Spring Garden West
Mixed Use Development
Traffic Impact Study

Prepared for:

Dexel Developments

March 24, 2022

Status: Final Report

Project No. 212010

HARBOURSIDE
Transportation Consultants

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1.0 Introduction

Dexel Developments (Dexel) has plans to build Spring Garden West (SGW), a mixed-use development, on Spring Garden Road in Halifax, Nova Scotia. A traffic impact study was completed in 2016 by Ekistics Planning & Design to support the development application for the proposed mixed-use development (HRM Case 20218). Since the completion of the original traffic impact study, there have been a number of adjacent developments that are anticipated to be constructed within a similar timeframe as the proposed Spring Garden West development. In addition, significant changes have been made to the development's proposed land uses and site access. Halifax Regional Municipality (HRM) has requested a revised traffic impact study that fully evaluates the impacts of the proposed Spring Garden West development with consideration of the surrounding developments.

Harbourside Transportation Consultants was retained by Dexel to prepare a revised traffic impact study for the proposed development. The traffic impact study will address the required items outlined in HRM's additional information request for a traffic impact study dated November 6, 2019.

The traffic impact study was completed in accordance with HRM's *Guidelines for the Preparation of Transportation Impact Studies (8th revision)*.

2.0 Study Context

2.1 Study Area Description

The proposed development is bound by Robie Street, Spring Garden Road and Carlton Street. The study area for the traffic impact study, shown in Figure 1, includes the segment of Spring Garden Road between Robie Street and Summer Street and the segment of Robie Street between Spring Garden Road and College Street.

Spring Garden Road is a collector roadway that runs east-west between Robie Street and Barrington Street. Spring Garden Road has one vehicle lane in each direction and sidewalks on both sides of the roadway. On-street parking is provided on both sides of Spring Garden Road.

Robie Street is a major collector roadway that runs north-south throughout the Halifax peninsula from the north end of Halifax near the MacKay Bridge to the south end of Halifax. In the vicinity of the development, Robie Street has a has two vehicle lanes in each direction divided by a landscaped median and sidewalks on both sides of the roadway. The posted speed limit on Robie Street is 50 km/hr. On-street parking is provided on both sides of Robie Street.

Carlton Street is a local roadway that runs north-south between the Camp Hill Cemetery and College Street. Carlton Street has one vehicle lane in each direction and sidewalks on both sides of the roadway. On-street parking is provided on both sides of Carlton Street.

Summer Street is a local roadway that runs north-south between Bell Road and University Avenue. Summer Street has one vehicle lane in each direction divided by a landscaped median and sidewalks on both sides of the roadway. On-street parking is provided on both sides of Summer Street.

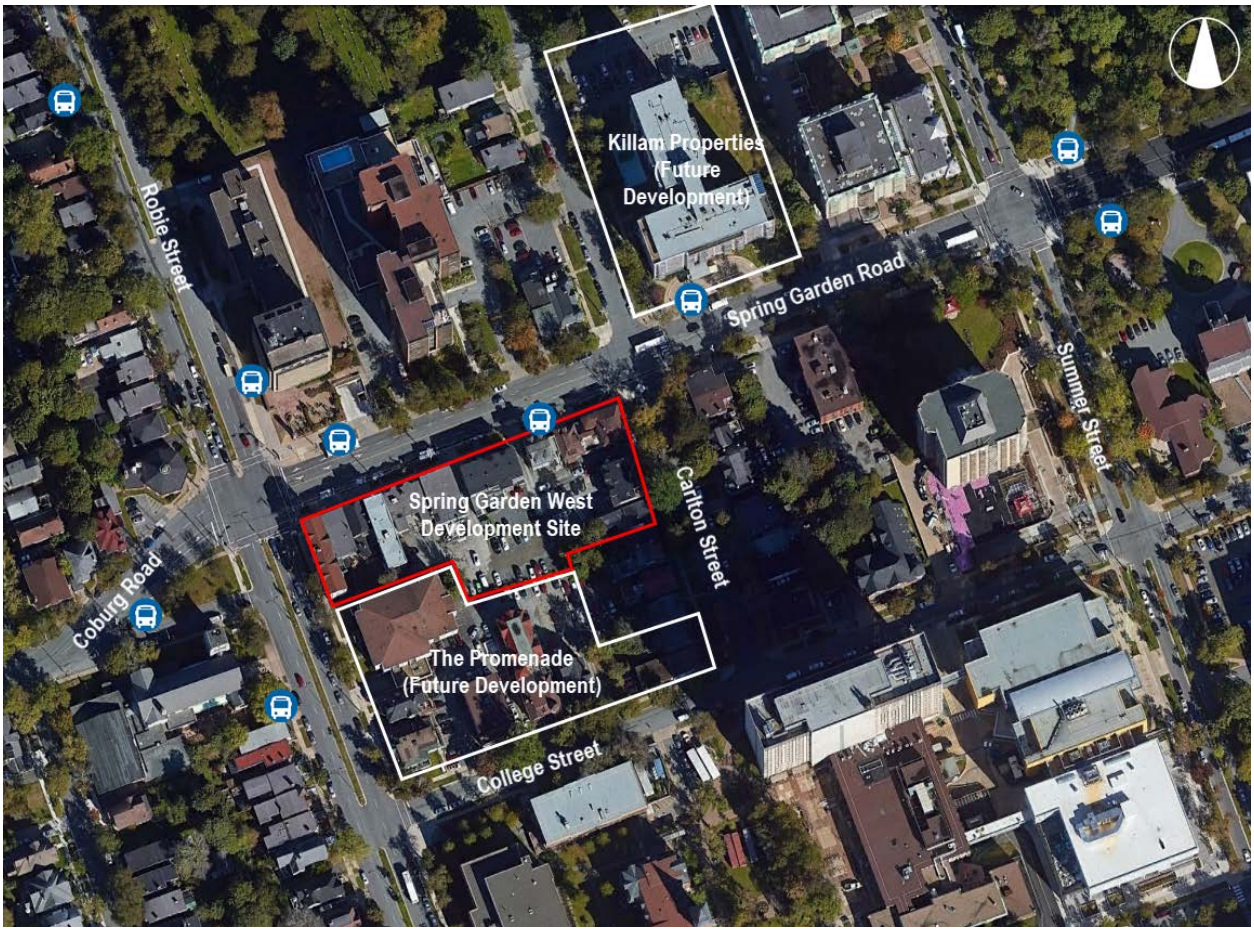


Figure 1: Study Area

There are three intersections in the study area:

1. Robie Street and Coburg Road/Spring Garden Road
2. Spring Garden Road and Carlton Street
3. Spring Garden Road and Summer Street

Recent traffic volumes at the study intersections were obtained from the *Traffic Impact Study The Promenade* completed by WSP Canada Inc. in May 2020. The existing traffic volumes are illustrated in Appendix A.

2.2 Transit

Along the frontage of the development Spring Garden Road is serviced by three Halifax Transit routes (1 –Spring Garden, 4–Universities and 8–Sackville) and Robie Street is serviced by two Halifax Transit routes (7A/B–Robie and 90–Larry Uteck). In addition, east of Summer Street the Spring Garden Road corridor is serviced by an additional ten Halifax Transit routes (shown in Figure 2).

There are a number of bus stops located on Spring Garden Road and Robie Street. The bus stops have accessibility for pedestrians from the development site and there are sidewalks on both sides of the roadways and marked crosswalks at the study intersections.

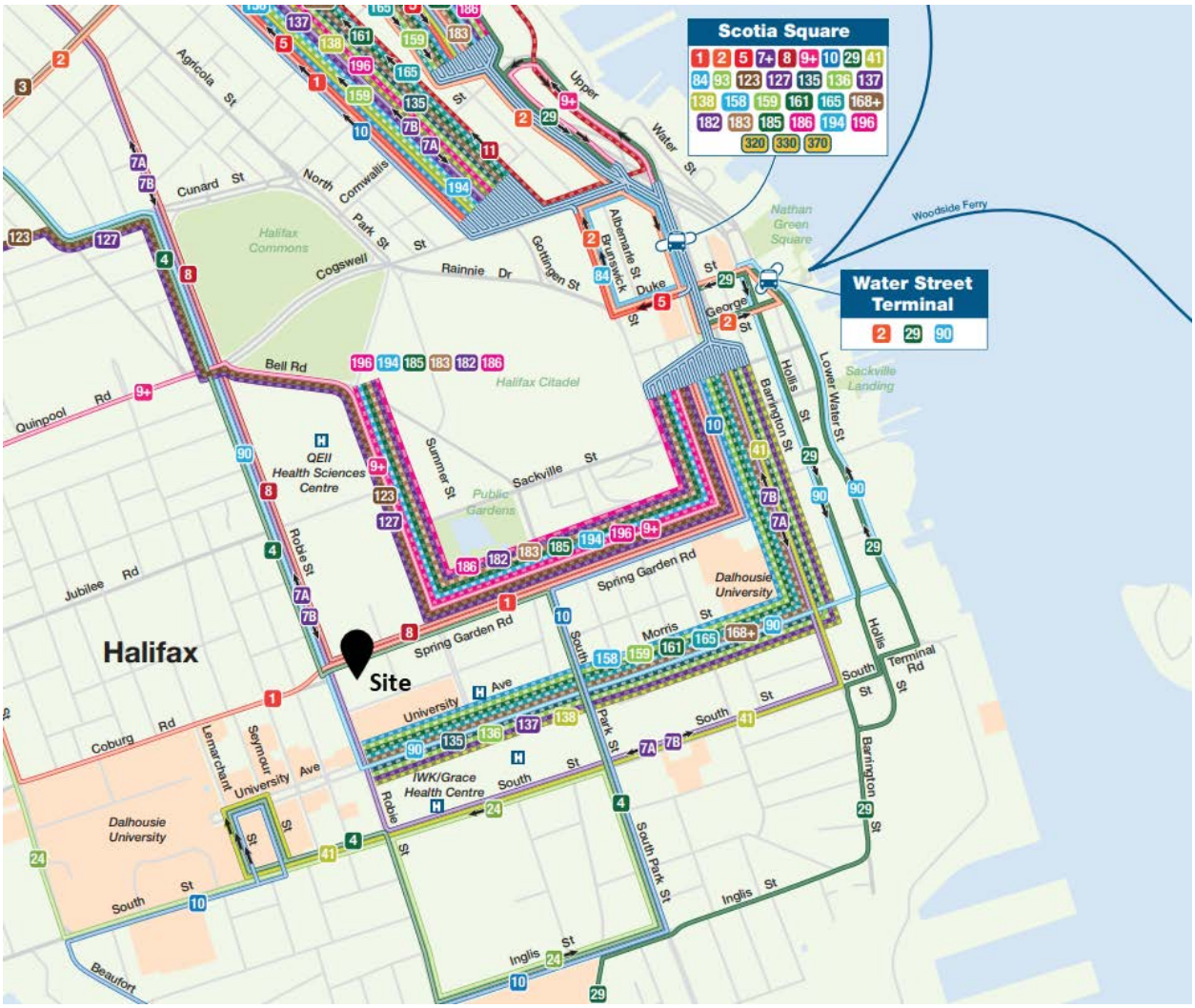


Figure 2: Halifax Transit Route Map (November 2021)

2.3 Existing Site Land Uses

The proposed development encompasses eleven existing properties. There are three properties with frontage on Carlton Street: 1494 Carlton Street/5950 Spring Garden Road, 1480-84 Carlton Street and 1478 Carlton Street. These buildings will not be affected by the proposed development.

There are eight buildings with frontage on Spring Garden Road that will be demolished. These properties include a total of 28 residential units, approximately 6,800 square feet of retail space, 8,555 square feet of restaurant space and 3,800 square feet of office. The existing land uses for each property are summarized in Table 1.

Existing trips that will be removed from the site were quantified using trip generation rates from the *Trip Generation Manual, 10th edition* published by the Institute of Transportation Engineers (ITE). The weekday morning (AM) and afternoon (PM) peak hour trip generation estimates for the existing site are summarized in Table 2.

The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes such as transit and active transportation. The *Integrated Mobility Plan* (IMP) provides mode share information for different areas of HRM: including the regional centre, inner suburban area and outer suburban area. Spring Garden Road is located in the regional centre area where high transit and active transportation usage are observed. The 2011 Census indicated a non-auto mode share of 50 percent in the regional centre and the IMP set the 2031 target that at least 60 percent of trips will be made using non-auto modes. A non-auto mode share reduction of 60 percent was applied.

The existing site generates approximately 45 two-way vehicle trips in the morning peak hour (24 trips entering, 21 trips exiting) and 50 two-way vehicle trips in the afternoon peak hour (28 trips entering, 22 trips exiting).

Table 1: Existing Land Uses to be Removed

Location	Land Use	Residential	Retail	Restaurant	Office
5994 Spring Garden Rd	Residential, Subway Restaurant	5 Units	-	1,600 ft^2	-
5990 Spring Garden Rd	Charger Gourmet Burgers & Poutine, Unknown Commercial	-	1, 200 ft^2	1, 200 ft^2	-
5984 Spring Garden Rd	Residential, Efes Turkish Cuisine	2 Units	-	1, 200 ft^2	-
5982 Spring Garden Rd	Mary's Place Café, Tax Express, Unknown Commercial	-	2,000 ft^2	2,000 ft^2	2,000 ft^2
5980 Spring Garden Rd	Kara's Urban Day Spa	-	3,600 ft^2	-	-
5970 Spring Garden Rd	Residential, Xtreme Pizza, Jean's Chinese Restaurant	6 Units	-	2,555 ft^2	-
5960 Spring Garden Rd	Residential	13 Units	-	-	-
5954 Spring Garden Rd	Residential, Stevenson Financial	2 Units	-	-	1,800 ft^2
Totals		**28 Units**	**6,800 ft^2**	**8,555 ft^2**	**3,800 ft^2**

Table 2: Existing Site - Trip Generation Estimates for the Weekday Peak Hours

Land Use [1]	Units [2]	Trip Generation Rates [3]						Trips Generated [4]					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Rate	In	Out	Rate	In	Out	Total	In	Out	Total	In	Out
220 - Multifamily Housing (Low-Rise)	28	0.46	23%	77%	0.56	63%	37%	13	3	10	16	10	6
710 - General Office Building	3.80	1.16	86%	14%	1.15	16%	84%	5	4	1	5	1	4
820 - Shopping Centre	3.20	0.94	62%	38%	3.81	48%	52%	4	2	2	13	6	7
918 - Hair Salon	3.60	1.21	83%	17%	1.45	17%	83%	5	4	1	6	1	5
932 - High-Turnover (Sit-Down) Restaurant	8.56	9.94	55%	45%	9.77	62%	38%	86	47	39	84	52	32
							Trip Generation Estimates	**113**	**60**	**53**	**124**	**70**	**54**
							Reduction for Non-Auto Trips (60%)	68	36	32	74	42	32
							Adjusted Trip Generation Estimates	**45**	**24**	**21**	**50**	**28**	**22**

Notes:

1. Land use codes are from the Trip Generation Manual, 10th edition, Institute of Transportation Engineers, 2017.
2. Units are in number of units for residential land uses and 1000 square feet for commercial and office land uses.
3. Average rate weekday, peak hour of adjacent street traffic. Rates are in 'vehicles per hour per unit.'
4. Trips generated are in 'vehicles per hour'.

3.0 Background Traffic Growth: Adjacent Developments

A five-year study horizon (2026) was selected for the traffic impact study. To develop future traffic forecasts in the study area, consideration was given to surrounding projects which are anticipated to develop within the study's timeframe. At HRM's request, two approved development projects were included in the background traffic growth:

- Case 20761 – Robie Street, College Street and Carlton Street
- 5885 Spring Garden Road – Killam Properties

Since the background traffic forecasts account for the adjacent developments expected in the study area, no annual background traffic growth rate factor was applied to the existing traffic volumes. The future background traffic volumes are illustrated in Appendix A.

3.1 Case 20761 – Robie Street, College Street and Carlton Street

There are plans for a mixed-use (residential and commercial) development for lands fronting Robie Street, College Street and Carlton Street. The proposed development is known as The Promenade.

A traffic impact study was completed by WSP Canada Inc. in May 2020 in support of the proposed mixed-use development. According to the traffic impact study, the proposed development is expected to include 650 high-rise apartment units, approximately 12,500 square feet of ground floor commercial space, approximately 30,500 square feet of optional underground commercial space, and an underground parking garage consisting of 511 parking spots. Completion of this development is anticipated by 2024.

The Promenade development is expected to generate 146 two-way vehicle trips in the morning peak hour (58 trips entering and 88 trips exiting) and 188 two-way vehicle trips in the afternoon peak hour (111 trips entering and 77 trips exiting). Trips generated by the proposed development were assigned to the roadway network based on WSP's collected turning movement counts and local knowledge of the area considering major trip origins and destinations in the region. Trips were distributed to the North (60%), East (10%), South (20%) and West (10%).

3.2 Proposed addition to 5885 Spring Garden Road – Killam Properties

5885 Spring Garden Road is currently developed with an 11-storey residential building consisting of 201 residential units. In 2015, Halifax and West Community Council approved the addition of an 18-storey tower on the subject site consisting of an additional 104 residential units for a total of 305 residential units with 250 underground parking spaces. The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes such as transit and active transportation. A non-auto mode share reduction of 60 percent was applied based on the IMP target for the regional centre.

The trip generation estimates for the proposed redevelopment of the Killam Properties site were quantified using trip generation rates from the ITE *Trip Generation Manual, 10th edition*. The weekday morning and afternoon peak hour trip generation estimates for the Killam Properties site are summarized in Table 3. The Killam Properties site is expected to generate 24 two-way vehicle trips in the morning peak hour (6 trips entering, 18 trips exiting) and 26 two-way vehicle trips in the afternoon peak hour (16 trips entering, 10 trips exiting).

Table 3: Killam Properties - Trip Generation Estimates for the Weekday Peak Hours

Land Use [1]	Units [2]	Trip Generation Rates [3]						Trips Generated [4]					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Rate	In	Out	Rate	In	Out	Total	In	Out	Total	In	Out
222 - Multifamily Housing (High-Rise)	305	0.31	24%	76%	0.36	61%	39%	95	23	72	110	67	43
221 - Multifamily Housing (High-Rise)	104	0.36	26%	74%	0.44	61%	39%	-37	-9	-28	-46	-28	-18
Trip Generation Estimates								**58**	**14**	**44**	**64**	**39**	**25**
Reduction for Non-Auto Trips (60%)								34	8	26	38	23	15
Adjusted Trip Generation Estimates – Killam Properties								**24**	**6**	**18**	**26**	**16**	**10**

Notes:

1. Land use codes are from the Trip Generation Manual, 10th edition, Institute of Transportation Engineers, 2017.
2. Units are in number of units for residential land uses and 1000 square feet for commercial and office land uses.
3. Average rate weekday, peak hour of adjacent street traffic. Rates are in 'vehicles per hour per unit.'
4. Trips generated are in 'vehicles per hour'.

4.0 Development Proposal

The proposed SGW development will include a mixed use residential and commercial development. The development proposal includes one building with two high rise towers on a shared podium. The development will include approximately 379 units and 16,145 square feet of commercial space. The development proposal includes approximately 350 vehicle parking spaces. The proposed site plan prepared by MacKay-Lyons Sweetapple Architects Limited is shown in Figure 3.

The commercial uses associated with the proposed development have yet to be identified. However, it is anticipated that the commercial uses will consist of similar uses to those observed on the existing site: restaurants, hair salons/spa and retail stores.

4.1 Site Access and Circulation

The access to residential and public parking will be located on Carlton Street. It is anticipated that the majority of vehicles travelling to/from the site will access the development through the underground parking. The site will also include a one-way driveway for passenger drop-off/pick-up and commercial deliveries. The one-way driveway will have an entry on Spring Garden Road and a right-out only exit on Robie Street.

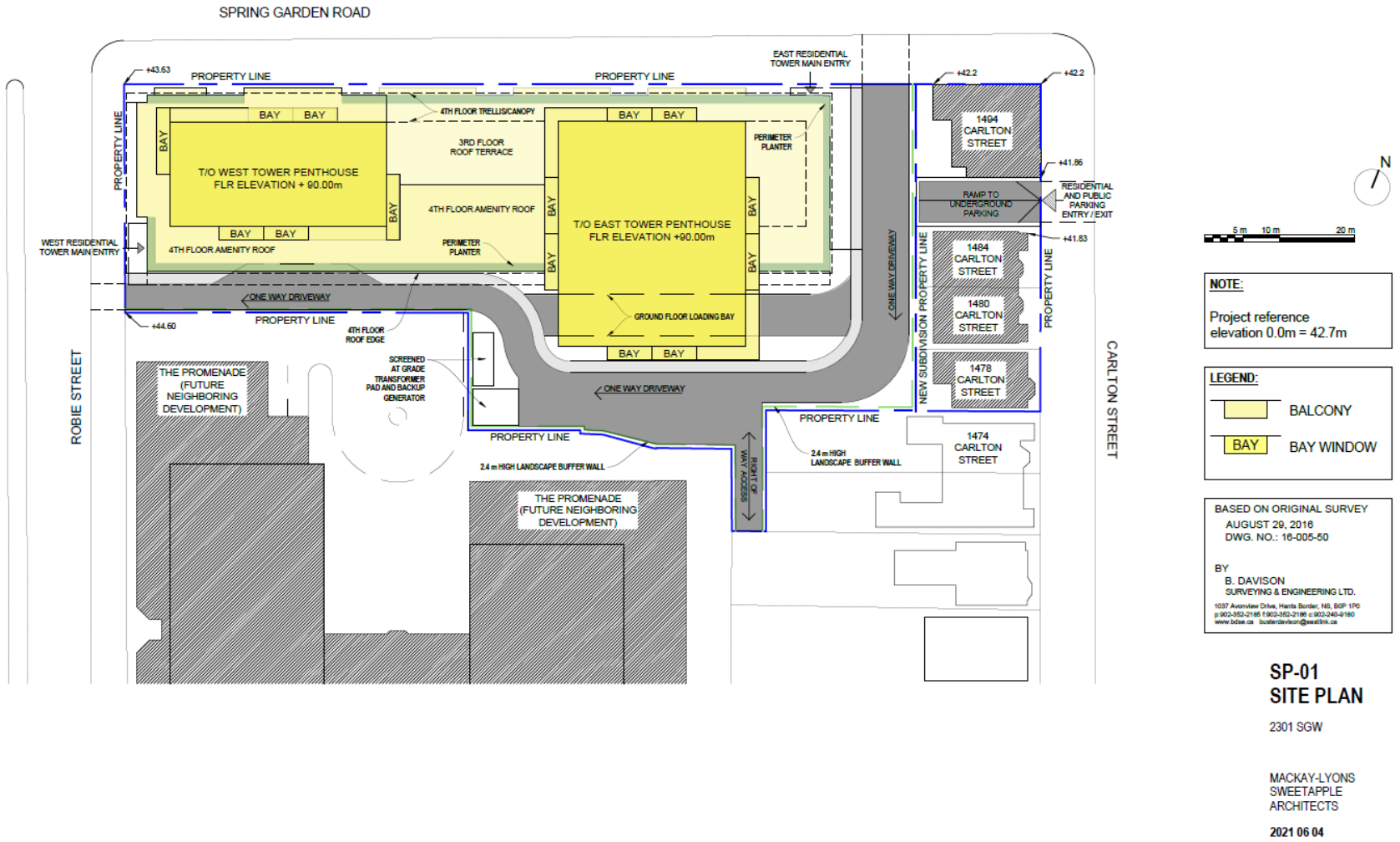


Figure 3: Proposed Site Plan (dated June 04, 2021)

4.2 Trip Generation, Trip Distribution, Modal Split and Traffic Assignment

The trip generation estimates for the proposed residential development were quantified using trip generation rates from the ITE *Trip Generation Manual, 10th edition*. At HRM's request, the proposed values for residential and commercial land uses were increased by 15 percent when calculating the total number of vehicle trips generated by the proposed development and adjacent development to ensure the traffic impact study takes into account the most intensive possible development on the neighboring properties. The increase will also account for potential variations in the commercial uses associated with the proposed developments which have yet to be identified but are anticipated to consist of similar uses to those observed on the existing site: restaurants, hair salons/spa and retail stores.

The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes such as transit and active transportation. A non-auto mode share reduction of 60 percent was applied based on the IMP target for the regional centre. The vehicle trip estimates were also adjusted to reflect existing trips to from the site once the property is redeveloped, these trips will no longer exist.

The weekday morning and afternoon peak hour trip generation estimates for the proposed development are summarized in Table 4. On a typical weekday, the proposed development is expected to generate 47 two-way vehicle trips in the morning peak hour (10 trips entering, 37 trips exiting) and 63 two-way vehicle trips in the afternoon peak hour (39 trips entering, 23 trips exiting).

Table 4: Spring Garden West - Trip Generation Estimates for the Weekday Peak Hours

Land Use [1]	Units [2]	Trip Generation Rates [3]						Trips Generated [4]					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Rate	In	Out	Rate	In	Out	Total	In	Out	Total	In	Out
222 - Multifamily Housing (High-Rise)	436	0.31	24%	76%	0.36	61%	39%	136	33	103	157	96	61
820 - Shopping Centre	10.01	0.94	62%	38%	3.81	48%	52%	10	6	4	39	19	20
932 - High-Turnover (Sit-Down) Restaurant	8.56	9.94	55%	45%	9.77	62%	38%	86	47	39	84	52	32
Trip Generation Estimates								**232**	**86**	**146**	**280**	**167**	**113**
Reduction for Non-Auto Trips (60%)								140	52	88	168	100	68
Reduction for Existing Site Land Uses (See Table 2 for a detailed breakdown of existing trips)								45	24	21	50	28	22
Adjusted Trip Generation Estimates – Spring Garden West								**47**	**10**	**37**	**62**	**39**	**23**

Notes:

1. Land use codes are from the Trip Generation Manual, 10th edition, Institute of Transportation Engineers, 2017.
2. Units are in number of units for residential land uses and 1000 square feet for commercial and office land uses.
3. Average rate weekday, peak hour of adjacent street traffic. Rates are in 'vehicles per hour per unit.'
4. Trips generated are in 'vehicles per hour'.

Trips generated by adjacent background developments and proposed development were assigned and distributed to the roadway network based on the trip distribution summarized in Table 5. The trip distribution was developed in the *Traffic Impact Study - The Promenade* completed by WSP Canada Inc. in May 2020 and is based on collected turning movement counts and local knowledge of the area considering major trip origins and destinations in the region.

Trips were assigned to the development access points using the following trip assignment:

- 90 percent of trips to/from the development were assigned to the underground parking access on Carlton Street
- 10 percent of trips to/from the development were assigned to one-way driveway with the entrance on Spring Garden Road and the exit on Robie Street

Table 5: Trip Distribution

Direction	Distribution	Origins/Destinations
North	60%	Halifax Commons, Hospital, North End Halifax, Bedford, Dartmouth/Burnside/Fall River via McKay Bridge or Macdonald Bridge
South	20%	South End Halifax, Dalhousie University, St. Mary's University, Hospital, etc.
East	10%	Downtown Halifax various possible destinations
West	10%	Halifax Shopping Centre, Bayers Lake, Highway 102, Armdale Roundabout, etc.

5.0 Intersection Operational Analysis

The performance of an intersection can be evaluated using a number of measures of effectiveness (MOEs), including level of service (LOS), delay, volume-to-capacity ratio (v/c) and vehicle queuing are the primary measures of effectiveness used in traffic analyses.

Level of service is a qualitative measure used to describe the level of performance of an intersection in terms of traffic movement. Level of service for intersections is defined in terms of delay, which is a measure of driver discomfort, frustration and increased travel time. The quality of traffic movement is divided into six levels ranging from A to F, where level of service A represents the best quality of traffic where the driver has the freedom to drive with free flow speed and level of service F represents the worst quality of traffic where the level of congestion is considered unacceptable to most drivers. The level of service criteria for intersections are stated in terms of average control delay per vehicle in Table 6.

Table 6: Level of Service at Signalized and Unsignalized Intersections

LOS	Description	Signalized Delay	Unsignalized Delay
A	No congestion; most vehicles do not stop.	≤ 10 sec/veh	≤ 10 sec/veh
B	Very light congestion; some vehicles stop.	10 - 20 sec/veh	10 - 15 sec/veh
C	Light congestion; most vehicles stop.	20 - 35 sec/veh	15 - 25 sec/veh
D	Noticeable congestion; at traffic signals vehicles must sometimes wait through more than one red light. No long-standing queues are formed.	35 - 55 sec/veh	25 - 35 sec/veh
E	Congestion; at traffic signals vehicles must sometimes wait through more than one red light. Long-standing queues are formed.	55 – 80 sec/veh	35 - 50 sec/veh
F	Severe congestion; demand exceeds capacity. Delays are considered unacceptable to most motorists.	≥ 80 sec/veh	≥ 50 sec/veh

The volume-to-capacity (v/c) ratio is a measure of how the peak hour traffic volume on an approach to an intersection compares to the theoretical maximum volume that could be accommodated on that intersection approach. As the v/c ratio approaches 1.0, the movement has reduced ability to accommodate any additional volume of traffic.

The 95th percentile queue (95th% queue) is the estimated length in metres of a queue of vehicles stopped on an intersection approach which is only exceeded five percent of the time. Since a stopped vehicle occupies approximately seven metres of queue length, a 95th% queue of 14 metres indicates that less than five times of out 100 the queue may exceed two vehicles on the approach. The 95th% queue is typically used to determine if sufficient vehicle storage is available to maintain efficient traffic flow.

The Synchro Studio (Version 11) software package was used to complete the intersection operational analysis. The weekday peak hour operations at the three study intersections were evaluated under three scenarios to quantify the impact of the proposed development on the study area road network. The assessment scenarios included:

- **Scenario 1 Existing Conditions (2021):** A scenario reflecting the existing conditions in the study area. This scenario provides an assessment of current operations based on current traffic volumes, signal timings and lane configurations.
- **Scenario 2 Future Background Conditions (2026):** A projection of traffic growth to the year 2026 with the adjacent developments: Case 20761 – Robie Street, College Street and Carlton Street and 5885 Spring Garden Road – Killam Properties. This scenario provides an assessment of future operations without the proposed SGW development.
- **Scenario 3 Future Development Conditions (2026):** The projection of traffic growth to the year 2026 from Scenario 2, with the addition of the projected traffic volumes associated with the proposed SGW development. This scenario provides an assessment of future operations with the proposed SGW development in place.

The following sections summarize the results of the intersection operational analysis. The traffic volumes used in each scenario are illustrated in Appendix A and the detailed Synchro reports for the analysis are included in Appendix B.

5.1 Scenario 1 Existing Conditions (2021)

Scenario 1 is an analysis of existing conditions throughout the study area. The traffic volumes for this scenario correspond to the peak one-hour period of traffic from the weekday morning and evening peak periods. The results of the analysis are summarized in Table 7.

Under existing conditions, the three study intersections operate at overall acceptable levels of service during the weekday peak hours. A few individual movements at some intersections experience longer delays and/or queues, however, the overall performance of the intersections is acceptable during both weekday peak hours. The operations at each of the study intersections are described below:

- **Robie Street and Coburg Road/Spring Garden Road:** The intersection experiences light congestion (LOS C) during the peak hours. However, during the afternoon peak hour the eastbound left movement (Coburg Road) operates at LOS E in Synchro. While the movement may experience moderate delays, the movement operates well under capacity with a volume-to-capacity ratio of 0.70. The shared northbound through/left movement (Robie Street) experiences a volume-to-capacity ratio of 0.92 which exceeds the HRM threshold of 0.85 for a shared through/turning movement. The capacity of the shared northbound through/left movement is limited by the high volume of conflicting pedestrians for the left turn movement and the protected left turn phase for the opposing southbound left movement. The southbound left movement shares a lane with the southbound through movement, as a result the protected phase is always provided as a lead phase.

- **Spring Garden Road and Carlton Street:** The unsignalized intersection experiences no congestion (LOS A) during the peak hours. However, during the afternoon peak hour the southbound movements (Carlton Street) operate at LOS F in Synchro. The volume-to-capacity ratio for the southbound approach is well below the HRM threshold of 0.85 for a shared through/turning movement.

  While the Synchro analysis indicates operational issues on the Carlton Street southbound approach, it should be noted that the Synchro analysis does not take into account high volumes of pedestrians crossing at the crosswalk on the east leg of the intersection. The crosswalk requires vehicles on Spring Garden Road to stop which provides additional gap opportunities for both the southbound and northbound movements. The pedestrian crossings are taken into account in the SimTraffic analysis, which indicates that all movements at the intersection operate at acceptable levels of service, including the Carlton Street southbound movements. SimTraffic demonstrates that when accounting for gaps created by the frequent pedestrian crossings the intersection does not experience operational issues.
- **Spring Garden Road and Summer Street:** The signalized intersection experiences light congestion (LOS C) during the peak hours; all movements operate at acceptable levels of service.

Table 7: Scenario 1 Existing Conditions (2021) - Intersection Performance

Existing Conditions (2021)		Weekday AM Peak Hour								Weekday PM Peak Hour							
Intersection		Synchro					SimTraffic			Synchro					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)	Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Robie St & Spring Garden Rd		**2180**	**16.9**	**B**			**20.8**	**C**		**2135**	**27.8**	**C**			**24.4**	**C**	
Coburg Rd	EB-L	45	39.5	D	0.29	17.5	40.1	D	20.7	95	55.6	E	0.70	31.7	34.5	C	31.7
	EB-T	165	42.4	D	0.60	55.1	32.1	C	47.2	155	31.2	C	0.44	40.8	24.1	C	41.1
	EB-R	35					24.4	C		15					16.6	B	
Spring Garden Rd	WB-L	55	31.6	C	0.56	30.3	38.4	D	37.0	30	18.8	B	0.55	28.0	29.9	C	40.3
	WB-T	130					22.7	C		175					26.7	C	
	WB-R	80					13.1	B	31.9	165					17.5	B	40.1
Robie St	NB-L	35	20.1	C	0.39	46.8	25.4	C	70.7	90	40.2	D	0.92	128.6	31.5	C	110.7
	NB-T	455					21.7	C	57.1	860					27.1	C	89.4
	NB-R	40	2.2	A	0.08	3.2	5.7	A	13.0	25	0.4	A	0.08	0.0	6.4	A	11.4
	SB-L	175	7.6	A	0.56	60.4	27.6	C	102.3	100	7.3	A	0.32	30.4	29.6	C	69.9
	SB-T	900					17.0	B	86.2	380					18.5	B	53.4
	SB-R	65	1.5	A	0.07	3.9	3.7	A	13.9	45	2.5	A	0.05	4.3	4.4	A	14.2
Spring Garden Rd & Carlton St		**635**	**2.1**	**A**			**2.7**	**A**		**735**	**5.8**	**A**			**5.4**	**A**	
Spring Garden Rd	EB-L	15	8.4	A	0.01	0.0	4.7	A	13.6	20	9.1	A	0.02	0.8	5.8	A	31.2
	EB-T	220	0.0	A	-	-	1.9	A		345	0.0	A	-	-	3.8	A	
	EB-R	15	0.0	A	-	-	1.7	A		20	0.0	A	-	-	2.6	A	
	WB-L	20	8.7	A	0.02	0.8	5.7	A	21.3	15	10.3	B	0.02	0.8	11.9	B	25.7
	WB-T	285	0.0	A	-	-	2.3	A		215	0.0	A	-	-	2.9	A	
	WB-R	20	0.0	A	-	-	1.7	A		25	0.0	A	-	-	3.6	A	
Carlton St	NB-L	15	17.8	C	0.10	2.3	9.0	A	13.5	15	31.8	D	0.29	9.1	15.5	C	18.6
	NB-T	0					0.0	A		0					0.0	A	
	NB-R	15					7.0	A		35					16.2	C	
	SB-L	15	17.6	C	0.10	2.3	13.2	B	14.2	30	51.2	F	0.40	12.9	24.0	C	19.5
	SB-T	0					0.0	A		0					0.0	A	
	SB-R	15					4.6	A		15					9.2	A	
Spring Garden Rd & Summer St		**1150**	**23.5**	**C**			**20.2**	**C**		**1215**	**22.5**	**C**			**19.5**	**B**	
Spring Garden Rd	EB-L	50	15.1	B	0.22	29.6	19.3	B	30.3	50	14.3	B	0.19	24.8	21.7	C	29.6
	EB-T	200					14.2	B		175					8.2	A	
	EB-R	20					7.7	A	23.0	20					7.1	A	21.7
	WB-L	10	16.1	B	0.12	24.5	14.7	B	23.3	10	15.7	B	0.20	37.4	19.3	B	33.6
	WB-T	85					13.4	B		160					14.8	B	
	Transit	10	12.0	B	0.01	3.7	9.6	A	7.1	15	11.2	B	0.02	4.4	10.9	B	10.7
	WB-R	50	3.3	A	0.10	5.0	6.2	A	15.6	50	3.0	A	0.11	4.2	8.0	A	16.0
Summer St	NB-L	30	20.8	C	0.47	39.1	30.2	C	52.9	60	33.1	C	0.78	77.0	31.5	C	92.4
	NB-T	175					22.7	C		360					30.0	C	
	NB-R	25					16.5	B		10					25.0	C	
	SB-L	115	37.6	D	0.83	74.9	26.9	C	77.7	60	22.7	C	0.45	33.8	28.3	C	47.1
	SB-T	255					26.3	C		130					22.5	C	
	SB-R	125	19.6	B	0.33	23.7	19.9	B	39.0	115	19.8	B	0.30	21.5	19.0	B	31.8

5.2 Scenario 2 Future Background Conditions (2026)

Scenario 2 is an analysis of future conditions throughout the study area without the proposed development. The traffic volumes for this scenario reflect to the existing traffic volumes from Scenario 1 with the addition of the traffic volumes generated by the two adjacent developments. The results of the analysis are summarized in Table 8.

Under future background conditions, the three study intersections will continue to operate at acceptable levels of service during both weekday peak hours. The operations at each of the study intersections are described below:

- **Robie Street and Coburg Road/Spring Garden Road:** The intersection will continue to experience light congestion (LOS C) during the peak hours. During the afternoon peak hour, the eastbound left movement (Coburg Road) will continue to operate at LOS E. The movement will continue to operate under capacity. The shared northbound through/left movement (Robie Street) will reach a volume-to-capacity ratio of 0.96 exceeding the HRM threshold of 0.85 for a shared through/turning movement.
- **Spring Garden Road and Carlton Street:** The unsignalized intersection will continue to experience no congestion (LOS A) during the peak hours. During the afternoon peak hour, the southbound movements (Carlton Street) will continue to operate at LOS F in Synchro. The volume-to-capacity ratio for the southbound approach will remain well below the HRM threshold of 0.85 for a shared through/turning movement. As previously discussed, SimTraffic will continue to demonstrates that when accounting for gaps created by the frequent pedestrian crossings the intersection does not experience operational issues.
- **Spring Garden Road and Summer Street:** The signalized intersection will continue to experience light congestion (LOS C) during the peak hours; all movements will operate at acceptable levels of service.

Table 8: Scenario 2 Future Background Conditions (2026) - Intersection Performance

Background Growth (2026)		Weekday AM Peak Hour								Weekday PM Peak Hour							
Intersection		Synchro					SimTraffic			Synchro					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)	Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Robie St & Spring Garden Rd		**2241**	**17.4**	**B**			**21.4**	**C**		**2204**	**31.1**	**C**			**25.7**	**C**	
Coburg Rd	EB-L	45	39.3	D	0.29	17.4	42.1	D	23.1	95	56.4	E	0.70	31.7	34.7	C	33.3
	EB-T	166	42.4	D	0.61	56.2	32.1	C	47.8	157	31.7	C	0.48	43.6	25.2	C	42.1
	EB-R	41					25.1	C		26					17.5	B	
Spring Garden Rd	WB-L	58	31.9	C	0.58	31.2	36.1	D	37.9	32	18.8	B	0.56	28.4	28.6	C	40.6
	WB-T	132					22.5	C		176					25.0	C	
	WB-R	83					14.1	B	32.7	167					17.6	B	40.1
Robie St	NB-L	44	20.9	C	0.44	51.3	27.4	C	74.1	98	47.4	D	0.96	137.3	32.3	C	117.5
	NB-T	481					21.3	C	58.9	883					28.7	C	95.7
	NB-R	41	2.3	A	0.09	3.3	5.8	A	13.9	27	0.6	A	0.09	0.5	6.4	A	12.4
	SB-L	176	7.9	A	0.58	62.6	28.1	C	106.0	102	7.4	A	0.33	31.7	36.1	D	79.0
	SB-T	909					18.1	B	92.1	396					21.0	C	65.5
	SB-R	65	1.6	A	0.07	4.0	4.3	A	14.8	45	2.5	A	0.05	4.4	4.2	A	13.5
Spring Garden Rd & Carlton St		**659**	**2.7**	**A**			**3.0**	**A**		**761**	**6.8**	**A**			**5.8**	**A**	
Spring Garden Rd	EB-L	18	8.4	A	0.02	0.8	5.5	A	14.0	26	9.1	A	0.03	0.8	6.2	A	34.1
	EB-T	220	0.0	A	-	-	2.0	A		345	0.0	A	-	-	4.0	A	
	EB-R	15	0.0	A	-	-	1.8	A		20	0.0	A	-	-	3.0	A	
	WB-L	20	8.7	A	0.02	0.8	6.3	A	23.4	15	10.3	B	0.02	0.8	13.3	B	27.0
	WB-T	285	0.0	A	-	-	2.4	A		215	0.0	A	-	-	3.1	A	
	WB-R	23	0.0	A	-	-	2.0	A		35	0.0	A	-	-	3.9	A	
Carlton St	NB-L	15	18.1	C	0.10	2.3	8.7	A	13.5	15	32.6	D	0.30	9.1	18.9	C	19.6
	NB-T	0					0.0	A		0					0.0	A	
	NB-R	15					7.9	A		35					17.7	C	
	SB-L	25	18.9	C	0.16	4.6	12.2	B	15.0	35	57.2	F	0.48	2.2	24.3	C	19.5
	SB-T	0					0.0	A		0					0.0	A	
	SB-R	23					4.3	A		20					9.2	A	
Spring Garden Rd & Summer St		**1224**	**24.0**	**C**			**21.5**	**C**		**1313**	**22.8**	**C**			**20.8**	**C**	
Spring Garden Rd	EB-L	58	16.0	B	0.24	31.0	18.5	B	30.2	54	15.3	B	0.20	26.1	22.8	C	28.7
	EB-T	201					15.1	B		176					8.2	A	
	EB-R	21					8.5	A	23.7	20					7.1	A	19.6
	WB-L	13	17.0	B	0.14	25.5	17.6	B	25.3	16	16.9	B	0.22	40.2	18.0	B	36.9
	WB-T	85					12.8	B		161					16.2	B	
	Transit	10	12.8	B	0.01	3.8	10.5	B	7.2	15	12.1	B	0.02	4.6	11.6	B	10.8
	WB-R	50	3.4	A	0.10	5.0	6.8	A	16.2	50	3.2	A	0.11	4.3	9.4	A	16.9
Summer St	NB-L	30	20.6	C	0.50	43.7	33.8	C	59.5	62	32.8	C	0.80	81.0	35.2	D	108.0
	NB-T	201					24.9	C		383					32.5	C	
	NB-R	30					19.1	B		14					27.6	C	
	SB-L	115	38.3	D	0.85	80.9	28.4	C	80.9	60	22.7	C	0.51	40.9	30.0	C	55.6
	SB-T	282					27.7	C		180					22.6	C	
	SB-R	128	18.4	B	0.32	23.6	20.2	C	43.1	122	18.8	B	0.31	21.8	18.6	B	31.9

5.3 Scenario 3 Future Development Conditions (2026)

Scenario 3 is an analysis of future conditions throughout the study area with the full build-out of the proposed SGW development. The traffic volumes for this scenario reflect the future background traffic volumes from Scenario 2 with the addition of the traffic volumes generated by the development. The results of the analysis are summarized in Table 9.

Under future development conditions, the three study intersections will continue to operate at acceptable levels of service during both weekday peak hours. The development will result in negligible increases in average delay per vehicle at adjacent intersections and will not significantly contribute to the

deterioration of existing/background operational issues at the intersection of Robie Street and Coburg Road/Spring Garden Road. The operations at each of the study intersections are described below:

- **Robie Street and Coburg Road/Spring Garden Road:** The intersection will continue to experience light congestion (LOS C) during the peak hours. During the afternoon peak hour, the eastbound left movement (Coburg Road) will continue to operate at LOS E. While the development will not increase the volume of the eastbound left movement, additional volumes on the opposing Spring Garden Road approach will result in a minor increase in average delay for this movement by (less than 1.0 second per vehicle). The movement will continue to operate under capacity. The shared northbound through/left movement (Robie Street) will reach a volume-to-capacity ratio of 0.97, the development only contributes one additional vehicle per hour to the northbound through movement.

  Overall, increases in average delay per vehicle at the intersection will be negligible (less than 0.5 seconds per vehicle in Synchro) during both peak hours.

- **Spring Garden Road and Carlton Street:** The unsignalized intersection will continue to experience no congestion (LOS A) during the peak hours. During the afternoon peak hour, the southbound movements (Carlton Street) will continue to operate at LOS F and the northbound movements (Carlton Street) will deteriorate to LOS E in Synchro. The volume-to-capacity ratio for the southbound and northbound approaches will remain well below the HRM threshold of 0.85 for a shared through/turning movement. As previously discussed, SimTraffic will continue to demonstrates that when accounting for gaps created by the frequent pedestrian crossings the intersection does not experience operational issues.

  Overall, increases in average delay per vehicle at the intersection will be negligible (less than 2.0 seconds per vehicle in Synchro) during both peak hours.

- **Spring Garden Road and Summer Street:** The signalized intersection will continue to experience light congestion (LOS C) during the peak hours; all movements will operate at acceptable levels of service. Increases in average delay per vehicle at the intersection will be negligible (less than 0.5 seconds per vehicle in Synchro) during both peak hours.

- **Carlton Street and Development Parking Access:** The unsignalized intersection will experience no congestion (LOS A) during the peak hours; all movements will operate at acceptable levels of service.

- **Spring Garden Road and Development Access (Entrance Only):** The unsignalized intersection will experience no congestion (LOS A) during the peak hours; all movements will operate at acceptable levels of service.

- **Robie Street and Development Access (Exit Only):** The unsignalized intersection will experience no congestion (LOS A) during the peak hours; all movements will operate at acceptable levels of service.

Table 9: Scenario 3 Future Development Conditions (2026) - Intersection Performance

Development (2026)		Weekday AM Peak Hour								Weekday PM Peak Hour							
Intersection		Volume (veh/hr)					SimTraffic			Volume (veh/hr)					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)	Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Robie St & Spring Garden Rd		**2255**	**17.5**	**B**			**20.2**	**C**		**2221**	**31.4**	**C**			**20.7**	**C**	
Coburg Rd	EB-L	45	39.5	D	0.30	17.4	39.9	D	19.2	95	57.0	E	0.71	31.8	35.4	D	32.8
	EB-T	167	42.4	D	0.61	56.3	32.2	C	47.6	161	31.8	C	0.49	44.4	25.1	C	43.3
	EB-R	41					21.9	C		26					17.8	B	
Spring Garden Rd	WB-L	58	31.8	C	0.60	31.6	36.3	D	37.5	32	18.9	B	0.56	28.5	28.8	C	39.2
	WB-T	136					23.6	C		178					25.4	C	
	WB-R	88					13.0	B	33.9	169					19.3	B	43.9
Robie St	NB-L	44	20.9	C	0.44	51.4	23.2	C	38.5	98	48.1	D	0.97	137.7	15.3	B	36.3
	NB-T	482					17.1	B	39.0	884					16.7	B	39.0
	NB-R	42	2.4	A	0.09	3.5	5.5	A	14.6	29	1.0	A	0.09	1.0	6.5	A	12.7
	SB-L	178	7.9	A	0.58	63.0	28.0	C	109.4	108	7.5	A	0.34	32.3	36.7	D	77.0
	SB-T	909					18.0	B	94.9	396					22.1	C	65.4
	SB-R	65	1.6	A	0.07	4.0	3.8	A	13.8	45	2.6	A	0.05	4.4	3.7	A	13.0
Spring Garden Rd & Carlton St		**693**	**3.5**	**A**			**3.3**	**A**		**806**	**9.0**	**A**			**5.7**	**A**	
Spring Garden Rd	EB-L	18	8.4	A	0.02	0.8	3.7	A	16.2	26	9.1	A	0.03	0.8	5.1	A	30.2
	EB-T	221	0.0	A	-	-	1.0	A		347	0.0	A	-	-	2.4	A	
	EB-R	17	0.0	A	-	-	0.1	A		29	0.0	A	-	-	1.2	A	
	WB-L	24	8.7	A	0.03	0.8	6.5	A	24.2	33	10.6	B	0.05	1.5	12.1	B	34.4
	WB-T	286	0.0	A	-	-	2.6	A		217	0.0	A	-	-	3.8	A	
	WB-R	23	0.0	A	-	-	1.9	A		35	0.0	A	-	-	4.4	A	
Carlton St	NB-L	24	19.2	C	0.19	5.3	10.9	B	18.3	19	38.7	E	0.40	13.7	22.3	C	20.6
	NB-T	0					1.3	A		0					0.0	A	
	NB-R	32					8.7	A		45					18.6	C	
	SB-L	25	20.1	C	0.17	4.6	13.1	B	16.8	35	76.2	F	0.57	20.5	28.9	D	21.2
	SB-T	0					0.0	A		0					0.0	A	
	SB-R	23					6.0	A		20					11.2	B	
Spring Garden Rd & Summer St		**1247**	**24.0**	**C**			**20.9**	**C**		**1345**	**22.8**	**C**			**24.2**	**C**	
Spring Garden Rd	EB-L	74	16.3	B	0.26	33.4	19.8	B	35.2	65	15.5	B	0.22	27.5	23.8	C	32.2
	EB-T	203					14.3	B		177					9.2	A	
	EB-R	21					8.4	A	26.0	20					9.2	A	23.1
	WB-L	13	17.0	B	0.14	25.7	15.1	B	24.6	16	16.9	B	0.22	40.6	18.5	B	38.6
	WB-T	86					13.0	B		163					17.3	B	
	Transit	10	12.8	B	0.01	3.8	7.9	A	6.7	15	12.1	B	0.02	4.6	14.6	B	12.6
	WB-R	50	3.4	A	0.10	5.0	6.9	A	17.2	50	3.2	A	0.11	4.3	10.1	B	17.9
Summer St	NB-L	30	20.6	C	0.50	43.7	33.1	C	59.5	62	32.8	C	0.80	81.0	42.8	D	136.6
	NB-T	201					24.7	C		383					40.5	D	
	NB-R	30					18.2	B		14					36.6	D	
	SB-L	115	38.3	D	0.85	80.9	28.3	C	80.3	60	22.7	C	0.51	40.9	31.5	C	60.0
	SB-T	282					26.8	C		180					24.8	C	
	SB-R	132	18.6	B	0.33	24.4	20.6	C	41.3	140	19.7	B	0.35	24.6	17.9	B	34.5
Carlton St & Dev Entry/Exit		**108**	**3.3**	**A**			**1.6**	**A**		**141**	**1.9**	**A**			**1.8**	**A**	
Spring Garden Rd	EB-L	26	9.6	A	0.04	0.8	3.9	A	14.0	14	9.8	A	0.03	0.8	5.9	A	11.8
	EB-R	9					2.1	A		6					4.6	A	
Carlton St	NB-L	2	7.5	A	0.00	0.0	2.4	A	1.4	9	7.6	A	0.01	0.0	3.6	A	5.7
	NB-T	30	0.0	A	-	-	1.2	A		50	0.0	A	-	-	1.8	A	
	SB-T	35	0.0	A	-	-	0.4	A	1.3	35	0.0	A	-	-	0.4	A	2.6
	SB-R	6	0.0	A	-	-	0.4	A		27	0.0	A	-	-	0.6	A	

Development (2026)		Weekday AM Peak Hour								Weekday PM Peak Hour							
Intersection		Volume (veh/hr)					SimTraffic			Volume (veh/hr)					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)	Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Spring Garden Rd & Dev Entry		**590**	**0.0**	**A**			**1.1**	**A**		**659**	**0.0**	**A**			**1.5**	**A**	
Spring Garden Rd	EB-T	256	0.0	A	-	-	1.5	A	1.3	402	0.0	A	-	-	1.9	A	12.4
	EB-R	1	0.0	A	-	-	1.1	A		1	0.0	A	-	-	2.0	A	
	WB-L	1	8.7	A	0.00	0.0	1.7	A	2.1	2	9.7	A	0.00	0.0	6.3	A	4.9
	WB-T	332	0.0	A	-	-	0.5	A		254	0.0	A	-	-	0.7	A	
Robie St & Dev Exit		**1576**	**0.0**	**A**			**3.0**	**A**		**1465**	**0.0**	**A**			**9.5**	**A**	
Development Exit	WB-R	2	11.0	B	0.00	0.0	3.1	A	4.8	3	13.9	B	0.01	0.0	15.8	C	4.9
Robie St	NB-T	566	0.0	A	-	-	5.9	A	53.5	1008	0.0	A	-	-	13.4	B	83.3
	SB-T	1008	0.0	A	-	-	1.3	A	1.1	454	0.0	A	-	-	1.3	A	1.7

5.4 Improvements at Robie Street and Spring Garden Road

The intersection of Robie Street and Coburg Road/Spring Garden Road experiences existing operational issues during the afternoon peak hour, including:

- LOS E for the eastbound left turn movement (Coburg Road)
- A volume-to-capacity ratio which exceeds the HRM threshold of 0.85 for a shared through/turning movement.

Providing separate left turn lanes on Robie Street was not considered as an improvement. Widening at this location would be difficult and it is anticipated that if any widening were to occur on Robie Street, bus lanes would be prioritized over vehicle turning lanes.

5.4.1 Protected Eastbound Left Turn Phase

To mitigate existing operational issues on the Coburg Road approach of the Robie Street and Coburg Road/Spring Garden Road intersection a protected eastbound left turn phase could be provided during the afternoon peak hour.

The proposed improvement was modelled in Synchro using the traffic volumes from Scenario 3 with the full build-out of the proposed SGW development. The protected phase was accommodated within the existing splits (time taken from Spring Garden Road approach) to minimize impacts to the Robie Street approaches. The results of the analysis are summarized in Table 10.

The proposed improvement will reduce the average delay for the eastbound left movement by 30.8 seconds in Synchro. The reduced green time on the Spring Garden Road approach will increase the average delay for the westbound movements by 3.1 seconds. Operations on the Robie Street approaches will not be impacted.

Table 10: Protected EBL - Intersection Performance

Improvements (2026)		Weekday PM Peak Hour							
Intersection		Volume (veh/hr)					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Robie St & Spring Garden Rd		**2221**	**30.7**	**C**			**22.0**	**C**	
Coburg Rd	EB-L	95	26.2	C	0.40	23.3	25.1	C	27.5
	EB-T	161	24.8	C	0.38	42.2	23.6	C	42.5
	EB-R	26					16.3	B	
Spring Garden Rd	WB-L	32	22.0	C	0.62	33.1	31.0	C	48.2
	WB-T	178					30.0	C	
	WB-R	169					26.7	C	49.1
Robie St	NB-L	98	48.1	D	0.97	137.7	16.5	B	37.2
	NB-T	884					16.6	B	39.2
	NB-R	29	0.4	A	0.08	0.0	6.2	A	13.3
	SB-L	108	10.8	B	0.41	35.0	43.9	D	81.2
	SB-T	396					25.6	C	68.5
	SB-R	45	1.4	A	0.06	2.8	4.1	A	13.6

5.4.2 Shared Northbound Through/Left Movement

The capacity of the shared northbound through/left movement is limited by the high volume of conflicting pedestrians for the left turn movement and the protected left turn phase for the opposing southbound left movement. The southbound left movement shares a lane with the southbound through movement, as a result the protected phase is always provided as a lead phase. Two potential improvements were evaluated to mitigate existing operational issues on the Robie Street northbound approach of the Robie Street and Coburg Road/Spring Garden Road intersection during the afternoon peak hour:

- Signal timing changes
- Left turn restrictions

5.4.2.1 Signal Timing Changes

The proposed improvement was modelled in Synchro using the traffic volumes from Scenario 3 with the full build-out of the proposed SGW development and the proposed protected eastbound left turn phase. The total split for the Robie Street Phases was increased by 3 seconds during the afternoon peak hour. The results of the analysis are summarized in Table 11.

When compared to operations with only the proposed protected eastbound left turn phase in place (Table 10), the proposed improvement will reduce the average delay for the shared northbound through/left movement by 13.2 seconds and the 95th percentile queue lengths by 9.3 metres in Synchro. The volume-to-capacity ratio will be reduced to 0.89, remaining above the HRM threshold for shared through/turning lanes. The reduced green time on the Coburg Road and Spring Garden Road approaches will increase the average delay for the side street movements by 0.6 seconds. 95th percentile queue lengths are expected to remain below 55 metres on these approaches.

Optimizing the signal timings at the intersection would result in a minor improvement to operations at the intersection, however, any changes to the signal timings should take into account the impact of signal timing changes to coordination patterns on Robie Street and intersections outside the scope of this study.

Table 11: Signal Timing Modifications + Protected EBL - Intersection Performance

Improvements (2026)		Weekday PM Peak Hour							
Intersection		Volume (veh/hr)					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Robie St & Spring Garden Rd		**2221**	**25.0**	**C**			**22.3**	**C**	
Coburg Rd	EB-L	95	26.9	C	0.41	24.1	26.5	C	31.3
	EB-T	161	25.4	C	0.39	43.7	23.2	C	41.1
	EB-R	26					15.8	B	
Spring Garden Rd	WB-L	32	22.6	C	0.63	34.1	32.3	C	53.2
	WB-T	178					35.1	D	
	WB-R	169					34.9	C	52.4
Robie St	NB-L	98	34.9	C	0.89	128.4	14.8	B	36.6
	NB-T	884					15.3	B	38.7
	NB-R	29	0.4	A	0.08	0.0	6.5	A	13.7
	SB-L	108	10.6	B	0.42	33.1	43.8	D	81.2
	SB-T	396					23.9	C	67.0
	SB-R	45	1.3	A	0.06	2.7	4.0	A	12.8

5.4.3 Left Turn Restrictions

The proposed improvement was modelled in Synchro using the traffic volumes from Scenario 3 with the full build-out of the proposed SGW development and the proposed protected eastbound left turn phase. The afternoon peak hour northbound left turn volume (98 vehicles) was added to the northbound through volume reflecting a worst-case scenario where all left turning traffic would continue on Robie Street to turn left at an intersection north of Coburg Road. The results of the analysis are summarized in Table 12.

When compared to operations with only the proposed protected eastbound left turn phase in place (Table 10), the proposed improvement will reduce the average delay for the northbound through movement by 19.3 seconds and the 95th percentile queue lengths by 29.4 metres in Synchro. The volume-to-capacity ratio will be reduced to 0.78, which will be below the HRM threshold of 0.85 for through lanes. There will be no significant impact to operations on the Robie Street southbound, Coburg Road and Spring Garden Road approaches.

It is expected that the 98 left turning vehicles could be accommodate at one or more adjacent intersections on Robie Street. The left turn restriction offers greater delay reductions compared to the signal timing changes and ensures the volume-to-capacity ratios for the northbound approaches are below HRM thresholds.

Table 12: Restricted NBL + Protected EBL - Intersection Performance

Improvements (2026)		Weekday PM Peak Hour							
Intersection		Volume (veh/hr)					SimTraffic		
		Volume (veh/hr)	Delay (s/veh)	LOS	v/c	95th% Queue (m)	Delay (s/veh)	LOS	95th% Queue (m)
Robie St & Spring Garden Rd		**2221**	**22.2**	**C**			**22.1**	**C**	
Coburg Rd	EB-L	95	26.2	C	0.40	23.3	24.9	C	28.4
	EB-T	161	24.8	C	0.38	42.2	23.6	C	43.8
	EB-R	26					17.6	B	
Spring Garden Rd	WB-L	32	22.0	C	0.62	33.1	28.1	C	45.3
	WB-T	178					30.0	C	
	WB-R	169					24.9	C	47.5
Robie St	NB-L	0	-	-	-	-	0.0	A	0.0
	NB-T	982	28.8	C	0.78	108.3	15.4	B	39.3
	NB-R	29	0.4	A	0.08	0.0	6.4	A	12.2
	SB-L	108	10.8	B	0.41	35.0	49.8	D	86.0
	SB-T	396					28.0	C	74.1
	SB-R	45	1.4	A	0.06	2.8	4.0	A	13.4

5.4.4 Recommended Improvements

To mitigate existing operational issues at the intersection of Robie Street and Coburg Road/Spring Garden Road the following improvements are recommended:

- A protected eastbound left turn phase during the afternoon peak hour; and
- Northbound left turn restriction during the afternoon peak hour.

6.0 Conclusions and Recommendations

Harbourside Transportation Consultants was retained by Dexel Developments to prepare a revised traffic impact study for Spring Garden West, a mixed-use development, on Spring Garden Road in Halifax, Nova Scotia. The traffic impact study addresses the required items outlined in HRM's additional information request for a traffic impact study dated November 6, 2019.

The proposed development is bound by Robie Street, Spring Garden Road and Carlton Street. The site currently includes a number of residential and commercial properties with a total of 28 residential units, and approximately 15,355 square feet of commercial space and 3,800 square feet of office that will be removed as part of the redevelopment of the site,

The proposed development will include a mixed use residential and commercial development. The development will include approximately 379 units, 16,145 square feet of commercial space and 350 vehicle parking spaces. The commercial uses associated with the proposed development have yet to be identified. However, it is anticipated that the commercial uses will consist of similar uses to those observed on the existing site.

The access to residential and public parking will be located on Carlton Street. It is anticipated that the majority of vehicles travelling to/from the site will access the development through the underground parking. The site will also include a one-way driveway for passenger drop-off/pick-up and commercial deliveries. The one-way driveway will have an entry on Spring Garden Road and a right-out only exit on Robie Street.

The trip generation estimates for the proposed residential development were quantified using trip generation rates from the ITE *Trip Generation Manual, 10th edition*. At HRM's request the proposed values for residential and commercial land uses were increased by 15 percent when calculating the total number of vehicle trips generated by the proposed development and adjacent development to ensure the traffic impact study takes into account the most intensive possible development on the neighboring properties.

The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes such as transit and active transportation and existing trips to from the site. On a typical weekday, the proposed development is expected to generate 47 two-way vehicle trips in the morning peak hour (10 trips entering, 37 trips exiting) and 63 two-way vehicle trips in the afternoon peak hour (39 trips entering, 23 trips exiting).

The weekday peak hour operations were evaluated under three scenarios to quantify the impact of the proposed development on the study area road network. Three study intersections were included: Robie Street and Coburg Road/Spring Garden Road, Spring Garden Road and Carlton Street, and Spring Garden Road and Summer Street.

Scenario 1 Existing Conditions (2021): Existing conditions in the study area based on current traffic volumes, signal timings and lane configurations. Under existing conditions, the three study intersections operate at overall acceptable levels of service during the weekday peak hours.

While the overall performance of the intersections is acceptable, at the intersection Robie Street and Coburg Road/Spring Garden Road the eastbound left movement (Coburg Road) experiences longer delays.

Scenario 2 Future Background Conditions (2026): A projection of traffic growth to the year 2026 with the adjacent developments: Case 20761 – Robie Street, College Street and Carlton Street and 5885 Spring Garden Road – Killam Properties. This scenario provides an assessment of future operations without the proposed SGW development. Under future background conditions, the three study intersections will continue to operate at acceptable levels of service during both weekday peak hours.

Scenario 3 Future Development Conditions (2026): The projection of traffic growth to the year 2026 from Scenario 2, with the addition of the projected traffic volumes associated with the proposed SGW development. This scenario provides an assessment of future operations with the proposed development in place. Under future development conditions, the three study intersections are expected to continue to operate at acceptable levels of service during both weekday peak hours.

The development will result in negligible increases in average delay per vehicle at adjacent intersections and will not significantly contribute to the deterioration of existing/background operational issues at the intersection of Robie Street and Coburg Road/Spring Garden Road. The proposed development will not have an appreciable impact on traffic operations on Spring Garden Road and Robie Street.

To mitigate existing operational issues at the intersection of Robie Street and Coburg Road/Spring Garden Road the following improvements are recommended:

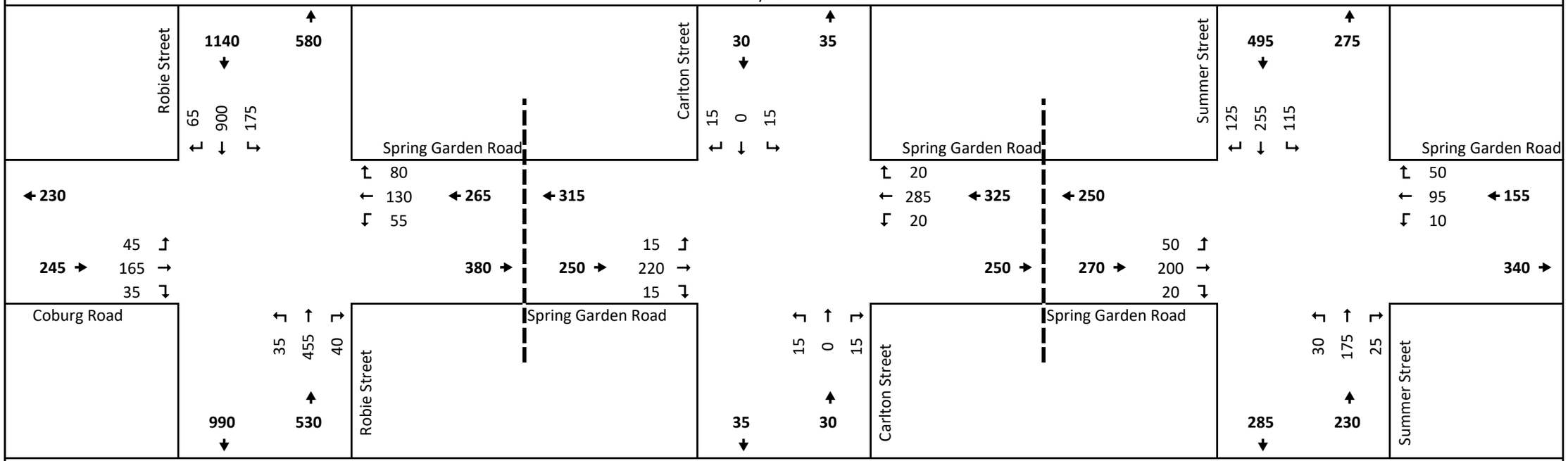
- A protected eastbound left turn phase during the afternoon peak hour; and
  Northbound left turn restriction during the afternoon peak hour.

Appendix A

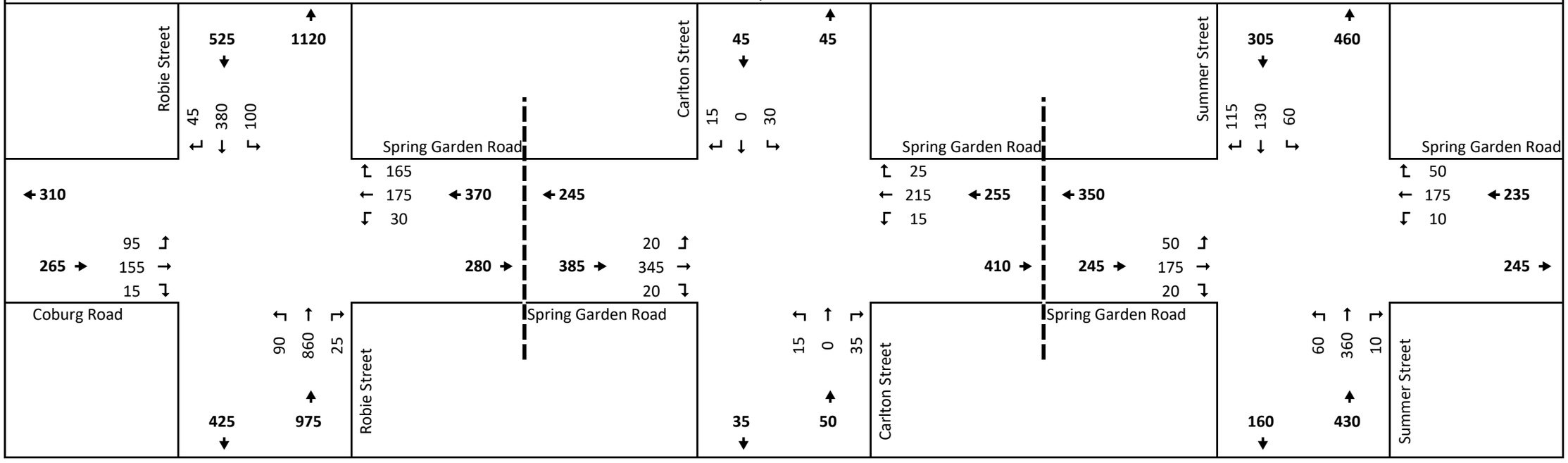
Traffic Volumes

Existing Traffic Volumes (2020)

Weekday AM Peak Hour

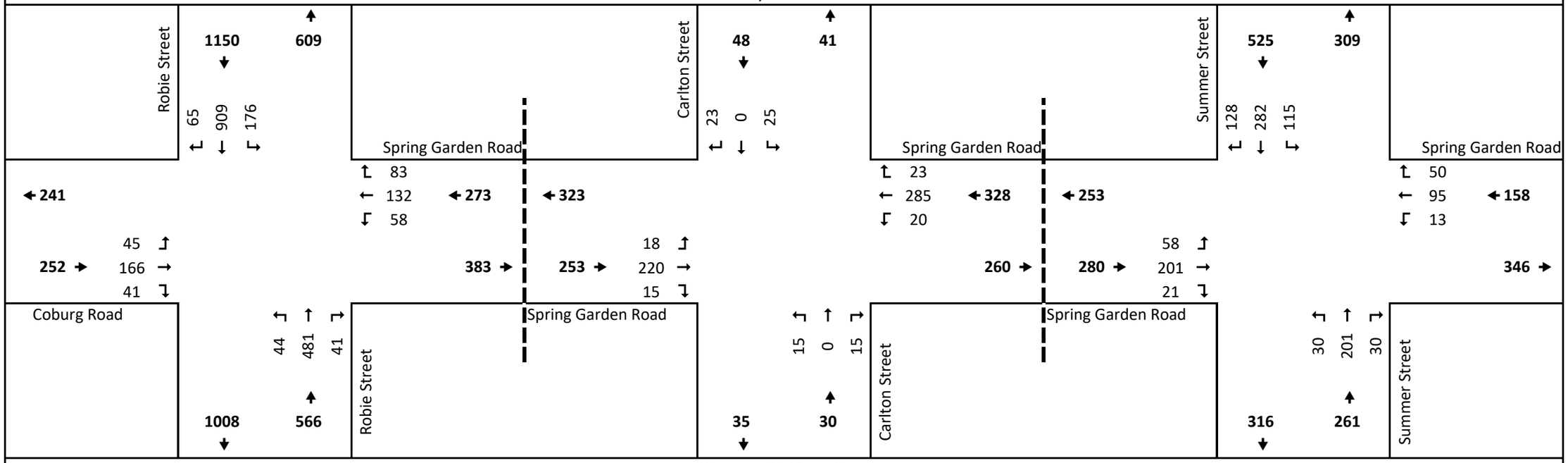


Weekday PM Peak Hour

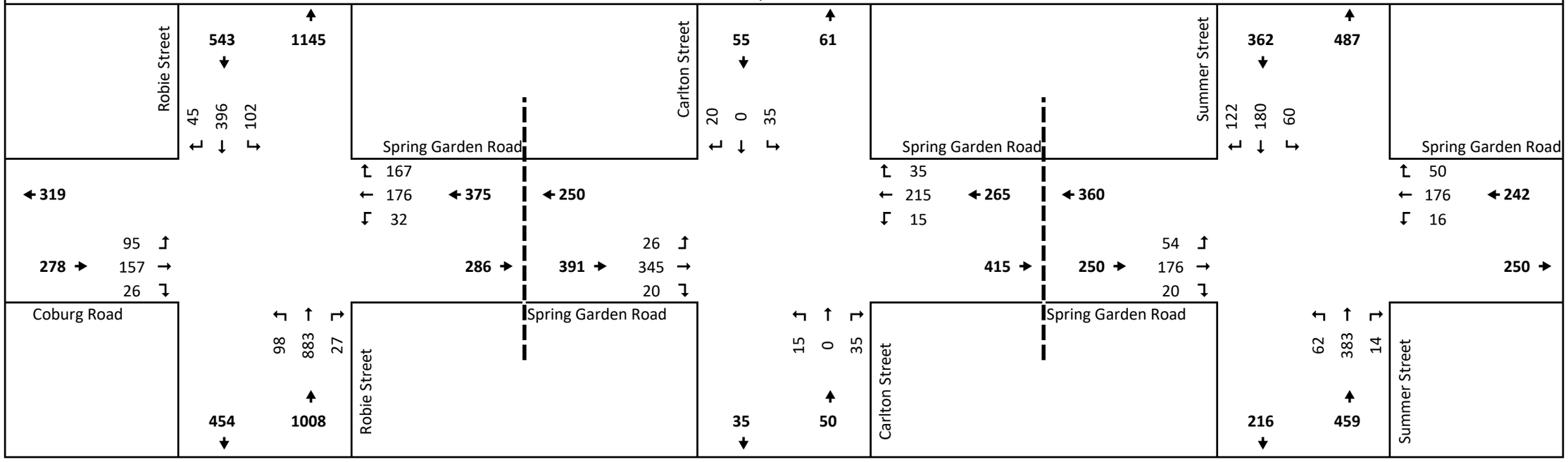


Future Traffic Volumes (2026) with Background Traffic

Weekday AM Peak Hour

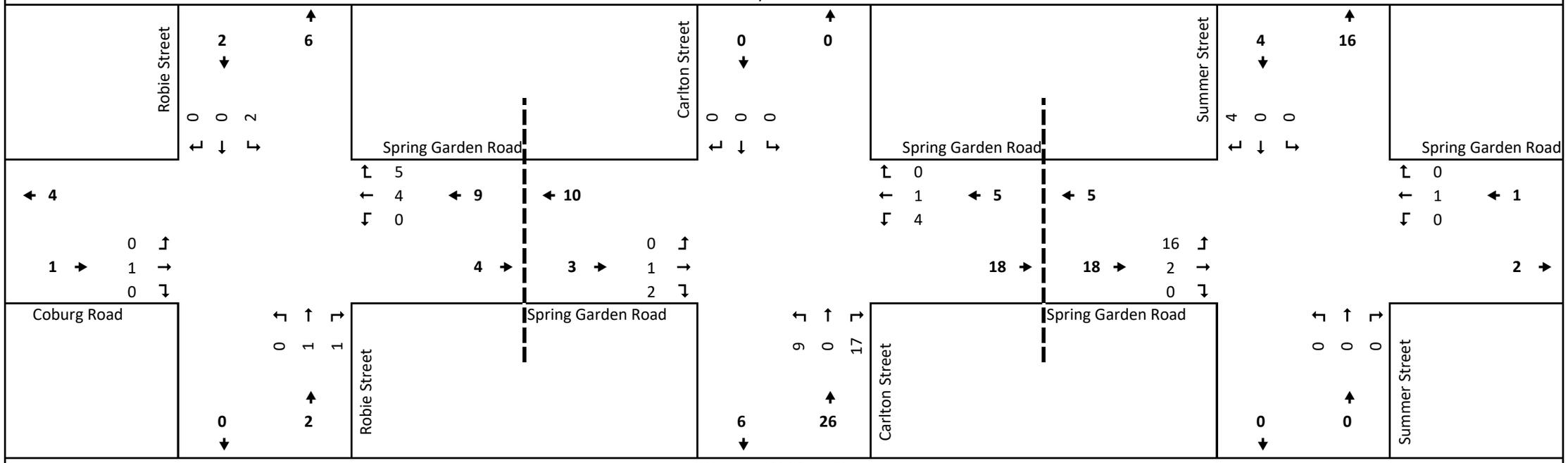


Weekday PM Peak Hour

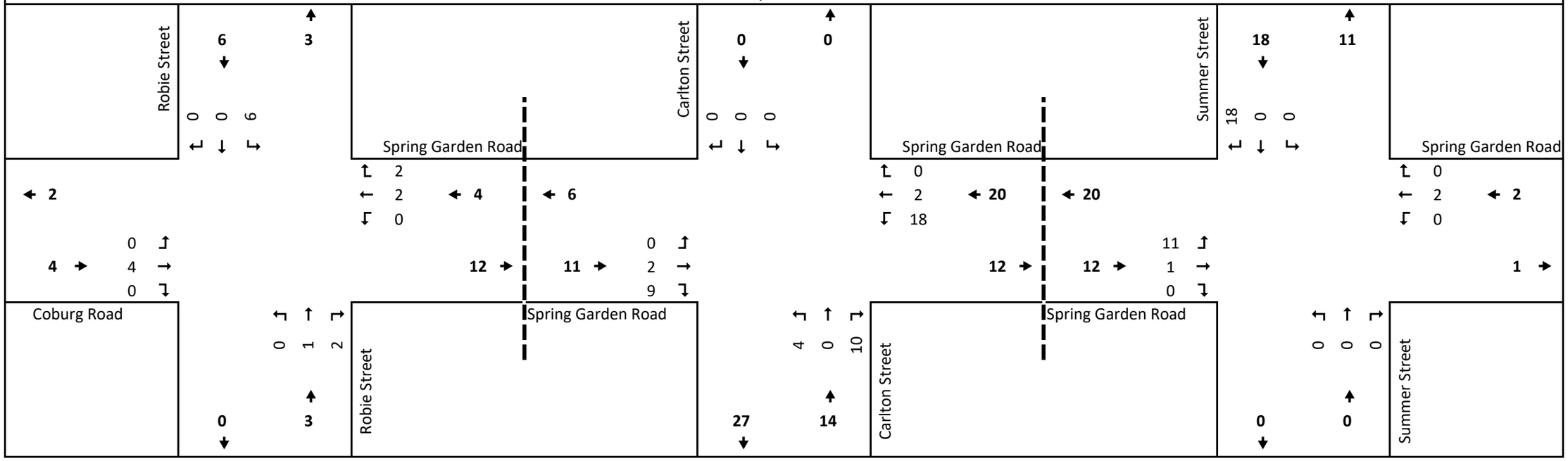


Spring Garden West (Case 20218) Site Generated Trip Estimates

Weekday AM Peak Hour

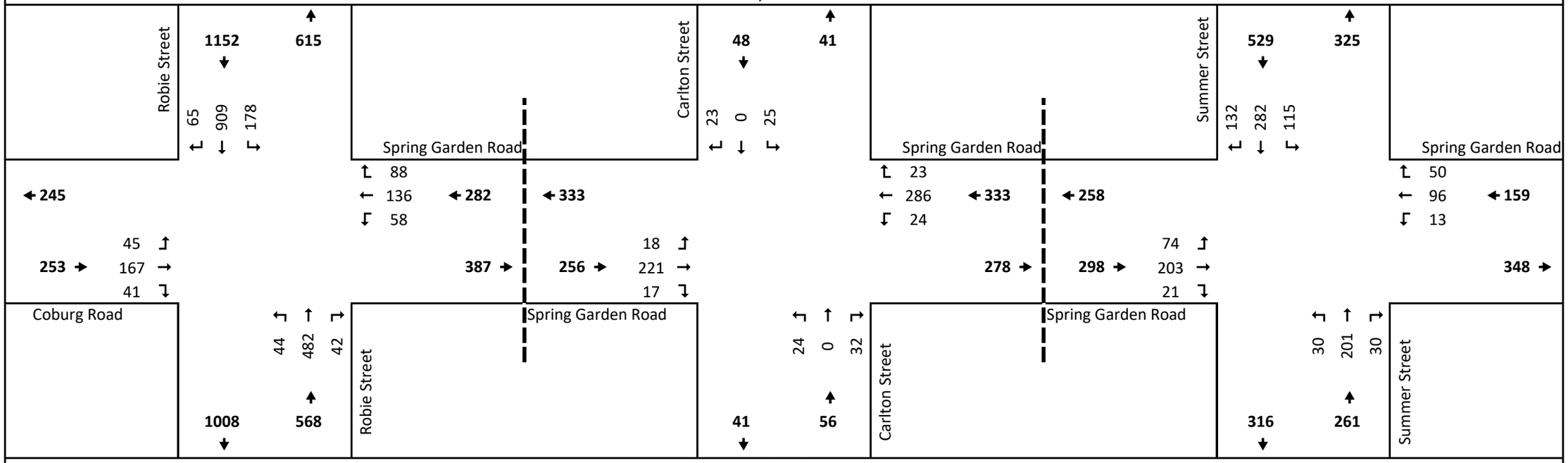


Weekday PM Peak Hour

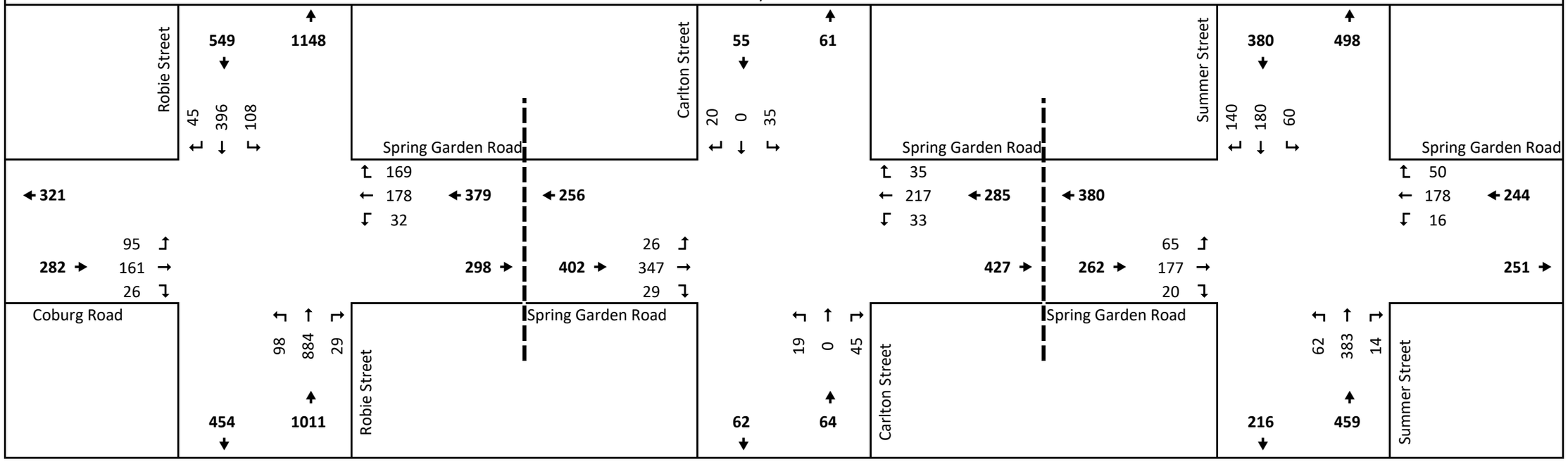


Future Traffic Volumes (2026) with Background Traffic and Site Development

Weekday AM Peak Hour



Weekday PM Peak Hour



Appendix B

Synchro Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	165	35	55	130	80	35	455	40	175	900	65
Future Volume (vph)	45	165	35	55	130	80	35	455	40	175	900	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.84	0.96			0.90			1.00	0.65		0.98	0.86
Frt		0.974			0.955				0.850			0.850
Flt Protected	0.950				0.990			0.996			0.992	
Satd. Flow (prot)	1789	1767	0	0	3132	0	0	3564	1601	0	3550	1601
Flt Permitted	0.522				0.732			0.814			0.691	
Satd. Flow (perm)	826	1767	0	0	2250	0	0	2907	1033	0	2421	1378
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			70				65			67
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			151.5			111.4			186.2	
Travel Time (s)		3.6			10.9			8.0			13.4	
Confl. Peds. (#/hr)	144		121	121		144	78		123	123		78
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	46	170	36	57	134	82	36	469	41	180	928	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	206	0	0	273	0	0	505	41	0	1108	67
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	37.0	37.0		37.0	37.0		49.0	49.0	49.0	14.0	63.0	63.0
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	19.1	19.1			19.1			44.0	44.0		70.9	70.9
Actuated g/C Ratio	0.19	0.19			0.19			0.44	0.44		0.71	0.71
v/c Ratio	0.29	0.60			0.56			0.39	0.08		0.56	0.07
Control Delay	39.5	42.4			31.6			20.1	2.2		7.6	1.5
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	39.5	42.4			31.6			20.1	2.2		7.6	1.5
LOS	D	D			C			C	A		A	A
Approach Delay		41.8			31.6			18.8			7.3	
Approach LOS		D			C			B			A	
Stops (vph)	39	170			176			319	3		422	5
Fuel Used(l)	2	11			14			20	1		35	1
CO Emissions (g/hr)	46	210			264			371	10		647	25

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	9	41			51			72	2		125	5
VOC Emissions (g/hr)	11	48			61			86	2		149	6
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	7.8	35.3			19.0			34.0	0.0		39.4	0.0
Queue Length 95th (m)	17.5	55.1			30.3			46.8	3.2		60.4	3.9
Internal Link Dist (m)		26.2			127.5			87.4			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	264	572			767			1279	490		1963	996
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.17	0.36			0.36			0.39	0.08		0.56	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 94 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 16.9		Intersection LOS: B	
Intersection Capacity Utilization 91.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	220	15	20	285	20	15	0	15	15	0	15
Future Vol, veh/h	15	220	15	20	285	20	15	0	15	15	0	15
Conflicting Peds, #/hr	78	0	155	155	0	78	2	0	137	137	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	229	16	21	297	21	16	0	16	16	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	396	0	0	400	0	0	784	862	529	842	860	388
Stage 1	-	-	-	-	-	-	424	424	-	428	428	-
Stage 2	-	-	-	-	-	-	360	438	-	414	432	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1163	-	-	1159	-	-	311	293	550	284	294	660
Stage 1	-	-	-	-	-	-	608	587	-	605	585	-
Stage 2	-	-	-	-	-	-	658	579	-	616	582	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	993	-	-	251	223	412	214	224	611
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	223	-	214	224	-
Stage 1	-	-	-	-	-	-	512	494	-	552	529	-
Stage 2	-	-	-	-	-	-	623	523	-	509	490	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.5	17.8	17.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	312	1079	-	-	993	-	-	317
HCM Lane V/C Ratio	0.1	0.014	-	-	0.021	-	-	0.099
HCM Control Delay (s)	17.8	8.4	0	-	8.7	0	-	17.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	50	200	20	10	85	10	50	30	175	25	115	255
Future Volume (vph)	50	200	20	10	85	10	50	30	175	25	115	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%				0%			0%
Storage Length (m)	0.0		50.0	0.0		50.0				0.0	0.0	
Storage Lanes	0		1	0		2				0	0	
Taper Length (m)	2.5			2.5							2.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.93			0.98		0.67		0.97			0.97
Frt		0.989				0.850	0.850		0.985			
Flt Protected		0.991			0.995				0.994			0.985
Satd. Flow (prot)	0	3436	0	0	1874	1601	1601	0	1813	0	0	1855
Flt Permitted		0.882			0.959				0.860			0.776
Satd. Flow (perm)	0	2904	0	0	1774	1601	1077	0	1546	0	0	1419
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		10					82		11			
Link Speed (k/h)		50			50				50			50
Link Distance (m)		146.4			126.4				186.3			87.8
Travel Time (s)		10.5			9.1				13.4			6.3
Confl. Peds. (#/hr)	141		118	118			141	107		110	110	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	56	222	22	11	94	11	56	33	194	28	128	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	0	105	11	56	0	255	0	0	411
Turn Type	Perm	NA		Perm	NA	custom	Perm	Perm	NA		Perm	NA
Protected Phases		2			6	1			8			4
Permitted Phases	2			6		6	6	8			4	
Total Split (s)	27.0	27.0		27.0	27.0	9.0	27.0	44.0	44.0		44.0	44.0
Total Lost Time (s)		6.0			6.0	3.0	6.0		6.0			6.0
Act Effct Green (s)		38.1			38.1	43.0	38.1		28.0			28.0
Actuated g/C Ratio		0.48			0.48	0.54	0.48		0.35			0.35
v/c Ratio		0.22			0.12	0.01	0.10		0.47			0.83
Control Delay		15.1			16.1	12.0	3.3		20.8			37.6
Queue Delay		0.0			0.0	0.0	0.0		0.0			0.0
Total Delay		15.1			16.1	12.0	3.3		20.8			37.6
LOS		B			B	B	A		C			D
Approach Delay		15.1			11.7				20.8			33.0
Approach LOS		B			B				C			C
Stops (vph)		157			56	6	5		157			321
Fuel Used(l)		10			4	0	1		11			21
CO Emissions (g/hr)		194			66	6	16		210			390

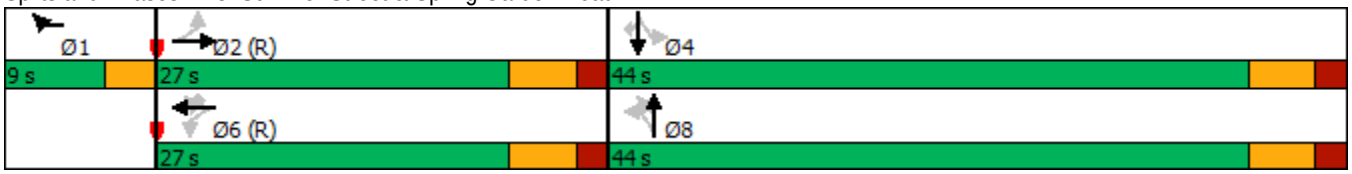
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	125
Future Volume (vph)	125
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Grade (%)	
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	0.75
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1196
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	107
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	139
Shared Lane Traffic (%)	
Lane Group Flow (vph)	139
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Total Split (s)	44.0
Total Lost Time (s)	6.0
Act Effct Green (s)	28.0
Actuated g/C Ratio	0.35
v/c Ratio	0.33
Control Delay	19.6
Queue Delay	0.0
Total Delay	19.6
LOS	B
Approach Delay	
Approach LOS	
Stops (vph)	84
Fuel Used(l)	5
CO Emissions (g/hr)	89

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
NOx Emissions (g/hr)		37			13	1	3		40			75
VOC Emissions (g/hr)		45			15	1	4		48			90
Dilemma Vehicles (#)		0			0	0	0		0			0
Queue Length 50th (m)		12.2			8.1	0.7	0.0		28.0			55.8
Queue Length 95th (m)		29.6			24.5	3.7	5.0		39.1			74.9
Internal Link Dist (m)		122.4			102.4				162.3			63.8
Turn Bay Length (m)						50.0	50.0					
Base Capacity (vph)		1387			844	860	555		740			674
Starvation Cap Reductn		0			0	0	0		0			0
Spillback Cap Reductn		0			0	0	0		0			0
Storage Cap Reductn		0			0	0	0		0			0
Reduced v/c Ratio		0.22			0.12	0.01	0.10		0.34			0.61

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 71.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Summer Street & Spring Garden Road



Lane Group	SBR
NOx Emissions (g/hr)	17
VOC Emissions (g/hr)	21
Dilemma Vehicles (#)	0
Queue Length 50th (m)	15.2
Queue Length 95th (m)	23.7
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	568
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.24

Intersection Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:45	7:45	7:45	7:45	7:45	7:45	7:45
End Time	9:00	9:00	9:00	9:00	9:00	9:00	9:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2933	3027	2935	2902	2987	2966	3034
Vehs Exited	2950	3046	2934	2914	2985	2981	3032
Starting Vehs	50	63	39	46	32	56	55
Ending Vehs	33	44	40	34	34	41	57
Travel Distance (km)	909	940	903	908	928	918	946
Travel Time (hr)	40.2	43.1	40.4	41.2	42.3	41.5	43.4
Total Delay (hr)	20.2	22.5	20.7	21.4	22.0	21.3	22.6
Total Stops	2230	2505	2351	2373	2368	2351	2417
Fuel Used (l)	108.7	114.5	109.6	110.1	112.9	110.6	114.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:45	7:45	7:45	7:45
End Time	9:00	9:00	9:00	9:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2908	2969	3047	2973
Vehs Exited	2922	2940	3057	2975
Starting Vehs	46	40	54	44
Ending Vehs	32	69	44	38
Travel Distance (km)	912	920	952	924
Travel Time (hr)	40.2	42.0	44.3	41.9
Total Delay (hr)	20.2	21.9	23.5	21.6
Total Stops	2303	2364	2470	2377
Fuel Used (l)	109.2	111.0	115.9	111.7

Interval #0 Information Seeding

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	715	716	751	733	719	747	724
Vehs Exited	732	737	750	747	697	764	729
Starting Vehs	50	63	39	46	32	56	55
Ending Vehs	33	42	40	32	54	39	50
Travel Distance (km)	223	224	232	231	220	236	227
Travel Time (hr)	9.7	10.2	10.2	10.4	9.8	10.7	10.7
Total Delay (hr)	4.8	5.3	5.1	5.4	4.9	5.5	5.7
Total Stops	512	581	604	573	537	628	615
Fuel Used (l)	26.3	27.2	28.1	28.6	26.1	28.4	28.0

Interval #1 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	710	715	757	730
Vehs Exited	723	719	762	737
Starting Vehs	46	40	54	44
Ending Vehs	33	36	49	38
Travel Distance (km)	221	225	235	227
Travel Time (hr)	9.4	10.3	10.5	10.2
Total Delay (hr)	4.6	5.4	5.3	5.2
Total Stops	541	576	597	579
Fuel Used (l)	26.1	27.1	28.4	27.4

Interval #2 Information Recording

Start Time	8:15
End Time	8:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	769	790	734	756	785	752	793
Vehs Exited	754	787	744	737	810	753	790
Starting Vehs	33	42	40	32	54	39	50
Ending Vehs	48	45	30	51	29	38	53
Travel Distance (km)	238	242	224	233	244	232	243
Travel Time (hr)	10.8	10.9	10.1	10.2	11.4	10.8	11.0
Total Delay (hr)	5.6	5.6	5.2	5.2	6.1	5.7	5.7
Total Stops	611	601	597	577	650	599	594
Fuel Used (l)	28.6	29.0	27.3	27.6	30.4	28.3	29.5

Interval #2 Information Recording

Start Time	8:15
End Time	8:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	785	762	803	774
Vehs Exited	774	747	798	770
Starting Vehs	33	36	49	38
Ending Vehs	44	51	54	40
Travel Distance (km)	244	233	249	238
Travel Time (hr)	11.3	10.5	11.1	10.8
Total Delay (hr)	5.9	5.3	5.7	5.6
Total Stops	670	599	618	610
Fuel Used (l)	29.6	28.1	29.6	28.8

Interval #3 Information Recording

Start Time	8:30
End Time	8:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	721	764	713	691	741	726	741
Vehs Exited	732	756	696	700	726	706	734
Starting Vehs	48	45	30	51	29	38	53
Ending Vehs	37	53	47	42	44	58	60
Travel Distance (km)	222	232	219	216	232	218	232
Travel Time (hr)	10.2	10.3	9.8	10.0	10.5	9.9	10.6
Total Delay (hr)	5.4	5.3	5.1	5.2	5.4	5.1	5.5
Total Stops	573	637	575	601	604	562	595
Fuel Used (l)	27.3	28.2	26.6	26.1	27.9	26.1	27.9

Interval #3 Information Recording

Start Time	8:30
End Time	8:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	718	702	781	731
Vehs Exited	719	714	787	727
Starting Vehs	44	51	54	40
Ending Vehs	43	39	48	44
Travel Distance (km)	225	220	249	227
Travel Time (hr)	9.9	10.1	12.2	10.4
Total Delay (hr)	5.1	5.3	6.7	5.4
Total Stops	568	558	662	590
Fuel Used (l)	27.1	26.8	31.0	27.5

Interval #4 Information Recording

Start Time	8:45
End Time	9:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	728	757	737	722	742	741	776
Vehs Exited	732	766	744	730	752	758	779
Starting Vehs	37	53	47	42	44	58	60
Ending Vehs	33	44	40	34	34	41	57
Travel Distance (km)	225	242	229	228	233	232	245
Travel Time (hr)	9.4	11.6	10.2	10.6	10.6	10.1	11.1
Total Delay (hr)	4.4	6.4	5.2	5.6	5.5	5.0	5.7
Total Stops	534	686	575	622	577	562	613
Fuel Used (l)	26.4	30.2	27.5	27.8	28.5	27.8	29.4

Interval #4 Information Recording

Start Time	8:45
End Time	9:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	695	790	706	740
Vehs Exited	706	760	710	742
Starting Vehs	43	39	48	44
Ending Vehs	32	69	44	38
Travel Distance (km)	222	242	220	232
Travel Time (hr)	9.5	11.2	10.5	10.5
Total Delay (hr)	4.7	5.9	5.7	5.4
Total Stops	524	631	593	592
Fuel Used (l)	26.4	29.0	27.0	28.0

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	1.0	0.7	0.0	0.0	0.0	0.4	0.1	0.1	0.5	0.2	0.2
Total Delay (hr)	0.5	1.5	0.3	0.6	1.1	0.3	0.3	2.8	0.1	1.3	4.3	0.1
Total Del/Veh (s)	40.1	32.1	24.4	38.4	22.7	13.1	25.4	21.7	5.7	27.6	17.0	3.7
Stop Delay (hr)	0.5	1.3	0.2	0.5	1.0	0.3	0.2	2.2	0.1	1.0	2.7	0.1
Stop Del/Veh (s)	38.5	29.0	24.1	35.7	19.5	11.8	21.0	17.2	5.5	20.7	10.9	3.2

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	13.0
Total Del/Veh (s)	20.8
Stop Delay (hr)	10.1
Stop Del/Veh (s)	16.2

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Total Delay (hr)	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.6
Total Del/Veh (s)	4.7	1.9	1.7	5.7	2.3	1.7	9.0	7.0	13.2	4.6	2.7
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Stop Del/Veh (s)	2.0	0.4	0.4	3.1	0.6	0.9	7.1	6.7	11.2	4.4	1.2

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.4	0.3	0.3	3.7	3.9	0.2	0.2	0.3	0.7	0.7
Total Delay (hr)	0.3	0.8	0.0	0.0	0.3	0.0	0.1	0.2	1.1	0.1	0.8	1.9
Total Del/Veh (s)	19.3	14.2	7.7	14.7	13.4	9.6	6.2	30.2	22.7	16.5	26.9	26.3
Stop Delay (hr)	0.2	0.6	0.0	0.0	0.2	0.0	0.1	0.2	0.9	0.1	0.7	1.6
Stop Del/Veh (s)	17.0	11.3	6.9	12.3	10.7	8.8	5.1	26.6	18.0	14.3	23.2	21.3

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.5	0.6
Total Delay (hr)	0.7	6.5
Total Del/Veh (s)	19.9	20.2
Stop Delay (hr)	0.7	5.4
Stop Del/Veh (s)	18.4	16.8

Total Network Performance

Denied Delay (hr)	0.3
Denied Del/Veh (s)	0.4
Total Delay (hr)	21.3
Total Del/Veh (s)	25.4
Stop Delay (hr)	15.9
Stop Del/Veh (s)	19.0

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	26.2	43.0	43.2	37.2	78.2	63.0	16.3	112.2	100.5	17.7
Average Queue (m)	9.3	29.8	21.6	16.7	46.4	25.4	5.5	67.4	47.7	5.5
95th Queue (m)	20.7	47.2	37.0	31.9	70.7	57.1	13.0	102.3	86.2	13.9
Link Distance (m)	37.9	37.9	133.4		103.6	103.6	103.6	175.3	175.3	175.3
Upstream Blk Time (%)	0	7			0					
Queuing Penalty (veh)	0	0			0					
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	0						
Queuing Penalty (veh)			0	0						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.2	28.9	14.8	16.0
Average Queue (m)	3.7	7.5	5.8	6.2
95th Queue (m)	13.6	21.3	13.5	14.2
Link Distance (m)	133.4	131.9	120.5	104.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	33.0	28.9	27.6	11.5	18.5	66.4	79.9	50.5
Average Queue (m)	17.0	10.6	10.9	1.5	6.9	30.0	49.6	19.3
95th Queue (m)	30.3	23.0	23.3	7.1	15.6	52.9	77.7	39.0
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)							2	0
Queuing Penalty (veh)							0	0
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	WBTL
Maximum Green (s)	58.0	32.0	10.0	44.0	32.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None
Avg. Green (s)	63.9	26.1	15.9	44.0	26.1
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	22	100	100	22
Cycles with Peds (%)	84	94	0	94	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

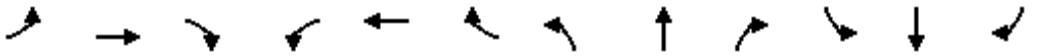
Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	21.0	38.0	21.0	38.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	7.4	36.2	31.8	36.2	31.8
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	93	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	37	100	37
Cycles with Peds (%)	0	93	95	95	88

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

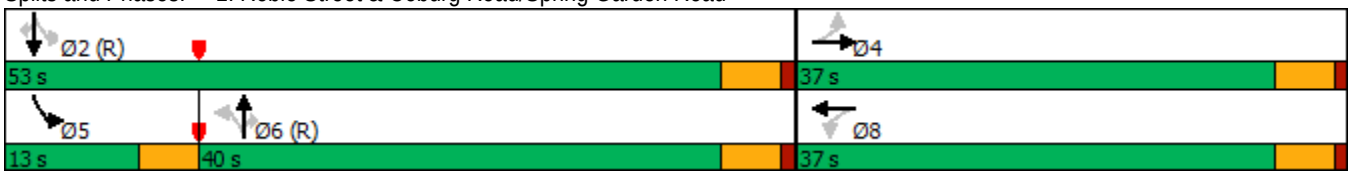


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	155	15	30	175	165	90	860	25	100	380	45
Future Volume (vph)	95	155	15	30	175	165	90	860	25	100	380	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.84	0.98			0.85			0.99	0.49			0.86
Frt		0.987			0.933				0.850			0.850
Flt Protected	0.950				0.996			0.995			0.990	
Satd. Flow (prot)	1789	1817	0	0	2874	0	0	3561	1601	0	3543	1601
Flt Permitted	0.407				0.915			0.823			0.570	
Satd. Flow (perm)	647	1817	0	0	2599	0	0	2927	792	0	2040	1370
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			181				73			49
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			151.5			111.4			186.2	
Travel Time (s)		3.6			10.9			8.0			13.4	
Confl. Peds. (#/hr)	199		172	172		199	90		198	198		90
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	170	16	33	192	181	99	945	27	110	418	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	186	0	0	406	0	0	1044	27	0	528	49
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	37.0	37.0		37.0	37.0		40.0	40.0	40.0	13.0	53.0	53.0
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	20.8	20.8			20.8			35.0	35.0		59.2	59.2
Actuated g/C Ratio	0.23	0.23			0.23			0.39	0.39		0.66	0.66
v/c Ratio	0.70	0.44			0.55			0.92	0.08		0.32	0.05
Control Delay	55.6	31.2			18.8			40.2	0.4		7.3	2.5
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	55.6	31.2			18.8			40.2	0.4		7.3	2.5
LOS	E	C			B			D	A		A	A
Approach Delay		40.0			18.8			39.2			6.9	
Approach LOS		D			B			D			A	
Stops (vph)	87	134			175			826	0		183	6
Fuel Used(l)	6	8			15			58	0		15	1
CO Emissions (g/hr)	120	146			271			1077	5		284	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	23	28			52			208	1		55	4
VOC Emissions (g/hr)	28	34			63			248	1		66	4
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	17.3	27.9			18.1			88.3	0.0		15.2	0.0
Queue Length 95th (m)	31.7	40.8			28.0			#128.6	0.0		30.4	4.3
Internal Link Dist (m)		26.2			127.5			87.4			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	230	649			1040			1138	352		1662	918
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.45	0.29			0.39			0.92	0.08		0.32	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 88.0%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	20	345	20	15	215	25	15	0	35	30	0	15
Future Vol, veh/h	20	345	20	15	215	25	15	0	35	30	0	15
Conflicting Peds, #/hr	191	0	267	267	0	191	16	0	207	207	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	383	22	17	239	28	17	0	39	33	0	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	458	0	0	672	0	0	1017	1197	868	1143	1194	460
Stage 1	-	-	-	-	-	-	705	705	-	478	478	-
Stage 2	-	-	-	-	-	-	312	492	-	665	716	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1103	-	-	919	-	-	216	186	352	177	187	601
Stage 1	-	-	-	-	-	-	427	439	-	568	556	-
Stage 2	-	-	-	-	-	-	699	548	-	449	434	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	908	-	-	692	-	-	148	109	214	92	109	488
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	109	-	92	109	-
Stage 1	-	-	-	-	-	-	312	320	-	453	445	-
Stage 2	-	-	-	-	-	-	646	438	-	288	317	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.6	31.8	51.2
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	189	908	-	-	692	-	-	126
HCM Lane V/C Ratio	0.294	0.024	-	-	0.024	-	-	0.397
HCM Control Delay (s)	31.8	9.1	0	-	10.3	0	-	51.2
HCM Lane LOS	D	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0.1	-	-	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	50	175	20	10	160	15	50	60	360	10	60	130
Future Volume (vph)	50	175	20	10	160	15	50	60	360	10	60	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%				0%			0%
Storage Length (m)	0.0		50.0	0.0		50.0				0.0	0.0	
Storage Lanes	0		1	0		2				0	0	
Taper Length (m)	2.5			2.5							2.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.89			0.98		0.56		0.97			0.97
Frt		0.988				0.850	0.850		0.997			
Flt Protected		0.990			0.997				0.993			0.984
Satd. Flow (prot)	0	3355	0	0	1878	1601	1601	0	1855	0	0	1853
Flt Permitted		0.864			0.980				0.923			0.709
Satd. Flow (perm)	0	2726	0	0	1809	1601	889	0	1676	0	0	1294
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		11					82		2			
Link Speed (k/h)		50			50				50			50
Link Distance (m)		146.4			126.4				186.3			87.8
Travel Time (s)		10.5			9.1				13.4			6.3
Confl. Peds. (#/hr)	195		220	220			195	118		172	172	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	52	180	21	10	165	15	52	62	371	10	62	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	253	0	0	175	15	52	0	443	0	0	196
Turn Type	Perm	NA		Perm	NA	custom	Perm	Perm	NA		Perm	NA
Protected Phases		2			6	1			8			4
Permitted Phases	2			6		6	6	8			4	
Total Split (s)	26.0	26.0		26.0	26.0	9.0	26.0	45.0	45.0		45.0	45.0
Total Lost Time (s)		6.0			6.0	3.0	6.0		6.0			6.0
Act Effct Green (s)		39.0			39.0	44.0	39.0		27.0			27.0
Actuated g/C Ratio		0.49			0.49	0.55	0.49		0.34			0.34
v/c Ratio		0.19			0.20	0.02	0.11		0.78			0.45
Control Delay		14.3			15.7	11.2	3.0		33.1			22.7
Queue Delay		0.0			0.0	0.0	0.0		0.0			0.0
Total Delay		14.3			15.7	11.2	3.0		33.1			22.7
LOS		B			B	B	A		C			C
Approach Delay		14.3			12.7				33.1			21.6
Approach LOS		B			B				C			C
Stops (vph)		136			102	9	5		365			137
Fuel Used(l)		9			6	1	1		27			8
CO Emissions (g/hr)		170			119	10	15		497			148

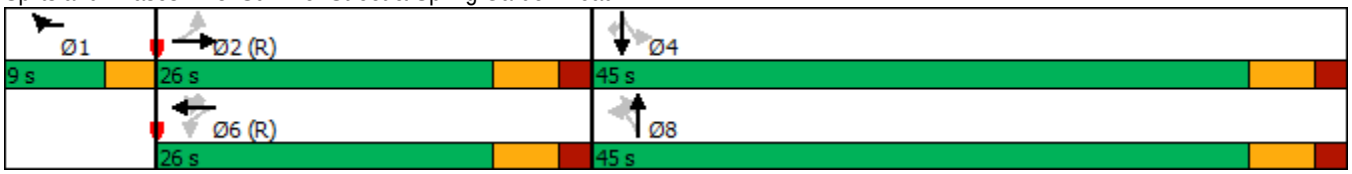
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	115
Future Volume (vph)	115
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Grade (%)	
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	0.72
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1158
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	118
Confl. Bikes (#/hr)	
Peak Hour Factor	0.97
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	119
Shared Lane Traffic (%)	
Lane Group Flow (vph)	119
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Total Split (s)	45.0
Total Lost Time (s)	6.0
Act Effct Green (s)	27.0
Actuated g/C Ratio	0.34
v/c Ratio	0.30
Control Delay	19.8
Queue Delay	0.0
Total Delay	19.8
LOS	B
Approach Delay	
Approach LOS	
Stops (vph)	78
Fuel Used(l)	4
CO Emissions (g/hr)	83

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
NOx Emissions (g/hr)		33			23	2	3		96			29
VOC Emissions (g/hr)		39			27	2	4		115			34
Dilemma Vehicles (#)		0			0	0	0		0			0
Queue Length 50th (m)		9.8			13.7	1.0	0.0		59.1			22.8
Queue Length 95th (m)		24.8			37.4	4.4	4.2		77.0			33.8
Internal Link Dist (m)		122.4			102.4				162.3			63.8
Turn Bay Length (m)						50.0	50.0					
Base Capacity (vph)		1334			881	879	475		818			630
Starvation Cap Reductn		0			0	0	0		0			0
Spillback Cap Reductn		0			0	0	0		0			0
Storage Cap Reductn		0			0	0	0		0			0
Reduced v/c Ratio		0.19			0.20	0.02	0.11		0.54			0.31

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 87.9% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Summer Street & Spring Garden Road



Lane Group	SBR
NOx Emissions (g/hr)	16
VOC Emissions (g/hr)	19
Dilemma Vehicles (#)	0
Queue Length 50th (m)	13.1
Queue Length 95th (m)	21.5
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	564
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.21

Intersection Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:45	3:45	3:45	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3080	3229	3110	2982	3077	3006	3003
Vehs Exited	3083	3221	3111	2988	3060	3015	3001
Starting Vehs	36	39	42	46	36	45	31
Ending Vehs	33	47	41	40	53	36	33
Travel Distance (km)	933	983	945	908	932	909	918
Travel Time (hr)	45.3	48.9	47.1	43.5	44.8	44.5	44.2
Total Delay (hr)	24.8	27.4	26.4	23.6	24.4	24.4	24.1
Total Stops	2589	2838	2709	2512	2602	2580	2544
Fuel Used (l)	118.5	126.2	121.1	115.1	116.9	116.5	115.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2997	2994	3063	3053
Vehs Exited	3003	2986	3062	3053
Starting Vehs	36	45	47	36
Ending Vehs	30	53	48	35
Travel Distance (km)	910	912	937	929
Travel Time (hr)	43.6	46.0	45.5	45.3
Total Delay (hr)	23.7	26.0	24.9	25.0
Total Stops	2547	2676	2661	2627
Fuel Used (l)	115.0	117.1	118.7	118.1

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	742	830	764	729	756	727	710
Vehs Exited	748	824	774	737	752	742	705
Starting Vehs	36	39	42	46	36	45	31
Ending Vehs	30	45	32	38	40	30	36
Travel Distance (km)	225	249	233	220	227	221	215
Travel Time (hr)	10.7	12.8	11.4	10.5	10.6	10.8	10.1
Total Delay (hr)	5.8	7.3	6.3	5.7	5.6	5.9	5.4
Total Stops	608	749	664	597	608	622	591
Fuel Used (l)	28.4	32.4	29.5	27.7	28.1	28.4	26.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	731	694	776	744
Vehs Exited	751	707	792	753
Starting Vehs	36	45	47	36
Ending Vehs	16	32	31	28
Travel Distance (km)	224	215	244	227
Travel Time (hr)	10.5	10.0	11.7	10.9
Total Delay (hr)	5.6	5.4	6.3	5.9
Total Stops	601	571	673	626
Fuel Used (l)	27.9	26.6	30.8	28.7

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	831	847	802	761	814	814	822
Vehs Exited	821	841	788	757	798	806	815
Starting Vehs	30	45	32	38	40	30	36
Ending Vehs	40	51	46	42	56	38	43
Travel Distance (km)	252	256	242	234	245	245	249
Travel Time (hr)	12.1	12.7	12.5	11.9	12.2	12.6	12.2
Total Delay (hr)	6.6	7.1	7.2	6.8	6.8	7.2	6.8
Total Stops	697	730	691	680	706	724	694
Fuel Used (l)	31.9	33.2	31.5	30.2	31.0	32.1	31.5

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	823	835	806	814
Vehs Exited	798	822	797	802
Starting Vehs	16	32	31	28
Ending Vehs	41	45	40	42
Travel Distance (km)	250	254	243	247
Travel Time (hr)	12.4	13.8	12.1	12.5
Total Delay (hr)	7.0	8.2	6.7	7.1
Total Stops	732	795	712	717
Fuel Used (l)	31.8	33.7	30.9	31.8

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	773	774	806	743	756	734	721
Vehs Exited	762	783	818	751	771	728	724
Starting Vehs	40	51	46	42	56	38	43
Ending Vehs	51	42	34	34	41	44	40
Travel Distance (km)	231	235	249	231	231	219	221
Travel Time (hr)	11.3	11.7	12.2	10.8	11.5	10.2	10.1
Total Delay (hr)	6.3	6.5	6.7	5.8	6.5	5.3	5.2
Total Stops	624	675	700	628	682	593	593
Fuel Used (l)	29.1	30.4	31.7	29.2	29.8	27.1	27.4

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	723	705	725	747
Vehs Exited	732	698	731	749
Starting Vehs	41	45	40	42
Ending Vehs	32	52	34	34
Travel Distance (km)	217	214	220	227
Travel Time (hr)	10.0	10.3	10.5	10.9
Total Delay (hr)	5.3	5.6	5.7	5.9
Total Stops	595	623	634	636
Fuel Used (l)	27.4	26.7	28.2	28.7

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	734	778	738	749	751	731	750
Vehs Exited	752	773	731	743	739	739	757
Starting Vehs	51	42	34	34	41	44	40
Ending Vehs	33	47	41	40	53	36	33
Travel Distance (km)	225	243	221	224	229	224	232
Travel Time (hr)	11.1	11.7	11.0	10.3	10.4	11.0	11.8
Total Delay (hr)	6.2	6.4	6.1	5.3	5.5	6.0	6.7
Total Stops	660	684	654	607	606	641	666
Fuel Used (l)	29.1	30.3	28.5	27.9	28.0	28.9	29.7

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	720	760	756	746
Vehs Exited	722	759	742	746
Starting Vehs	32	52	34	34
Ending Vehs	30	53	48	35
Travel Distance (km)	219	230	230	228
Travel Time (hr)	10.6	11.9	11.2	11.1
Total Delay (hr)	5.8	6.9	6.2	6.1
Total Stops	619	687	642	646
Fuel Used (l)	28.0	30.0	28.9	28.9

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.4	1.0	0.2	0.2	1.4	0.5	0.2	0.1	0.3	0.1	0.1
Total Delay (hr)	0.9	1.0	0.1	0.2	1.3	0.8	0.7	6.5	0.0	0.8	2.0	0.1
Total Del/Veh (s)	34.5	24.1	16.6	29.9	26.7	17.5	31.5	27.1	6.4	29.6	18.5	4.4
Stop Delay (hr)	0.9	0.9	0.1	0.2	1.1	0.8	0.6	5.0	0.0	0.7	1.5	0.1
Stop Del/Veh (s)	32.8	21.2	16.4	27.1	22.4	16.1	25.5	20.6	6.4	25.3	14.1	4.1

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	14.5
Total Del/Veh (s)	24.4
Stop Delay (hr)	11.8
Stop Del/Veh (s)	19.8

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Total Delay (hr)	0.0	0.4	0.0	0.0	0.2	0.0	0.1	0.2	0.2	0.0	1.2
Total Del/Veh (s)	5.8	3.8	2.6	11.9	2.9	3.6	15.5	16.2	24.0	9.2	5.4
Stop Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.0	0.8
Stop Del/Veh (s)	2.7	1.2	0.9	9.1	1.2	2.6	13.1	15.7	21.8	8.7	3.3

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.4	3.8	3.7	0.5	0.4	0.4	0.3	0.2
Total Delay (hr)	0.3	0.8	0.0	0.1	0.7	0.0	0.1	0.5	3.0	0.1	0.5	0.8
Total Del/Veh (s)	21.7	8.2	7.1	19.3	14.8	10.9	8.0	31.5	30.0	25.0	28.3	22.5
Stop Delay (hr)	0.2	0.6	0.0	0.0	0.5	0.0	0.1	0.5	2.3	0.1	0.4	0.7
Stop Del/Veh (s)	19.1	6.2	6.0	16.5	11.4	9.5	6.6	26.4	23.3	21.2	25.4	18.5

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.2	0.4
Total Delay (hr)	0.6	7.5
Total Del/Veh (s)	19.0	19.5
Stop Delay (hr)	0.6	6.1
Stop Del/Veh (s)	17.8	15.8

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.4
Total Delay (hr)	24.6
Total Del/Veh (s)	28.7
Stop Delay (hr)	18.8
Stop Del/Veh (s)	21.9

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	36.6	42.1	51.8	49.4	110.7	97.5	13.0	76.9	61.6	18.3
Average Queue (m)	17.0	21.8	22.9	22.8	81.1	59.0	4.2	42.3	21.3	5.4
95th Queue (m)	31.7	41.1	40.3	40.1	110.7	89.4	11.4	69.9	53.4	14.2
Link Distance (m)	37.9	37.9	133.4		103.6	103.6	103.6	175.3	175.3	175.3
Upstream Blk Time (%)	0	3			2	0				
Queuing Penalty (veh)	0	0			0	0				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	0						
Queuing Penalty (veh)			0	0						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	42.9	38.0	21.7	22.8
Average Queue (m)	11.2	9.2	9.3	9.9
95th Queue (m)	31.2	25.7	18.6	19.5
Link Distance (m)	133.4	131.9	120.5	104.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	34.5	28.7	39.6	15.0	18.7	104.0	56.8	36.7
Average Queue (m)	15.9	9.0	18.3	2.5	7.3	57.8	25.7	16.8
95th Queue (m)	29.6	21.7	33.6	10.7	16.0	92.4	47.1	31.8
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							0	
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)		0	0	0				
Queuing Penalty (veh)		0	0	0				

Network Summary

Network wide Queuing Penalty: 1

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	WBTL
Maximum Green (s)	48.0	32.0	9.0	35.0	32.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None
Avg. Green (s)	52.7	27.4	13.7	35.0	27.4
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	33	100	100	33
Cycles with Peds (%)	88	97	0	98	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	20.0	39.0	20.0	39.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	6.9	34.1	33.3	34.1	33.3
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	88	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	42	100	42
Cycles with Peds (%)	0	100	98	98	98

Controller Summary

Average Cycle Length (s): NA

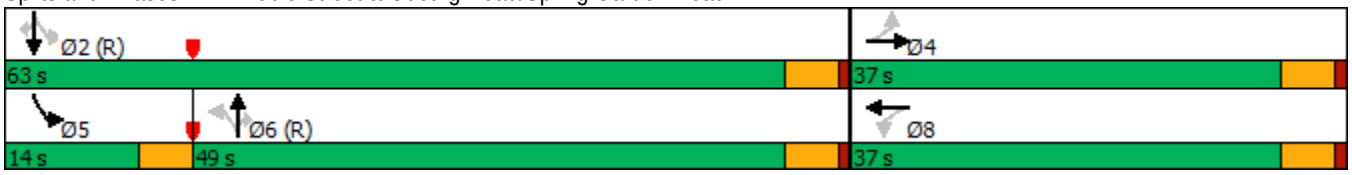
Number of Complete Cycles : 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	166	41	58	132	83	44	481	41	176	909	65
Future Volume (vph)	45	166	41	58	132	83	44	481	41	176	909	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.84	0.96			0.90			1.00	0.65		0.98	0.86
Frt		0.970			0.954				0.850			0.850
Flt Protected	0.950				0.989			0.996			0.992	
Satd. Flow (prot)	1789	1751	0	0	3122	0	0	3564	1601	0	3550	1601
Flt Permitted	0.511				0.716			0.782			0.677	
Satd. Flow (perm)	811	1751	0	0	2196	0	0	2792	1033	0	2376	1378
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			73				65			67
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			151.5			111.4			186.2	
Travel Time (s)		3.6			10.9			8.0			13.4	
Confl. Peds. (#/hr)	144		121	121		144	78		123	123		78
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	46	171	42	60	136	86	45	496	42	181	937	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	213	0	0	282	0	0	541	42	0	1118	67
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	37.0	37.0		37.0	37.0		49.0	49.0	49.0	14.0	63.0	63.0
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	19.3	19.3			19.3			44.0	44.0		70.7	70.7
Actuated g/C Ratio	0.19	0.19			0.19			0.44	0.44		0.71	0.71
v/c Ratio	0.29	0.61			0.58			0.44	0.09		0.58	0.07
Control Delay	39.3	42.4			31.9			20.9	2.3		7.9	1.6
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	39.3	42.4			31.9			20.9	2.3		7.9	1.6
LOS	D	D			C			C	A		A	A
Approach Delay		41.8			31.9			19.5			7.5	
Approach LOS		D			C			B			A	
Stops (vph)	38	175			182			351	3		432	5
Fuel Used(l)	2	12			15			22	1		35	1
CO Emissions (g/hr)	45	217			274			407	11		659	25

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	9	42			53			78	2		127	5
VOC Emissions (g/hr)	10	50			63			94	2		152	6
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	7.8	36.4			19.6			37.3	0.0		39.9	0.0
Queue Length 95th (m)	17.4	56.2			31.2			51.3	3.3		62.6	4.0
Internal Link Dist (m)		26.2			127.5			87.4			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	259	569			752			1228	490		1933	993
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.18	0.37			0.38			0.44	0.09		0.58	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 94 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 91.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



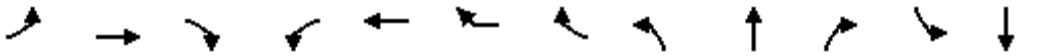
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	220	15	20	285	23	15	0	15	25	0	23
Future Vol, veh/h	18	220	15	20	285	23	15	0	15	25	0	23
Conflicting Peds, #/hr	78	0	155	155	0	78	2	0	137	137	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	229	16	21	297	24	16	0	16	26	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	399	0	0	400	0	0	795	871	529	849	867	389
Stage 1	-	-	-	-	-	-	430	430	-	429	429	-
Stage 2	-	-	-	-	-	-	365	441	-	420	438	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1160	-	-	1159	-	-	305	289	550	281	291	659
Stage 1	-	-	-	-	-	-	603	583	-	604	584	-
Stage 2	-	-	-	-	-	-	654	577	-	611	579	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1076	-	-	993	-	-	242	219	412	212	221	610
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	219	-	212	221	-
Stage 1	-	-	-	-	-	-	507	490	-	549	528	-
Stage 2	-	-	-	-	-	-	611	522	-	503	486	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.5	18.1	18.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	305	1076	-	-	993	-	-	308
HCM Lane V/C Ratio	0.102	0.017	-	-	0.021	-	-	0.162
HCM Control Delay (s)	18.1	8.4	0	-	8.7	0	-	18.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.6



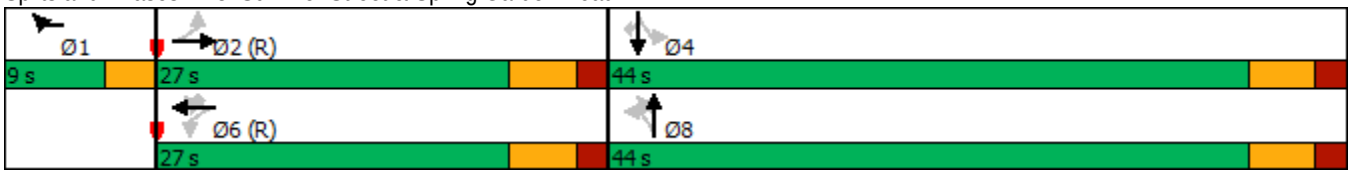
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	201	21	13	85	10	50	30	201	30	115	282
Future Volume (vph)	58	201	21	13	85	10	50	30	201	30	115	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%				0%			0%
Storage Length (m)	0.0		50.0	0.0		50.0				0.0	0.0	
Storage Lanes	0		1	0		2				0	0	
Taper Length (m)	2.5			2.5							2.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.92			0.98		0.67		0.97			0.97
Frt		0.989				0.850	0.850		0.985			
Flt Protected		0.990			0.994				0.994			0.986
Satd. Flow (prot)	0	3432	0	0	1872	1601	1601	0	1811	0	0	1857
Flt Permitted		0.870			0.945				0.861			0.767
Satd. Flow (perm)	0	2848	0	0	1741	1601	1077	0	1551	0	0	1408
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		10					82		11			
Link Speed (k/h)		50			50				50			50
Link Distance (m)		146.4			126.4				186.3			87.8
Travel Time (s)		10.5			9.1				13.4			6.3
Confl. Peds. (#/hr)	141		118	118			141	107		110	110	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	64	223	23	14	94	11	56	33	223	33	128	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	310	0	0	108	11	56	0	289	0	0	441
Turn Type	Perm	NA		Perm	NA	custom	Perm	Perm	NA		Perm	NA
Protected Phases		2			6	1			8			4
Permitted Phases	2			6		6	6	8			4	
Total Split (s)	27.0	27.0		27.0	27.0	9.0	27.0	44.0	44.0		44.0	44.0
Total Lost Time (s)		6.0			6.0	3.0	6.0		6.0			6.0
Act Effct Green (s)		36.7			36.7	41.5	36.7		29.5			29.5
Actuated g/C Ratio		0.46			0.46	0.52	0.46		0.37			0.37
v/c Ratio		0.24			0.14	0.01	0.10		0.50			0.85
Control Delay		16.0			17.0	12.8	3.4		20.6			38.3
Queue Delay		0.0			0.0	0.0	0.0		0.0			0.0
Total Delay		16.0			17.0	12.8	3.4		20.6			38.3
LOS		B			B	B	A		C			D
Approach Delay		16.0			12.4				20.6			33.5
Approach LOS		B			B				C			C
Stops (vph)		168			59	7	5		178			347
Fuel Used(l)		11			4	0	1		13			23
CO Emissions (g/hr)		206			70	7	16		237			424

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	128
Future Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Grade (%)	
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	0.75
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1196
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	107
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Total Split (s)	44.0
Total Lost Time (s)	6.0
Act Effct Green (s)	29.5
Actuated g/C Ratio	0.37
v/c Ratio	0.32
Control Delay	18.4
Queue Delay	0.0
Total Delay	18.4
LOS	B
Approach Delay	
Approach LOS	
Stops (vph)	83
Fuel Used(l)	5
CO Emissions (g/hr)	88

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
NOx Emissions (g/hr)		40			13	1	3		46			82
VOC Emissions (g/hr)		48			16	2	4		55			98
Dilemma Vehicles (#)		0			0	0	0		0			0
Queue Length 50th (m)		13.3			8.7	0.8	0.0		31.6			59.8
Queue Length 95th (m)		31.0			25.5	3.8	5.0		43.7			80.9
Internal Link Dist (m)		122.4			102.4				162.3			63.8
Turn Bay Length (m)						50.0	50.0					
Base Capacity (vph)		1311			798	830	538		742			668
Starvation Cap Reductn		0			0	0	0		0			0
Spillback Cap Reductn		0			0	0	0		0			0
Storage Cap Reductn		0			0	0	0		0			0
Reduced v/c Ratio		0.24			0.14	0.01	0.10		0.39			0.66

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 25 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 73.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Summer Street & Spring Garden Road



Lane Group	SBR
NOx Emissions (g/hr)	17
VOC Emissions (g/hr)	20
Dilemma Vehicles (#)	0
Queue Length 50th (m)	15.0
Queue Length 95th (m)	23.6
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	568
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.25

Intersection Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:45	7:45	7:45	7:45	7:45	7:45	7:45
End Time	9:00	9:00	9:00	9:00	9:00	9:00	9:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3042	3135	3140	3097	3132	3102	3186
Vehs Exited	3053	3116	3135	3098	3133	3111	3186
Starting Vehs	58	45	64	38	36	47	54
Ending Vehs	47	64	69	37	35	38	54
Travel Distance (km)	943	969	971	959	967	971	991
Travel Time (hr)	42.7	46.0	44.7	43.5	44.8	46.0	46.5
Total Delay (hr)	22.1	24.9	23.5	22.5	23.6	24.7	24.8
Total Stops	2487	2726	2569	2512	2515	2645	2708
Fuel Used (l)	115.2	121.0	119.3	115.9	118.2	120.1	122.4

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:45	7:45	7:45	7:45
End Time	9:00	9:00	9:00	9:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3094	3101	3052	3108
Vehs Exited	3109	3101	3047	3110
Starting Vehs	49	45	43	45
Ending Vehs	34	45	48	42
Travel Distance (km)	962	961	949	964
Travel Time (hr)	45.4	44.3	42.8	44.7
Total Delay (hr)	24.3	23.3	22.0	23.6
Total Stops	2553	2567	2430	2573
Fuel Used (l)	118.3	117.2	114.2	118.2

Interval #0 Information Seeding

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	756	771	720	757	753	726	833
Vehs Exited	768	765	741	765	726	731	831
Starting Vehs	58	45	64	38	36	47	54
Ending Vehs	46	51	43	30	63	42	56
Travel Distance (km)	235	238	230	234	231	233	258
Travel Time (hr)	11.1	10.9	10.4	10.1	10.0	10.7	12.8
Total Delay (hr)	5.9	5.8	5.4	5.0	5.0	5.5	7.1
Total Stops	666	663	568	578	571	610	771
Fuel Used (l)	29.1	29.4	28.2	27.9	26.8	28.1	32.8

Interval #1 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	798	751	768	764
Vehs Exited	805	758	762	766
Starting Vehs	49	45	43	45
Ending Vehs	42	38	49	44
Travel Distance (km)	250	233	238	238
Travel Time (hr)	11.7	10.6	10.8	10.9
Total Delay (hr)	6.2	5.5	5.6	5.7
Total Stops	695	613	630	637
Fuel Used (l)	31.0	28.4	28.3	29.0

Interval #2 Information Recording

Start Time	8:15
End Time	8:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	792	808	845	816	872	838	825
Vehs Exited	790	810	844	783	897	824	835
Starting Vehs	46	51	43	30	63	42	56
Ending Vehs	48	49	44	63	38	56	46
Travel Distance (km)	243	252	258	246	276	259	255
Travel Time (hr)	11.0	11.8	12.1	12.1	13.2	12.2	11.7
Total Delay (hr)	5.7	6.2	6.5	6.7	7.2	6.5	6.1
Total Stops	663	704	727	718	758	701	681
Fuel Used (l)	29.9	31.4	32.0	30.3	34.8	31.9	31.2

Interval #2 Information Recording

Start Time	8:15
End Time	8:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	810	806	788	816
Vehs Exited	803	795	779	817
Starting Vehs	42	38	49	44
Ending Vehs	49	49	58	49
Travel Distance (km)	251	249	245	253
Travel Time (hr)	13.1	11.4	10.9	12.0
Total Delay (hr)	7.7	6.0	5.5	6.4
Total Stops	696	680	625	695
Fuel Used (l)	32.2	30.4	29.5	31.4

Interval #3 Information Recording

Start Time	8:30
End Time	8:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	757	771	796	748	742	786	744
Vehs Exited	769	767	798	768	741	797	752
Starting Vehs	48	49	44	63	38	56	46
Ending Vehs	36	53	42	43	39	45	38
Travel Distance (km)	234	241	246	237	226	241	236
Travel Time (hr)	10.3	11.4	11.1	10.5	10.2	11.4	10.6
Total Delay (hr)	5.1	6.2	5.7	5.3	5.2	6.1	5.4
Total Stops	578	683	626	612	572	632	595
Fuel Used (l)	27.9	29.9	30.1	28.7	27.4	29.7	28.6

Interval #3 Information Recording

Start Time	8:30
End Time	8:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	743	753	750	760
Vehs Exited	743	752	769	767
Starting Vehs	49	49	58	49
Ending Vehs	49	50	39	41
Travel Distance (km)	230	232	233	236
Travel Time (hr)	10.4	10.5	10.9	10.7
Total Delay (hr)	5.4	5.4	5.8	5.6
Total Stops	583	598	613	608
Fuel Used (l)	27.4	28.1	28.8	28.7

Interval #4 Information Recording

Start Time	8:45
End Time	9:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	737	785	779	776	765	752	784
Vehs Exited	726	774	752	782	769	759	768
Starting Vehs	36	53	42	43	39	45	38
Ending Vehs	47	64	69	37	35	38	54
Travel Distance (km)	231	238	237	241	234	237	241
Travel Time (hr)	10.4	11.9	11.0	10.8	11.3	11.8	11.5
Total Delay (hr)	5.3	6.7	5.9	5.5	6.2	6.6	6.2
Total Stops	580	676	648	604	614	702	661
Fuel Used (l)	28.3	30.2	29.1	29.0	29.2	30.4	29.8

Interval #4 Information Recording

Start Time	8:45
End Time	9:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	743	791	746	766
Vehs Exited	758	796	737	762
Starting Vehs	49	50	39	41
Ending Vehs	34	45	48	42
Travel Distance (km)	229	247	234	237
Travel Time (hr)	10.2	11.7	10.2	11.1
Total Delay (hr)	5.1	6.3	5.1	5.9
Total Stops	579	676	562	629
Fuel Used (l)	27.7	30.3	27.6	29.1

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	1.0	1.3	1.0	0.0	0.0	0.0	0.4	0.1	0.1	0.5	0.2	0.2
Total Delay (hr)	0.5	1.5	0.3	0.6	1.2	0.3	0.3	2.9	0.1	1.3	4.6	0.1
Total Del/Veh (s)	42.1	32.1	25.1	36.1	22.5	14.1	27.4	21.3	5.8	28.1	18.1	4.3
Stop Delay (hr)	0.5	1.4	0.3	0.6	1.0	0.3	0.3	2.3	0.1	1.0	3.0	0.1
Stop Del/Veh (s)	40.5	28.9	24.9	33.1	19.2	12.7	23.3	16.8	5.6	21.2	11.8	3.9

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	13.8
Total Del/Veh (s)	21.4
Stop Delay (hr)	10.7
Stop Del/Veh (s)	16.7

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Delay (hr)	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.7
Total Del/Veh (s)	5.5	2.0	1.8	6.3	2.4	2.0	8.7	7.9	12.2	4.3	3.0
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.3
Stop Del/Veh (s)	2.4	0.4	0.5	3.6	0.7	1.1	6.8	7.8	10.2	4.0	1.4

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.2	0.4	0.3	3.8	3.8	0.2	0.3	0.3	1.2	1.1
Total Delay (hr)	0.3	0.9	0.0	0.1	0.3	0.0	0.1	0.3	1.4	0.2	0.9	2.2
Total Del/Veh (s)	18.5	15.1	8.5	17.6	12.8	10.5	6.8	33.8	24.9	19.1	28.4	27.7
Stop Delay (hr)	0.3	0.7	0.0	0.1	0.3	0.0	0.1	0.2	1.2	0.1	0.8	1.8
Stop Del/Veh (s)	16.1	12.0	7.8	15.1	10.0	9.6	5.7	30.2	20.0	16.8	24.6	22.5

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.3
Denied Del/Veh (s)	0.8	0.7
Total Delay (hr)	0.8	7.5
Total Del/Veh (s)	20.2	21.5
Stop Delay (hr)	0.7	6.2
Stop Del/Veh (s)	18.7	17.9

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.5
Total Delay (hr)	23.1
Total Del/Veh (s)	26.4
Stop Delay (hr)	17.4
Stop Del/Veh (s)	19.9

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	30.8	46.0	46.3	42.6	82.4	64.1	17.3	117.5	108.5	20.7
Average Queue (m)	9.9	30.2	22.8	17.2	48.8	27.0	5.5	69.8	51.8	5.6
95th Queue (m)	23.1	47.8	37.9	32.7	74.1	58.9	13.9	106.0	92.1	14.8
Link Distance (m)	37.9	37.9	133.4		103.6	103.6	103.6	175.3	175.3	175.3
Upstream Blk Time (%)	0	8			0					
Queuing Penalty (veh)	0	0			0					
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	0						
Queuing Penalty (veh)			0	0						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.5	32.5	13.5	17.6
Average Queue (m)	3.7	8.1	6.2	8.1
95th Queue (m)	14.0	23.4	13.5	15.0
Link Distance (m)	133.4	131.9	120.5	104.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	33.4	30.5	31.4	10.8	17.0	75.3	81.4	60.7
Average Queue (m)	17.6	10.6	12.4	1.5	7.7	34.2	53.1	21.5
95th Queue (m)	30.2	23.7	25.3	7.2	16.2	59.5	80.9	43.1
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)							3	0
Queuing Penalty (veh)							0	0
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	WBTL
Maximum Green (s)	58.0	32.0	10.0	44.0	32.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None
Avg. Green (s)	62.9	26.8	15.2	44.0	26.8
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	31	100	100	31
Cycles with Peds (%)	91	97	0	94	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

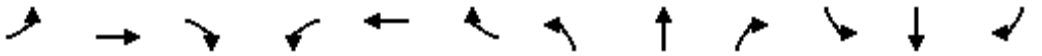
Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	21.0	38.0	21.0	38.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	6.8	35.4	32.6	35.4	32.6
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	90	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	44	100	44
Cycles with Peds (%)	0	93	93	95	88

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0



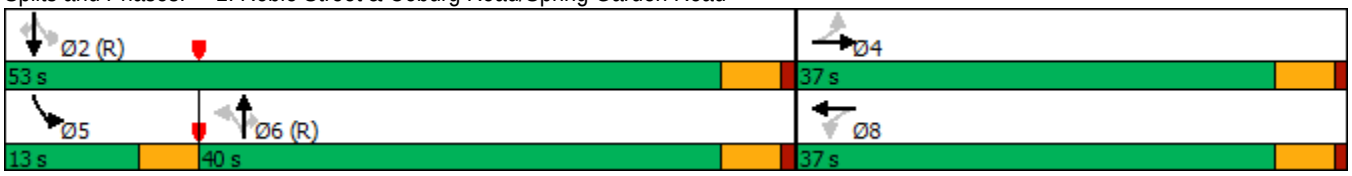
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	157	26	32	176	167	98	883	27	102	396	45
Future Volume (vph)	95	157	26	32	176	167	98	883	27	102	396	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.85	0.96			0.85			0.99	0.49			0.86
Frt		0.978			0.933				0.850			0.850
Flt Protected	0.950				0.996			0.995			0.990	
Satd. Flow (prot)	1789	1772	0	0	2873	0	0	3561	1601	0	3543	1601
Flt Permitted	0.401				0.910			0.810			0.560	
Satd. Flow (perm)	638	1772	0	0	2584	0	0	2880	792	0	2004	1370
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			184				73			49
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			151.5			111.4			186.2	
Travel Time (s)		3.6			10.9			8.0			13.4	
Confl. Peds. (#/hr)	199		172	172		199	90		198	198		90
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	173	29	35	193	184	108	970	30	112	435	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	202	0	0	412	0	0	1078	30	0	547	49
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	37.0	37.0		37.0	37.0		40.0	40.0	40.0	13.0	53.0	53.0
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	20.9	20.9			20.9			35.0	35.0		59.1	59.1
Actuated g/C Ratio	0.23	0.23			0.23			0.39	0.39		0.66	0.66
v/c Ratio	0.70	0.48			0.56			0.96	0.09		0.33	0.05
Control Delay	56.4	31.7			18.8			47.4	0.6		7.4	2.5
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	56.4	31.7			18.8			47.4	0.6		7.4	2.5
LOS	E	C			B			D	A		A	A
Approach Delay		40.1			18.8			46.1			7.0	
Approach LOS		D			B			D			A	
Stops (vph)	87	144			177			851	0		192	6
Fuel Used(l)	7	9			15			65	0		16	1
CO Emissions (g/hr)	121	160			275			1213	6		297	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	23	31			53			234	1		57	4
VOC Emissions (g/hr)	28	37			63			280	1		68	4
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	17.3	30.1			18.4			93.9	0.0		15.8	0.0
Queue Length 95th (m)	31.7	43.6			28.4			#137.3	0.5		31.7	4.4
Internal Link Dist (m)		26.2			127.5			87.4			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	226	636			1037			1120	352		1643	916
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.46	0.32			0.40			0.96	0.09		0.33	0.05

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 31.1 Intersection LOS: C
Intersection Capacity Utilization 88.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



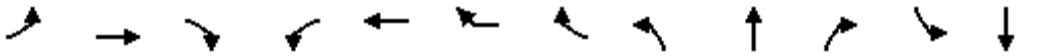
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	345	20	15	215	35	15	0	35	35	0	20
Future Vol, veh/h	26	345	20	15	215	35	15	0	35	35	0	20
Conflicting Peds, #/hr	191	0	267	267	0	191	16	0	207	207	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	383	22	17	239	39	17	0	39	39	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	469	0	0	672	0	0	1039	1222	868	1163	1214	466
Stage 1	-	-	-	-	-	-	719	719	-	484	484	-
Stage 2	-	-	-	-	-	-	320	503	-	679	730	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1093	-	-	919	-	-	209	180	352	172	182	597
Stage 1	-	-	-	-	-	-	420	433	-	564	552	-
Stage 2	-	-	-	-	-	-	692	541	-	441	428	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	900	-	-	692	-	-	140	104	214	89	105	484
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	104	-	89	105	-
Stage 1	-	-	-	-	-	-	303	312	-	445	442	-
Stage 2	-	-	-	-	-	-	632	433	-	280	309	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.6	32.6	57.2
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	185	900	-	-	692	-	-	127
HCM Lane V/C Ratio	0.3	0.032	-	-	0.024	-	-	0.481
HCM Control Delay (s)	32.6	9.1	0	-	10.3	0	-	57.2
HCM Lane LOS	D	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0.1	-	-	2.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	54	176	20	16	161	15	50	62	383	14	60	180
Future Volume (vph)	54	176	20	16	161	15	50	62	383	14	60	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%				0%			0%
Storage Length (m)	0.0		50.0	0.0		50.0				0.0	0.0	
Storage Lanes	0		1	0		2				0	0	
Taper Length (m)	2.5			2.5							2.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.89			0.97		0.56		0.97			0.98
Frt		0.988				0.850	0.850		0.996			
Flt Protected		0.989			0.996				0.993			0.988
Satd. Flow (prot)	0	3355	0	0	1876	1601	1601	0	1850	0	0	1861
Flt Permitted		0.855			0.964				0.917			0.752
Satd. Flow (perm)	0	2693	0	0	1761	1601	889	0	1666	0	0	1384
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		11					82		3			
Link Speed (k/h)		50			50				50			50
Link Distance (m)		146.4			126.4				186.3			87.8
Travel Time (s)		10.5			9.1				13.4			6.3
Confl. Peds. (#/hr)	195		220	220			195	118		172	172	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	56	181	21	16	166	15	52	64	395	14	62	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	0	0	182	15	52	0	473	0	0	248
Turn Type	Perm	NA		Perm	NA	custom	Perm	Perm	NA		Perm	NA
Protected Phases		2			6	1			8			4
Permitted Phases	2			6		6	6	8			4	
Total Split (s)	26.0	26.0		26.0	26.0	9.0	26.0	45.0	45.0		45.0	45.0
Total Lost Time (s)		6.0			6.0	3.0	6.0		6.0			6.0
Act Effct Green (s)		37.6			37.6	42.6	37.6		28.4			28.4
Actuated g/C Ratio		0.47			0.47	0.53	0.47		0.36			0.36
v/c Ratio		0.20			0.22	0.02	0.11		0.80			0.51
Control Delay		15.3			16.9	12.1	3.2		32.8			22.7
Queue Delay		0.0			0.0	0.0	0.0		0.0			0.0
Total Delay		15.3			16.9	12.1	3.2		32.8			22.7
LOS		B			B	B	A		C			C
Approach Delay		15.3			13.8				32.8			21.4
Approach LOS		B			B				C			C
Stops (vph)		145			111	9	5		387			175
Fuel Used(l)		10			7	1	1		28			10
CO Emissions (g/hr)		180			129	10	16		528			189

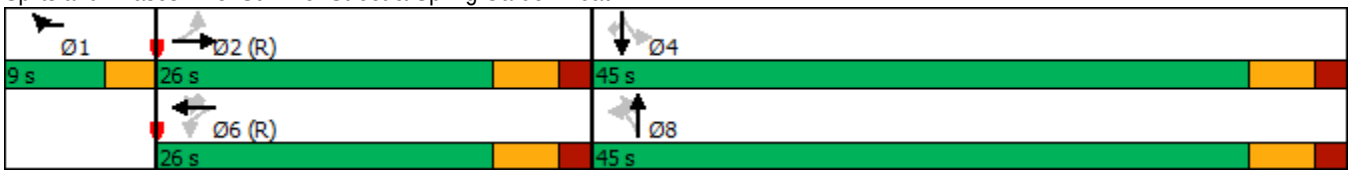
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	122
Future Volume (vph)	122
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Grade (%)	
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	0.72
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1158
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	118
Confl. Bikes (#/hr)	
Peak Hour Factor	0.97
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	126
Shared Lane Traffic (%)	
Lane Group Flow (vph)	126
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Total Split (s)	45.0
Total Lost Time (s)	6.0
Act Effct Green (s)	28.4
Actuated g/C Ratio	0.36
v/c Ratio	0.31
Control Delay	18.8
Queue Delay	0.0
Total Delay	18.8
LOS	B
Approach Delay	
Approach LOS	
Stops (vph)	80
Fuel Used(l)	5
CO Emissions (g/hr)	85

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
NOx Emissions (g/hr)		35			25	2	3		102			36
VOC Emissions (g/hr)		41			30	2	4		122			44
Dilemma Vehicles (#)		0			0	0	0		0			0
Queue Length 50th (m)		10.5			15.0	1.0	0.0		62.5			28.8
Queue Length 95th (m)		26.1			40.2	4.6	4.3		81.0			40.9
Internal Link Dist (m)		122.4			102.4				162.3			63.8
Turn Bay Length (m)						50.0	50.0					
Base Capacity (vph)		1270			827	851	461		813			674
Starvation Cap Reductn		0			0	0	0		0			0
Spillback Cap Reductn		0			0	0	0		0			0
Storage Cap Reductn		0			0	0	0		0			0
Reduced v/c Ratio		0.20			0.22	0.02	0.11		0.58			0.37

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 89.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Summer Street & Spring Garden Road



Lane Group	SBR
NOx Emissions (g/hr)	16
VOC Emissions (g/hr)	20
Dilemma Vehicles (#)	0
Queue Length 50th (m)	13.5
Queue Length 95th (m)	21.8
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	564
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.22

Intersection Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:45	3:45	3:45	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3316	3235	3173	3134	3153	3261	3283
Vehs Exited	3313	3269	3184	3142	3138	3244	3282
Starting Vehs	43	69	54	47	42	33	56
Ending Vehs	46	35	43	39	57	50	57
Travel Distance (km)	1005	981	964	958	957	979	991
Travel Time (hr)	51.6	51.3	48.3	47.5	47.0	49.8	50.2
Total Delay (hr)	29.5	29.7	27.1	26.6	26.1	28.3	28.5
Total Stops	2955	2879	2778	2725	2728	2848	2914
Fuel Used (l)	130.9	128.9	124.6	123.1	123.3	128.0	128.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3229	3210	3262	3225
Vehs Exited	3231	3229	3271	3230
Starting Vehs	36	50	56	47
Ending Vehs	34	31	47	39
Travel Distance (km)	983	969	988	977
Travel Time (hr)	48.5	48.1	48.8	49.1
Total Delay (hr)	27.0	26.9	27.2	27.7
Total Stops	2749	2777	2748	2809
Fuel Used (l)	125.4	124.9	126.3	126.4

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	787	810	736	747	736	775	772
Vehs Exited	787	831	756	760	735	769	782
Starting Vehs	43	69	54	47	42	33	56
Ending Vehs	43	48	34	34	43	39	46
Travel Distance (km)	240	249	226	229	219	232	237
Travel Time (hr)	12.0	13.8	11.1	10.8	10.4	10.7	11.2
Total Delay (hr)	6.7	8.2	6.1	5.8	5.6	5.6	6.0
Total Stops	685	758	633	644	602	620	664
Fuel Used (l)	31.1	33.5	29.0	28.8	27.8	29.1	29.9

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	776	765	792	769
Vehs Exited	777	782	801	777
Starting Vehs	36	50	56	47
Ending Vehs	35	33	47	37
Travel Distance (km)	233	232	241	234
Travel Time (hr)	11.2	11.0	11.3	11.3
Total Delay (hr)	6.1	5.9	6.0	6.2
Total Stops	652	641	637	653
Fuel Used (l)	29.5	29.2	29.7	29.8

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	883	857	843	814	904	854	882
Vehs Exited	874	862	830	821	886	854	881
Starting Vehs	43	48	34	34	43	39	46
Ending Vehs	52	43	47	27	61	39	47
Travel Distance (km)	268	258	257	251	270	255	268
Travel Time (hr)	14.8	13.2	13.1	12.8	14.0	13.3	13.6
Total Delay (hr)	8.9	7.5	7.5	7.3	8.0	7.8	7.7
Total Stops	851	755	757	737	792	773	809
Fuel Used (l)	35.9	33.3	33.5	32.7	35.5	34.1	35.0

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	865	860	864	863
Vehs Exited	821	845	862	853
Starting Vehs	35	33	47	37
Ending Vehs	79	48	49	46
Travel Distance (km)	258	253	267	261
Travel Time (hr)	13.5	12.9	14.1	13.5
Total Delay (hr)	7.8	7.3	8.2	7.8
Total Stops	809	748	788	782
Fuel Used (l)	33.6	33.1	35.2	34.2

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	815	795	787	780	745	803	783
Vehs Exited	836	786	781	765	749	789	765
Starting Vehs	52	43	47	27	61	39	47
Ending Vehs	31	52	53	42	57	53	65
Travel Distance (km)	250	239	235	236	232	241	230
Travel Time (hr)	12.3	12.6	11.3	12.6	11.1	12.9	11.9
Total Delay (hr)	6.8	7.3	6.1	7.4	6.0	7.6	6.8
Total Stops	696	709	667	690	653	729	678
Fuel Used (l)	32.0	31.2	29.9	31.3	29.7	31.8	29.6

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	788	775	790	784
Vehs Exited	815	780	790	787
Starting Vehs	79	48	49	46
Ending Vehs	52	43	49	49
Travel Distance (km)	246	238	235	238
Travel Time (hr)	12.2	12.6	11.5	12.1
Total Delay (hr)	6.9	7.4	6.3	6.9
Total Stops	639	742	657	687
Fuel Used (l)	31.3	31.4	30.7	30.9

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	831	773	807	793	768	829	846
Vehs Exited	816	790	817	796	768	832	854
Starting Vehs	31	52	53	42	57	53	65
Ending Vehs	46	35	43	39	57	50	57
Travel Distance (km)	246	235	247	241	236	251	257
Travel Time (hr)	12.5	11.8	12.8	11.4	11.6	12.8	13.6
Total Delay (hr)	7.2	6.6	7.3	6.1	6.4	7.3	8.0
Total Stops	723	657	721	654	681	726	763
Fuel Used (l)	31.9	30.8	32.2	30.2	30.3	32.9	33.8

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	800	810	816	808
Vehs Exited	818	822	818	813
Starting Vehs	52	43	49	49
Ending Vehs	34	31	47	39
Travel Distance (km)	246	245	244	245
Travel Time (hr)	11.5	11.7	12.0	12.2
Total Delay (hr)	6.2	6.4	6.7	6.8
Total Stops	649	646	666	687
Fuel Used (l)	31.0	31.2	30.7	31.5

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.6	0.6	0.6	0.2	0.2	1.5	0.6	0.2	0.2	0.3	0.1	0.1
Total Delay (hr)	0.9	1.1	0.1	0.2	1.2	0.8	0.9	7.2	0.1	1.0	2.4	0.1
Total Del/Veh (s)	34.7	25.2	17.5	28.6	25.0	17.6	32.3	28.7	6.4	36.1	21.0	4.2
Stop Delay (hr)	0.9	1.0	0.1	0.2	1.0	0.8	0.7	5.5	0.1	0.9	1.8	0.1
Stop Del/Veh (s)	32.9	22.3	17.3	25.8	20.8	16.1	26.0	21.9	6.3	31.3	16.3	3.9

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.4
Total Delay (hr)	16.0
Total Del/Veh (s)	25.7
Stop Delay (hr)	13.0
Stop Del/Veh (s)	20.9

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Total Delay (hr)	0.0	0.4	0.0	0.1	0.2	0.0	0.1	0.2	0.2	0.0	1.3
Total Del/Veh (s)	6.2	4.0	3.0	13.3	3.1	3.9	18.9	17.7	24.3	9.2	5.8
Stop Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.0	0.8
Stop Del/Veh (s)	3.2	1.3	1.4	10.3	1.2	2.5	16.7	17.1	22.1	8.7	3.6

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.4	3.8	3.8	0.4	0.5	0.4	0.3	0.3
Total Delay (hr)	0.3	0.8	0.0	0.1	0.7	0.1	0.1	0.6	3.4	0.1	0.5	1.1
Total Del/Veh (s)	22.8	8.2	7.1	18.0	16.2	11.6	9.4	35.2	32.5	27.6	30.0	22.6
Stop Delay (hr)	0.3	0.6	0.0	0.1	0.6	0.0	0.1	0.5	2.7	0.1	0.4	0.9
Stop Del/Veh (s)	20.1	6.2	6.2	15.1	12.8	10.3	7.7	29.8	25.6	23.2	26.9	18.6

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.2	0.4
Total Delay (hr)	0.6	8.5
Total Del/Veh (s)	18.6	20.8
Stop Delay (hr)	0.6	6.9
Stop Del/Veh (s)	17.3	17.0

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.5
Total Delay (hr)	27.3
Total Del/Veh (s)	30.0
Stop Delay (hr)	20.9
Stop Del/Veh (s)	23.0

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	37.2	44.0	55.6	47.7	108.8	106.7	15.0	92.6	79.3	16.7
Average Queue (m)	17.4	23.1	21.5	22.8	87.1	64.2	4.9	47.1	26.7	5.4
95th Queue (m)	33.3	42.1	40.6	40.1	117.5	95.7	12.4	79.0	65.5	13.5
Link Distance (m)	37.9	37.9	133.4		103.6	103.6	103.6	175.3	175.3	175.3
Upstream Blk Time (%)	1	3			4	0				
Queuing Penalty (veh)	0	0			0	0				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	0						
Queuing Penalty (veh)			0	0						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	50.6	36.9	24.6	25.4
Average Queue (m)	12.2	10.5	10.0	10.0
95th Queue (m)	34.1	27.0	19.6	19.5
Link Distance (m)	133.4	131.9	120.5	104.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	35.2	24.7	44.7	16.4	19.1	128.2	67.4	35.5
Average Queue (m)	16.8	8.3	19.5	2.6	7.4	61.2	32.5	17.4
95th Queue (m)	28.7	19.6	36.9	10.8	16.9	108.0	55.6	31.9
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)						0	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)	0		0	0				
Queuing Penalty (veh)	0		0	0				

Network Summary

Network wide Queuing Penalty: 1

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	WBTL
Maximum Green (s)	48.0	32.0	9.0	35.0	32.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None
Avg. Green (s)	51.5	28.5	12.5	35.0	28.5
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	44	100	100	44
Cycles with Peds (%)	85	97	0	98	97

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	20.0	39.0	20.0	39.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	6.5	33.8	33.7	33.8	33.7
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	85	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	2	100	51	100	51
Cycles with Peds (%)	0	100	98	100	98

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	9	2	30	35	6
Future Vol, veh/h	26	9	2	30	35	6
Conflicting Peds, #/hr	0	0	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	9	2	31	36	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	124	89	92	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	871	969	1503	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	792	924	1434	-	-	-
Mov Cap-2 Maneuver	792	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1434	-	822	-	-
HCM Lane V/C Ratio	0.001	-	0.044	-	-
HCM Control Delay (s)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

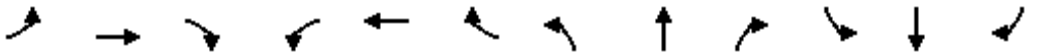
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	566	0	0	1008
Future Vol, veh/h	0	2	566	0	0	1008
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	584	0	0	1039

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	292	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	601	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	601	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	601	-
HCM Lane V/C Ratio	-	0.003	-
HCM Control Delay (s)	-	11	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

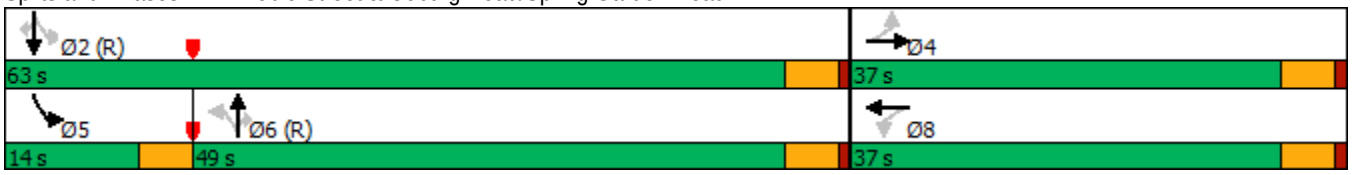


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	167	41	58	136	88	44	482	42	178	909	65
Future Volume (vph)	45	167	41	58	136	88	44	482	42	178	909	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.85	0.96			0.90			1.00	0.65		0.98	0.86
Frt		0.971			0.953				0.850			0.850
Flt Protected	0.950				0.990			0.996			0.992	
Satd. Flow (prot)	1789	1754	0	0	3115	0	0	3564	1601	0	3550	1601
Flt Permitted	0.500				0.719			0.781			0.675	
Satd. Flow (perm)	796	1754	0	0	2201	0	0	2789	1033	0	2369	1378
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			78				65			67
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			107.1			43.7			186.2	
Travel Time (s)		3.6			7.7			3.1			13.4	
Confl. Peds. (#/hr)	144		121	121		144	78		123	123		78
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	46	172	42	60	140	91	45	497	43	184	937	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	214	0	0	291	0	0	542	43	0	1121	67
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	37.0	37.0		37.0	37.0		49.0	49.0	49.0	14.0	63.0	63.0
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	19.4	19.4			19.4			44.0	44.0		70.6	70.6
Actuated g/C Ratio	0.19	0.19			0.19			0.44	0.44		0.71	0.71
v/c Ratio	0.30	0.61			0.60			0.44	0.09		0.58	0.07
Control Delay	39.5	42.4			31.8			20.9	2.4		7.9	1.6
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	39.5	42.4			31.8			20.9	2.4		7.9	1.6
LOS	D	D			C			C	A		A	A
Approach Delay		41.9			31.8			19.5			7.6	
Approach LOS		D			C			B			A	
Stops (vph)	38	176			186			351	3		434	5
Fuel Used(l)	2	12			14			19	0		36	1
CO Emissions (g/hr)	45	218			259			344	6		662	25

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	9	42			50			66	1		128	5
VOC Emissions (g/hr)	10	50			60			79	1		153	6
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	7.8	36.6			20.1			37.4	0.0		40.0	0.0
Queue Length 95th (m)	17.4	56.3			31.6			51.4	3.5		63.0	4.0
Internal Link Dist (m)		26.2			83.1			19.7			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	254	570			757			1227	490		1929	992
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.18	0.38			0.38			0.44	0.09		0.58	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 94 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	221	17	24	286	23	24	0	32	25	0	23
Future Vol, veh/h	18	221	17	24	286	23	24	0	32	25	0	23
Conflicting Peds, #/hr	78	0	155	155	0	78	2	0	137	137	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	230	18	25	298	24	25	0	33	26	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	400	0	0	403	0	0	806	882	531	869	879	390
Stage 1	-	-	-	-	-	-	432	432	-	438	438	-
Stage 2	-	-	-	-	-	-	374	450	-	431	441	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1159	-	-	1156	-	-	300	285	548	272	286	658
Stage 1	-	-	-	-	-	-	602	582	-	597	579	-
Stage 2	-	-	-	-	-	-	647	572	-	603	577	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1076	-	-	991	-	-	237	215	410	194	216	609
Mov Cap-2 Maneuver	-	-	-	-	-	-	237	215	-	194	216	-
Stage 1	-	-	-	-	-	-	505	488	-	542	521	-
Stage 2	-	-	-	-	-	-	601	514	-	474	484	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.6	19.2	20.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	312	1076	-	-	991	-	-	288
HCM Lane V/C Ratio	0.187	0.017	-	-	0.025	-	-	0.174
HCM Control Delay (s)	19.2	8.4	0	-	8.7	0	-	20.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-	-	0.6

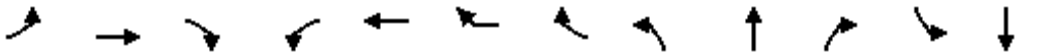
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	256	1	1	332	0	0
Future Vol, veh/h	256	1	1	332	0	0
Conflicting Peds, #/hr	0	150	150	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	1	1	346	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	418	0	-	418
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	-	1141	-	0	635
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	983	-	-	547
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	983	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	8.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



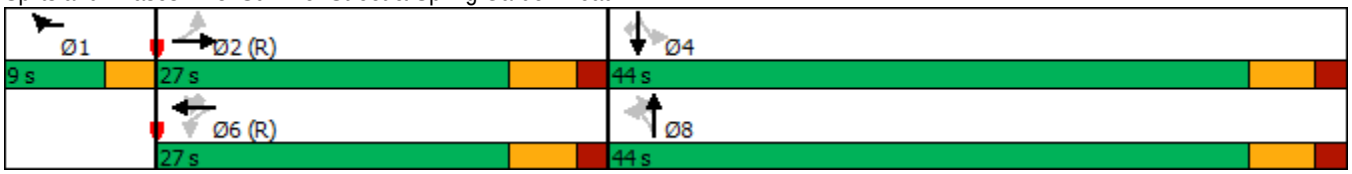
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	74	203	21	13	86	10	50	30	201	30	115	282
Future Volume (vph)	74	203	21	13	86	10	50	30	201	30	115	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%				0%			0%
Storage Length (m)	0.0		50.0	0.0		50.0				0.0	0.0	
Storage Lanes	0		1	0		2				0	0	
Taper Length (m)	2.5			2.5							2.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.92			0.98		0.67		0.97			0.97
Frt		0.990				0.850	0.850		0.985			
Flt Protected		0.988			0.994				0.994			0.986
Satd. Flow (prot)	0	3433	0	0	1872	1601	1601	0	1811	0	0	1857
Flt Permitted		0.848			0.943				0.861			0.767
Satd. Flow (perm)	0	2750	0	0	1739	1601	1077	0	1551	0	0	1408
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		9					82		11			
Link Speed (k/h)		50			50				50			50
Link Distance (m)		146.4			126.4				186.3			87.8
Travel Time (s)		10.5			9.1				13.4			6.3
Confl. Peds. (#/hr)	141		118	118			141	107		110	110	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	82	226	23	14	96	11	56	33	223	33	128	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	331	0	0	110	11	56	0	289	0	0	441
Turn Type	Perm	NA		Perm	NA	custom	Perm	Perm	NA		Perm	NA
Protected Phases		2			6	1			8			4
Permitted Phases	2			6		6	6	8			4	
Total Split (s)	27.0	27.0		27.0	27.0	9.0	27.0	44.0	44.0		44.0	44.0
Total Lost Time (s)		6.0			6.0	3.0	6.0		6.0			6.0
Act Effct Green (s)		36.7			36.7	41.5	36.7		29.5			29.5
Actuated g/C Ratio		0.46			0.46	0.52	0.46		0.37			0.37
v/c Ratio		0.26			0.14	0.01	0.10		0.50			0.85
Control Delay		16.3			17.0	12.8	3.4		20.6			38.3
Queue Delay		0.0			0.0	0.0	0.0		0.0			0.0
Total Delay		16.3			17.0	12.8	3.4		20.6			38.3
LOS		B			B	B	A		C			D
Approach Delay		16.3			12.4				20.6			33.4
Approach LOS		B			B				C			C
Stops (vph)		184			61	7	5		178			347
Fuel Used(l)		12			4	0	1		13			23
CO Emissions (g/hr)		223			72	7	16		237			424

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	132
Future Volume (vph)	132
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Grade (%)	
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	0.75
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1196
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	107
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	147
Shared Lane Traffic (%)	
Lane Group Flow (vph)	147
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Total Split (s)	44.0
Total Lost Time (s)	6.0
Act Effct Green (s)	29.5
Actuated g/C Ratio	0.37
v/c Ratio	0.33
Control Delay	18.6
Queue Delay	0.0
Total Delay	18.6
LOS	B
Approach Delay	
Approach LOS	
Stops (vph)	86
Fuel Used(l)	5
CO Emissions (g/hr)	92

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
NOx Emissions (g/hr)		43			14	1	3		46			82
VOC Emissions (g/hr)		52			17	2	4		55			98
Dilemma Vehicles (#)		0			0	0	0		0			0
Queue Length 50th (m)		14.5			8.9	0.8	0.0		31.6			59.8
Queue Length 95th (m)		33.4			25.7	3.8	5.0		43.7			80.9
Internal Link Dist (m)		122.4			102.4				162.3			63.8
Turn Bay Length (m)						50.0	50.0					
Base Capacity (vph)		1266			797	830	538		742			668
Starvation Cap Reductn		0			0	0	0		0			0
Spillback Cap Reductn		0			0	0	0		0			0
Storage Cap Reductn		0			0	0	0		0			0
Reduced v/c Ratio		0.26			0.14	0.01	0.10		0.39			0.66

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 25 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 73.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Summer Street & Spring Garden Road



Lane Group	SBR
NOx Emissions (g/hr)	18
VOC Emissions (g/hr)	21
Dilemma Vehicles (#)	0
Queue Length 50th (m)	15.6
Queue Length 95th (m)	24.4
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	568
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.26

Intersection Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:45	7:45	7:45	7:45	7:45	7:45	7:45
End Time	9:00	9:00	9:00	9:00	9:00	9:00	9:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3125	3144	3164	3100	3112	3227	3207
Vehs Exited	3139	3128	3153	3092	3110	3212	3220
Starting Vehs	60	33	45	39	52	44	50
Ending Vehs	46	49	56	47	54	59	37
Travel Distance (km)	962	969	964	964	965	989	988
Travel Time (hr)	44.4	44.7	44.1	44.7	45.2	46.5	46.1
Total Delay (hr)	23.3	23.4	23.0	23.6	23.9	24.7	24.4
Total Stops	2607	2634	2564	2683	2715	2792	2724
Fuel Used (l)	117.7	118.2	117.9	118.5	119.3	122.9	121.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:45	7:45	7:45	7:45
End Time	9:00	9:00	9:00	9:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3137	3123	3135	3149
Vehs Exited	3125	3134	3149	3147
Starting Vehs	45	49	50	44
Ending Vehs	57	38	36	44
Travel Distance (km)	971	967	979	972
Travel Time (hr)	45.6	45.5	44.8	45.2
Total Delay (hr)	24.3	24.4	23.3	23.8
Total Stops	2661	2715	2598	2666
Fuel Used (l)	120.1	119.7	118.7	119.4

Interval #0 Information Seeding

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	772	756	770	717	763	772	817
Vehs Exited	787	748	783	700	762	776	822
Starting Vehs	60	33	45	39	52	44	50
Ending Vehs	45	41	32	56	53	40	45
Travel Distance (km)	240	231	233	218	239	239	251
Travel Time (hr)	11.2	10.8	10.2	9.7	11.3	10.7	12.1
Total Delay (hr)	5.9	5.7	5.0	4.9	6.0	5.5	6.5
Total Stops	661	645	578	581	702	630	749
Fuel Used (l)	29.6	28.6	27.8	26.3	29.5	29.1	31.7

Interval #1 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	790	771	755	766
Vehs Exited	797	775	769	771
Starting Vehs	45	49	50	44
Ending Vehs	38	45	36	40
Travel Distance (km)	249	240	236	238
Travel Time (hr)	11.7	11.1	10.0	10.9
Total Delay (hr)	6.3	5.9	4.8	5.7
Total Stops	704	675	566	651
Fuel Used (l)	30.9	29.4	27.6	29.1

Interval #2 Information Recording

Start Time	8:15
End Time	8:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	795	806	866	816	811	837	817
Vehs Exited	792	801	845	833	810	821	814
Starting Vehs	45	41	32	56	53	40	45
Ending Vehs	48	46	53	39	54	56	48
Travel Distance (km)	243	248	265	254	250	254	250
Travel Time (hr)	11.4	11.8	12.9	11.6	11.4	12.5	11.7
Total Delay (hr)	6.0	6.4	7.1	6.1	5.9	6.9	6.2
Total Stops	681	673	736	707	662	763	662
Fuel Used (l)	29.8	30.8	33.2	30.9	30.6	32.1	30.5

Interval #2 Information Recording

Start Time	8:15
End Time	8:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	823	848	783	821
Vehs Exited	804	840	768	812
Starting Vehs	38	45	36	40
Ending Vehs	57	53	51	47
Travel Distance (km)	252	257	243	252
Travel Time (hr)	12.3	12.7	11.5	12.0
Total Delay (hr)	6.7	7.1	6.1	6.4
Total Stops	702	741	666	698
Fuel Used (l)	31.1	32.5	29.8	31.1

Interval #3 Information Recording

Start Time	8:30
End Time	8:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	791	784	726	809	786	771	794
Vehs Exited	800	784	743	815	785	787	778
Starting Vehs	48	46	53	39	54	56	48
Ending Vehs	39	46	36	33	55	40	64
Travel Distance (km)	244	242	224	254	242	241	237
Travel Time (hr)	11.5	10.7	10.1	12.2	11.7	11.2	11.0
Total Delay (hr)	6.2	5.3	5.2	6.6	6.4	5.9	5.8
Total Stops	680	642	601	723	718	669	659
Fuel Used (l)	30.3	28.9	27.4	31.8	30.2	30.0	28.8

Interval #3 Information Recording

Start Time	8:30
End Time	8:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	725	758	806	773
Vehs Exited	750	767	806	779
Starting Vehs	57	53	51	47
Ending Vehs	32	44	51	36
Travel Distance (km)	228	239	249	240
Travel Time (hr)	10.4	10.9	12.2	11.2
Total Delay (hr)	5.4	5.7	6.7	5.9
Total Stops	600	641	708	664
Fuel Used (l)	28.0	29.3	31.5	29.6

Interval #4 Information Recording

Start Time	8:45
End Time	9:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	767	798	802	758	752	847	779
Vehs Exited	760	795	782	744	753	828	806
Starting Vehs	39	46	36	33	55	40	64
Ending Vehs	46	49	56	47	54	59	37
Travel Distance (km)	235	249	241	238	233	255	249
Travel Time (hr)	10.3	11.4	11.0	11.2	10.9	12.0	11.3
Total Delay (hr)	5.2	5.9	5.7	5.9	5.7	6.4	5.9
Total Stops	585	674	649	672	633	730	654
Fuel Used (l)	28.0	30.0	29.4	29.5	28.9	31.8	30.3

Interval #4 Information Recording

Start Time	8:45
End Time	9:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	799	746	791	784
Vehs Exited	774	752	806	778
Starting Vehs	32	44	51	36
Ending Vehs	57	38	36	44
Travel Distance (km)	242	231	251	243
Travel Time (hr)	11.2	10.8	11.1	11.1
Total Delay (hr)	5.9	5.7	5.6	5.8
Total Stops	655	658	658	660
Fuel Used (l)	30.1	28.6	29.8	29.6

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.9	1.8	1.6	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.2	0.2
Total Delay (hr)	0.5	1.5	0.3	0.6	1.2	0.3	0.3	2.3	0.1	1.4	4.6	0.1
Total Del/Veh (s)	39.9	32.2	21.9	36.3	23.6	13.0	23.2	17.1	5.5	28.0	18.0	3.8
Stop Delay (hr)	0.4	1.3	0.3	0.5	1.0	0.3	0.3	2.0	0.1	1.1	3.0	0.1
Stop Del/Veh (s)	38.3	29.0	21.6	33.8	20.4	12.1	21.6	14.8	5.5	21.0	11.6	3.5

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	13.0
Total Del/Veh (s)	20.2
Stop Delay (hr)	10.3
Stop Del/Veh (s)	16.0

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total Delay (hr)	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.0	0.6
Total Del/Veh (s)	3.7	1.0	0.1	6.5	2.6	1.9	10.9	1.3	8.7	13.1	6.0	3.3
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.4
Stop Del/Veh (s)	2.1	0.3	0.0	3.9	0.9	1.0	9.9	0.6	8.7	11.0	5.7	2.1

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.3	0.3	0.3	3.5	3.9	0.3	0.3	0.3	0.7	0.7
Total Delay (hr)	0.4	0.9	0.0	0.1	0.3	0.0	0.1	0.3	1.4	0.2	0.9	2.1
Total Del/Veh (s)	19.8	14.3	8.4	15.1	13.0	7.9	6.9	33.1	24.7	18.2	28.3	26.8
Stop Delay (hr)	0.3	0.7	0.0	0.0	0.2	0.0	0.1	0.2	1.1	0.1	0.8	1.7
Stop Del/Veh (s)	17.3	11.1	7.5	12.8	10.2	7.1	5.8	29.2	19.8	15.9	24.6	21.7

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.4	0.6
Total Delay (hr)	0.8	7.3
Total Del/Veh (s)	20.6	20.9
Stop Delay (hr)	0.7	6.1
Stop Del/Veh (s)	19.1	17.4

4: Carlton Street & Development Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	3.9	2.1	2.4	1.2	0.4	0.4	1.6
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	3.1	2.3	0.3	0.1	0.2	0.3	1.0

5: Development & Spring Garden Road Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.0	0.0	0.1	0.2
Total Del/Veh (s)	1.5	1.1	1.7	0.5	1.1
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.3	0.3	0.9	0.1	0.2

6: Robie Street & Development Performance by movement

Movement	WBR	NBT	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.1
Total Delay (hr)	0.0	0.9	0.4	1.3
Total Del/Veh (s)	3.1	5.9	1.3	3.0
Stop Delay (hr)	0.0	0.6	0.0	0.6
Stop Del/Veh (s)	3.1	3.7	0.1	1.4

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.5
Total Delay (hr)	23.4
Total Del/Veh (s)	26.4
Stop Delay (hr)	17.6
Stop Del/Veh (s)	19.9

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	23.4	46.3	42.4	40.5	36.1	35.1	18.2	124.6	106.2	18.4
Average Queue (m)	8.6	29.5	22.6	17.6	33.0	22.1	5.8	71.2	53.9	5.4
95th Queue (m)	19.2	47.6	37.5	33.9	38.5	39.0	14.6	109.4	94.9	13.8
Link Distance (m)	37.9	37.9	88.9		30.2	30.2	30.2	175.4	175.4	175.4
Upstream Blk Time (%)		8			24	2				
Queuing Penalty (veh)		0			46	3				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	0						
Queuing Penalty (veh)			0	0						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	26.1	37.3	20.5	21.7
Average Queue (m)	4.5	8.5	9.5	8.5
95th Queue (m)	16.2	24.2	18.3	16.8
Link Distance (m)	33.8	131.9	19.3	104.2
Upstream Blk Time (%)	0		1	
Queuing Penalty (veh)	0		0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	43.4	35.3	30.2	9.5	20.2	74.8	80.1	57.0
Average Queue (m)	19.6	11.5	11.6	1.4	8.3	33.3	51.0	20.5
95th Queue (m)	35.2	26.0	24.6	6.7	17.2	59.5	80.3	41.3
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)							3	0
Queuing Penalty (veh)							0	0
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)	0							
Queuing Penalty (veh)	0							

Intersection: 4: Carlton Street & Development

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	14.7	1.8	1.8
Average Queue (m)	6.6	0.1	0.1
95th Queue (m)	14.0	1.4	1.3
Link Distance (m)	23.1	90.5	19.3
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Development & Spring Garden Road

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (m)	1.8	3.4
Average Queue (m)	0.1	0.1
95th Queue (m)	1.3	2.1
Link Distance (m)	88.9	33.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Robie Street & Development

Movement	WB	NB	NB	SB
Directions Served	R	T	T	T
Maximum Queue (m)	9.0	64.5	48.6	1.1
Average Queue (m)	0.7	24.3	3.5	0.0
95th Queue (m)	4.8	53.5	22.5	1.1
Link Distance (m)	40.4	66.1	66.1	30.2
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 50

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	WBTL
Maximum Green (s)	58.0	32.0	10.0	44.0	32.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None
Avg. Green (s)	63.8	26.2	15.8	44.0	26.2
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	22	100	100	22
Cycles with Peds (%)	88	94	0	94	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	21.0	38.0	21.0	38.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	8.5	35.5	32.8	35.5	32.8
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	95	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	0	100	44	100	44
Cycles with Peds (%)	0	93	95	98	86

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	6	9	50	35	27
Future Vol, veh/h	14	6	9	50	35	27
Conflicting Peds, #/hr	0	0	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	7	10	56	39	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	180	104	119	0	-	0
Stage 1	104	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	810	951	1469	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	732	907	1401	-	-	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1401	-	777	-	-
HCM Lane V/C Ratio	0.007	-	0.029	-	-
HCM Control Delay (s)	7.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

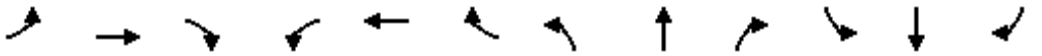
Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	3	1008	0	0	454
Future Vol, veh/h	0	3	1008	0	0	454
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	1108	0	0	499

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	554	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	408	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	408	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	408	-
HCM Lane V/C Ratio	-	0.008	-
HCM Control Delay (s)	-	13.9	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-



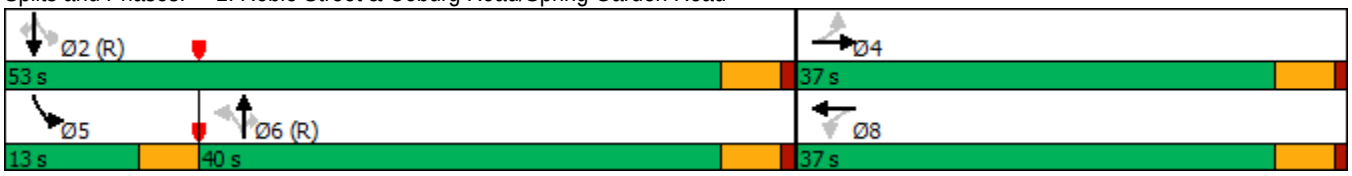
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	161	26	32	178	169	98	884	29	108	396	45
Future Volume (vph)	95	161	26	32	178	169	98	884	29	108	396	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.85	0.96			0.85			0.99	0.49			0.86
Frt		0.979			0.933				0.850			0.850
Flt Protected	0.950				0.996			0.995			0.989	
Satd. Flow (prot)	1789	1775	0	0	2874	0	0	3561	1601	0	3539	1601
Flt Permitted	0.396				0.910			0.808			0.547	
Satd. Flow (perm)	632	1775	0	0	2586	0	0	2873	792	0	1957	1370
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			186				73			49
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			107.1			43.7			186.2	
Travel Time (s)		3.6			7.7			3.1			13.4	
Confl. Peds. (#/hr)	199		172	172		199	90		198	198		90
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	177	29	35	196	186	108	971	32	119	435	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	206	0	0	417	0	0	1079	32	0	554	49
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	37.0	37.0		37.0	37.0		40.0	40.0	40.0	13.0	53.0	53.0
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	20.9	20.9			20.9			35.0	35.0		59.1	59.1
Actuated g/C Ratio	0.23	0.23			0.23			0.39	0.39		0.66	0.66
v/c Ratio	0.71	0.49			0.56			0.97	0.09		0.34	0.05
Control Delay	57.0	31.8			18.9			48.1	1.0		7.5	2.6
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	57.0	31.8			18.9			48.1	1.0		7.5	2.6
LOS	E	C			B			D	A		A	A
Approach Delay		40.3			18.9			46.7			7.1	
Approach LOS		D			B			D			A	
Stops (vph)	87	148			179			852	1		196	6
Fuel Used(l)	7	9			13			59	0		16	1
CO Emissions (g/hr)	122	163			249			1107	3		301	19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	24	32			48			214	1		58	4
VOC Emissions (g/hr)	28	38			57			255	1		70	4
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	17.3	30.7			18.7			94.1	0.0		16.0	0.0
Queue Length 95th (m)	31.8	44.4			28.5			#137.7	1.0		32.3	4.4
Internal Link Dist (m)		26.2			83.1			19.7			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	224	637			1039			1117	352		1619	916
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.46	0.32			0.40			0.97	0.09		0.34	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 31.4		Intersection LOS: C	
Intersection Capacity Utilization 88.9%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	347	29	33	217	35	19	0	45	35	0	20
Future Vol, veh/h	26	347	29	33	217	35	19	0	45	35	0	20
Conflicting Peds, #/hr	191	0	267	267	0	191	16	0	207	207	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	386	32	37	241	39	21	0	50	39	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	471	0	0	685	0	0	1089	1272	876	1218	1269	468
Stage 1	-	-	-	-	-	-	727	727	-	526	526	-
Stage 2	-	-	-	-	-	-	362	545	-	692	743	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1091	-	-	908	-	-	193	168	348	157	168	595
Stage 1	-	-	-	-	-	-	415	429	-	535	529	-
Stage 2	-	-	-	-	-	-	657	519	-	434	422	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	899	-	-	684	-	-	126	93	212	74	93	483
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	93	-	74	93	-
Stage 1	-	-	-	-	-	-	300	309	-	422	408	-
Stage 2	-	-	-	-	-	-	578	400	-	257	304	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.2	38.7	76.2
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	176	899	-	-	684	-	-	107
HCM Lane V/C Ratio	0.404	0.032	-	-	0.054	-	-	0.571
HCM Control Delay (s)	38.7	9.1	0	-	10.6	0	-	76.2
HCM Lane LOS	E	A	A	-	B	A	-	F
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0.2	-	-	2.7

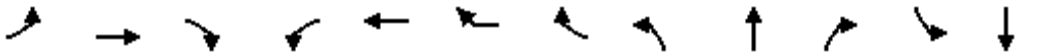
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	402	1	2	254	0	0
Future Vol, veh/h	402	1	2	254	0	0
Conflicting Peds, #/hr	0	200	200	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	447	1	2	282	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	648	0	-	648
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	-	938	-	0	470
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	765	-	-	383
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	765	-
HCM Lane V/C Ratio	-	-	-	0.003	-
HCM Control Delay (s)	0	-	-	9.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



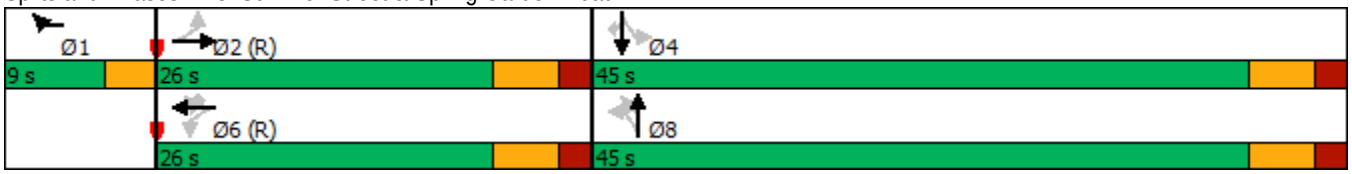
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	65	177	20	16	163	15	50	62	383	14	60	180
Future Volume (vph)	65	177	20	16	163	15	50	62	383	14	60	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%				0%			0%
Storage Length (m)	0.0		50.0	0.0		50.0				0.0	0.0	
Storage Lanes	0		1	0		2				0	0	
Taper Length (m)	2.5			2.5							2.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.88			0.97		0.56		0.97			0.98
Frt		0.988				0.850	0.850		0.996			
Flt Protected		0.988			0.996				0.993			0.988
Satd. Flow (prot)	0	3358	0	0	1876	1601	1601	0	1850	0	0	1861
Flt Permitted		0.836			0.963				0.917			0.752
Satd. Flow (perm)	0	2610	0	0	1761	1601	889	0	1666	0	0	1384
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		10					82		3			
Link Speed (k/h)		50			50				50			50
Link Distance (m)		146.4			126.4				186.3			87.8
Travel Time (s)		10.5			9.1				13.4			6.3
Confl. Peds. (#/hr)	195		220	220			195	118		172	172	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Adj. Flow (vph)	67	182	21	16	168	15	52	64	395	14	62	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	270	0	0	184	15	52	0	473	0	0	248
Turn Type	Perm	NA		Perm	NA	custom	Perm	Perm	NA		Perm	NA
Protected Phases		2			6	1			8			4
Permitted Phases	2			6		6	6	8			4	
Total Split (s)	26.0	26.0		26.0	26.0	9.0	26.0	45.0	45.0		45.0	45.0
Total Lost Time (s)		6.0			6.0	3.0	6.0		6.0			6.0
Act Effct Green (s)		37.6			37.6	42.6	37.6		28.4			28.4
Actuated g/C Ratio		0.47			0.47	0.53	0.47		0.36			0.36
v/c Ratio		0.22			0.22	0.02	0.11		0.80			0.51
Control Delay		15.5			16.9	12.1	3.2		32.8			22.7
Queue Delay		0.0			0.0	0.0	0.0		0.0			0.0
Total Delay		15.5			16.9	12.1	3.2		32.8			22.7
LOS		B			B	B	A		C			C
Approach Delay		15.5			13.8				32.8			21.6
Approach LOS		B			B				C			C
Stops (vph)		155			112	9	5		387			175
Fuel Used(l)		10			7	1	1		28			10
CO Emissions (g/hr)		191			130	10	16		528			189

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	140
Future Volume (vph)	140
Ideal Flow (vphpl)	1900
Lane Width (m)	3.7
Grade (%)	
Storage Length (m)	0.0
Storage Lanes	1
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	0.72
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1601
Flt Permitted	
Satd. Flow (perm)	1158
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	118
Confl. Bikes (#/hr)	
Peak Hour Factor	0.97
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Adj. Flow (vph)	144
Shared Lane Traffic (%)	
Lane Group Flow (vph)	144
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Total Split (s)	45.0
Total Lost Time (s)	6.0
Act Effct Green (s)	28.4
Actuated g/C Ratio	0.36
v/c Ratio	0.35
Control Delay	19.7
Queue Delay	0.0
Total Delay	19.7
LOS	B
Approach Delay	
Approach LOS	
Stops (vph)	94
Fuel Used(l)	5
CO Emissions (g/hr)	100

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
NOx Emissions (g/hr)		37			25	2	3		102			36
VOC Emissions (g/hr)		44			30	2	4		122			44
Dilemma Vehicles (#)		0			0	0	0		0			0
Queue Length 50th (m)		11.2			15.1	1.0	0.0		62.5			28.8
Queue Length 95th (m)		27.5			40.6	4.6	4.3		81.0			40.9
Internal Link Dist (m)		122.4			102.4				162.3			63.8
Turn Bay Length (m)						50.0	50.0					
Base Capacity (vph)		1231			827	851	461		813			674
Starvation Cap Reductn		0			0	0	0		0			0
Spillback Cap Reductn		0			0	0	0		0			0
Storage Cap Reductn		0			0	0	0		0			0
Reduced v/c Ratio		0.22			0.22	0.02	0.11		0.58			0.37

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 44 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 89.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Summer Street & Spring Garden Road



Lane Group	SBR
NOx Emissions (g/hr)	19
VOC Emissions (g/hr)	23
Dilemma Vehicles (#)	0
Queue Length 50th (m)	15.7
Queue Length 95th (m)	24.6
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	564
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.26

Intersection Summary

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:45	3:45	3:45	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3265	3344	3184	3287	3277	3404	3370
Vehs Exited	3256	3367	3180	3277	3290	3379	3372
Starting Vehs	48	52	49	40	73	43	55
Ending Vehs	57	29	53	50	60	68	53
Travel Distance (km)	990	1010	956	991	987	1024	1026
Travel Time (hr)	51.4	50.7	48.2	51.3	52.3	59.5	54.4
Total Delay (hr)	29.5	28.4	27.0	29.4	30.4	36.8	31.7
Total Stops	3067	2958	2833	2978	2997	3181	3076
Fuel Used (l)	129.3	129.2	123.2	128.4	130.5	139.0	135.0

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3312	3412	3399	3324
Vehs Exited	3317	3422	3375	3323
Starting Vehs	53	70	44	48
Ending Vehs	48	60	68	49
Travel Distance (km)	1000	1020	1027	1003
Travel Time (hr)	50.2	54.6	57.3	53.0
Total Delay (hr)	28.1	32.0	34.7	30.8
Total Stops	2908	3071	3164	3020
Fuel Used (l)	129.1	134.7	137.7	131.6

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	782	814	783	795	802	863	822
Vehs Exited	789	829	788	801	845	841	821
Starting Vehs	48	52	49	40	73	43	55
Ending Vehs	41	37	44	34	30	65	56
Travel Distance (km)	240	247	238	237	251	259	250
Travel Time (hr)	12.2	12.0	11.7	12.3	14.4	15.0	13.3
Total Delay (hr)	6.9	6.5	6.4	7.1	8.8	9.3	7.8
Total Stops	742	719	686	681	773	824	748
Fuel Used (l)	31.0	31.3	30.2	30.9	34.6	35.1	33.4

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	843	862	853	820
Vehs Exited	840	872	854	828
Starting Vehs	53	70	44	48
Ending Vehs	56	60	43	45
Travel Distance (km)	255	259	257	249
Travel Time (hr)	12.9	15.0	15.1	13.4
Total Delay (hr)	7.2	9.2	9.5	7.9
Total Stops	761	820	781	750
Fuel Used (l)	32.9	34.9	34.8	32.9

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	904	863	837	859	888	865	885
Vehs Exited	880	846	840	854	872	878	875
Starting Vehs	41	37	44	34	30	65	56
Ending Vehs	65	54	41	39	46	52	66
Travel Distance (km)	268	258	255	260	261	266	271
Travel Time (hr)	14.2	13.7	13.6	13.5	13.9	15.4	14.4
Total Delay (hr)	8.2	8.0	8.0	7.8	8.2	9.5	8.4
Total Stops	841	798	770	819	797	855	814
Fuel Used (l)	35.0	33.8	33.4	33.8	34.5	36.5	35.2

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	880	890	864	873
Vehs Exited	898	908	855	871
Starting Vehs	56	60	43	45
Ending Vehs	38	42	52	47
Travel Distance (km)	264	267	259	263
Travel Time (hr)	13.4	14.3	14.1	14.1
Total Delay (hr)	7.6	8.4	8.4	8.2
Total Stops	776	778	791	803
Fuel Used (l)	34.7	35.3	34.8	34.7

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	749	808	784	802	785	811	813
Vehs Exited	787	827	785	790	791	817	830
Starting Vehs	65	54	41	39	46	52	66
Ending Vehs	27	35	40	51	40	46	49
Travel Distance (km)	232	245	237	243	238	244	246
Travel Time (hr)	12.0	12.5	11.9	11.9	11.7	11.7	12.9
Total Delay (hr)	6.9	7.1	6.7	6.6	6.5	6.3	7.5
Total Stops	692	716	698	671	688	704	723
Fuel Used (l)	30.5	31.3	30.7	30.8	30.8	30.6	32.3

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	739	814	843	796
Vehs Exited	730	806	838	799
Starting Vehs	38	42	52	47
Ending Vehs	47	50	57	40
Travel Distance (km)	224	243	259	241
Travel Time (hr)	11.0	12.3	14.2	12.2
Total Delay (hr)	6.0	6.9	8.5	6.9
Total Stops	642	717	825	705
Fuel Used (l)	28.3	31.3	34.7	31.1

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	830	859	780	831	802	865	850
Vehs Exited	800	865	767	832	782	843	846
Starting Vehs	27	35	40	51	40	46	49
Ending Vehs	57	29	53	50	60	68	53
Travel Distance (km)	251	261	227	251	238	256	259
Travel Time (hr)	13.0	12.5	11.0	13.6	12.2	17.3	13.8
Total Delay (hr)	7.4	6.8	6.0	8.0	6.9	11.7	8.0
Total Stops	792	725	679	807	739	798	791
Fuel Used (l)	32.9	32.8	28.9	33.0	30.6	36.8	34.1

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	850	846	839	833
Vehs Exited	849	836	828	823
Starting Vehs	47	50	57	40
Ending Vehs	48	60	68	49
Travel Distance (km)	257	251	252	250
Travel Time (hr)	12.9	13.0	13.9	13.3
Total Delay (hr)	7.3	7.5	8.4	7.8
Total Stops	729	756	767	757
Fuel Used (l)	33.2	33.1	33.3	32.9

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.5	0.7	0.1	0.1	0.2	0.0	0.0	0.0	0.3	0.1	0.1
Total Delay (hr)	0.9	1.2	0.1	0.3	1.3	0.9	0.4	4.1	0.0	1.1	2.5	0.0
Total Del/Veh (s)	35.4	25.1	17.8	28.8	25.4	19.3	15.3	16.7	6.5	36.7	22.1	3.7
Stop Delay (hr)	0.8	1.0	0.1	0.2	1.1	0.9	0.4	3.5	0.0	1.0	2.0	0.0
Stop Del/Veh (s)	33.7	22.2	17.6	26.6	21.8	18.5	13.3	14.0	6.5	32.0	17.2	3.4

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	13.0
Total Del/Veh (s)	20.7
Stop Delay (hr)	11.1
Stop Del/Veh (s)	17.7

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.2	0.0	0.1	0.3	0.0	0.1	0.0	0.2	0.3	0.1	1.4
Total Del/Veh (s)	5.1	2.4	1.2	12.1	3.8	4.4	22.3		18.6	28.9	11.2	5.7
Stop Delay (hr)	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.3	0.1	1.0
Stop Del/Veh (s)	3.4	1.1	0.9	8.9	1.7	2.9	21.2		18.7	26.7	10.7	4.1

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.4	3.7	3.8	0.9	1.2	0.8	0.5	0.6
Total Delay (hr)	0.4	0.9	0.0	0.1	0.8	0.1	0.2	0.8	4.5	0.2	0.5	1.3
Total Del/Veh (s)	23.8	9.2	9.2	18.5	17.3	14.6	10.1	42.8	40.5	36.6	31.5	24.8
Stop Delay (hr)	0.4	0.7	0.0	0.1	0.6	0.1	0.1	0.7	3.6	0.2	0.5	1.1
Stop Del/Veh (s)	20.9	7.0	7.9	15.4	13.7	13.4	8.4	36.9	33.0	32.0	28.5	20.7

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.3
Denied Del/Veh (s)	0.6	0.7
Total Delay (hr)	0.7	10.4
Total Del/Veh (s)	17.9	24.2
Stop Delay (hr)	0.6	8.6
Stop Del/Veh (s)	16.4	20.1

4: Carlton Street & Development Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.9	4.6	3.6	1.8	0.4	0.6	1.8
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	3.9	2.6	0.3	0.4	0.2	0.4	0.8

5: Development & Spring Garden Road Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1
Total Delay (hr)	0.2	0.0	0.0	0.0	0.3
Total Del/Veh (s)	1.9	2.0	6.3	0.7	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.4	0.5	4.0	0.2	0.3

6: Robie Street & Development Performance by movement

Movement	WBR	NBT	SBT	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.4	0.0	0.3
Total Delay (hr)	0.0	3.8	0.2	3.9
Total Del/Veh (s)	15.8	13.4	1.3	9.5
Stop Delay (hr)	0.0	2.7	0.0	2.8
Stop Del/Veh (s)	12.5	9.7	0.2	6.7

Total Network Performance

Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.6
Total Delay (hr)	30.3
Total Del/Veh (s)	32.3
Stop Delay (hr)	23.7
Stop Del/Veh (s)	25.3

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	37.5	45.1	45.6	48.9	36.8	39.0	16.0	87.3	77.3	15.7
Average Queue (m)	17.0	24.6	21.8	25.3	34.0	32.0	4.6	48.4	29.7	4.7
95th Queue (m)	32.8	43.3	39.2	43.9	36.3	39.0	12.7	77.6	65.4	13.0
Link Distance (m)	37.9	37.9	88.9		30.2	30.2	30.2	175.4	175.4	175.4
Upstream Blk Time (%)	1	3	0		44	15				
Queuing Penalty (veh)	0	0	0		152	52				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	1						
Queuing Penalty (veh)			0	1						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	35.0	48.5	22.2	25.9
Average Queue (m)	12.0	13.9	10.9	10.5
95th Queue (m)	30.2	34.4	20.6	21.2
Link Distance (m)	33.8	131.9	19.3	104.2
Upstream Blk Time (%)	1		2	
Queuing Penalty (veh)	3		1	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	37.1	29.7	46.8	20.7	21.3	146.7	71.1	44.0
Average Queue (m)	19.2	9.6	20.8	2.8	8.0	74.1	33.5	18.5
95th Queue (m)	32.2	23.1	38.6	12.6	17.9	136.6	60.0	34.5
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)						2	1	0
Queuing Penalty (veh)						0	0	0
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)	0		0	0				
Queuing Penalty (veh)	0		0	0				

Intersection: 4: Carlton Street & Development

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	12.0	10.2	5.1
Average Queue (m)	4.2	0.8	0.2
95th Queue (m)	11.8	5.7	2.6
Link Distance (m)	23.1	90.5	19.3
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Development & Spring Garden Road

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (m)	22.5	9.6
Average Queue (m)	1.6	0.4
95th Queue (m)	12.4	4.9
Link Distance (m)	88.9	33.8
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Robie Street & Development

Movement	WB	NB	NB	SB
Directions Served	R	T	T	T
Maximum Queue (m)	7.7	73.8	69.0	1.6
Average Queue (m)	0.7	60.9	30.3	0.1
95th Queue (m)	4.9	83.3	69.8	1.7
Link Distance (m)	40.4	66.1	66.1	30.2
Upstream Blk Time (%)		10	1	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 210

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	WBTL
Maximum Green (s)	48.0	32.0	9.0	35.0	32.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None
Avg. Green (s)	51.8	28.3	12.8	35.0	28.3
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	44	100	100	44
Cycles with Peds (%)	88	97	0	98	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

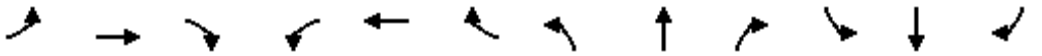
Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	20.0	39.0	20.0	39.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	6.7	31.9	35.2	31.9	35.2
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	88	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	58	100	58
Cycles with Peds (%)	0	100	98	98	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0



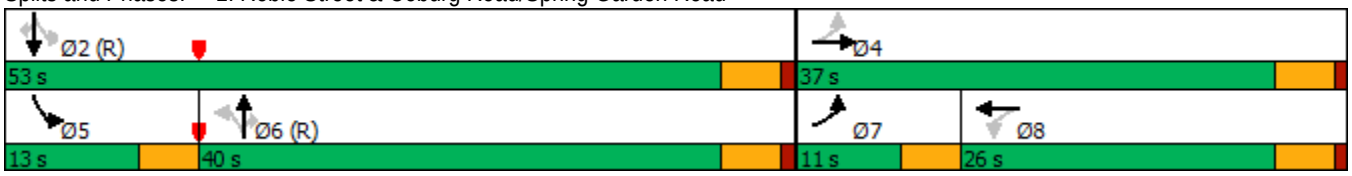
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	161	26	32	178	169	98	884	29	108	396	45
Future Volume (vph)	95	161	26	32	178	169	98	884	29	108	396	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.87	0.96			0.85			0.99	0.49			0.86
Frt		0.979			0.933				0.850			0.850
Flt Protected	0.950				0.996			0.995			0.989	
Satd. Flow (prot)	1789	1775	0	0	2874	0	0	3561	1601	0	3539	1601
Flt Permitted	0.305				0.909			0.808			0.529	
Satd. Flow (perm)	501	1775	0	0	2580	0	0	2873	792	0	1893	1370
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			186				121			73
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			107.1			43.7			186.2	
Travel Time (s)		3.6			7.7			3.1			13.4	
Confl. Peds. (#/hr)	199		172	172		199	90		198	198		90
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	177	29	35	196	186	108	971	32	119	435	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	206	0	0	417	0	0	1079	32	0	554	49
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	11.0	37.0		26.0	26.0		40.0	40.0	40.0	13.0	53.0	53.0
Total Lost Time (s)	4.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	28.2	27.2			18.4			35.0	35.0		52.8	52.8
Actuated g/C Ratio	0.31	0.30			0.20			0.39	0.39		0.59	0.59
v/c Ratio	0.40	0.38			0.62			0.97	0.08		0.41	0.06
Control Delay	26.2	24.8			22.0			48.1	0.4		10.8	1.4
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	26.2	24.8			22.0			48.1	0.4		10.8	1.4
LOS	C	C			C			D	A		B	A
Approach Delay		25.3			22.0			46.7			10.0	
Approach LOS		C			C			D			B	
Stops (vph)	65	133			191			852	0		238	3
Fuel Used(l)	4	7			15			59	0		18	1
CO Emissions (g/hr)	71	138			271			1107	2		343	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	14	27			52			214	0		66	3
VOC Emissions (g/hr)	16	32			62			255	1		79	4
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	12.6	25.6			18.7			94.1	0.0		24.1	0.0
Queue Length 95th (m)	23.3	42.2			33.1			#137.7	0.0		35.0	2.8
Internal Link Dist (m)		26.2			83.1			19.7			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	257	637			744			1117	381		1345	833
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.40	0.32			0.56			0.97	0.08		0.41	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 88.9%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:45	3:45	3:45	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3397	3403	3273	3319	3254	3296	3381
Vehs Exited	3400	3397	3251	3322	3270	3290	3387
Starting Vehs	51	56	36	40	68	50	53
Ending Vehs	48	62	58	37	52	56	47
Travel Distance (km)	1022	1024	984	1015	982	987	1022
Travel Time (hr)	55.0	56.0	51.8	53.7	51.3	51.3	53.5
Total Delay (hr)	32.3	33.4	30.0	31.4	29.5	29.5	31.0
Total Stops	3137	3148	2990	3059	2982	2974	3072
Fuel Used (l)	135.5	136.8	128.9	134.2	128.4	129.7	134.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3315	3403	3454	3349
Vehs Exited	3323	3394	3446	3347
Starting Vehs	63	51	57	47
Ending Vehs	55	60	65	51
Travel Distance (km)	1004	1016	1038	1009
Travel Time (hr)	53.0	53.2	54.4	53.3
Total Delay (hr)	30.9	30.8	31.6	31.0
Total Stops	3022	3051	3145	3059
Fuel Used (l)	132.7	133.4	135.8	133.0

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	834	790	817	830	794	791	841
Vehs Exited	841	799	820	815	806	792	843
Starting Vehs	51	56	36	40	68	50	53
Ending Vehs	44	47	33	55	56	49	51
Travel Distance (km)	249	240	246	251	242	239	255
Travel Time (hr)	12.2	12.4	13.7	13.3	12.2	12.5	12.5
Total Delay (hr)	6.7	7.1	8.3	7.8	6.8	7.2	6.9
Total Stops	731	730	750	744	685	707	741
Fuel Used (l)	31.9	31.9	33.1	33.1	31.4	31.3	32.9

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	831	828	837	817
Vehs Exited	844	829	843	822
Starting Vehs	63	51	57	47
Ending Vehs	50	50	51	44
Travel Distance (km)	252	247	250	247
Travel Time (hr)	12.9	12.4	12.2	12.6
Total Delay (hr)	7.4	6.9	6.7	7.2
Total Stops	772	743	697	733
Fuel Used (l)	33.2	32.3	31.9	32.3

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	893	941	857	856	859	830	890
Vehs Exited	878	927	841	838	850	833	881
Starting Vehs	44	47	33	55	56	49	51
Ending Vehs	59	61	49	73	65	46	60
Travel Distance (km)	268	282	252	259	260	246	267
Travel Time (hr)	14.8	16.4	12.9	13.4	14.5	12.6	14.5
Total Delay (hr)	8.9	10.2	7.3	7.7	8.7	7.1	8.5
Total Stops	825	863	762	749	829	719	824
Fuel Used (l)	35.7	38.6	32.6	33.7	34.8	31.8	35.8

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	866	913	854	876
Vehs Exited	877	918	855	870
Starting Vehs	50	50	51	44
Ending Vehs	39	45	50	50
Travel Distance (km)	265	275	260	264
Travel Time (hr)	14.3	14.3	13.2	14.1
Total Delay (hr)	8.5	8.3	7.5	8.3
Total Stops	786	820	753	791
Fuel Used (l)	35.3	35.9	33.2	34.7

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	833	773	778	836	784	809	830
Vehs Exited	858	787	793	865	814	808	827
Starting Vehs	59	61	49	73	65	46	60
Ending Vehs	34	47	34	44	35	47	63
Travel Distance (km)	252	233	240	261	241	242	250
Travel Time (hr)	13.6	11.8	12.3	14.2	12.3	12.4	13.2
Total Delay (hr)	8.0	6.7	7.0	8.5	7.0	7.0	7.7
Total Stops	769	701	743	829	738	723	740
Fuel Used (l)	33.6	29.6	31.4	35.6	31.3	31.8	32.8

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	809	816	868	813
Vehs Exited	807	813	862	824
Starting Vehs	39	45	50	50
Ending Vehs	41	48	56	40
Travel Distance (km)	245	241	262	247
Travel Time (hr)	12.9	12.0	14.9	13.0
Total Delay (hr)	7.5	6.6	9.0	7.5
Total Stops	736	696	856	753
Fuel Used (l)	32.3	31.0	35.6	32.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	837	899	821	797	817	866	820
Vehs Exited	823	884	797	804	800	857	836
Starting Vehs	34	47	34	44	35	47	63
Ending Vehs	48	62	58	37	52	56	47
Travel Distance (km)	253	269	246	243	239	259	249
Travel Time (hr)	14.3	15.4	12.9	12.8	12.3	13.9	13.3
Total Delay (hr)	8.7	9.4	7.4	7.4	7.0	8.1	7.9
Total Stops	812	854	735	737	730	825	767
Fuel Used (l)	34.3	36.6	31.8	31.8	30.9	34.8	33.3

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	809	846	895	843
Vehs Exited	795	834	886	830
Starting Vehs	41	48	56	40
Ending Vehs	55	60	65	51
Travel Distance (km)	241	251	267	252
Travel Time (hr)	12.9	14.5	14.1	13.6
Total Delay (hr)	7.6	9.0	8.3	8.1
Total Stops	728	792	839	781
Fuel Used (l)	31.8	34.2	35.0	33.4

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.4	0.5	0.2	0.2	0.4	0.2	0.0	0.0	0.4	0.1	0.1
Total Delay (hr)	0.7	1.1	0.1	0.3	1.5	1.3	0.5	4.3	0.0	1.3	2.8	0.0
Total Del/Veh (s)	25.1	23.6	16.3	31.0	30.0	26.7	16.5	16.6	6.2	43.9	25.6	4.1
Stop Delay (hr)	0.6	0.9	0.1	0.3	1.3	1.3	0.4	3.6	0.0	1.2	2.3	0.0
Stop Del/Veh (s)	23.4	20.8	16.1	28.3	26.2	26.5	14.5	13.9	6.2	38.9	20.5	3.9

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.2
Total Delay (hr)	14.0
Total Del/Veh (s)	22.0
Stop Delay (hr)	12.1
Stop Del/Veh (s)	19.0

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.2	0.0	0.1	0.3	0.0	0.1	0.0	0.2	0.3	0.1	1.4
Total Del/Veh (s)	4.2	2.1	1.1	11.5	3.7	4.1	18.8		18.2	26.9	11.6	5.5
Stop Delay (hr)	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.3	0.1	1.0
Stop Del/Veh (s)	2.4	0.8	0.8	8.7	1.6	2.8	17.8		18.3	24.6	11.0	4.0

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.5	0.4	3.7	3.8	0.5	0.5	0.5	0.3	0.3
Total Delay (hr)	0.4	0.9	0.0	0.1	0.7	0.1	0.1	0.6	3.5	0.1	0.5	1.2
Total Del/Veh (s)	23.7	9.5	7.8	18.1	16.3	12.4	9.2	36.3	32.1	31.5	29.0	23.7
Stop Delay (hr)	0.4	0.7	0.0	0.1	0.6	0.1	0.1	0.5	2.7	0.1	0.5	1.0
Stop Del/Veh (s)	20.8	7.2	6.7	15.2	12.8	11.3	7.8	30.4	24.9	26.9	25.9	19.5

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.2	0.4
Total Delay (hr)	0.8	9.1
Total Del/Veh (s)	18.7	21.4
Stop Delay (hr)	0.7	7.4
Stop Del/Veh (s)	17.2	17.4

4: Carlton Street & Development Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	4.9	4.4	3.7	1.6	0.4	0.5	1.7
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.9	2.3	0.3	0.3	0.3	0.3	0.6

5: Development & Spring Garden Road Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.4	0.0	0.0	0.1
Total Delay (hr)	0.2	0.0	0.0	0.0	0.3
Total Del/Veh (s)	1.9	1.9	8.9	0.7	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.4	0.4	5.4	0.2	0.3

6: Robie Street & Development Performance by movement

Movement	WBR	NBT	SBT	All
Denied Delay (hr)	0.0	0.2	0.0	0.2
Denied Del/Veh (s)	0.1	0.7	0.0	0.5
Total Delay (hr)	0.0	4.3	0.2	4.5
Total Del/Veh (s)	22.4	14.7	1.3	10.7
Stop Delay (hr)	0.0	3.2	0.0	3.2
Stop Del/Veh (s)	19.8	10.8	0.2	7.6

Total Network Performance

Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.5
Total Delay (hr)	30.5
Total Del/Veh (s)	32.4
Stop Delay (hr)	23.9
Stop Del/Veh (s)	25.4

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	34.3	44.4	62.6	50.6	39.0	39.9	15.6	86.6	71.3	16.7
Average Queue (m)	14.4	24.3	25.7	28.3	34.4	32.5	4.8	52.4	31.8	4.9
95th Queue (m)	27.5	42.5	48.2	49.1	37.2	39.2	13.3	81.2	68.5	13.6
Link Distance (m)	37.9	37.9	88.9		30.2	30.2	30.2	175.4	175.4	175.4
Upstream Blk Time (%)	0	3	0		45	18				
Queuing Penalty (veh)	0	0	0		155	63				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	2						
Queuing Penalty (veh)			1	3						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	35.1	40.2	22.0	26.9
Average Queue (m)	11.3	12.8	11.2	10.5
95th Queue (m)	28.8	31.7	19.8	21.6
Link Distance (m)	33.8	131.9	19.3	104.2
Upstream Blk Time (%)	1		2	
Queuing Penalty (veh)	2		1	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	36.5	29.3	45.4	16.5	19.6	131.2	70.8	46.9
Average Queue (m)	19.5	10.0	20.1	2.7	7.3	63.4	33.5	19.8
95th Queue (m)	32.1	22.8	37.3	11.2	17.0	106.5	57.2	37.0
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)						0	0	0
Queuing Penalty (veh)						0	0	0
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)			0	0				
Queuing Penalty (veh)			0	0				

Intersection: 4: Carlton Street & Development

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	13.4	8.7	2.4
Average Queue (m)	4.4	0.6	0.1
95th Queue (m)	12.1	4.8	1.5
Link Distance (m)	23.1	90.5	19.3
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Development & Spring Garden Road

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (m)	18.9	7.1
Average Queue (m)	1.1	0.3
95th Queue (m)	9.3	3.7
Link Distance (m)	88.9	33.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Robie Street & Development

Movement	WB	NB	NB	NB	SB
Directions Served	R	T	T	T	T
Maximum Queue (m)	8.7	75.6	70.6	6.3	1.6
Average Queue (m)	0.9	62.0	35.0	0.0	0.1
95th Queue (m)	5.2	83.9	75.4	0.0	1.2
Link Distance (m)	40.4	66.1	66.1	66.1	30.2
Upstream Blk Time (%)		13	2	0	
Queuing Penalty (veh)		0	0	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 225

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	7	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	EBL	WBTL
Maximum Green (s)	48.0	32.0	9.0	35.0	7.0	21.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None	None
Avg. Green (s)	49.7	30.3	10.7	35.0	7.0	21.5
g/C Ratio	NA	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	0	18	0
Cycles @ Minimum (%)	0	0	0	0	82	0
Cycles Maxed Out (%)	100	64	100	100	82	64
Cycles with Peds (%)	88	97	0	98	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

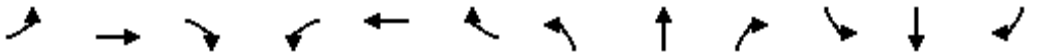
Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	20.0	39.0	20.0	39.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	7.2	32.6	34.9	32.6	34.9
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	88	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	53	100	53
Cycles with Peds (%)	0	100	95	100	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

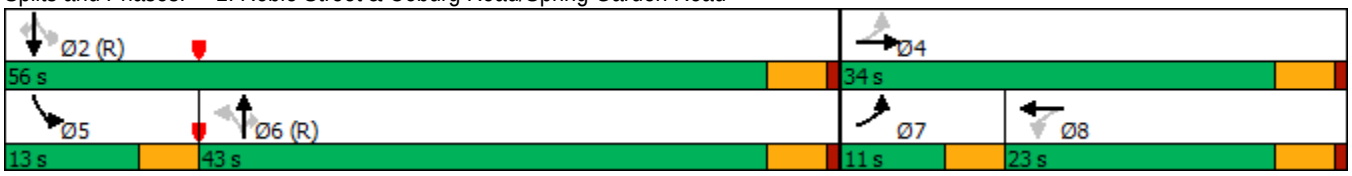


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	161	26	32	178	169	98	884	29	108	396	45
Future Volume (vph)	95	161	26	32	178	169	98	884	29	108	396	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.87	0.96			0.85			0.99	0.49			0.86
Frt		0.979			0.933				0.850			0.850
Flt Protected	0.950				0.996			0.995			0.989	
Satd. Flow (prot)	1789	1775	0	0	2874	0	0	3561	1601	0	3539	1601
Flt Permitted	0.300				0.909			0.809			0.537	
Satd. Flow (perm)	494	1775	0	0	2580	0	0	2877	792	0	1922	1370
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			186				121			73
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			107.1			43.7			186.2	
Travel Time (s)		3.6			7.7			3.1			13.4	
Confl. Peds. (#/hr)	199		172	172		199	90		198	198		90
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	177	29	35	196	186	108	971	32	119	435	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	206	0	0	417	0	0	1079	32	0	554	49
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8			6		6	2		2
Total Split (s)	11.0	34.0		23.0	23.0		43.0	43.0	43.0	13.0	56.0	56.0
Total Lost Time (s)	4.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	27.8	26.8			18.0			38.0	38.0		53.2	53.2
Actuated g/C Ratio	0.31	0.30			0.20			0.42	0.42		0.59	0.59
v/c Ratio	0.41	0.39			0.63			0.89	0.08		0.42	0.06
Control Delay	26.9	25.4			22.6			34.9	0.4		10.6	1.3
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	26.9	25.4			22.6			34.9	0.4		10.6	1.3
LOS	C	C			C			C	A		B	A
Approach Delay		25.9			22.6			33.9			9.8	
Approach LOS		C			C			C			A	
Stops (vph)	65	135			193			844	0		235	3
Fuel Used(l)	4	8			15			49	0		18	1
CO Emissions (g/hr)	72	141			275			918	2		340	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	14	27			53			177	0		66	3
VOC Emissions (g/hr)	17	32			63			212	1		78	4
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	12.6	25.6			18.7			88.4	0.0		24.1	0.0
Queue Length 95th (m)	24.1	43.7			34.1			#128.4	0.0		33.1	2.7
Internal Link Dist (m)		26.2			83.1			19.7			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	253	578			664			1214	404		1319	839
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.41	0.36			0.63			0.89	0.08		0.42	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 88.9%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:45	3:45	3:45	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3329	3349	3280	3425	3279	3352	3408
Vehs Exited	3335	3339	3276	3423	3279	3345	3400
Starting Vehs	46	40	51	40	50	39	47
Ending Vehs	40	50	55	42	50	46	55
Travel Distance (km)	1012	1011	996	1022	994	1018	1030
Travel Time (hr)	54.0	54.6	51.8	55.5	52.4	53.4	53.3
Total Delay (hr)	31.6	32.3	29.7	32.9	30.4	30.8	30.5
Total Stops	3089	3145	2924	3204	2999	3116	3158
Fuel Used (l)	133.1	133.9	130.6	135.6	130.7	133.1	134.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3330	3288	3294	3334
Vehs Exited	3324	3297	3294	3332
Starting Vehs	49	49	64	44
Ending Vehs	55	40	64	45
Travel Distance (km)	1021	998	988	1009
Travel Time (hr)	56.1	51.3	51.0	53.4
Total Delay (hr)	33.5	29.3	29.2	31.0
Total Stops	3132	2943	2832	3057
Fuel Used (l)	136.1	130.1	128.5	132.6

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	810	880	801	847	778	783	856
Vehs Exited	797	869	821	840	794	767	849
Starting Vehs	46	40	51	40	50	39	47
Ending Vehs	59	51	31	47	34	55	54
Travel Distance (km)	249	263	242	255	239	234	263
Travel Time (hr)	13.3	14.9	11.8	14.9	12.0	11.0	13.8
Total Delay (hr)	7.7	9.0	6.4	9.2	6.7	5.8	8.0
Total Stops	765	851	672	800	693	669	819
Fuel Used (l)	32.7	35.3	31.3	34.7	30.6	29.5	34.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	816	807	851	822
Vehs Exited	815	817	864	822
Starting Vehs	49	49	64	44
Ending Vehs	50	39	51	44
Travel Distance (km)	249	242	260	249
Travel Time (hr)	12.8	12.2	14.4	13.1
Total Delay (hr)	7.3	6.9	8.6	7.6
Total Stops	745	720	747	747
Fuel Used (l)	32.0	31.5	34.5	32.7

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	889	891	858	860	879	919	859
Vehs Exited	901	897	838	852	859	919	854
Starting Vehs	59	51	31	47	34	55	54
Ending Vehs	47	45	51	55	54	55	59
Travel Distance (km)	267	273	258	257	265	280	257
Travel Time (hr)	14.4	16.3	13.6	13.7	15.2	15.8	12.9
Total Delay (hr)	8.5	10.2	7.9	8.0	9.3	9.6	7.2
Total Stops	779	875	761	806	827	913	776
Fuel Used (l)	35.4	37.6	33.9	33.6	35.6	37.8	32.9

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	914	897	868	884
Vehs Exited	889	870	870	874
Starting Vehs	50	39	51	44
Ending Vehs	75	66	49	53
Travel Distance (km)	279	264	262	266
Travel Time (hr)	16.8	13.8	13.5	14.6
Total Delay (hr)	10.7	8.0	7.7	8.7
Total Stops	910	775	770	819
Fuel Used (l)	38.3	34.5	34.2	35.4

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	805	769	786	849	791	787	817
Vehs Exited	819	769	802	852	815	783	820
Starting Vehs	47	45	51	55	54	55	59
Ending Vehs	33	45	35	52	30	59	56
Travel Distance (km)	252	230	245	252	241	239	246
Travel Time (hr)	13.5	11.3	12.7	13.3	12.6	11.9	12.5
Total Delay (hr)	7.9	6.2	7.2	7.8	7.3	6.6	7.0
Total Stops	780	702	717	808	736	710	739
Fuel Used (l)	33.0	29.6	32.2	33.5	32.5	30.5	31.5

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	763	785	762	791
Vehs Exited	786	805	771	801
Starting Vehs	75	66	49	53
Ending Vehs	52	46	40	41
Travel Distance (km)	238	247	228	242
Travel Time (hr)	12.1	12.8	11.6	12.4
Total Delay (hr)	6.8	7.3	6.6	7.1
Total Stops	690	736	647	723
Fuel Used (l)	30.9	32.2	29.6	31.6

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	825	809	835	869	831	863	876
Vehs Exited	818	804	815	879	811	876	877
Starting Vehs	33	45	35	52	30	59	56
Ending Vehs	40	50	55	42	50	46	55
Travel Distance (km)	245	245	250	258	249	265	264
Travel Time (hr)	12.8	12.2	13.7	13.7	12.6	14.7	14.2
Total Delay (hr)	7.4	6.8	8.2	8.0	7.1	8.8	8.3
Total Stops	765	717	774	790	743	824	824
Fuel Used (l)	32.0	31.4	33.2	33.8	32.0	35.3	34.8

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	837	799	813	835
Vehs Exited	834	805	789	829
Starting Vehs	52	46	40	41
Ending Vehs	55	40	64	45
Travel Distance (km)	255	245	238	251
Travel Time (hr)	14.4	12.5	11.6	13.2
Total Delay (hr)	8.8	7.1	6.3	7.7
Total Stops	787	712	668	762
Fuel Used (l)	34.8	31.9	30.2	33.0

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.4	0.6	0.4	0.3	0.7	0.0	0.0	0.0	0.3	0.1	0.1
Total Delay (hr)	0.7	1.0	0.1	0.3	1.8	1.7	0.4	3.9	0.1	1.4	2.7	0.0
Total Del/Veh (s)	26.5	23.2	15.8	32.3	35.1	34.9	14.8	15.3	6.5	43.8	23.9	4.0
Stop Delay (hr)	0.7	0.9	0.1	0.3	1.6	1.7	0.4	3.2	0.1	1.2	2.1	0.0
Stop Del/Veh (s)	24.7	20.4	15.5	29.6	31.2	35.1	12.8	12.7	6.5	38.9	18.8	3.7

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.2
Total Delay (hr)	14.1
Total Del/Veh (s)	22.3
Stop Delay (hr)	12.3
Stop Del/Veh (s)	19.4

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.2	0.0
Total Delay (hr)	0.0	0.2	0.0	0.1	0.4	0.1	0.1	0.0	0.3	0.3	0.1	1.6
Total Del/Veh (s)	4.9	2.4	1.5	13.7	4.3	5.4	27.2		20.6	29.0	15.0	6.3
Stop Delay (hr)	0.0	0.1	0.0	0.1	0.2	0.0	0.1	0.0	0.3	0.2	0.1	1.2
Stop Del/Veh (s)	3.3	1.1	1.1	10.6	2.0	3.8	26.3		20.7	26.9	14.4	4.7

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.4	3.6	3.7	0.5	0.5	0.4	0.3	0.3
Total Delay (hr)	0.4	0.9	0.1	0.1	0.8	0.1	0.1	0.7	4.0	0.1	0.5	1.2
Total Del/Veh (s)	21.9	9.6	9.2	21.0	17.4	12.6	9.5	38.1	36.3	29.8	28.9	22.9
Stop Delay (hr)	0.3	0.7	0.0	0.1	0.6	0.1	0.1	0.6	3.2	0.1	0.4	0.9
Stop Del/Veh (s)	19.1	7.3	8.2	18.2	13.8	11.3	7.9	32.4	29.0	25.6	26.0	18.8

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.2	0.4
Total Delay (hr)	0.7	9.6
Total Del/Veh (s)	18.6	22.6
Stop Delay (hr)	0.7	7.9
Stop Del/Veh (s)	17.0	18.5

4: Carlton Street & Development Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	7.4	4.2	8.2	3.3	0.4	0.5	2.8
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	5.4	2.3	4.6	1.9	0.3	0.3	1.7

5: Development & Spring Garden Road Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.3	0.0	0.0	0.1
Total Delay (hr)	0.2	0.0	0.0	0.1	0.3
Total Del/Veh (s)	1.9	2.1	5.4	0.7	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.4	0.3	3.1	0.2	0.3

6: Robie Street & Development Performance by movement

Movement	WBR	NBT	SBT	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.5	0.0	0.3
Total Delay (hr)	0.0	3.4	0.2	3.6
Total Del/Veh (s)	24.5	11.9	1.3	8.7
Stop Delay (hr)	0.0	2.4	0.0	2.5
Stop Del/Veh (s)	21.8	8.4	0.2	5.9

Total Network Performance

Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.5
Total Delay (hr)	30.6
Total Del/Veh (s)	32.6
Stop Delay (hr)	24.1
Stop Del/Veh (s)	25.7

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	LT	T	R	LT	T	R
Maximum Queue (m)	39.8	42.7	66.0	52.1	37.7	38.2	17.1	88.2	72.7	15.6
Average Queue (m)	15.8	22.6	28.7	31.0	34.3	31.5	5.1	51.3	30.1	4.6
95th Queue (m)	31.3	41.1	53.2	52.4	36.6	38.7	13.7	81.2	67.0	12.8
Link Distance (m)	37.9	37.9	88.9		30.2	30.2	30.2	175.4	175.4	175.4
Upstream Blk Time (%)	1	2	0		41	13				
Queuing Penalty (veh)	0	0	0		142	44				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	5						
Queuing Penalty (veh)			1	6						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	34.0	48.2	21.6	26.6
Average Queue (m)	12.1	14.5	11.5	10.2
95th Queue (m)	30.2	36.7	21.2	21.4
Link Distance (m)	33.8	131.9	19.3	104.2
Upstream Blk Time (%)	1		5	
Queuing Penalty (veh)	3		3	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	36.8	29.2	48.4	15.8	20.0	137.5	67.5	44.6
Average Queue (m)	19.5	10.2	20.8	2.5	7.3	67.5	31.8	20.3
95th Queue (m)	32.6	23.3	39.2	10.7	16.9	119.5	56.6	36.5
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)						0	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)			0					
Queuing Penalty (veh)			0					

Intersection: 4: Carlton Street & Development

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	10.4	15.2	2.7
Average Queue (m)	4.7	1.3	0.1
95th Queue (m)	12.0	8.6	1.9
Link Distance (m)	23.1	90.5	19.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Development & Spring Garden Road

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (m)	23.0	7.5
Average Queue (m)	1.3	0.4
95th Queue (m)	11.0	4.3
Link Distance (m)	88.9	33.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Robie Street & Development

Movement	WB	NB	NB	NB	SB
Directions Served	R	T	T	T	T
Maximum Queue (m)	9.6	75.9	72.2	6.5	1.6
Average Queue (m)	1.0	59.0	28.6	0.2	0.1
95th Queue (m)	5.7	84.5	69.7	6.6	1.6
Link Distance (m)	40.4	66.1	66.1	66.1	30.2
Upstream Blk Time (%)		9	1	0	
Queuing Penalty (veh)		0	0	0	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 199

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	7	8
Movement(s) Served	SBTL	EBTL	SBL	NBTL	EBL	WBTL
Maximum Green (s)	51.0	29.0	9.0	38.0	7.0	18.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None	None
Avg. Green (s)	51.6	28.5	9.6	38.0	7.1	19.5
g/C Ratio	NA	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	0	16	0
Cycles @ Minimum (%)	0	0	0	0	84	0
Cycles Maxed Out (%)	100	92	100	100	84	92
Cycles with Peds (%)	88	97	0	98	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

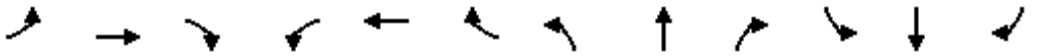
Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	20.0	39.0	20.0	39.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	6.9	31.7	35.1	31.7	35.1
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	88	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	58	100	58
Cycles with Peds (%)	0	98	95	98	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

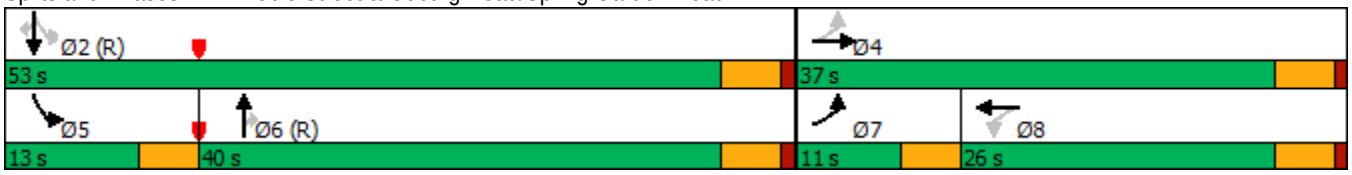


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	161	26	32	178	169	0	982	29	108	396	45
Future Volume (vph)	95	161	26	32	178	169	0	982	29	108	396	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor	0.87	0.96			0.85				0.49			0.86
Frt		0.979			0.933				0.850			0.850
Flt Protected	0.950				0.996						0.989	
Satd. Flow (prot)	1789	1775	0	0	2874	0	0	3579	1601	0	3539	1601
Flt Permitted	0.305				0.909						0.529	
Satd. Flow (perm)	501	1775	0	0	2580	0	0	3579	792	0	1893	1370
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			186				121			73
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		50.2			107.1			43.7			186.2	
Travel Time (s)		3.6			7.7			3.1			13.4	
Confl. Peds. (#/hr)	199		172	172		199	90		198	198		90
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	177	29	35	196	186	0	1079	32	119	435	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	206	0	0	417	0	0	1079	32	0	554	49
Turn Type	pm+pt	NA		Perm	NA			NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8					6	2		2
Total Split (s)	11.0	37.0		26.0	26.0			40.0	40.0	13.0	53.0	53.0
Total Lost Time (s)	4.0	5.0			5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	28.2	27.2			18.4			35.0	35.0		52.8	52.8
Actuated g/C Ratio	0.31	0.30			0.20			0.39	0.39		0.59	0.59
v/c Ratio	0.40	0.38			0.62			0.78	0.08		0.41	0.06
Control Delay	26.2	24.8			22.0			28.8	0.4		10.8	1.4
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	26.2	24.8			22.0			28.8	0.4		10.8	1.4
LOS	C	C			C			C	A		B	A
Approach Delay		25.3			22.0			28.0			10.0	
Approach LOS		C			C			C			B	
Stops (vph)	65	133			191			830	0		238	3
Fuel Used(l)	4	7			15			44	0		18	1
CO Emissions (g/hr)	71	138			271			826	2		343	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
NOx Emissions (g/hr)	14	27			52			159	0		66	3
VOC Emissions (g/hr)	16	32			62			191	1		79	4
Dilemma Vehicles (#)	0	0			0			0	0		0	0
Queue Length 50th (m)	12.6	25.6			18.7			84.1	0.0		24.1	0.0
Queue Length 95th (m)	23.3	42.2			33.1			108.3	0.0		35.0	2.8
Internal Link Dist (m)		26.2			83.1			19.7			162.2	
Turn Bay Length (m)												
Base Capacity (vph)	257	637			744			1391	381		1345	833
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.40	0.32			0.56			0.78	0.08		0.41	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 36 (40%), Referenced to phase 2:SBTL and 6:NBT, Start of Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 88.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Robie Street & Coburg Road/Spring Garden Road



Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:45	3:45	3:45	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3317	3349	3329	3438	3343	3325	3326
Vehs Exited	3316	3340	3316	3431	3356	3312	3325
Starting Vehs	57	41	37	42	60	36	41
Ending Vehs	58	50	50	49	47	49	42
Travel Distance (km)	1020	1027	1015	1056	1029	1019	1017
Travel Time (hr)	52.4	51.9	54.0	54.7	53.0	51.4	51.5
Total Delay (hr)	29.9	29.3	31.7	31.5	30.4	29.0	29.1
Total Stops	2995	2980	3070	3132	3013	3016	2960
Fuel Used (l)	131.8	131.1	134.1	137.6	132.4	130.8	130.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:45	3:45	3:45	3:45
End Time	5:00	5:00	5:00	5:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3312	3368	3308	3341
Vehs Exited	3307	3370	3297	3336
Starting Vehs	57	49	49	43
Ending Vehs	62	47	60	45
Travel Distance (km)	1024	1030	1024	1026
Travel Time (hr)	50.8	51.7	52.9	52.4
Total Delay (hr)	28.3	29.0	30.4	29.9
Total Stops	2936	2956	3011	3007
Fuel Used (l)	130.9	133.0	132.5	132.5

Interval #0 Information Seeding

Start Time	3:45
End Time	4:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	803	831	799	842	777	828	813
Vehs Exited	827	825	789	835	789	810	807
Starting Vehs	57	41	37	42	60	36	41
Ending Vehs	33	47	47	49	48	54	47
Travel Distance (km)	255	247	244	258	238	253	249
Travel Time (hr)	13.0	12.1	13.0	12.8	11.5	13.4	12.4
Total Delay (hr)	7.4	6.6	7.6	7.1	6.2	7.8	7.0
Total Stops	753	683	769	725	662	785	720
Fuel Used (l)	32.9	31.3	32.0	33.3	29.6	33.0	31.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	835	828	831	814
Vehs Exited	858	833	830	819
Starting Vehs	57	49	49	43
Ending Vehs	34	44	50	41
Travel Distance (km)	261	252	255	251
Travel Time (hr)	13.3	12.7	12.8	12.7
Total Delay (hr)	7.6	7.2	7.2	7.2
Total Stops	766	721	735	729
Fuel Used (l)	34.2	32.8	32.6	32.4

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	912	863	903	898	935	897	912
Vehs Exited	895	845	909	898	918	903	897
Starting Vehs	33	47	47	49	48	54	47
Ending Vehs	50	65	41	49	65	48	62
Travel Distance (km)	277	266	273	277	288	275	277
Travel Time (hr)	15.2	13.3	15.2	14.9	15.8	14.2	14.9
Total Delay (hr)	9.1	7.4	9.2	8.9	9.6	8.2	8.8
Total Stops	842	750	822	829	886	816	851
Fuel Used (l)	37.0	33.3	36.7	36.6	38.1	35.9	36.4

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	868	899	870	893
Vehs Exited	854	886	862	886
Starting Vehs	34	44	50	41
Ending Vehs	48	57	58	50
Travel Distance (km)	268	276	264	274
Travel Time (hr)	14.0	14.5	13.7	14.6
Total Delay (hr)	8.1	8.4	7.9	8.6
Total Stops	799	829	771	821
Fuel Used (l)	35.0	36.3	34.1	35.9

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	738	801	817	838	823	778	768
Vehs Exited	754	810	819	840	842	785	778
Starting Vehs	50	65	41	49	65	48	62
Ending Vehs	34	56	39	47	46	41	52
Travel Distance (km)	229	248	252	258	257	241	236
Travel Time (hr)	11.2	13.0	13.8	13.6	13.8	11.5	11.4
Total Delay (hr)	6.2	7.5	8.3	7.9	8.2	6.3	6.2
Total Stops	659	749	772	779	780	657	638
Fuel Used (l)	28.8	32.0	33.9	33.6	33.6	30.1	29.5

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	771	789	751	787
Vehs Exited	783	806	766	796
Starting Vehs	48	57	58	50
Ending Vehs	36	40	43	37
Travel Distance (km)	240	249	237	244
Travel Time (hr)	11.4	11.5	12.1	12.3
Total Delay (hr)	6.1	6.0	6.9	7.0
Total Stops	658	655	696	705
Fuel Used (l)	29.8	30.7	30.6	31.3

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	864	854	810	860	808	822	833
Vehs Exited	840	860	799	858	807	814	843
Starting Vehs	34	56	39	47	46	41	52
Ending Vehs	58	50	50	49	47	49	42
Travel Distance (km)	260	267	246	263	246	251	256
Travel Time (hr)	13.0	13.6	12.0	13.4	11.9	12.2	12.8
Total Delay (hr)	7.2	7.7	6.7	7.6	6.5	6.7	7.1
Total Stops	741	798	707	799	685	758	751
Fuel Used (l)	33.0	34.4	31.4	34.1	31.0	31.9	33.2

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	838	852	856	838
Vehs Exited	812	845	839	830
Starting Vehs	36	40	43	37
Ending Vehs	62	47	60	45
Travel Distance (km)	255	254	268	256
Travel Time (hr)	12.1	12.9	14.3	12.8
Total Delay (hr)	6.5	7.4	8.5	7.2
Total Stops	713	751	809	751
Fuel Used (l)	32.0	33.2	35.2	32.9

1: Robie Street & Coburg Road/Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.4	0.5	0.4	0.3	0.1	0.2	0.0	0.0	0.3	0.1	0.1	0.1
Total Delay (hr)	0.6	1.1	0.1	0.3	1.5	1.2	4.3	0.1	1.6	3.2	0.1	14.0
Total Del/Veh (s)	24.9	23.6	17.6	28.1	30.0	24.9	15.4	6.4	49.8	28.0	4.0	22.1
Stop Delay (hr)	0.6	1.0	0.1	0.2	1.3	1.2	3.6	0.1	1.4	2.6	0.1	12.1
Stop Del/Veh (s)	23.2	20.8	17.4	25.6	26.1	24.5	12.9	6.4	44.7	22.5	3.7	19.1

2: Carlton Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0		0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.2	0.0	0.1	0.3	0.0	0.1	0.0	0.3	0.3	0.1	1.5
Total Del/Veh (s)	4.8	2.3	1.7	13.2	4.1	4.8	22.4		19.7	27.2	11.5	6.0
Stop Delay (hr)	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.3	0.2	0.1	1.1
Stop Del/Veh (s)	3.1	0.9	1.2	10.0	1.9	3.3	21.5		19.8	25.0	11.0	4.3

3: Summer Street & Spring Garden Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	SBT
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.4	3.6	3.8	0.5	0.5	0.6	0.3	0.3
Total Delay (hr)	0.4	0.9	0.0	0.1	0.8	0.1	0.1	0.6	3.5	0.1	0.5	1.2
Total Del/Veh (s)	21.5	9.0	7.8	19.0	16.9	13.0	9.6	35.8	32.3	29.0	28.2	23.4
Stop Delay (hr)	0.4	0.7	0.0	0.1	0.6	0.0	0.1	0.5	2.7	0.1	0.4	1.0
Stop Del/Veh (s)	18.7	6.8	6.9	16.0	13.3	11.6	7.8	30.3	25.0	25.1	25.2	19.3

3: Summer Street & Spring Garden Road Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.0	0.2
Denied Del/Veh (s)	0.2	0.4
Total Delay (hr)	0.7	8.9
Total Del/Veh (s)	18.6	21.0
Stop Delay (hr)	0.7	7.2
Stop Del/Veh (s)	17.2	17.0

4: Carlton Street & Development Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	6.8	5.9	4.1	2.1	0.5	0.6	2.1
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	4.8	3.9	0.7	0.8	0.3	0.4	1.1

5: Development & Spring Garden Road Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1
Total Delay (hr)	0.2	0.0	0.0	0.0	0.3
Total Del/Veh (s)	1.9	2.3	6.1	0.7	1.4
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.3	0.6	3.8	0.2	0.3

6: Robie Street & Development Performance by movement

Movement	WBR	NBT	SBT	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.2	0.0	0.2
Total Delay (hr)	0.0	3.1	0.2	3.3
Total Del/Veh (s)	17.2	10.9	1.3	8.0
Stop Delay (hr)	0.0	2.2	0.0	2.2
Stop Del/Veh (s)	14.7	7.6	0.2	5.3

Total Network Performance

Denied Delay (hr)	0.3
Denied Del/Veh (s)	0.4
Total Delay (hr)	29.5
Total Del/Veh (s)	31.4
Stop Delay (hr)	22.9
Stop Del/Veh (s)	24.4

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	TR	T	T	R	LT	T	R
Maximum Queue (m)	35.1	43.9	56.9	51.4	36.6	38.4	14.4	89.0	78.4	16.4
Average Queue (m)	14.4	24.1	25.0	27.5	34.1	31.8	4.6	55.5	36.1	5.4
95th Queue (m)	28.4	43.8	45.3	47.5	36.2	39.3	12.2	86.0	74.1	13.4
Link Distance (m)	37.9	37.9	88.9		30.2	30.2	30.2	175.4	175.4	175.4
Upstream Blk Time (%)	0	4	0		40	15				
Queuing Penalty (veh)	0	0	0		136	52				
Storage Bay Dist (m)				50.0						
Storage Blk Time (%)			0	1						
Queuing Penalty (veh)			0	2						

Intersection: 2: Carlton Street & Spring Garden Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	35.8	45.6	21.4	29.7
Average Queue (m)	13.4	14.3	11.4	10.5
95th Queue (m)	32.4	35.0	20.2	21.7
Link Distance (m)	33.8	131.9	19.3	104.2
Upstream Blk Time (%)	1		3	
Queuing Penalty (veh)	3		2	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Summer Street & Spring Garden Road

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	R	>	<LTR	LT	R
Maximum Queue (m)	38.9	31.7	49.4	18.9	20.7	124.8	72.8	39.3
Average Queue (m)	19.0	9.8	21.7	2.4	7.6	64.1	31.7	18.6
95th Queue (m)	32.9	23.2	39.5	10.5	17.1	109.6	56.7	34.7
Link Distance (m)	131.9		120.8			177.2	74.9	74.9
Upstream Blk Time (%)						0	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (m)		50.0		50.0	50.0			
Storage Blk Time (%)	0	0	0	0				
Queuing Penalty (veh)	0	0	0	0				

Intersection: 4: Carlton Street & Development

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	11.8	13.1	4.9
Average Queue (m)	4.4	0.9	0.2
95th Queue (m)	12.1	7.1	2.6
Link Distance (m)	23.1	90.5	19.3
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Development & Spring Garden Road

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (m)	27.6	9.2
Average Queue (m)	1.5	0.4
95th Queue (m)	12.2	4.7
Link Distance (m)	88.9	33.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Robie Street & Development

Movement	WB	NB	NB	NB
Directions Served	R	T	T	T
Maximum Queue (m)	10.3	75.1	68.9	6.6
Average Queue (m)	0.7	55.7	26.8	0.2
95th Queue (m)	4.9	82.4	64.6	6.7
Link Distance (m)	40.4	66.1	66.1	66.1
Upstream Blk Time (%)		6	1	0
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 196

Intersection: 1: Robie Street & Coburg Road/Spring Garden Road

Phase	2	4	5	6	7	8
Movement(s) Served	SBTL	EBTL	SBL	NBT	EBL	WBTL
Maximum Green (s)	48.0	32.0	9.0	35.0	7.0	21.0
Minimum Green (s)	7.0	7.0	7.0	7.0	7.0	7.0
Recall	C-Max	None	Max	C-Max	None	None
Avg. Green (s)	50.0	30.1	11.0	35.0	7.1	21.8
g/C Ratio	NA	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	0	23	0
Cycles @ Minimum (%)	0	0	0	0	77	0
Cycles Maxed Out (%)	100	61	100	100	77	61
Cycles with Peds (%)	85	97	0	98	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: Summer Street & Spring Garden Road

Phase	1	2	4	6	8
Movement(s) Served	WBR	EBTL	SBTL	WBTL	NBTL
Maximum Green (s)	6.0	20.0	39.0	20.0	39.0
Minimum Green (s)	4.5	7.0	7.0	7.0	7.0
Recall	None	C-Max	None	C-Max	None
Avg. Green (s)	6.8	32.2	34.8	32.2	34.8
g/C Ratio	-0.01	NA	NA	NA	NA
Cycles Skipped (%)	88	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	3	100	56	100	56
Cycles with Peds (%)	0	98	98	98	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0