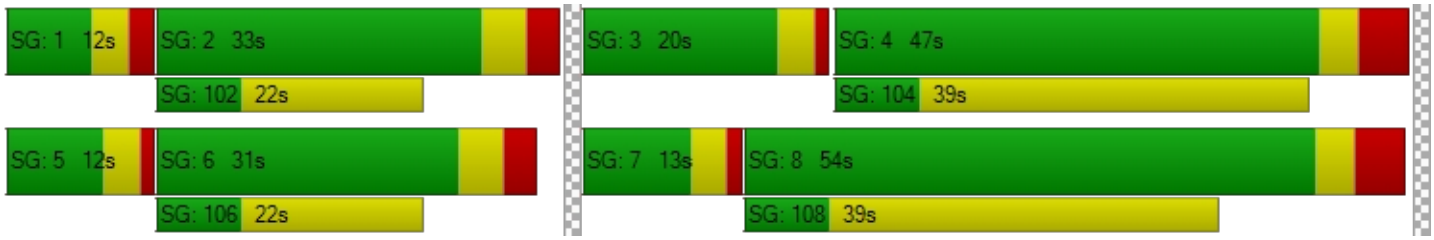
d_M, Delay for Movement [s/veh]	25.01	25.90	51.56	18.65	29.01	33.47	27.94	61.56	62.39	28.52	35.88	37.48
Movement LOS	C	C	D	B	C	C	C	E	E	C	D	D
d_A, Approach Delay [s/veh]	37.74			27.60			57.61			35.20		
Approach LOS	D			C			E			D		
d_I, Intersection Delay [s/veh]	40.81											
Intersection LOS	D											
Intersection V/C	0.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	19.0	19.0	11.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.61	38.61	45.54	45.54
I_p,int, Pedestrian LOS Score for Intersection	2.981	2.817	3.221	3.260
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	838	713	479	443
d_b, Bicycle Delay [s]	18.92	23.21	32.41	33.95
I_b,int, Bicycle LOS Score for Intersection	2.451	2.116	2.418	2.073
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Fairlight Dr & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.517

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [m]	30.48	30.48	50.00	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Curb Present	Yes		Yes		Yes	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	64	200	786	119	136	279
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	200	786	119	136	279
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	50	197	30	34	70
Total Analysis Volume [veh/h]	64	200	786	119	136	279
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	10	0	9	15	15	0
Maximum Green [s]	30	0	20	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.9	0.0	2.1	1.9	1.9	0.0
Split [s]	29	0	29	61	32	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	Yes	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	3.6	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	Yes	
Detector Location [m]	0.0	0.0	25.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	6.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	0.00	0.00	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	0	0	56	56	27	27
g / C, Green / Cycle	0.00	0.00	0.62	0.62	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.64	0.04	0.04	0.20
s, saturation flow rate [veh/h]	1012	2532	1228	3204	3204	1431
c, Capacity [veh/h]	80	0	847	1980	947	423
d1, Uniform Delay [s]	45.00	0.00	15.14	6.83	23.32	27.74
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	74.56	0.00	23.25	0.06	0.32	8.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	10000.00	0.93	0.06	0.14	0.66
d, Delay for Lane Group [s/veh]	119.56	0.00	38.39	6.89	23.64	35.89
Lane Group LOS	F	F	D	A	C	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.17	0.00	15.76	0.43	1.09	6.06
50th-Percentile Queue Length [m/ln]	24.14	0.00	120.09	3.26	8.29	46.19
95th-Percentile Queue Length [veh/ln]	5.70	0.00	22.27	0.77	1.96	10.10
95th-Percentile Queue Length [m/ln]	43.45	0.00	169.70	5.87	14.92	76.96

Movement, Approach, & Intersection Results

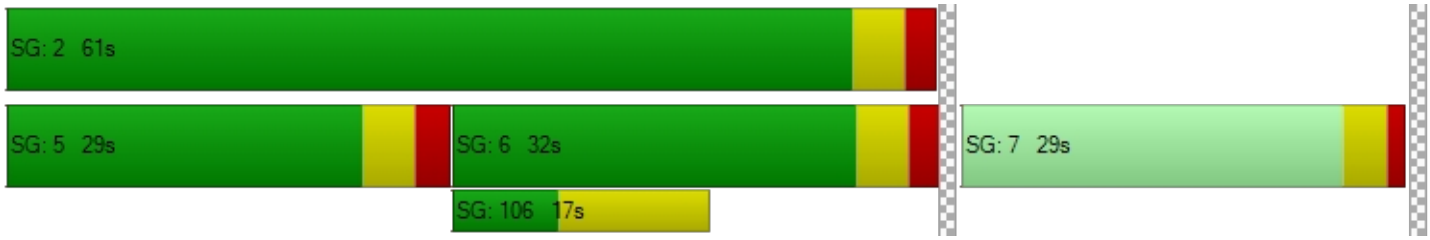
d_M, Delay for Movement [s/veh]	119.56	0.00	38.39	6.89	23.64	35.89
Movement LOS	F	A	D	A	C	D
d_A, Approach Delay [s/veh]	28.98		34.25		31.88	
Approach LOS	C		C		C	
d_I, Intersection Delay [s/veh]	32.75					
Intersection LOS	C					
Intersection V/C	0.517					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	0.00	34.67
I_p,int, Pedestrian LOS Score for Intersection	3.183	0.000	2.578
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1236	591
d_b, Bicycle Delay [s]	45.00	6.57	22.33
I_b,int, Bicycle LOS Score for Intersection	1.560	2.306	2.013
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Fairlight Dr & Fairmont Cr

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.035

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [m]	30.48	30.48	30.48	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	17	28	25	167	426	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	28	25	167	426	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	6	42	107	13
Total Analysis Volume [veh/h]	17	28	25	167	426	51
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.90	11.07	10.21	0.00	0.00	0.00
Movement LOS	B	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.04	0.02	0.00	0.00
95th-Percentile Queue Length [m/ln]	1.93	1.93	0.32	0.16	0.00	0.00
d_A, Approach Delay [s/veh]	11.76		1.33		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.10					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Fairlight Dr & Fairmont Dr

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.399

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	90.00	30.48	30.48	30.48	30.48	30.48	40.00	30.48	30.48	20.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	259	125	78	6	78	167	47	78	106	127	151	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	125	78	6	78	167	47	78	106	127	151	23
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	31	20	2	20	42	12	20	27	32	38	6
Total Analysis Volume [veh/h]	259	125	78	6	78	167	47	78	106	127	151	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	9	15	0	9	15	0
Maximum Green [s]	30	31	0	0	31	0	12	21	0	12	21	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	1.0	2.2	0.0	0.0	2.2	0.0	2.0	2.1	0.0	2.0	2.1	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	15	0	0	7	0	0	7	0	0	10	0
Pedestrian Clearance [s]	0	15	0	0	23	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.7	0.0	0.0	3.7	0.0	3.0	3.6	0.0	3.0	3.6	0.0
Minimum Recall	No	No			No		No	No		No	No	
Maximum Recall	No	No			No		No	Yes		No	Yes	
Pedestrian Recall	No	Yes			Yes		No	Yes		No	Yes	
Detector Location [m]	4.0	4.0	0.0	0.0	2.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0
Detector Length [m]	6.0	6.0	0.0	0.0	4.0	0.0	6.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	92	92	92	92	92	92	92	92	92
L, Total Lost Time per Cycle [s]	5.70	5.70	5.70	5.60	5.60	5.60	5.60	5.60	5.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.70	3.70	0.00	3.60	3.60	0.00	3.60	3.60
g_i, Effective Green Time [s]	46	46	30	35	21	21	35	23	23
g / C, Green / Cycle	0.50	0.50	0.33	0.38	0.23	0.23	0.38	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.22	0.13	0.17	0.04	0.05	0.07	0.10	0.04	0.04
s, saturation flow rate [veh/h]	1182	1576	1501	1228	1683	1431	1256	3204	1575
c, Capacity [veh/h]	565	785	532	545	386	328	548	816	401
d1, Uniform Delay [s]	13.75	13.23	24.87	18.29	28.55	29.40	19.31	26.40	26.44
k, delay calibration	0.21	0.11	0.11	0.50	0.50	0.50	0.20	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.12	0.17	0.65	0.31	1.18	2.62	0.40	0.36	0.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.26	0.47	0.09	0.20	0.32	0.23	0.14	0.15
d, Delay for Lane Group [s/veh]	14.87	13.41	25.53	18.60	29.73	32.02	19.70	26.76	27.22
Lane Group LOS	B	B	C	B	C	C	B	C	C
Critical Lane Group	Yes	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.23	2.34	4.38	0.67	1.49	2.15	1.84	1.00	1.07
50th-Percentile Queue Length [m/ln]	24.60	17.83	33.36	5.13	11.38	16.40	14.04	7.62	8.15
95th-Percentile Queue Length [veh/ln]	5.81	4.21	7.81	1.21	2.69	3.87	3.32	1.80	1.93
95th-Percentile Queue Length [m/ln]	44.28	32.10	59.51	9.23	20.49	29.52	25.28	13.71	14.67

Movement, Approach, & Intersection Results

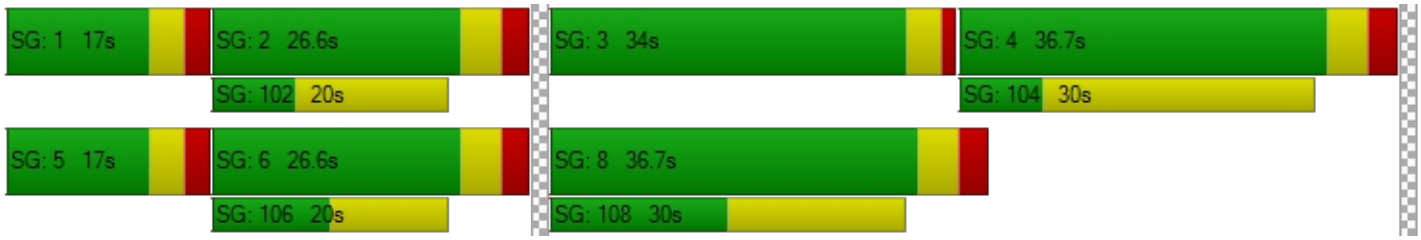
d_M, Delay for Movement [s/veh]	14.87	13.41	13.41	25.53	25.53	25.53	18.60	29.73	32.02	19.70	26.87	27.22
Movement LOS	B	B	B	C	C	C	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	14.23			25.53			28.52			23.87		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	21.49											
Intersection LOS	C											
Intersection V/C	0.399											

Other Modes

g_Walk,mi, Effective Walk Time [s]	21.0	24.0	11.0	19.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.19	24.93	35.44	28.75
I_p,int, Pedestrian LOS Score for Intersection	2.380	2.070	2.793	2.446
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	677	677	459	459
d_b, Bicycle Delay [s]	20.03	20.03	27.19	27.19
I_b,int, Bicycle LOS Score for Intersection	2.433	1.974	1.941	1.725
Bicycle LOS	B	A	A	A

Sequence

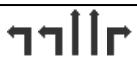
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: 22nd Street & Confederation Drive

Control Type:	Signalized	Delay (sec / veh):	155.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.831

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	2	0	1	1	0	0	0	0	0	2	0	0
Entry Pocket Length [m]	50.00	30.48	50.00	80.00	30.48	30.48	30.48	30.48	30.48	100.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	50.00			50.00			50.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	No			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	204	309	81	473	427	145	108	920	251	398	842	808
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	309	81	473	427	145	108	920	251	398	842	808
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	51	77	20	118	107	36	27	230	63	100	211	202
Total Analysis Volume [veh/h]	204	309	81	473	427	145	108	920	251	398	842	808
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	80.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	0	35	0	15	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	0.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.3	0.0	0.0	3.3	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Split [s]	0	24	0	0	26	0	21	39	0	21	39	0
Vehicle Extension [s]	3.0	4.5	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	23	0	0	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.6	0.0	0.0	4.6	0.0	3.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	Yes		No	Yes	
Pedestrian Recall		No			No		No	No		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	4.0	4.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	114	114	114	114	114	114	114	114	114	114	114	114	114
L, Total Lost Time per Cycle [s]	6.60	6.60	6.60	6.60	6.60	6.60	6.60	5.00	6.20	6.20	5.00	6.20	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.00	4.20	4.20	3.00	4.20	4.20
g_i, Effective Green Time [s]	15	15	15	15	19	19	19	9	36	36	15	42	42
g / C, Green / Cycle	0.13	0.13	0.13	0.13	0.17	0.17	0.17	0.08	0.31	0.31	0.13	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.10	0.05	0.14	0.16	0.16	0.06	0.18	0.16	0.12	0.24	0.51
s, saturation flow rate [veh/h]	1781	1850	1702	1589	3459	1870	1710	1781	5094	1589	3459	3560	1589
c, Capacity [veh/h]	240	250	230	214	589	318	291	136	1598	499	457	1316	587
d1, Uniform Delay [s]	47.06	47.04	47.51	44.95	45.47	46.71	46.72	51.78	32.77	31.88	48.52	29.68	35.94
k, delay calibration	0.19	0.19	0.19	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering 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	1.00
d2, Incremental Delay [s]	6.23	5.90	8.89	1.89	2.68	16.31	17.75	10.81	1.53	3.64	5.62	2.42	687.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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	1.00

Lane Group Results

X, volume / capacity	0.69	0.69	0.76	0.38	0.80	0.94	0.94	0.80	0.58	0.50	0.87	0.64	1.38
d, Delay for Lane Group [s/veh]	53.30	52.93	56.40	46.83	48.15	63.02	64.47	62.58	34.29	35.53	54.14	32.10	723.19
Lane Group LOS	D	D	E	D	D	E	E	E	C	D	D	C	F
Critical Lane Group	No	No	Yes	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.92	5.06	5.31	2.20	6.62	9.74	9.03	3.43	7.26	6.11	5.88	9.83	127.98
50th-Percentile Queue Length [m/ln]	37.48	38.53	40.42	16.77	50.41	74.23	68.80	26.17	55.33	46.54	44.79	74.88	975.22
95th-Percentile Queue Length [veh/ln]	8.56	8.75	9.08	3.96	10.83	14.86	13.96	6.18	11.68	10.16	9.85	14.97	179.44
95th-Percentile Queue Length [m/ln]	65.20	66.64	69.21	30.18	82.55	113.23	106.34	47.11	89.00	77.42	75.09	114.05	1367.30

Movement, Approach, & Intersection Results

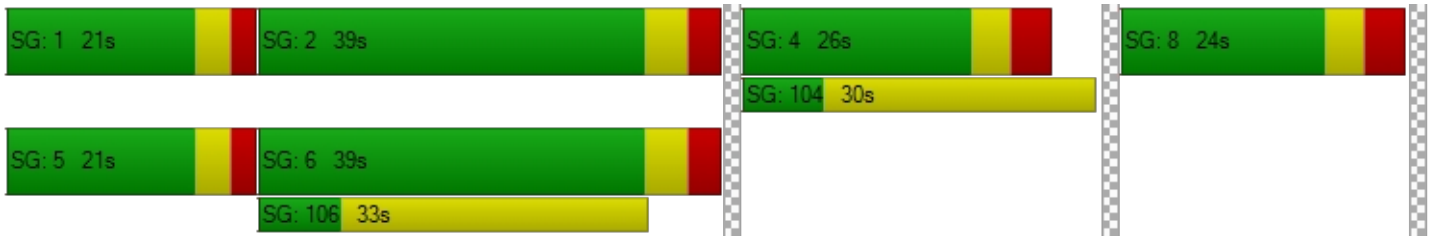
d_M, Delay for Movement [s/veh]	53.24	54.88	46.83	48.15	63.46	64.47	62.58	34.29	35.53	54.14	32.10	723.19
Movement LOS	D	D	D	D	E	E	E	C	D	D	C	F
d_A, Approach Delay [s/veh]	53.22			56.67			36.92			309.04		
Approach LOS	D			E			D			F		
d_I, Intersection Delay [s/veh]	155.25											
Intersection LOS	F											
Intersection V/C	0.831											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	8.0	11.0	0.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	49.28	46.53	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.134	3.179	0.000
Crosswalk LOS	F	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	305	340	575	575
d_b, Bicycle Delay [s]	40.93	39.25	28.92	28.92
I_b,int, Bicycle LOS Score for Intersection	2.050	2.422	2.263	3.249
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: 22nd St & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.642

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	40.00	30.48	30.48	70.00	30.48	30.48	130.00	30.48	30.48	150.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	157	379	351	192	241	216	179	760	192	230	1118	303
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	379	351	192	241	216	179	760	192	230	1118	303
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	95	88	48	60	54	45	190	48	58	280	76
Total Analysis Volume [veh/h]	157	379	351	192	241	216	179	760	192	230	1118	303
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	64.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	10	0	7	10	0	7	15	0	7	15	0
Maximum Green [s]	10	35	0	10	35	0	10	35	0	15	35	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.7	0.0	3.0	3.7	0.0
All red [s]	1.0	3.8	0.0	1.0	3.8	0.0	1.0	2.5	0.0	2.0	2.5	0.0
Split [s]	20	54	0	13	47	0	12	33	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	32	0	0	32	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.1	0.0	2.0	5.1	0.0	2.0	4.2	0.0	3.0	4.2	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	Yes		No	Yes	
Detector Location [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	112	112	112	112	112	112	112	112	112	112	112	112
L, Total Lost Time per Cycle [s]	7.10	7.10	7.10	7.10	7.10	7.10	6.20	6.20	6.20	6.20	6.20	6.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.10	5.10	0.00	5.10	5.10	0.00	4.20	4.20	0.00	4.20	4.20
g_i, Effective Green Time [s]	42	28	28	42	29	29	54	42	42	54	42	42
g / C, Green / Cycle	0.38	0.25	0.25	0.38	0.26	0.26	0.49	0.38	0.38	0.49	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.14	0.11	0.22	0.19	0.13	0.14	0.40	0.26	0.26	0.28	0.27	0.27
s, saturation flow rate [veh/h]	1153	3560	1589	1030	1870	1589	448	1870	1742	808	3560	1673
c, Capacity [veh/h]	428	894	399	430	491	417	278	708	659	352	1347	633
d1, Uniform Delay [s]	24.57	35.15	40.31	24.72	34.96	35.25	22.42	29.36	29.38	21.92	29.71	29.73
k, delay calibration	0.38	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering 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
d2, Incremental Delay [s]	1.84	0.32	6.89	0.73	0.76	1.00	11.48	5.75	6.21	9.48	3.37	7.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression 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

Lane Group Results

X, volume / capacity	0.37	0.42	0.88	0.45	0.49	0.52	0.64	0.70	0.70	0.65	0.72	0.72
d, Delay for Lane Group [s/veh]	26.42	35.47	47.20	25.45	35.73	36.25	33.90	35.11	35.59	31.41	33.08	36.89
Lane Group LOS	C	D	D	C	D	D	C	D	D	C	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.05	4.37	9.97	3.63	5.65	5.13	3.50	12.14	11.41	4.40	11.55	11.55
50th-Percentile Queue Length [m/ln]	23.26	33.33	75.97	27.65	43.04	39.05	26.67	92.48	86.96	33.50	87.98	87.97
95th-Percentile Queue Length [veh/ln]	5.50	7.80	15.15	6.53	9.55	8.84	6.30	17.85	16.95	7.83	17.12	17.12
95th-Percentile Queue Length [m/ln]	41.87	59.46	115.43	49.77	72.74	67.34	48.01	136.02	129.18	59.70	130.45	130.44

Movement, Approach, & Intersection Results

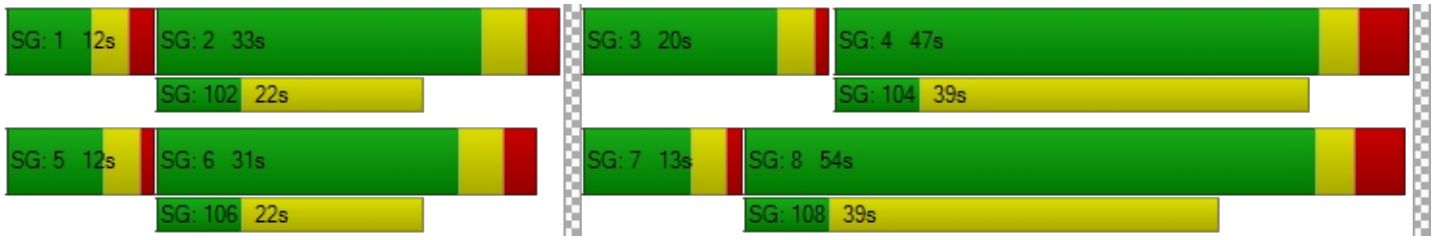
d_M, Delay for Movement [s/veh]	26.42	35.47	47.20	25.45	35.73	36.25	33.90	35.28	35.59	31.41	33.59	36.89
Movement LOS	C	D	D	C	D	D	C	D	D	C	C	D
d_A, Approach Delay [s/veh]	38.51			32.86			35.11			33.89		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	35.01											
Intersection LOS	D											
Intersection V/C	0.642											

Other Modes

g_Walk,mi, Effective Walk Time [s]	19.0	19.0	11.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.61	38.61	45.54	45.54
I_p,int, Pedestrian LOS Score for Intersection	3.075	2.952	3.212	3.340
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	838	713	479	443
d_b, Bicycle Delay [s]	18.92	23.21	32.41	33.95
I_b,int, Bicycle LOS Score for Intersection	2.291	2.095	2.493	2.468
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Fairlight Dr & Diefenbaker Dr

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.526

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [m]	30.48	30.48	50.00	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Curb Present	Yes		Yes		Yes	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	74	662	599	93	565	388
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	662	599	93	565	388
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	166	150	23	141	97
Total Analysis Volume [veh/h]	74	662	599	93	565	388
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	4	0	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	Lead	-	-	-
Minimum Green [s]	10	0	9	15	15	0
Maximum Green [s]	30	0	20	30	30	0
Amber [s]	3.5	0.0	3.5	3.5	3.5	0.0
All red [s]	1.9	0.0	2.1	1.9	1.9	0.0
Split [s]	29	0	29	61	32	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	14	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	Yes	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.4	0.0	3.6	3.4	3.4	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	Yes	Yes	
Pedestrian Recall	No		No	No	Yes	
Detector Location [m]	0.0	0.0	25.0	0.0	0.0	0.0
Detector Length [m]	0.0	0.0	6.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	0.00	0.00	4.00	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	3.40	3.40	3.40
g_i, Effective Green Time [s]	0	0	56	56	27	27
g / C, Green / Cycle	0.00	0.00	0.62	0.62	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.11	0.26	0.57	0.03	0.18	0.27
s, saturation flow rate [veh/h]	698	2532	1051	3204	3204	1431
c, Capacity [veh/h]	80	0	685	1980	947	423
d1, Uniform Delay [s]	45.00	0.00	15.97	6.77	27.11	30.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	137.48	0.00	17.03	0.04	2.80	37.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	10000.00	0.87	0.05	0.60	0.92
d, Delay for Lane Group [s/veh]	182.48	0.00	33.00	6.82	29.91	68.45
Lane Group LOS	F	F	C	A	C	E
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.89	0.00	9.62	0.33	5.42	12.28
50th-Percentile Queue Length [m/ln]	37.23	0.00	73.31	2.53	41.29	93.59
95th-Percentile Queue Length [veh/ln]	8.51	0.00	14.71	0.60	9.24	18.03
95th-Percentile Queue Length [m/ln]	64.85	0.00	112.08	4.55	70.39	137.38

Movement, Approach, & Intersection Results

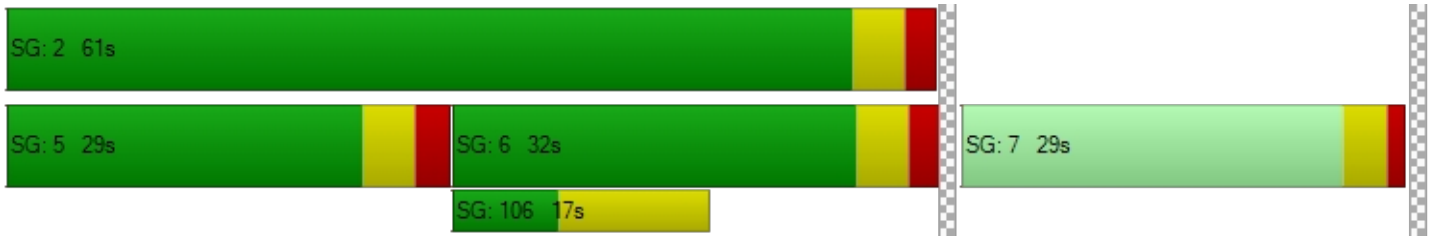
d_M, Delay for Movement [s/veh]	182.48	0.00	33.00	6.82	29.91	68.45
Movement LOS	F	A	C	A	C	E
d_A, Approach Delay [s/veh]	18.35		29.48		45.60	
Approach LOS	B		C		D	
d_I, Intersection Delay [s/veh]	32.49					
Intersection LOS	C					
Intersection V/C	0.526					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	0.00	34.67
I_p,int, Pedestrian LOS Score for Intersection	3.174	0.000	2.756
Crosswalk LOS	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1236	591
d_b, Bicycle Delay [s]	45.00	6.57	22.33
I_b,int, Bicycle LOS Score for Intersection	1.560	2.131	2.457
Bicycle LOS	A	B	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Fairlight Dr & Fairmont Cr

Control Type:	Two-way stop	Delay (sec / veh):	18.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.190

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [m]	30.48	30.48	30.48	30.48	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28		48.28		48.28	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	69	62	20	192	686	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	62	20	192	686	48
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	16	5	48	172	12
Total Analysis Volume [veh/h]	69	62	20	192	686	48
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.12	0.04	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	18.57	15.36	11.88	0.00	0.00	0.00
Movement LOS	C	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.31	1.31	0.03	0.02	0.00	0.00
95th-Percentile Queue Length [m/ln]	9.95	9.95	0.26	0.13	0.00	0.00
d_A, Approach Delay [s/veh]	17.05		1.12		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.29					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Fairlight Dr & Fairmont Dr

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.623

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [m]	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [m]	90.00	30.48	30.48	30.48	30.48	30.48	40.00	30.48	30.48	20.00	30.48	30.48
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [m]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [km/h]	48.28			48.28			48.28			48.28		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	494	151	44	41	122	93	52	51	157	278	400	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	494	151	44	41	122	93	52	51	157	278	400	39
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	124	38	11	10	31	23	13	13	39	70	100	10
Total Analysis Volume [veh/h]	494	151	44	41	122	93	52	51	157	278	400	39
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	0	10	0	9	15	0	9	15	0
Maximum Green [s]	30	31	0	0	31	0	12	21	0	12	21	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	3.0	3.5	0.0	3.0	3.5	0.0
All red [s]	1.0	2.2	0.0	0.0	2.2	0.0	2.0	2.1	0.0	2.0	2.1	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	15	0	0	7	0	0	7	0	0	10	0
Pedestrian Clearance [s]	0	15	0	0	23	0	0	13	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			Yes			Yes	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.7	0.0	0.0	3.7	0.0	3.0	3.6	0.0	3.0	3.6	0.0
Minimum Recall	No	No			No		No	No		No	No	
Maximum Recall	No	No			No		No	Yes		No	Yes	
Pedestrian Recall	No	Yes			Yes		No	Yes		No	Yes	
Detector Location [m]	4.0	4.0	0.0	0.0	2.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0
Detector Length [m]	6.0	6.0	0.0	0.0	4.0	0.0	6.0	0.0	0.0	4.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	108	108	108	108	108	108	108	108	108
L, Total Lost Time per Cycle [s]	5.70	5.70	5.70	5.60	5.60	5.60	5.60	5.60	5.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.70	3.70	0.00	3.60	3.60	0.00	3.60	3.60
g_i, Effective Green Time [s]	59	59	30	38	21	21	38	26	26
g / C, Green / Cycle	0.54	0.54	0.28	0.35	0.19	0.19	0.35	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.38	0.12	0.17	0.05	0.03	0.11	0.22	0.09	0.09
s, saturation flow rate [veh/h]	1289	1619	1496	1055	1683	1431	1272	3204	1608
c, Capacity [veh/h]	649	882	453	399	326	277	516	764	384
d1, Uniform Delay [s]	16.22	12.76	33.83	23.93	36.27	39.51	27.64	34.53	34.57
k, delay calibration	0.50	0.11	0.13	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.65	0.13	1.39	0.68	1.02	8.37	4.06	1.45	2.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.22	0.57	0.13	0.16	0.57	0.54	0.38	0.39
d, Delay for Lane Group [s/veh]	24.87	12.89	35.22	24.61	37.30	47.88	31.70	35.97	37.50
Lane Group LOS	C	B	D	C	D	D	C	D	D
Critical Lane Group	Yes	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.28	2.43	5.96	0.97	1.22	4.41	6.17	3.36	3.57
50th-Percentile Queue Length [m/ln]	70.71	18.50	45.40	7.38	9.26	33.60	47.04	25.57	27.19
95th-Percentile Queue Length [veh/ln]	14.28	4.37	9.96	1.74	2.19	7.85	10.25	6.04	6.42
95th-Percentile Queue Length [m/ln]	108.78	33.29	75.90	13.28	16.67	59.84	78.09	46.03	48.94

Movement, Approach, & Intersection Results

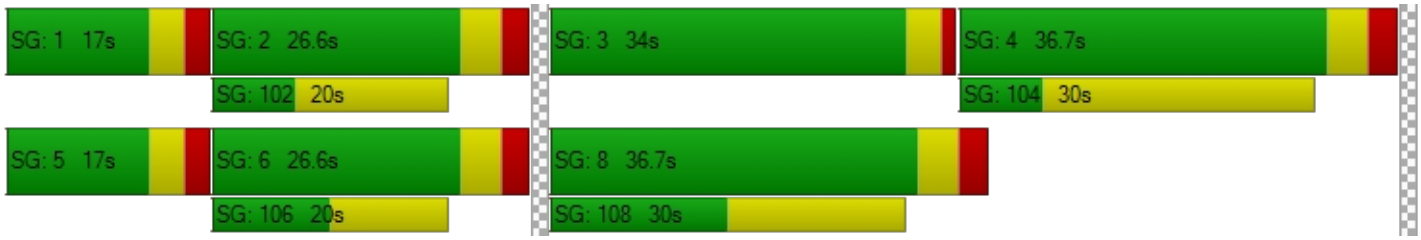
d_M, Delay for Movement [s/veh]	24.87	12.89	12.89	35.22	35.22	35.22	24.61	37.30	47.88	31.70	36.39	37.50
Movement LOS	C	B	B	D	D	D	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	21.48			35.22			41.15			34.63		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	30.88											
Intersection LOS	C											
Intersection V/C	0.623											

Other Modes

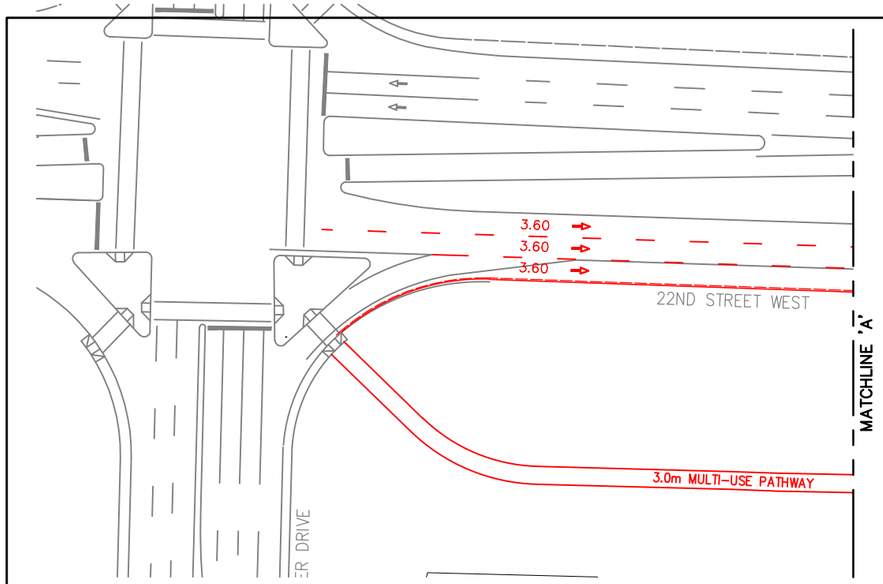
g_Walk,mi, Effective Walk Time [s]	21.0	24.0	11.0	19.0
M_corner, Corner Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [m²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	35.15	32.78	43.68	36.78
I_p,int, Pedestrian LOS Score for Intersection	2.676	2.122	2.996	2.628
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	573	573	388	388
d_b, Bicycle Delay [s]	27.56	27.56	35.15	35.15
I_b,int, Bicycle LOS Score for Intersection	2.807	1.982	1.989	1.954
Bicycle LOS	C	A	A	A

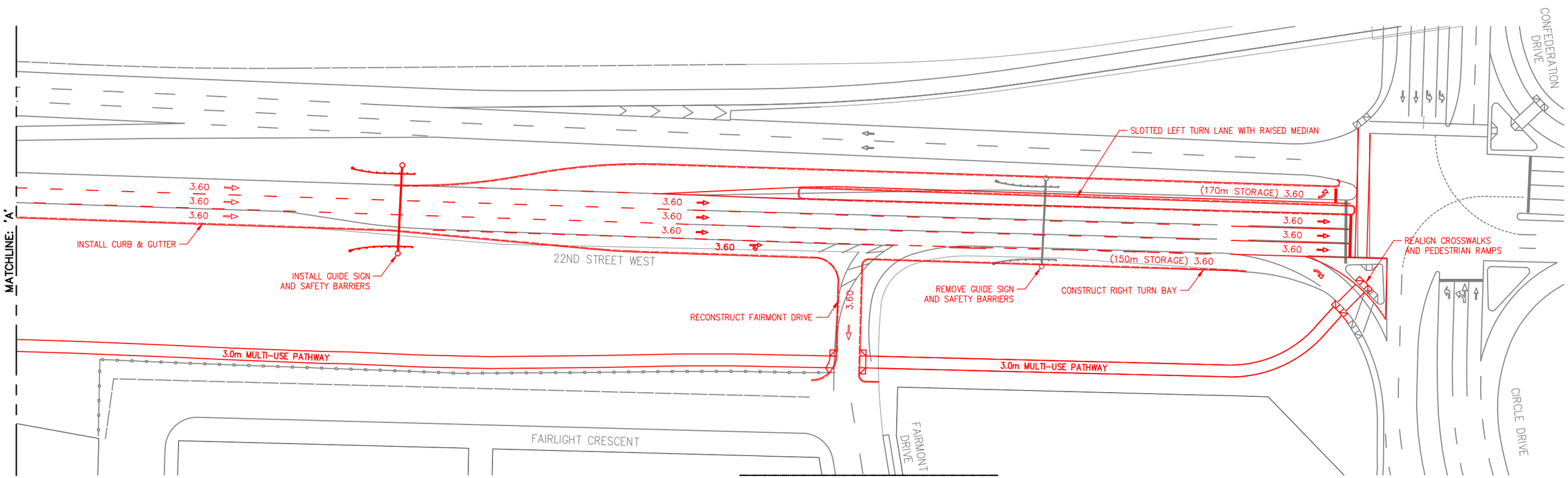
Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix C – Proposed Traffic Plan





SEE DWG: 249-0128-104

FUNCTIONAL

CHECKED BY:	CHECKED BY:
DATE	DATE
DRAWN BY SJK	DATE 2024-JUN-17

City of Saskatoon Transportation

FUNCTIONAL

22ND STREET WEST

DIEFNBAKER DRIVE TO CONFEDERATION DRIVE

RECOMMENDED OPTION

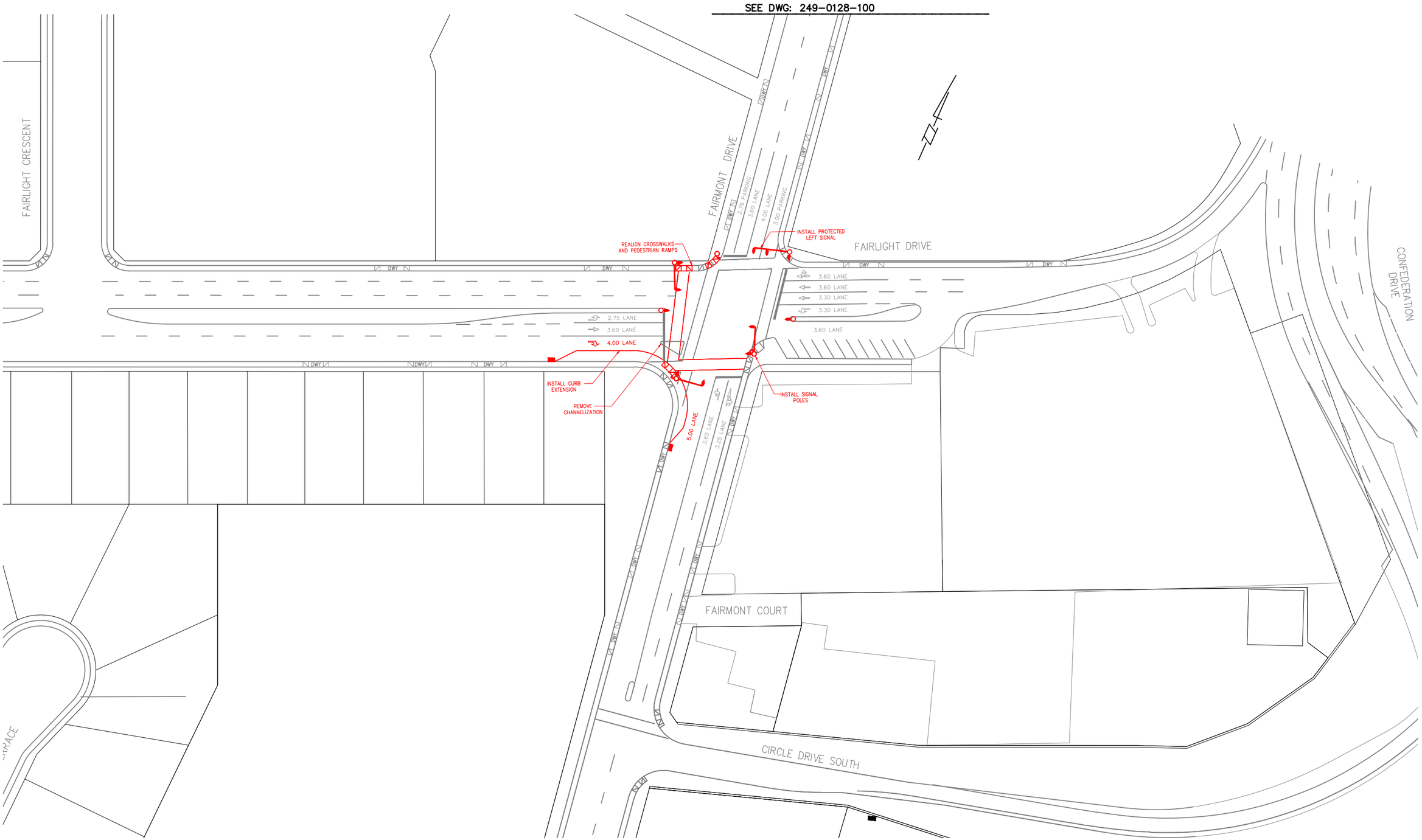
ENGINEER

SCALES : HOR. 1:1000 VERT. 1:1000

DATE

SHEET NO. 1 OF 1

PLAN NO. 249-0128-100r001



FUNCTIONAL

CHECKED BY:	CHECKED BY:
DATE	DATE
DRAWN BY S.K	DATE 2024-JUN-17

City of Saskatoon Transportation

FUNCTIONAL

FAIRLIGHT DRIVE & FAIRMONT DRIVE

RECOMMENDED PLAN

ENGINEER

SCALES : HOR. 1:1000 VERT. 1:1000

DATE

SHEET NO. 1 OF 1

PLAN NO. 249-0128-104r001