# TRAFFIC IMPACT STUDY
# THE PROMENADE


PREPARED FOR:
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Project No. 201-02491

MAY 2020

wsp

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## *APPENDICES*



# 1 INTRODUCTION

***Background***

Plans are being prepared for the Promenade, a multi-use development bound by Robie Street, College Street and Carlton Street in Halifax, Nova Scotia (see Figure 1).

In 2016, SNC-Lavalin completed a Traffic Impact Statement for the proposed multi-use development. Since completing the original Traffic Impact Statement in 2016, two nearby developments are expected to be constructed, therefore, an updated Traffic Impact Study (TIS) has been requested in order to fully evaluate the impacts of the proposed development in combination with the other approved developments in the area.

WSP Canada Inc. has been retained to complete a revised TIS for the proposed multi-use development (see Figure 2). This TIS follows the required plan amendments outlined in HRM's Additional Information Request, dated November 26, 2019.

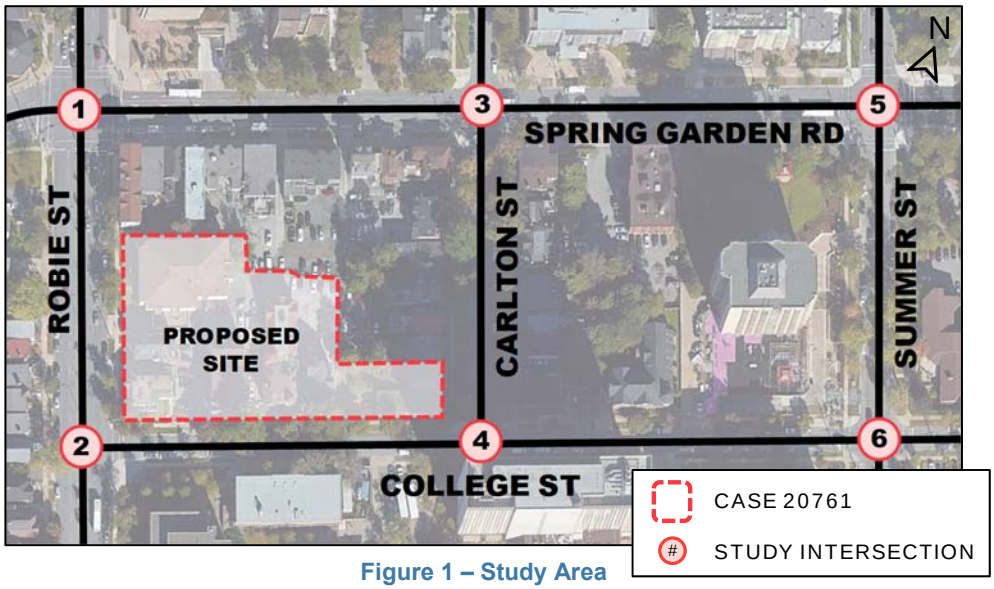



**Figure 1 – Study Area**

***A Traffic Impact Study Usually Considers Four Questions***

A TIS usually consists of determining answers for the following questions:

1. **What is the existing transportation situation** adjacent to the study site? How have volumes changed historically?
2. **What transportation changes are expected** at key Study Area locations? How many vehicle and active mode trips are expected to be generated by the proposed development during weekday peak hours? What routes are the trips expected to use to travel within and through the Study Area?
3. **What transportation impacts will occur** on Study Area roads, sidewalks, and intersections?
4. **What transportation improvements are required** to mitigate project impacts on Study Area travel? Are there transportation modifications that should be made to improve the travel experience for all users?

***Study Objectives***

1. Establish existing traffic conditions in the Study Area.
2. Estimate the number of AM and PM vehicles trips that are expected to be generated by the two nearby developments identified by HRM.
3. Develop projected 2024 background weekday AM and PM peak hourly volumes for Study Area roads that include trips generated by the background developments but do not include trips generated by the Promenade site development.
4. Estimate the number of weekday AM and PM peak hour trips that will be generated by the Promenade.
5. Distribute and assign site generated trips to Study Intersections to project 2024 peak hourly volumes that include site generated trips.
6. Evaluate impacts of site generated traffic on the performance of Study Intersections.
7. Complete warrant analyses, as necessary, for Study Intersections and recommend improvements that may be needed at study intersections to mitigate the impacts of site development.

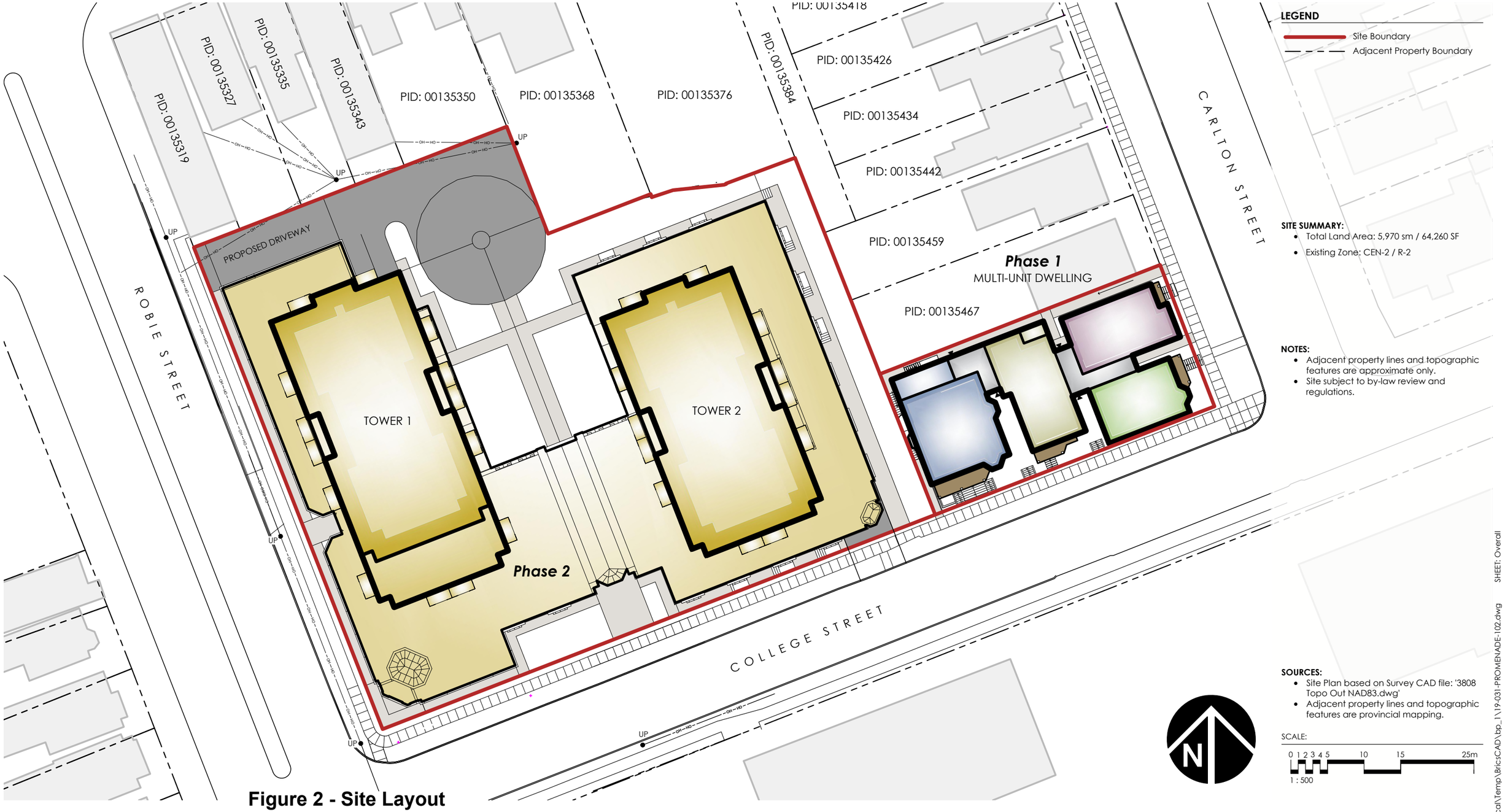



**Figure 2 - Site Layout**


ZZap
Zwicker Zareski architecture + planning
1 Canal Street, Dartmouth, NS B2Y 2W1 ZZap.ca


# The Promenade

Halifax, NS

**PRELIMINARY SITE PLAN | PHASE 1 / 2**

**Version 102**

**A00**

ISSUED FOR REVIEW
DATE: May 08, 2020

FILE: C:\Users\Ken\AppData\Local\Temp\BricsCAD\bp_1\19-031-PROMENADE-102.dwg SHEET: Overall

# 2 STUDY AREA DESCRIPTIONS

***Description of Existing Site***

The existing site is occupied by six (6) residential properties. There are three (3) buildings that front College Street:

- 5977 College Street (PID 00135517) is a 4-storey residential building with 12 dwelling units (see Photo 1);
- 5969 College Street (PID 00135509) is a 3-storey designated "Heritage Building" with 17 dwelling units (see Photo 2);
- 5963 College Street (PID 00135491) is a 3-storey residential building with 4 dwelling units (see Photo 3); and,

There are two (2) properties that front Robie Street:

- 1389 Robie Street (PID 00135541) is a 3-storey residential building with 24 dwelling units (see Photo 4); and,
- 1377 Robie Street (PID 00135533) is a 2-storey residential building with 4 dwelling units (see Photo 5).

There is one (1) property on the corner of Robie Street and College Street:

- 5993 College Street (PID 00135525) is a 3-storey residential building with 4 dwelling units (see Photo 6).

Photo 1 – 5977 College Street

Photo 2 – 5969 College Street

Photo 3 – 5963 College Street

Photo 4 – 1389 Robie Street

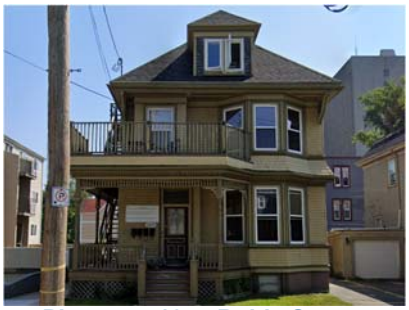


Photo 5 – 1377 Robie Street

Photo 6 – 5993 College Street

***Description of Proposed Redevelopment***

The proposed multi-use development will be bound by Robie Street, College Street and Carlton Street in Halifax, Nova Scotia (see Figure 2). The Promenade is expected to be developed in two (2) phases. Phase 1 is planned to include 34 mid-rise apartments on the corner of Carlton Street and College Street (PID 00135475 and 00135483). Phase 2 is expected to include 577 high-rise apartment units, approximately 12,500 $ft^2$ of retail space, approximately 30,500 $ft^2$ of optional underground commercial space, and an underground parking garage consisting of 511 parking spots. The proposed redevelopment will include the demolition of five (5) of the existing six (6) buildings on the site and the relocation of the designated "Heritage Building" within the boundaries of Phase 1. Completion of the redevelopment is anticipated by 2024.

***Proposed Site Access***

Full vehicular access to the proposed underground parking garage is expected to be located approximately at 5953 College Street. Sight distance appears adequate at the proposed (see Photo 7 and Photo 8). It is expected that an additional access accommodating right-in and right-out (RIRO) maneuvers only will be provided on Robie Street as a drop off driveway.

**Photo 7 – Looking Left (East) on College Street towards Carlton Street**

**Photo 8 - Looking Right (West) on College Street towards Robie Street**

***Existing Road Descriptions***

***Robie Street*** is a major collector street that runs north-south approximately 5.5 km between the North End and South End of Halifax. In the vicinity of the proposed development, Robie Street has two traffic lanes in each direction divided by a median and sidewalks on both sides. The posted speed limit is 50 km/h and metered parking is provided on both sides of Robie Street.

***College Street*** is a local road that runs east-west approximately 500 m between Robie Street and Cathedral Lane. College Street consists of one lane in each direction with sidewalks on both sides and the posted speed limit is 50 km/h. Metered parking is provided on the south side of College Street.

***Carlton Street*** is a local road that runs north-south approximately 250 m between the Camp Hill Cemetery and College Street. Carlton Street consists of one lane in each direction with sidewalks on both sides and the posted speed limit is 50 km/h.

***Spring Garden Road*** is an undivided local collector street that runs east-west approximately 1.2 km between Robie Street and Barrington Street. Spring Garden Road consists of numerous residential and commercial properties, access driveways, bus stop locations and metered parking. There are sidewalks on both sides as this corridor is used heavily by pedestrians. The posted speed limit is 50 km/h.

***Summer Street*** is a local street that runs north-south approximately 900 m between Bell Road and University Avenue. In the vicinity of the proposed development, Summer Street has one lane in each direction divided by a median and sidewalks on both sides. The posted speed limit is 50 km/h.

***Intersection 1 – Robie Street and Spring Garden Road/Coburg Road*** is a 4-leg signalized intersection with pedestrian crosswalks on all approaches (see Photo 9). The northbound and southbound approaches consists of one through/left-turn lane, one through lane and a right-turn lane. The eastbound approach (Coburg Road) consists of one left turn lane and a through/right-turn lane and the westbound approach (Spring Garden Road) consists of one through/left-turn lane and a through/right-turn lane.


Photo 9 – Robie Street at Spring Garden Road and Coburg Road

***Intersection 2 – Robie Street and College Street*** is a 3-leg stop-controlled intersection with free flow on the Robie Street (see Photo 10). The northbound approach consists of one through lane and one through/right-turn lane the southbound approach consists of one through lane and one through/left-turn lane. The eastbound approach (College Street) consists of one lane with pedestrian crossing consisting of parallel bars.


Photo 10 – Robie Street and College Street

***Intersection 3 – Spring Garden Road and Carlton Street*** is a 4-leg stop-controlled intersection with free flow on Spring Garden Road (see Photo 11). All approaches consist of single lanes and there is an RA-5 pedestrian crossing located on the crossing the east leg.

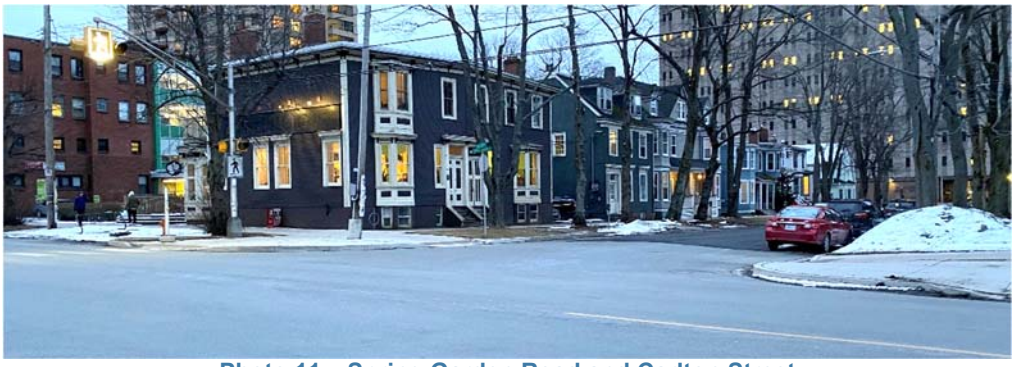


Photo 11 – Spring Garden Road and Carlton Street

***Intersection 4 – College Street and Carlton Street*** is a 3-leg stop-controlled intersection with free flow on the College Street (see Photo 12). All approaches consist of single lanes and there are no marked pedestrian crosswalks.

Photo 12 – College Street and Carlton Street

***Intersection 5 – Spring Garden Road and Summer Street*** is a 4-leg signalized intersection with pedestrian crosswalks on all approaches (see Photo 13). The westbound approach consists of one through/left-turn lane and a right-turn lane that is supplemented with a transit priority signal. The eastbound approach consists of one through/left-turn lane and a through/right-turn lane. The southbound approach consists of one through/left-turn lane and a right-turn lane, right turns are prohibited during red lights at this approach.

Photo 13 – Spring Garden Road and Summer Street

**Intersection Descriptions (Continued)**

***Intersection 6 – College Street and Summer Street*** is a 4-leg stop-controlled intersection with free flow on Summer Street (see Photo 14). All approaches consist of single lanes and there are marked crosswalks crossing the east, west and north legs of the intersection.

Photo 14 – College Street and Summer Street

**Turning Movement Counts**

Turning movement counts were collected during morning and evening peak periods at the existing Study Intersections by WSP on Tuesday, March 3 through Thursday, March 5, 2020. The turning movement counts have been tabulated in Tables A-1 to A-6, Appendix A, with peak hour volumes indicated by shaded areas.

**Observed Traffic Volumes**

Observed 2020 AM and PM peak hour volumes are shown diagrammatically in Figure A-1, Appendix A. It should be noted that the observed volumes have been rounded to the nearest multiple of 5.

**Active Transportation & Transit**

The proposed site has good accessibility for pedestrians. There are sidewalks on both sides of all corridors in the Study Area and marked crosswalks at all Study Intersections.

HRM Transit currently operates several routes near the proposed redevelopment site (see Figure 3), with a number of bus stops located on Robie Street and Spring Garden Road. Currently there is no transit route that runs directly past the proposed site.


Figure 3 – HRM Transit Routes

# 3 BACKGROUND TRAFFIC

***Other Anticipated Developments in the Study Area***

HRM requested inclusion of two (2) approved developments in the Study Area as the background growth. One of the background developments is expected to be located adjacent to the proposed redevelopment site (Case 20218) and the other background development is expected to be located at 5885 Spring Garden Road (Killam Property) (see Figure 4).

Both of the background developments considered are currently occupied by other existing properties. The adjacent property is currently occupied by several residential and commercial properties. Case 20218 is expected to consist of 250 mid-rise apartment units, 61,000 $ft^2$ of office space and 21,000 $ft^2$ of commercial space. The Killam Property is currently occupied by a 201-unit mid-rise apartment building and the redeveloped property is expected to consist of a 305-unit mid-rise apartment building.

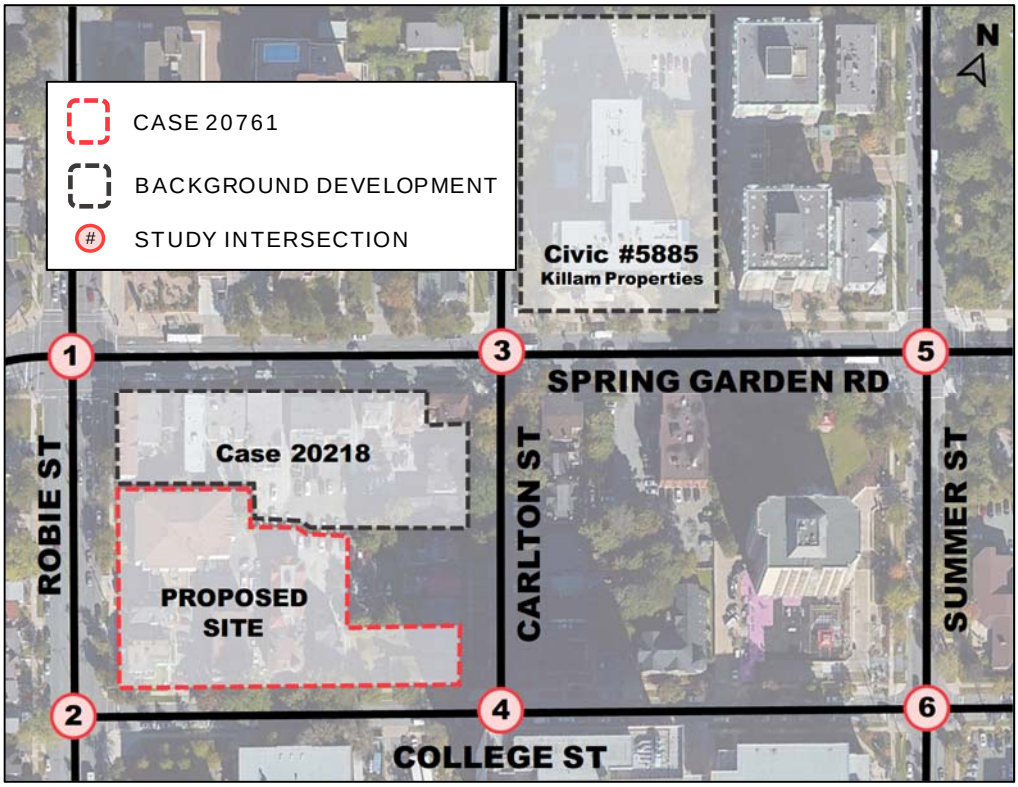



**Figure 4 – Locations of Background Developments**

***Annual Growth***

This updated Traffic Impact Study accounts for the adjacent developments as the background growth of traffic in the area, therefore, no annual growth factor was applied to the traffic volumes.

# 4 TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

***Anticipated Land Use for Proposed Redevelopment***

Phase 1 of the Promenade is expected to include 34 Mid-Rise Apartment units. Phase 2 is planned to include 577 High-Rise Apartment units and 43,000 ft$^2$ of Commercial Space consisting of Speciality Retail and High-Turnover (Sit-Down) Restaurants.

***Anticipated Land Use for Background Developments***

Case 20218 is planned to include 250 Mid-Rise Apartment units, 61,000 ft$^2$ of General Office and 21,000 ft$^2$ of Speciality Retail. The redeveloped Killam Property is expected to consist of 305 Mid-Rise Apartment Units.

***Estimation of Site Generated Trips (Background Developments and Proposed Site)***

When using the published rates in *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, Washington, 2017) the transportation engineer's objective should be to provide a realistic estimate of the number of trips that will be generated.

Generated trips for Mid-Rise Apartments (Land Use 221) and High-Rise Apartments (Land Use 222) are estimated for the AM and PM peak hours of traffic by the number of units. Trips generated for Specialty Retail (Land Use 826), High-Turnover (Sit-Down) Restaurants (Land Use 932) and General Office (Land Use 710) and are estimated for the AM and PM peak hours of traffic by leasable square footage available.

The 10th Edition of the Trip Generation Manual was used to estimate trips for Mid-Rise/High-Rise Apartment units, General Office space and High-Turnover (Sit-Down) Restaurants. The estimates for Speciality Retail trips were prepared using published rates from *Trip Generation Manual, 9th Edition* (Institute of Transportation Engineers, Washington, 2012). Speciality Retail is no longer listed as a potential land usage in the 10th Edition, instead more specific retail descriptions are provided (e.g. supermarket, apparel store, pet supply store, etc.). Due to the unknown use of the commercial space, speciality retail was used.

***Trips Generated from Case 20218***

The adjacent property is currently occupied by numerous residential properties and commercial destinations. It was estimated that the proposed commercial development will approximately occupy the same leasable square footage and consist of similar land usages (e.g. coffee shops, restaurants, salons, etc.) as the existing site. The trip generation estimates of the proposed site and the vehicle trip credits for the existing site were assumed to be equivalent, therefore, the trips generated by the commercial development are captured in the traffic counts collected between March 3-5, 2020 by WSP.

In addition, the expected number of units/square footage for each land use for this property was increased by 15%, as request by HRM. The trip generation estimate for Case 20218 is summarized in Table 1.

It is estimated that Case 20218 will generate:

- 62 new two-way trips during the AM peak hour (33 entering and 29 exiting); and,
- 70 new two-way trips during the PM peak hour (30 entering and 40 exiting).

***Trips Generated from Killam Property***

The existing Killam Property located at 5885 Spring Garden Road consists of a Mid-Rise Apartment with 201 units, therefore, a credit was applied to the trip generation estimate in order to determine the number of new trips generated by the redevelopment. The trip generation estimate for the redeveloped Killam Property is summarized in Table 2.

It is estimated that the Killam Property will generate:

- 14 new two-way trips during the AM peak hour (4 entering and 10 exiting); and,
- 17 new two-way trips during the PM peak hour (10 entering and 7 exiting).

## Table 1 – Trip Generation Estimates for Case 20218

| Land Use[1] | Units[2] | Trip Generation Rates[3] | | | | Trip Generation Estimates[3] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | In | Out | In | Out | In | Out | In | Out |
| **Adjacent Site (Case 20218)** | | | | | | | | | |
| Mid-Rise Apartments (Land Use 221) | 288 Units[4] | Equations from Pages 74 and 75 (Residential - Land Uses 200 - 299) | | | | 25 | 72 | 73 | 47 |
| General Office (Land Use 710) | 69.0 KGLA[4] | 1.00 | 0.16 | 0.18 | 0.97 | 69 | 11 | 13 | 67 |
| Specialty Retail[5] (Land Use 826) | 24.2 KGLA[4] | No change between existing and proposed. | | | | 0 | 0 | 0 | 0 |
| **Trip Generation Estimates** | | | | | | 94 | 83 | 86 | 114 |
| **60% Reduction for Non-Auto Trips[6]** | | | | | | 56 | 50 | 52 | 68 |
| **5% Reduction for On-Site Synergies[7]** | | | | | | 5 | 4 | 4 | 6 |
| **Primary Trip Estimate for Proposed Adjacent Site** | | | | | | 33 | 29 | 30 | 40 |

NOTES:

1. Land Use Code 221 and 710 are from Trip Generation, 10th Edition, (Institute of Transportation Engineers, Washington, 2017) and Land Use Code 826 is from Trip Generation, 9th Edition, (Institute of Transportation Engineers, Washington, 2012).
2. 'Number of Residential Units' for Mid-Rise Apartment. 'Gross Leasable Area x 1000 SF' for General Office and Specialty Retail.
3. Rates are 'vehicles per hour per unit'; trips generated are 'vehicles per hour for peak hours'.
4. The expected number of units/square footage for each land use was increased by 15%, as request by HRM.
5. It was estimated that the proposed commercial development will approximately occupy the same leasable square footage and consist of similar land usages (e.g. coffee shops, restuarants, salons) as the existing site. The trip generation estimates of the proposed site and the vehicle trip credits for the existing site were assumed to be equivalent, therefore, the trips generated by the commercial development are captured in the traffic counts collected between March 3-5, 2020 by WSP.
6. Since high pedestrian / cycling / transit usage is expected in the Study Area, a 60% reduction has been applied to site generated trip estimates. This reduction considers the IMP target for non-auto (60%) and the 2011 Census data (50%) for nonauto trips for this area.
7. It was assumed that very few trips would be made internally, therefore, only 5% of trips were considered as on-site synergies.

## Table 2 – Trip Generation Estimates for Redeveloped Killam Property

| Land Use[1] | Units[2] | Trip Generation Rates[3] | | | | Trip Generation Estimates[3] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | In | Out | In | Out | In | Out | In | Out |
| **Killam Site (5885 Spring Garden Road)** | | | | | | | | | |
| Mid-Rise Apartments (Land Use 221) | 305 Units | Equations from Pages 74 and 75 (Residential - Land Uses 200 - 299) | | | | 27 | 75 | 79 | 51 |
| Removal of Mid-Rise Apartments (Land Use 221) | 201 Units | Equations from Pages 74 and 75 (Residential - Land Uses 200 - 299) | | | | -18 | -50 | -53 | -34 |
| **Trip Generation Estimates** | | | | | | 9 | 25 | 26 | 17 |
| **60% Reduction for Non-Auto Trips[4]** | | | | | | 5 | 15 | 16 | 10 |
| **Primary Trip Estimate for Proposed Killiam Site** | | | | | | 4 | 10 | 10 | 7 |

NOTES:

1. Land Use Code 221 is from Trip Generation, 10th Edition, (Institute of Transportation Engineers, Washington, 2017).
2. 'Number of Residential Units' for Mid-Rise Apartment.
3. Rates are 'vehicles per hour per unit'; trips generated are 'vehicles per hour for peak hours'.
4. Since high pedestrian / cycling / transit usage is expected in the Study Area, a 60% reduction has been applied to site generated trip estimates. This reduction considers the IMP target for non-auto (60%) and the 2011 Census data (50%) for nonauto trips for this area.

### *Trips Generated from the Promenade*

It was estimated that Phase 1 will approximately occupy the same number of apartment units as the existing site. The trip generation estimates of the proposed site and the vehicle trip credits for the existing site were assumed to be equivalent, therefore, the trips generated by Phase 1 are captured in the traffic counts collected between March 3-5, 2020 by WSP.

The site planned for Phase 2 is currently occupied by six (6) residential properties totalling 95 dwelling units. The proposed redevelopment will include the demolition of five (5) of the existing buildings on the site and the designated "Heritage Building" will be relocated with five (5) remaining units. A credit was applied to the trip generation estimate for the removal of 90 dwelling units (*SNC Lavalin, 2016)* in order to determine the number of new trips generated by the redevelopment. In addition, the expected number of units/square footage for each land use for this property was increased by 12.5%, as requested. The trip generation estimate for The Promenade is summarized in Table 3.

It is estimated that the Promenade will generate:

- 146 two-way trips during the AM peak hour (58 entering and 88 exiting); and,
- 188 two-way trips during the PM peak hour (111 entering and 77 exiting).

**Table 3 – Trip Generation Estimates for the Promenade**

| Land Use[1] | Units[2] | Trip Generation Rates[3] | | | | Trip Generation Estimates[3] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | In | Out | In | Out | In | Out | In | Out |
| **The Promenade** | | | | | | | | | |
| High-Rise Apartments (Land Use 222) | 650 Units[4] | Equations from Pages 153 and 154 (Residential - Land Uses 200 - 299) | | | | 47 | 148 | 163 | 104 |
| High-Turnover (Sit-Down) Restaurant[5] (Land Use 932) | 15.3 KGLA | 5.47 | 4.47 | 6.06 | 3.71 | 83 | 68 | 92 | 57 |
| Specialty Retail[5] (Land Use 826)[6] | 27.8 KGLA[7] | 0.76 | 0.60 | 1.19 | 1.52 | 21 | 17 | 33 | 42 |
| Removal of Existing Land Use[8] | 90 Units | SNC Lavalin (August 2016) | | | | -6 | -13 | -11 | -10 |
| **Trip Generation Estimates** | | | | | | 145 | 220 | 277 | 193 |
| **60% Reduction for Non-Auto Trips[9]** | | | | | | 87 | 132 | 166 | 116 |
| **Primary Trip Estimate for Proposed Subject Site** | | | | | | 58 | 88 | 111 | 77 |

NOTES:

1. Land Use Code 221 and 932 is from Trip Generation, 10th Edition, (Institute of Transportation Engineers, Washington, 2017) and Land Use Code 826 is from Trip Generation, 9th Edition, (Institute of Transportation Engineers, Washington, 2012).
2. 'Number of Residential Units' for Mid-Rise Apartment. 'Gross Leasable Area x 1000 SF' for High-Turnover (Sit-Down) Restaurant and Specialty Retail.
3. Rates are 'vehicles per hour per unit'; trips generated are 'vehicles per hour for peak hours'.
4. The expected number of residential units was increased by 12.5%, as requested.
5. Commercial uses associated with the optional underground space have yet to be identified, therefore, it was assumed that 50% would resemble high-turnover restaurants (15,250 $ft^2$) with sit-down facilities and 50% would resemble general retail (15,250 $ft^2$). establishments.
6. The Specialty Retail (ITE Land Use 826) rate for 'Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM' has been used. Since there is no published rate for the AM peak hour of adjacent street traffic for this land use, and since AM peak hour trips to specialty retail are generally low, AM trip rates have been assumed to be 50% of the PM rate with reversal of the directional split.
7. The Specialty Retail includes the 12,500 $ft^2$ expected on the ground level and 50% of the optional underground commercial space (15,250 $ft^2$).
8. Credits for the existing land use of the subject site were extracted from the Traffic Impact Statement completed by SNC Lavalin (August 2016).
9. Since high pedestrian / cycling / transit usage is expected in the Study Area, a 60% reduction has been applied to site generated trip estimates. This reduction considers the IMP target for non-auto (60%) and the 2011 Census data (50%) for nonauto trips for this area.

***Trip Distribution and Assignment***

Trips generated by the background developments and 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.

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

***Projected 2024 Traffic Volumes with Background Developments and without the Promenade***

Trips generated by the background developments have been added to the observed 2020 volumes (Figure A-1, Appendix A) to provide projected 2024 AM and PM peak hourly volumes that do not include The Promenade site generated trips. The 2024 traffic volumes with the background developments taken into consideration are illustrated diagrammatically in Figure A-2, Appendix A.

***Projected 2024 Traffic Volumes with Background Developments and the Promenade***

Trips generated by the proposed site (Figure A-3, Appendix A) have been added to the 2024 traffic volumes with the background developments (Figure A-2, Appendix A) to provide projected 2024 AM and PM peak hourly volumes that include The Promenade site generated trips. The 2024 traffic volumes with the background developments and the proposed site are illustrated diagrammatically in Figure A-4, Appendix A.

# 5 INTERSECTION OPERATIONAL ANALYSIS

***Intersection Capacity Analysis***

Intersection capacity analysis was completed to estimate how the Study Intersections may be expected to operate in the future without and with site generated trips.

*Synchro 10.0* software was used to evaluate the performance of the Study Intersections for the following scenarios:

A. Observed 2020 AM and PM peak hour volumes (rounded to the nearest 5);
B. Projected 2024 AM and PM peak hour volumes with background developments; and,
C. Projected 2024 AM and PM peak hour volumes with proposed site and background developments.

The following subsections identify each study intersection and summarize the results of the operational analysis. Detailed results of the analyses are included in Appendix B.

***Intersection Capacity Analysis Results***

***Intersection 1 – Robie Street and Spring Garden Road/Coburg Road*** (Table 4) – The existing intersection is expected to operate under capacity during the AM and PM peak hours. It should be noted that during the evening peak the eastbound left turn movement is currently approaching capacity (v/c =0.89). With the background developments and the Promenade, all movements are expected to remain operating under capacity. The overall performance of the intersection is expected to be satisfactory both without and with the addition of site generated trips.

***Intersection 2 – Robie Street and College Street*** (Table 5) – The existing intersection is expected to operate well under capacity during the AM and PM peak hours. With the background developments, all movements are expected to operate within HRM acceptable limits in each scenario. Negligible changes in the operational performance of this intersection are expected with the addition of the Promenade.

***Intersection 3 – Spring Garden Road and Carlton Street*** (Table 6) – The existing intersection is expected to operate well under capacity during the AM and PM peak hours. With the background developments, all movements are expected to operate within HRM acceptable limits in each scenario. Negligible changes in the operational performance of this intersection are expected with the addition of the Promenade.

***Intersection 4 – College Street and Carlton Street*** (Table 7) – The existing intersection is expected to operate well under capacity during the AM and PM peak hours. With the background developments, all movements are expected to operate within HRM acceptable limits in each scenario. Negligible changes in the operational performance of this intersection are expected with the addition of the Promenade.

***Intersection 5 – Spring Garden Road and Summer Street*** (Table 8) – The existing intersection is expected to operate under capacity during the AM and PM peak hours. It should be noted that during the morning peak the southbound lane for through and left-turning vehicles is currently approaching capacity (v/c = 0.83). With the background developments and the Promenade, all movements are expected to remain operating under capacity and within HRM acceptable limits. Negligible changes in the operational performance of this intersection are expected with the addition of the proposed site.

***Intersection 6 – College Street and Summer Street*** (Table 9) – The existing intersection is expected to operate under capacity during the AM and PM peak hours. With the background developments, all movements are expected to operate within HRM acceptable limits in each scenario. Negligible changes in the operational performance of this intersection are expected with the addition of the Promenade.

## Table 4 – Intersection Capacity Analysis for Robie Street at Spring Garden Road/Coburg Road

| Criteria | Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement | | | | | | | Overall Intersection Delay |
|---|---|---|---|---|---|---|---|---|
| | Coburg Road | | Spring Garden Road | Robie Street | | | | |
| | EB-L | EB-TR | WB-LTR | NB-LT | NB-R | SB-LT | SB-R | |
| 2020 AM Peak Hour **without** Proposed Site or Background Developments (Page B-1) | | | | | | | | |
| Delay | 36.9 | 48.2 | 36.5 | 6.6 | 1.0 | 11.6 | 1.9 | 17.6 |
| v/c | 0.30 | 0.74 | 0.67 | 0.28 | 0.05 | 0.66 | 0.07 | |
| Queue | 18.2 | 53.6 | 29.6 | 32.9 | 2.3 | 105.5 | 5.0 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-8) | | | | | | | | |
| Delay | 92.9 | 36.1 | 22.4 | 8.6 | 0.0 | 7.4 | 2.3 | 16.3 |
| v/c | 0.89 | 0.54 | 0.63 | 0.51 | 0.03 | 0.37 | 0.05 | |
| Queue | 38.2 | 44.4 | 26.1 | 75.5 | 0.0 | 33.7 | 4.3 | |
| 2024 AM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-15) | | | | | | | | |
| Delay | 36.6 | 48.1 | 38.3 | 6.9 | 1.4 | 12.5 | 2.0 | 18.7 |
| v/c | 0.30 | 0.75 | 0.72 | 0.28 | 0.05 | 0.68 | 0.07 | |
| Queue | 18.1 | 55.6 | 32.3 | 34.0 | 3.0 | 112.3 | 5.2 | |
| 2024 PM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-22) | | | | | | | | |
| Delay | 96.4 | 36.5 | 22.6 | 8.9 | 0.0 | 7.7 | 2.4 | 16.9 |
| v/c | 0.90 | 0.56 | 0.64 | 0.52 | 0.03 | 0.38 | 0.05 | |
| Queue | 38.8 | 46.8 | 27.0 | 77.1 | 0.0 | 35.0 | 4.4 | |
| 2024 AM Peak Hour **with** Proposed Site and Background Developments (Page B-29) | | | | | | | | |
| Delay | 37.4 | 50.6 | 40.9 | 7.0 | 1.2 | 12.7 | 1.8 | 19.3 |
| v/c | 0.31 | 0.78 | 0.74 | 0.31 | 0.05 | 0.70 | 0.07 | |
| Queue | 18.6 | 58.6 | 34.0 | 35.1 | 2.8 | 109.0 | 4.7 | |
| 2024 PM Peak Hour **with** Proposed Site and Background Developments (Page B-36) | | | | | | | | |
| Delay | 93.6 | 37.4 | 22.8 | 9.1 | 0.0 | 7.7 | 2.1 | 16.9 |
| v/c | 0.89 | 0.60 | 0.65 | 0.54 | 0.03 | 0.40 | 0.05 | |
| Queue | 42.0 | 51.5 | 28.4 | 74.7 | 0.0 | 33.2 | 4.0 | |

## Table 5 – Intersection Capacity Analysis for Robie Street at College Street

| Criteria | Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement | | | | | Overall Intersection Delay |
|---|---|---|---|---|---|---|
| | College Street | Robie Street | | | | |
| | WB-LR | NB-T | NB-TR | SB-LT | SB-T | |
| 2020 AM Peak Hour **without** Proposed Site or Background Developments (Page B-2) | | | | | | |
| Delay | 14.6 | 0.0 | 0.0 | 2.2 | 0.0 | 1.0 |
| v/c | 0.14 | 0.23 | 0.13 | 0.48 | 0.46 | |
| Queue | 3.9 | 0.0 | 0.0 | 2.0 | 0.0 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-9) | | | | | | |
| Delay | 14.6 | 0.0 | 0.0 | 1.9 | 0.0 | 1.0 |
| v/c | 0.17 | 0.37 | 0.19 | 0.26 | 0.18 | |
| Queue | 4.9 | 0.0 | 0.0 | 1.0 | 0.0 | |
| 2024 AM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-16) | | | | | | |
| Delay | 14.6 | 0.0 | 0.0 | 2.2 | 0.0 | 1.0 |
| v/c | 0.14 | 0.23 | 0.13 | 0.49 | 0.46 | |
| Queue | 3.8 | 0.0 | 0.0 | 2.0 | 0.0 | |
| 2024 PM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-23) | | | | | | |
| Delay | 14.6 | 0.0 | 0.0 | 1.9 | 0.0 | 1.0 |
| v/c | 0.17 | 0.37 | 0.19 | 0.26 | 0.18 | |
| Queue | 4.9 | 0.0 | 0.0 | 1.0 | 0.0 | |
| 2024 AM Peak Hour **with** Proposed Site and Background Developments (Page B-30) | | | | | | |
| Delay | 14.9 | 0.0 | 0.0 | 2.7 | 0.0 | 1.4 |
| v/c | 0.22 | 0.23 | 0.14 | 0.51 | 0.46 | |
| Queue | 7.0 | 0.0 | 0.0 | 2.5 | 0.0 | |
| 2024 PM Peak Hour **with** Proposed Site and Background Developments (Page B-37) | | | | | | |
| Delay | 16.5 | 0.0 | 0.0 | 3.5 | 0.0 | 1.7 |
| v/c | 0.28 | 0.37 | 0.21 | 0.31 | 0.18 | |
| Queue | 8.9 | 0.0 | 0.0 | 2.1 | 0.0 | |

## Table 6 – Intersection Capacity Analysis for Spring Garden Road at Carlton Street

| Criteria | Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement | | | | Overall Intersection Delay |
|---|---|---|---|---|---|
| | Spring Garden Road | | Carlton Street | | |
| | EB-LTR | WB-LTR | NB-LTR | SB-LTR | |
| 2020 AM Peak Hour **without** Proposed Site or Background Developments (Page B-3) | | | | | |
| Delay | 0.6 | 0.6 | 13.2 | 13.5 | 1.7 |
| v/c | 0.24 | 0.30 | 0.07 | 0.07 | |
| Queue | 0.3 | 0.4 | 1.7 | 1.8 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-10) | | | | | |
| Delay | 0.6 | 0.6 | 13.5 | 14.8 | 2.0 |
| v/c | 0.33 | 0.26 | 0.07 | 0.12 | |
| Queue | 0.4 | 0.3 | 1.8 | 3.2 | |
| 2024 AM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-17) | | | | | |
| Delay | 0.6 | 0.6 | 13.8 | 14.2 | 1.9 |
| v/c | 0.26 | 0.31 | 0.07 | 0.10 | |
| Queue | 0.3 | 0.4 | 1.9 | 2.7 | |
| 2024 PM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-24) | | | | | |
| Delay | 0.6 | 0.5 | 12.8 | 16.3 | 2.3 |
| v/c | 0.35 | 0.28 | 0.10 | 0.14 | |
| Queue | 0.4 | 0.3 | 2.8 | 4.0 | |
| 2024 AM Peak Hour **with** Proposed Site and Background Developments (Page B-31) | | | | | |
| Delay | 0.6 | 0.6 | 13.8 | 14.2 | 1.9 |
| v/c | 0.26 | 0.31 | 0.07 | 0.10 | |
| Queue | 0.3 | 0.4 | 1.9 | 2.7 | |
| 2024 PM Peak Hour **with** Proposed Site and Background Developments (Page B-38) | | | | | |
| Delay | 0.6 | 0.5 | 12.8 | 16.2 | 2.3 |
| v/c | 0.35 | 0.28 | 0.10 | 0.14 | |
| Queue | 0.4 | 0.3 | 2.8 | 4.0 | |

## Table 7 – Intersection Capacity Analysis College Street at Carlton Street

| Criteria | Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement | | | Overall Intersection Delay |
|---|---|---|---|---|
| | College Street | | Carlton Street | |
| | EB-LT | WB-TR | SB-LR | |
| 2020 AM Peak Hour **without** Proposed Site or Background Developments (Page B-4) | | | | |
| Delay | 1.8 | 0.0 | 9.3 | 2.6 |
| v/c | 0.06 | 0.03 | 0.04 | |
| Queue | 0.3 | 0.0 | 0.9 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-11) | | | | |
| Delay | 2.3 | 0.0 | 9.2 | 2.7 |
| v/c | 0.04 | 0.05 | 0.04 | |
| Queue | 0.3 | 0.0 | 1.1 | |
| 2024 AM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-18) | | | | |
| Delay | 1.8 | 0.0 | 9.3 | 2.6 |
| v/c | 0.06 | 0.03 | 0.04 | |
| Queue | 0.3 | 0.0 | 0.9 | |
| 2024 PM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-25) | | | | |
| Delay | 2.3 | 0.0 | 9.2 | 2.7 |
| v/c | 0.04 | 0.05 | 0.04 | |
| Queue | 0.3 | 0.0 | 1.1 | |
| 2024 AM Peak Hour **with** Proposed Site and Background Developments (Page B-32) | | | | |
| Delay | 1.2 | 0.0 | 9.7 | 1.8 |
| v/c | 0.10 | 0.05 | 0.04 | |
| Queue | 0.4 | 0.0 | 1.0 | |
| 2024 PM Peak Hour **with** Proposed Site and Background Developments (Page B-39) | | | | |
| Delay | 1.2 | 0.0 | 9.8 | 1.6 |
| v/c | 0.08 | 0.09 | 0.05 | |
| Queue | 0.0 | 0.0 | 1.2 | |

## Table 8 – Intersection Capacity Analysis for Spring Garden Road at Summer Street

| Criteria | Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement | | | | | | | Overall Intersection Delay |
|---|---|---|---|---|---|---|---|---|
| | Spring Garden Road | | | | Summer Street | | | |
| | EB-LTR | WB-LT | WB-TRANSIT LANE | WB-R | NB-LTR | SB-LT | SB-R | |
| 2020 AM Peak Hour **without** Proposed Site or Background Developments (Page B-5 & 6) | | | | | | | | |
| Delay | 15.9 | 16.8 | 13.0 | 3.0 | 20.0 | 36.3 | 17.5 | 23.1 |
| v/c | 0.24 | 0.14 | 0.03 | 0.07 | 0.46 | 0.83 | 0.27 | |
| Queue | 29.0 | 25.1 | 4.1 | 4.9 | 40.4 | 69.2 | 23.3 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-12 & 13) | | | | | | | | |
| Delay | 15.7 | 17.4 | 12.6 | 3.1 | 32.3 | 22.0 | 17.6 | 22.3 |
| v/c | 0.22 | 0.25 | 0.04 | 0.07 | 0.79 | 0.48 | 0.25 | |
| Queue | 26.8 | 43.0 | 5.2 | 4.9 | 84.9 | 34.0 | 21.8 | |
| 2024 AM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-19 & 20) | | | | | | | | |
| Delay | 16.0 | 16.8 | 13.0 | 3.0 | 20.0 | 36.3 | 17.7 | 23.0 |
| v/c | 0.25 | 0.16 | 0.03 | 0.07 | 0.46 | 0.83 | 0.28 | |
| Queue | 30.1 | 27.3 | 4.1 | 4.9 | 40.4 | 69.2 | 24.0 | |
| 2024 PM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-26 & 27) | | | | | | | | |
| Delay | 16.2 | 17.8 | 12.9 | 3.1 | 32.0 | 21.4 | 17.4 | 22.0 |
| v/c | 0.25 | 0.27 | 0.04 | 0.07 | 0.80 | 0.47 | 0.26 | |
| Queue | 29.6 | 46.3 | 5.3 | 4.9 | 84.7 | 33.2 | 22.2 | |
| 2024 AM Peak Hour **with** Proposed Site and Background Developments (Page B-33 & 34) | | | | | | | | |
| Delay | 17.4 | 18.3 | 14.2 | 3.2 | 19.2 | 35.4 | 16.2 | 23.1 |
| v/c | 0.26 | 0.17 | 0.03 | 0.07 | 0.48 | 0.84 | 0.26 | |
| Queue | 31.2 | 28.9 | 4.3 | 5.0 | 43.8 | 72.1 | 22.6 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-40 & 41) | | | | | | | | |
| Delay | 17.6 | 19.5 | 14.1 | 3.3 | 30.6 | 21.0 | 15.9 | 22.1 |
| v/c | 0.26 | 0.30 | 0.05 | 0.07 | 0.80 | 0.51 | 0.24 | |
| Queue | 30.7 | 49.5 | 5.5 | 5.1 | 87.4 | 38.6 | 20.9 | |

## Table 9 – Intersection Capacity Analysis for College Street at Summer Street

| Criteria | Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement | | | | Overall Intersection Delay |
|---|---|---|---|---|---|
| | College Street | | Summer Street | | |
| | EB-LTR | WB-LTR | NB-LTR | SB-LTR | |
| 2020 AM Peak Hour **without** Proposed Site or Background Developments (Page B-7) | | | | | |
| Delay | 14.0 | 12.1 | 0.6 | 0.9 | 4.5 |
| v/c | 0.15 | 0.24 | 0.13 | 0.24 | |
| Queue | 4.1 | 7.5 | 0.2 | 0.6 | |
| 2020 PM Peak Hour **without** Proposed Site or Background Developments (Page B-14) | | | | | |
| Delay | 16.8 | 13.2 | 0.4 | 1.4 | 4.0 |
| v/c | 0.19 | 0.21 | 0.29 | 0.16 | |
| Queue | 5.4 | 6.2 | 0.3 | 0.6 | |
| 2024 AM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-21) | | | | | |
| Delay | 14.0 | 12.1 | 0.6 | 0.9 | 4.5 |
| v/c | 0.15 | 0.24 | 0.13 | 0.24 | |
| Queue | 4.1 | 7.5 | 0.2 | 0.6 | |
| 2024 PM Peak Hour **without** Proposed Site and **with** Background Developments (Page B-28) | | | | | |
| Delay | 17.0 | 13.2 | 0.4 | 1.4 | 4.0 |
| v/c | 0.19 | 0.21 | 0.29 | 0.16 | |
| Queue | 5.4 | 6.3 | 0.3 | 0.6 | |
| 2024 AM Peak Hour **with** Proposed Site and Background Developments (Page B-35) | | | | | |
| Delay | 16.2 | 12.7 | 0.6 | 0.9 | 5.4 |
| v/c | 0.28 | 0.26 | 0.13 | 0.27 | |
| Queue | 9.0 | 8.2 | 0.2 | 0.6 | |
| 2024 PM Peak Hour **with** Proposed Site and Background Developments (Page B-42) | | | | | |
| Delay | 21.2 | 14.2 | 0.4 | 1.1 | 5.2 |
| v/c | 0.35 | 0.24 | 0.31 | 0.21 | |
| Queue | 12.4 | 7.5 | 0.3 | 0.6 | |

# 6 SUMMARY AND CONCLUSIONS

## 6.1 SUMMARY

| | | |
|---|---|---|
| ***Description of the Proposed Redevelopment*** | 1. | Plans are being prepared for the development of a multi-use development bound by Robie Street, College Street and Carlton Street in Halifax, Nova Scotia. The proposed development is expected to include 577 high-rise apartment units, approximately 12,500 $ft^2$ of retail space, approximately 30,500 $ft^2$ of optional underground commercial space, and an underground parking garage consisting of 511 parking spots. Completion of this development is anticipated by 2024. |
| ***Proposed Site Access*** | 2. | Full vehicular access to the proposed site is expected to be located approximately at 5953 College Street and a right-in/right-out driveway will be provided on Robie Street as a drop off driveway. |
| ***Study Area Roads*** | 3. | ***Robie Street*** is a major collector street that runs north-south approximately 5.5 km between the North End and South End of Halifax. In the vicinity of the proposed development, Robie Street has two traffic lanes in each direction divided by a median and sidewalks on both sides.<br><br>***College Street*** is a local road that runs east-west approximately 500 m between Robie Street and Cathedral Lane. College Street consists of one lane in each direction with sidewalks on both sides.<br><br>***Carlton Street*** is a local road that runs north-south approximately 250 m between the Camp Hill Cemetery and College Street. Carlton Street consists of one lane in each direction with sidewalks on both sides.<br><br>***Spring Garden Road*** is an undivided local collector street that runs east-west approximately 1.2 km between Robie Street and Barrington Street. Spring Garden Road consists of numerous residential and commercial properties, access driveways, bus stop locations and metered parking. There are sidewalks on both sides as this corridor is used heavily by pedestrians.<br><br>***Summer Street*** is a local street that runs north-south approximately 900 m between Bell Road and University Avenue. In the vicinity of the proposed development, Summer Street has one lane in each direction divided by a median and sidewalks on both sides. |
| ***Other Anticipated Developments in the Study Area*** | 4. | Two (2) approved developments in the Study Area were considered as the background growth, Case 20218 adjacent to the proposed site and Killam Property at 5885 Spring Garden Road. |
| ***Estimation of Site Generated Trips*** | 5. | Trip generation estimates were prepared using rates published in *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington, 2017) and *Trip Generation, 9th Edition* (Institute of Transportation Engineers, Washington, 2012).<br><br>It is estimated that the Promenade will generate:<br>• 146 two-way trips during the AM peak hour (58 entering and 88 exiting)<br>• 188 two-way trips during the PM peak hour (111 entering and 77 exiting) |

| | |
|---|---|
| ***Trip Distribution and Assignment*** | 6. 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%). |
| ***Summary – Intersection Capacity Analysis*** | 7. ***Robie Street and Spring Garden Road/Coburg Road –*** during the evening peak hour the eastbound left turn movement is currently approaching capacity (v/c =0.89). With the addition of the background developments and The Promenade, there is a negligble impact to the v/c and all movements are expected to operate within HRM acceptable limits.<br><br>***Robie Street and College Street –*** with the addition of the background developments and The Promenade, all movements are expected to operate within HRM acceptable limits.<br><br>***Spring Garden Road and Carlton Street*** – with the addition of the background developments and The Promenade, all movements are expected to operate within HRM acceptable limits.<br><br>***College Street and Carlton Street*** – with the addition of the background developments and The Promenade, all movements are expected to operate within HRM acceptable limits.<br><br>***Spring Garden Road and Summer Street*** – during the morning peak hour the southbound lane for through and left-turning vehicles is currently approaching capacity (v/c = 0.83). With the addition of the background developments and the Promenade, there is a minimal impact to this v/c and all movements are expected to operate within HRM acceptable limits.<br><br>***College Street and Summer Street*** – with the addition of the background developments and The Promenade, all movements are expected to operate within HRM acceptable limits. |

## 6.2 CONCLUSIONS

| | |
|---|---|
| ***Impacts to Vehicular Traffic*** | 8. The overall performance of the Study Intersections are expected to be satisfactory without and with the addition of site generated trips. Negligible impacts to vehicular traffic are expected at the Study Intersections as a result of the proposed multi-use development. |

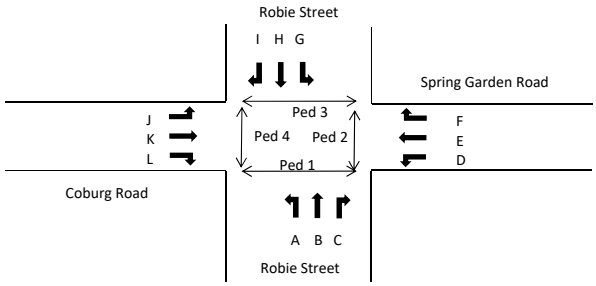
# APPENDIX

# A TRAFFIC VOLUME DATA

## Table A-1

**Robie Street**
**@**
**Spring Garden Road/Coburg Road**

*Halifax, NS*
Thursday, March 5, 2020




**AM Peak Period Volume Data**

| Time | | Robie Street Northbound Approach | | | Spring Garden Road Westbound Approach | | | Robie Street Southbound Approach | | | Coburg Road Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 07:30 | 07:45 | 8 | 78 | 6 | 8 | 22 | 12 | 27 | 188 | 12 | 4 | 30 | 3 | 398 |
| 07:45 | 08:00 | 9 | 115 | 12 | 10 | 26 | 24 | 48 | 213 | 15 | 6 | 26 | 3 | 507 |
| 08:00 | 08:15 | 6 | 102 | 16 | 8 | 23 | 16 | 46 | 251 | 16 | 8 | 32 | 4 | 528 |
| 08:15 | 08:30 | 11 | 116 | 5 | 14 | 30 | 14 | 51 | 246 | 18 | 9 | 39 | 11 | 564 |
| 08:30 | 08:45 | 8 | 130 | 9 | 20 | 42 | 26 | 44 | 195 | 15 | 12 | 36 | 9 | 546 |
| 08:45 | 09:00 | 11 | 109 | 11 | 12 | 33 | 25 | 36 | 206 | 18 | 14 | 58 | 11 | 544 |
| 09:00 | 09:15 | 6 | 104 | 3 | 16 | 33 | 24 | 30 | 168 | 11 | 11 | 40 | 11 | 457 |
| 09:15 | 09:30 | 5 | 114 | 8 | 7 | 20 | 18 | 37 | 151 | 12 | 7 | 25 | 3 | 407 |
| **AM Peak Hour** | | **36** | **457** | **41** | **54** | **128** | **81** | **177** | **898** | **67** | **43** | **165** | **35** | **2182** |
| **07:30** | **08:30** | **34** | **411** | **39** | **40** | **101** | **66** | **172** | **898** | **61** | **27** | **127** | **21** | **1997** |
| **08:30** | **09:30** | **30** | **457** | **31** | **55** | **128** | **93** | **147** | **720** | **56** | **44** | **159** | **34** | **1954** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **07:30** | **08:30** | **86** | | | **90** | | | **100** | | | **45** | | | **321** |
| **08:30** | **09:30** | **121** | | | **123** | | | **144** | | | **78** | | | **466** |

**PM Peak Period Volume Data**

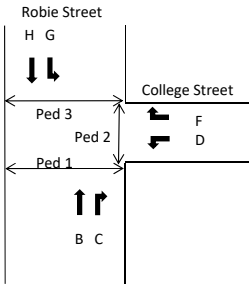
| Time | | Robie Street Northbound Approach | | | Spring Garden Road Westbound Approach | | | Robie Street Southbound Approach | | | Coburg Road Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 16:00 | 16:15 | 21 | 240 | 9 | 8 | 56 | 48 | 26 | 83 | 15 | 37 | 44 | 3 | 590 |
| 16:15 | 16:30 | 31 | 209 | 7 | 7 | 45 | 38 | 26 | 91 | 11 | 18 | 31 | 5 | 519 |
| 16:30 | 16:45 | 19 | 240 | 3 | 4 | 47 | 42 | 25 | 90 | 7 | 22 | 43 | 3 | 545 |
| 16:45 | 17:00 | 17 | 173 | 6 | 10 | 29 | 35 | 23 | 118 | 13 | 16 | 37 | 5 | 482 |
| 17:00 | 17:15 | 15 | 189 | 6 | 11 | 43 | 39 | 28 | 116 | 13 | 12 | 37 | 3 | 512 |
| 17:15 | 17:30 | 21 | 183 | 6 | 9 | 47 | 27 | 30 | 114 | 15 | 14 | 32 | 3 | 501 |
| 17:30 | 17:45 | 14 | 156 | 13 | 14 | 42 | 25 | 19 | 80 | 16 | 14 | 38 | 2 | 433 |
| 17:45 | 18:00 | 17 | 149 | 5 | 7 | 34 | 27 | 30 | 91 | 10 | 14 | 41 | 4 | 429 |
| **PM Peak Hour** | | **88** | **862** | **25** | **29** | **177** | **163** | **100** | **382** | **46** | **93** | **155** | **16** | **2136** |
| **16:00** | **17:00** | **88** | **862** | **25** | **29** | **177** | **163** | **100** | **382** | **46** | **93** | **155** | **16** | **2136** |
| **17:00** | **18:00** | **67** | **677** | **30** | **41** | **166** | **118** | **107** | **401** | **54** | **54** | **148** | **12** | **1875** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **16:00** | **17:00** | **172** | | | **198** | | | **199** | | | **90** | | | **659** |
| **17:00** | **18:00** | **157** | | | **146** | | | **202** | | | **77** | | | **582** |

* Count completed by WSP

**Table A-2**

**Robie Street**
**@**
**College Street**

*Halifax, NS*
Wednesday, March 4, 2020




**AM Peak Period Volume Data**

| Time | | Robie Street Northbound Approach | | College Street Westbound Approach | | Robie Street Southbound Approach | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|
| | | B | C | D | F | G | H | |
| 07:00 | 07:15 | 83 | 0 | 0 | 3 | 7 | 151 | 244 |
| 07:15 | 07:30 | 83 | 1 | 1 | 5 | 3 | 169 | 262 |
| 07:30 | 07:45 | 77 | 3 | 0 | 12 | 13 | 218 | 323 |
| 07:45 | 08:00 | 95 | 3 | 0 | 15 | 17 | 222 | 352 |
| 08:00 | 08:15 | 144 | 7 | 2 | 7 | 18 | 247 | 425 |
| 08:15 | 08:30 | 106 | 6 | 5 | 11 | 22 | 249 | 399 |
| 08:30 | 08:45 | 119 | 5 | 0 | 12 | 14 | 235 | 385 |
| 08:45 | 09:00 | 129 | 8 | 1 | 9 | 17 | 234 | 398 |
| **AM Peak Hour** | | **498** | **26** | **8** | **39** | **71** | **965** | **1607** |
| **07:00** | **08:00** | **338** | **7** | **1** | **35** | **40** | **760** | **1181** |
| **08:00** | **09:00** | **498** | **26** | **8** | **39** | **71** | **965** | **1607** |
| | | **Ped 1** | | **Ped 2** | | **Ped 3** | | **Total Peds** |
| **07:00** | **08:00** | **5** | | **30** | | **4** | | **39** |
| **08:00** | **09:00** | **4** | | **108** | | **4** | | **116** |

**PM Peak Period Volume Data**

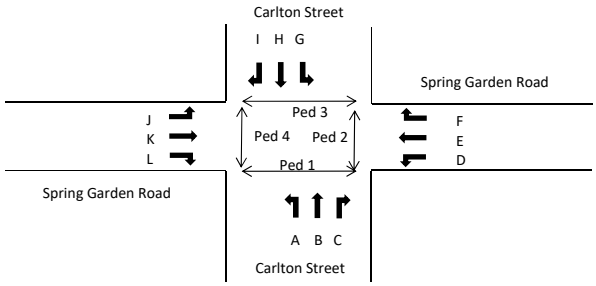
| Time | | Robie Street Northbound Approach | | College Street Westbound Approach | | Robie Street Southbound Approach | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|
| | | B | C | D | F | G | H | |
| 15:30 | 15:45 | 217 | 3 | 5 | 10 | 5 | 122 | 362 |
| 15:45 | 16:00 | 214 | 5 | 1 | 19 | 10 | 107 | 356 |
| 16:00 | 16:15 | 246 | 1 | 2 | 20 | 7 | 106 | 382 |
| 16:15 | 16:30 | 215 | 2 | 1 | 13 | 4 | 90 | 325 |
| 16:30 | 16:45 | 213 | 3 | 3 | 12 | 5 | 108 | 344 |
| 16:45 | 17:00 | 196 | 3 | 1 | 11 | 10 | 104 | 325 |
| 17:00 | 17:15 | 186 | 3 | 2 | 14 | 9 | 109 | 323 |
| 17:15 | 17:30 | 185 | 5 | 0 | 16 | 13 | 116 | 335 |
| **PM Peak Hour** | | **892** | **11** | **9** | **62** | **26** | **425** | **1425** |
| **15:30** | **16:30** | **892** | **11** | **9** | **62** | **26** | **425** | **1425** |
| **16:30** | **17:30** | **780** | **14** | **6** | **53** | **37** | **437** | **1327** |
| | | **Ped 1** | | **Ped 2** | | **Ped 3** | | **Total Peds** |
| **15:30** | **16:30** | **3** | | **104** | | **3** | | **110** |
| **16:30** | **17:30** | **3** | | **102** | | **9** | | **114** |

* Count completed by WSP

**Table A-3**

**Spring Garden Road**
**@**
**Carlton Street**

*Halifax, NS*
Tuesday, March 3, 2020




**AM Peak Period Volume Data**

| Time | | Carlton Street Northbound Approach | | | Spring Garden Road Westbound Approach | | | Carlton Street Southbound Approach | | | Spring Garden Road Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 07:00 | 07:15 | 0 | 0 | 1 | 2 | 31 | 5 | 2 | 0 | 0 | 1 | 26 | 0 | 68 |
| 07:15 | 07:30 | 0 | 1 | 1 | 4 | 22 | 5 | 6 | 0 | 3 | 0 | 27 | 5 | 74 |
| 07:30 | 07:45 | 2 | 0 | 3 | 2 | 46 | 8 | 0 | 0 | 2 | 0 | 42 | 2 | 107 |
| 07:45 | 08:00 | 2 | 0 | 3 | 4 | 52 | 5 | 0 | 0 | 0 | 1 | 50 | 1 | 118 |
| 08:00 | 08:15 | 3 | 1 | 6 | 6 | 85 | 2 | 2 | 0 | 3 | 4 | 50 | 3 | 165 |
| 08:15 | 08:30 | 2 | 0 | 4 | 6 | 77 | 6 | 5 | 0 | 5 | 4 | 52 | 3 | 164 |
| 08:30 | 08:45 | 5 | 0 | 4 | 1 | 54 | 5 | 7 | 0 | 2 | 3 | 63 | 3 | 147 |
| 08:45 | 09:00 | 6 | 0 | 1 | 5 | 71 | 7 | 3 | 2 | 4 | 2 | 55 | 4 | 160 |
| **AM Peak Hour** | | **16** | **1** | **15** | **18** | **287** | **20** | **17** | **2** | **14** | **13** | **220** | **13** | **636** |
| **07:00** | **08:00** | **4** | **1** | **8** | **12** | **151** | **23** | **8** | **0** | **5** | **2** | **145** | **8** | **367** |
| **08:00** | **09:00** | **16** | **1** | **15** | **18** | **287** | **20** | **17** | **2** | **14** | **13** | **220** | **13** | **636** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **07:00** | **08:00** | **53** | | | **1** | | | **36** | | | **40** | | | **130** |
| **08:00** | **09:00** | **155** | | | **2** | | | **78** | | | **137** | | | **372** |

**PM Peak Period Volume Data**

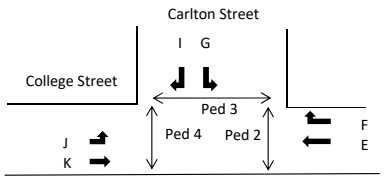
| Time | | Carlton Street Northbound Approach | | | Spring Garden Road Westbound Approach | | | Carlton Street Southbound Approach | | | Spring Garden Road Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 15:30 | 15:45 | 1 | 3 | 5 | 4 | 70 | 6 | 9 | 0 | 2 | 6 | 82 | 3 | 191 |
| 15:45 | 16:00 | 3 | 0 | 7 | 5 | 54 | 6 | 14 | 0 | 3 | 0 | 82 | 5 | 179 |
| 16:00 | 16:15 | 6 | 0 | 8 | 6 | 61 | 5 | 15 | 0 | 4 | 9 | 91 | 2 | 207 |
| 16:15 | 16:30 | 2 | 0 | 12 | 2 | 49 | 3 | 3 | 0 | 4 | 5 | 80 | 8 | 168 |
| 16:30 | 16:45 | 5 | 0 | 4 | 4 | 53 | 7 | 5 | 1 | 3 | 1 | 80 | 1 | 164 |
| 16:45 | 17:00 | 3 | 0 | 10 | 4 | 50 | 9 | 7 | 0 | 2 | 3 | 92 | 7 | 187 |
| 17:00 | 17:15 | 1 | 0 | 10 | 1 | 49 | 4 | 8 | 0 | 1 | 4 | 79 | 2 | 159 |
| 17:15 | 17:30 | 3 | 0 | 1 | 3 | 54 | 2 | 5 | 0 | 4 | 4 | 63 | 4 | 143 |
| **PM Peak Hour** | | **12** | **3** | **32** | **17** | **234** | **20** | **41** | **0** | **13** | **20** | **335** | **18** | **745** |
| **15:30** | **16:30** | **12** | **3** | **32** | **17** | **234** | **20** | **41** | **0** | **13** | **20** | **335** | **18** | **745** |
| **16:30** | **17:30** | **12** | **0** | **25** | **12** | **206** | **22** | **25** | **1** | **10** | **12** | **314** | **14** | **653** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **15:30** | **16:30** | **267** | | | **16** | | | **191** | | | **207** | | | **681** |
| **16:30** | **17:30** | **205** | | | **6** | | | **161** | | | **119** | | | **491** |

* Count completed by WSP

**Table A-4**

**College Street**
**@**
**Carlton Street**

*Halifax, NS*
Tuesday, March 3, 2020




**AM Peak Period Volume Data**

| Time | | College Street Westbound Approach | | Carlton Street Southbound Approach | | College Street Eastbound Approach | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|
| | | E | F | G | I | J | K | |
| 07:00 | 07:15 | 3 | 0 | 2 | 3 | 2 | 8 | 18 |
| 07:15 | 07:30 | 3 | 2 | 3 | 0 | 3 | 5 | 16 |
| 07:30 | 07:45 | 9 | 1 | 7 | 1 | 1 | 2 | 21 |
| 07:45 | 08:00 | 7 | 0 | 2 | 5 | 0 | 17 | 31 |
| 08:00 | 08:15 | 10 | 1 | 5 | 2 | 2 | 13 | 33 |
| 08:15 | 08:30 | 10 | 5 | 7 | 3 | 5 | 16 | 46 |
| 08:30 | 08:45 | 6 | 5 | 2 | 3 | 6 | 22 | 44 |
| 08:45 | 09:00 | 7 | 3 | 5 | 4 | 6 | 13 | 38 |
| **AM Peak Hour** | | **33** | **14** | **19** | **12** | **19** | **64** | **161** |
| **07:00** | **08:00** | **22** | **3** | **14** | **9** | **6** | **32** | **86** |
| **08:00** | **09:00** | **33** | **14** | **19** | **12** | **19** | **64** | **161** |
| | | **Ped 2** | | **Ped 3** | | **Ped 4** | | **Total Peds** |
| **07:00** | **08:00** | **42** | | **14** | | **25** | | **81** |
| **08:00** | **09:00** | **121** | | **13** | | **66** | | **200** |

**PM Peak Period Volume Data**

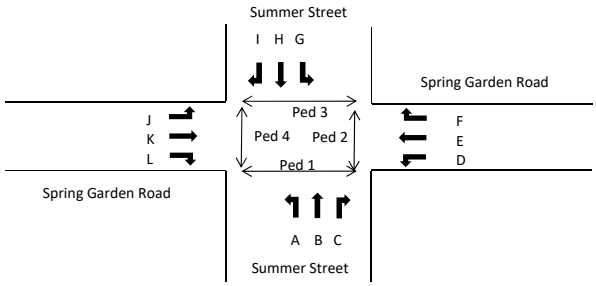
| Time | | College Street Westbound Approach | | Carlton Street Southbound Approach | | College Street Eastbound Approach | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|
| | | E | F | G | I | J | K | |
| 15:30 | 15:45 | 18 | 7 | 7 | 6 | 2 | 6 | 46 |
| 15:45 | 16:00 | 17 | 9 | 3 | 2 | 4 | 6 | 41 |
| 16:00 | 16:15 | 11 | 15 | 9 | 3 | 6 | 9 | 53 |
| 16:15 | 16:30 | 11 | 4 | 3 | 4 | 2 | 8 | 32 |
| 16:30 | 16:45 | 10 | 4 | 3 | 2 | 4 | 7 | 30 |
| 16:45 | 17:00 | 10 | 5 | 3 | 6 | 2 | 4 | 30 |
| 17:00 | 17:15 | 16 | 2 | 2 | 5 | 9 | 7 | 41 |
| 17:15 | 17:30 | 14 | 2 | 1 | 1 | 3 | 6 | 27 |
| **PM Peak Hour** | | **57** | **35** | **22** | **15** | **14** | **29** | **172** |
| **15:30** | **16:30** | **57** | **35** | **22** | **15** | **14** | **29** | **172** |
| **16:30** | **17:30** | **50** | **13** | **9** | **14** | **18** | **24** | **128** |
| | | **Ped 2** | | **Ped 3** | | **Ped 4** | | **Total Peds** |
| **15:30** | **16:30** | **133** | | **23** | | **76** | | **232** |
| **16:30** | **17:30** | **90** | | **24** | | **52** | | **166** |

* Count completed by WSP

**Table A-5**

**Spring Garden Road**
**@**
**Summer Street**

*Halifax, NS*
Tuesday, March 3, 2020




**AM Peak Period Volume Data**

| Time | | Summer Street Northbound Approach | | | Spring Garden Road Westbound Approach | | | Summer Street Southbound Approach | | | Spring Garden Road Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 07:00 | 07:15 | 1 | 43 | 1 | 0 | 15 | 8 | 7 | 58 | 11 | 1 | 22 | 4 | 171 |
| 07:15 | 07:30 | 2 | 29 | 0 | 1 | 13 | 11 | 13 | 60 | 18 | 4 | 19 | 3 | 173 |
| 07:30 | 07:45 | 4 | 30 | 1 | 1 | 19 | 5 | 20 | 64 | 23 | 3 | 34 | 3 | 207 |
| 07:45 | 08:00 | 2 | 27 | 3 | 1 | 25 | 11 | 38 | 72 | 36 | 2 | 38 | 4 | 259 |
| 08:00 | 08:15 | 4 | 48 | 7 | 2 | 26 | 10 | 38 | 79 | 29 | 8 | 59 | 8 | 318 |
| 08:15 | 08:30 | 9 | 40 | 9 | 1 | 17 | 17 | 34 | 53 | 34 | 8 | 65 | 6 | 293 |
| 08:30 | 08:45 | 10 | 50 | 4 | 1 | 30 | 14 | 22 | 64 | 33 | 10 | 37 | 2 | 277 |
| 08:45 | 09:00 | 6 | 39 | 4 | 4 | 24 | 9 | 23 | 61 | 28 | 22 | 38 | 5 | 263 |
| **AM Peak Hour** | | **29** | **177** | **24** | **8** | **97** | **50** | **117** | **257** | **124** | **48** | **199** | **21** | **1151** |
| **07:00** | **08:00** | **9** | **129** | **5** | **3** | **72** | **35** | **78** | **254** | **88** | **10** | **113** | **14** | **810** |
| **08:00** | **09:00** | **29** | **177** | **24** | **8** | **97** | **50** | **117** | **257** | **124** | **48** | **199** | **21** | **1151** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **07:00** | **08:00** | **59** | | | **93** | | | **69** | | | **98** | | | **319** |
| **08:00** | **09:00** | **118** | | | **110** | | | **141** | | | **107** | | | **476** |

**PM Peak Period Volume Data**

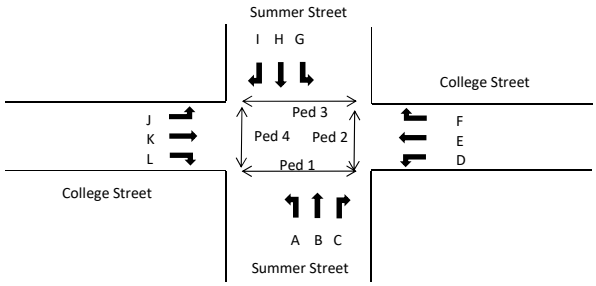
| Time | | Summer Street Northbound Approach | | | Spring Garden Road Westbound Approach | | | Summer Street Southbound Approach | | | Spring Garden Road Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 15:30 | 15:45 | 15 | 77 | 5 | 2 | 41 | 15 | 19 | 33 | 24 | 10 | 43 | 8 | 292 |
| 15:45 | 16:00 | 12 | 81 | 2 | 1 | 47 | 14 | 16 | 38 | 25 | 17 | 43 | 5 | 301 |
| 16:00 | 16:15 | 18 | 97 | 5 | 2 | 41 | 10 | 16 | 21 | 27 | 15 | 44 | 8 | 304 |
| 16:15 | 16:30 | 16 | 72 | 4 | 3 | 42 | 7 | 13 | 39 | 30 | 11 | 41 | 4 | 282 |
| 16:30 | 16:45 | 13 | 97 | 1 | 2 | 42 | 20 | 15 | 36 | 25 | 13 | 43 | 3 | 310 |
| 16:45 | 17:00 | 13 | 92 | 0 | 2 | 51 | 11 | 16 | 32 | 31 | 10 | 46 | 5 | 309 |
| 17:00 | 17:15 | 9 | 65 | 2 | 1 | 37 | 10 | 16 | 40 | 27 | 10 | 38 | 4 | 259 |
| 17:15 | 17:30 | 7 | 54 | 2 | 3 | 40 | 17 | 10 | 45 | 21 | 8 | 49 | 4 | 260 |
| **PM Peak Hour** | | **60** | **358** | **10** | **9** | **176** | **48** | **60** | **128** | **113** | **49** | **174** | **20** | **1205** |
| **15:30** | **16:30** | **61** | **327** | **16** | **8** | **171** | **46** | **64** | **131** | **106** | **53** | **171** | **25** | **1179** |
| **16:30** | **17:30** | **42** | **308** | **5** | **8** | **170** | **58** | **57** | **153** | **104** | **41** | **176** | **16** | **1138** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **15:30** | **16:30** | **220** | | | **172** | | | **195** | | | **118** | | | **705** |
| **16:30** | **17:30** | **185** | | | **101** | | | **208** | | | **121** | | | **615** |

* Count completed by WSP

**Table A-6**

**College Street**
**@**
**Summer Street**

*Halifax, NS*
Tuesday, March 3, 2020



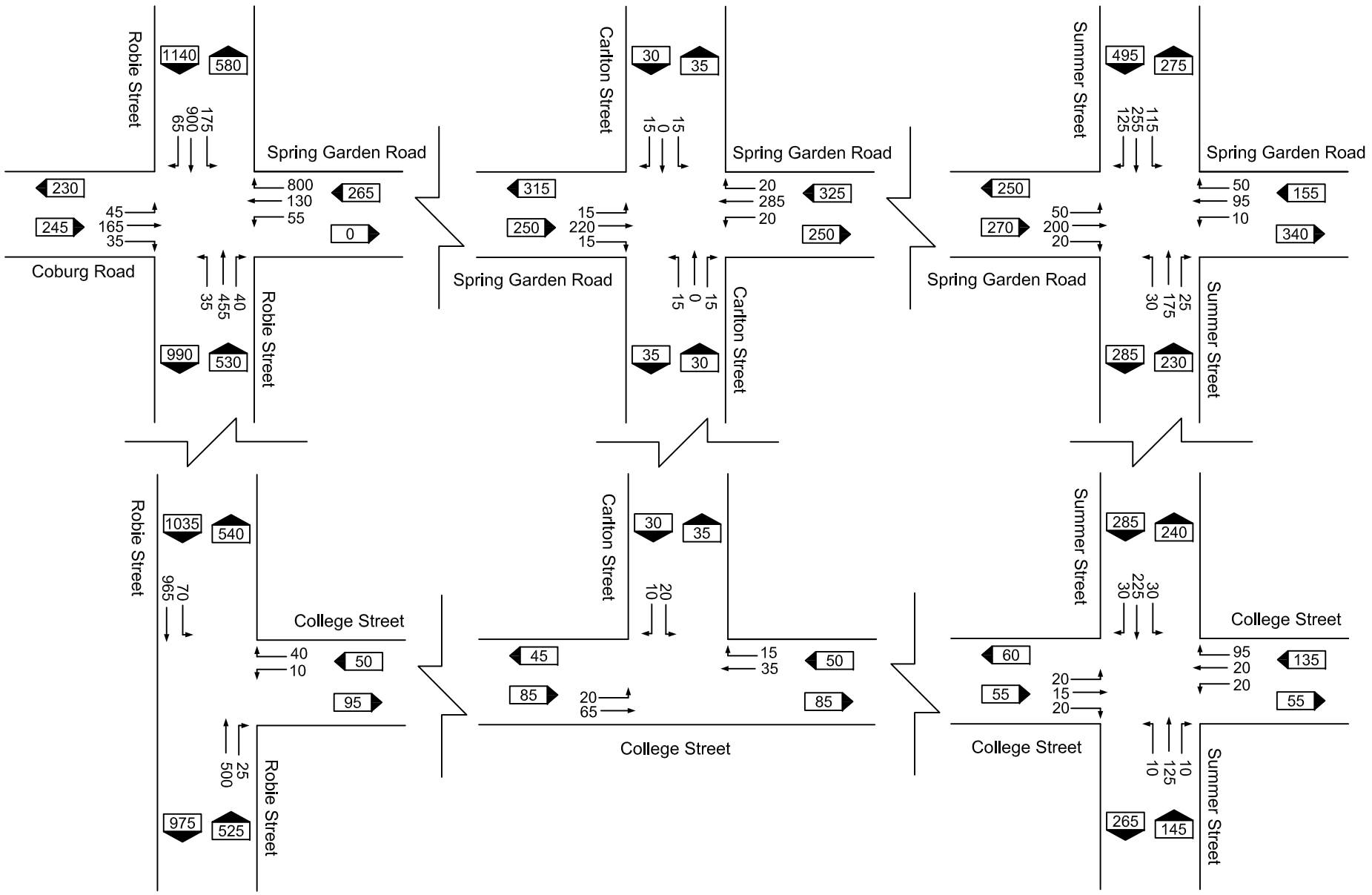

**AM Peak Period Volume Data**

| Time | | Summer Street Northbound Approach | | | College Street Westbound Approach | | | Summer Street Southbound Approach | | | College Street Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 07:00 | 07:15 | 2 | 38 | 1 | 4 | 3 | 4 | 12 | 49 | 1 | 1 | 2 | 3 | 120 |
| 07:15 | 07:30 | 1 | 28 | 1 | 1 | 0 | 2 | 8 | 51 | 2 | 3 | 0 | 2 | 99 |
| 07:30 | 07:45 | 1 | 27 | 0 | 0 | 4 | 5 | 10 | 53 | 7 | 3 | 2 | 3 | 115 |
| 07:45 | 08:00 | 4 | 19 | 0 | 3 | 1 | 10 | 9 | 55 | 8 | 0 | 6 | 9 | 124 |
| 08:00 | 08:15 | 3 | 28 | 2 | 3 | 8 | 23 | 8 | 70 | 8 | 8 | 7 | 2 | 170 |
| 08:15 | 08:30 | 2 | 26 | 4 | 8 | 6 | 31 | 9 | 37 | 6 | 4 | 3 | 9 | 145 |
| 08:30 | 08:45 | 1 | 35 | 2 | 3 | 3 | 27 | 8 | 57 | 10 | 3 | 4 | 8 | 161 |
| 08:45 | 09:00 | 2 | 34 | 2 | 4 | 2 | 14 | 6 | 59 | 6 | 6 | 2 | 3 | 140 |
| **AM Peak Hour** | | **8** | **123** | **10** | **18** | **19** | **95** | **31** | **223** | **30** | **21** | **16** | **22** | **616** |
| **07:00** | **08:00** | **8** | **112** | **2** | **8** | **8** | **21** | **39** | **208** | **18** | **7** | **10** | **17** | **458** |
| **08:00** | **09:00** | **8** | **123** | **10** | **18** | **19** | **95** | **31** | **223** | **30** | **21** | **16** | **22** | **616** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **07:00** | **08:00** | **19** | | | **138** | | | **68** | | | **127** | | | **352** |
| **08:00** | **09:00** | **43** | | | **86** | | | **170** | | | **183** | | | **482** |

**PM Peak Period Volume Data**

| Time | | Summer Street Northbound Approach | | | College Street Westbound Approach | | | Summer Street Southbound Approach | | | College Street Eastbound Approach | | | Total Vehicles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | |
| 15:30 | 15:45 | 3 | 80 | 3 | 0 | 8 | 27 | 2 | 34 | 7 | 5 | 0 | 6 | 175 |
| 15:45 | 16:00 | 3 | 80 | 1 | 1 | 11 | 20 | 5 | 39 | 5 | 2 | 6 | 5 | 178 |
| 16:00 | 16:15 | 8 | 85 | 1 | 1 | 5 | 15 | 5 | 29 | 1 | 7 | 3 | 6 | 166 |
| 16:15 | 16:30 | 4 | 76 | 1 | 0 | 3 | 21 | 8 | 29 | 5 | 7 | 9 | 0 | 163 |
| 16:30 | 16:45 | 2 | 98 | 0 | 1 | 4 | 17 | 8 | 30 | 2 | 4 | 3 | 8 | 177 |
| 16:45 | 17:00 | 3 | 78 | 1 | 0 | 4 | 29 | 3 | 30 | 2 | 6 | 1 | 2 | 159 |
| 17:00 | 17:15 | 2 | 56 | 1 | 2 | 8 | 15 | 7 | 35 | 4 | 5 | 2 | 6 | 143 |
| 17:15 | 17:30 | 4 | 43 | 2 | 4 | 6 | 23 | 9 | 38 | 6 | 1 | 3 | 7 | 146 |
| **PM Peak Hour** | | **17** | **339** | **3** | **3** | **23** | **73** | **26** | **127** | **13** | **20** | **21** | **19** | **684** |
| **15:30** | **16:30** | **18** | **321** | **6** | **2** | **27** | **83** | **20** | **131** | **18** | **21** | **18** | **17** | **682** |
| **16:30** | **17:30** | **11** | **275** | **4** | **7** | **22** | **84** | **27** | **133** | **14** | **16** | **9** | **23** | **625** |
| | | **Ped 1** | | | **Ped 2** | | | **Ped 3** | | | **Ped 4** | | | **Total Peds** |
| **15:30** | **16:30** | **36** | | | **146** | | | **185** | | | **275** | | | **642** |
| **16:30** | **17:30** | **35** | | | **67** | | | **108** | | | **180** | | | **390** |

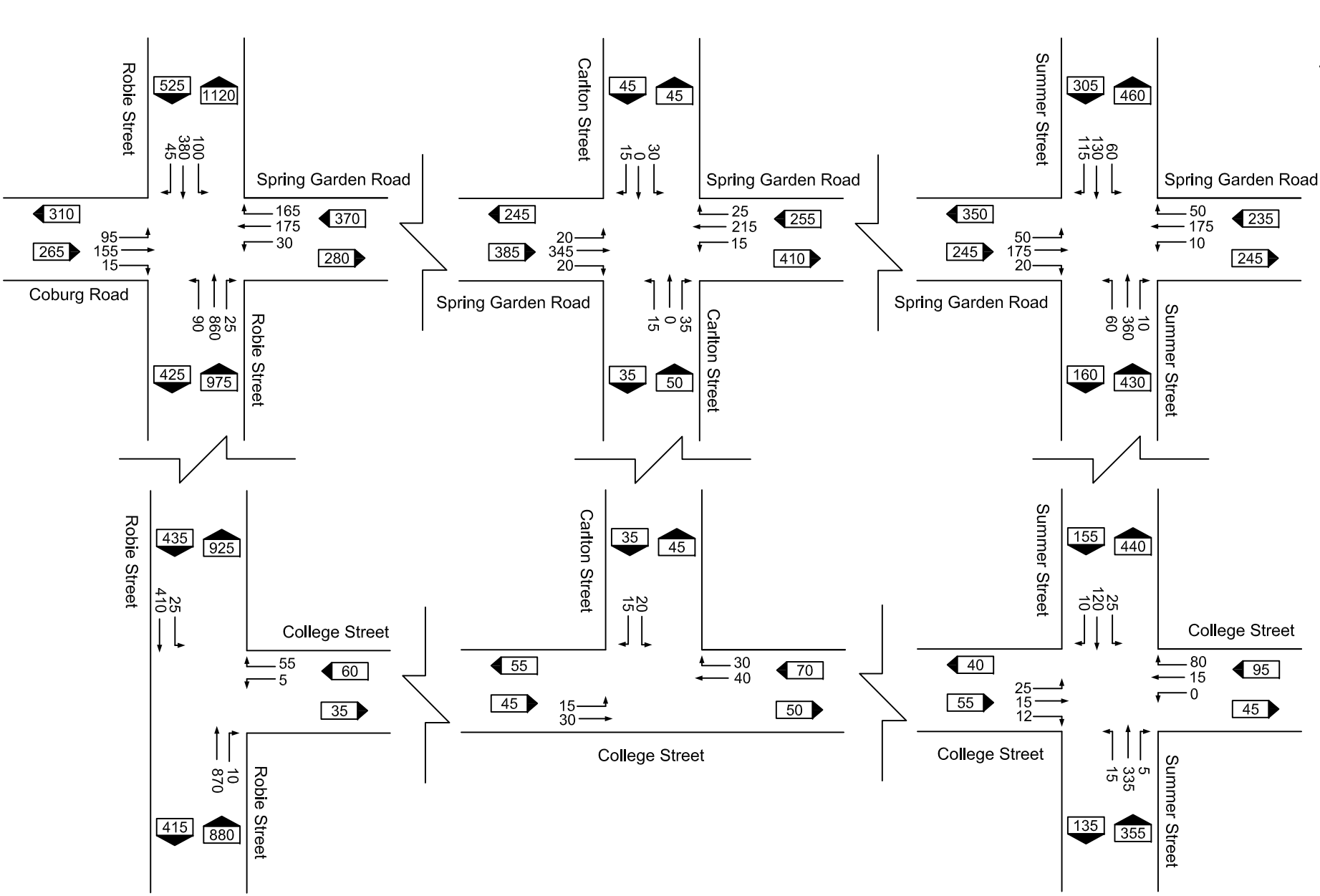
* Count completed by WSP




**AM Peak Hour**

NOT TO SCALE

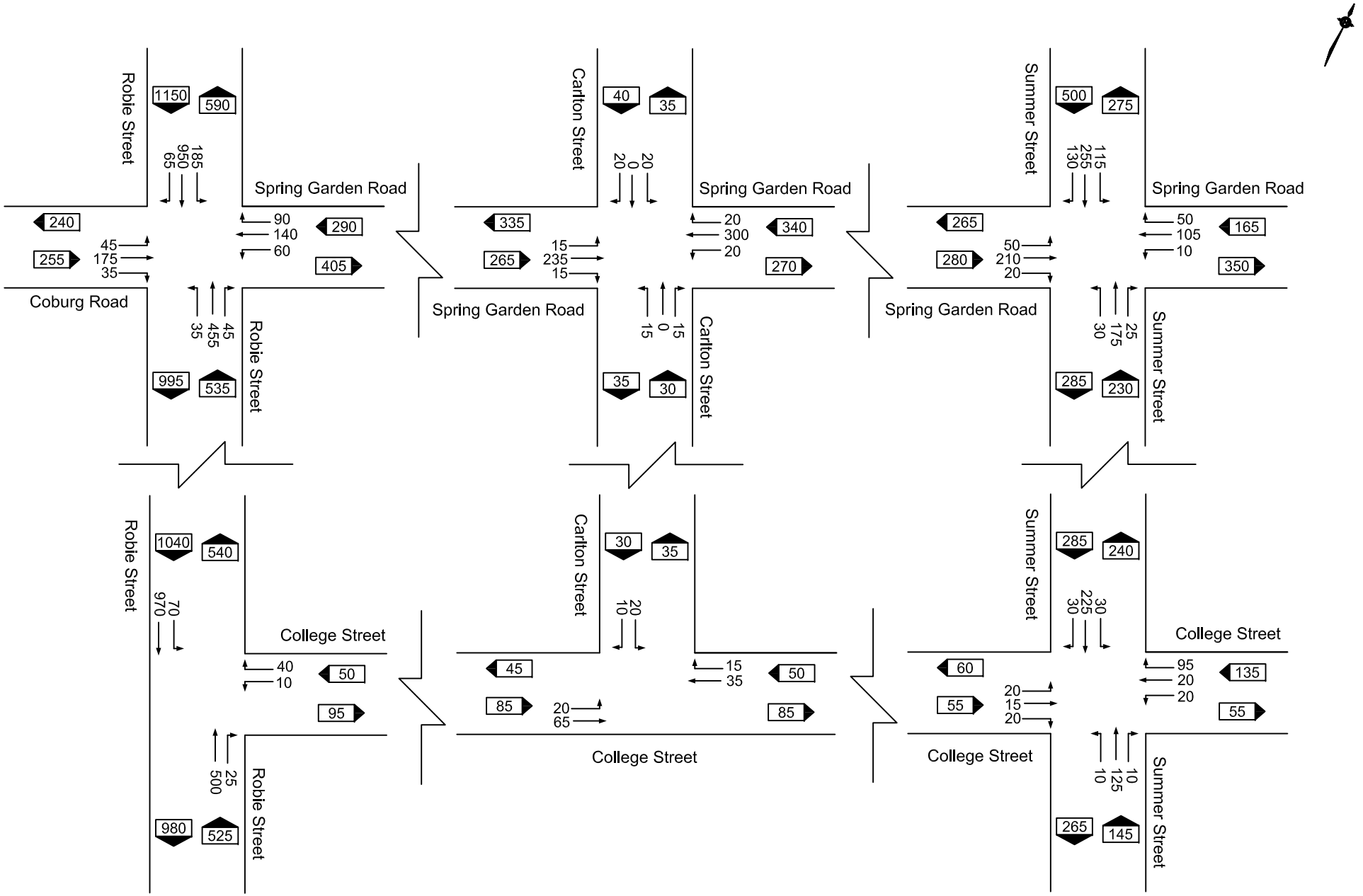
| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-1A |
| | 2020 Weekday AM Peak Hour<br>Without Background Traffic or Site Development | May 2020 |




**PM Peak Hour**

NOT TO SCALE

| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-1B |
| | 2020 Weekday PM Peak Hour<br>Without Background Traffic or Site Development | May 2020 |

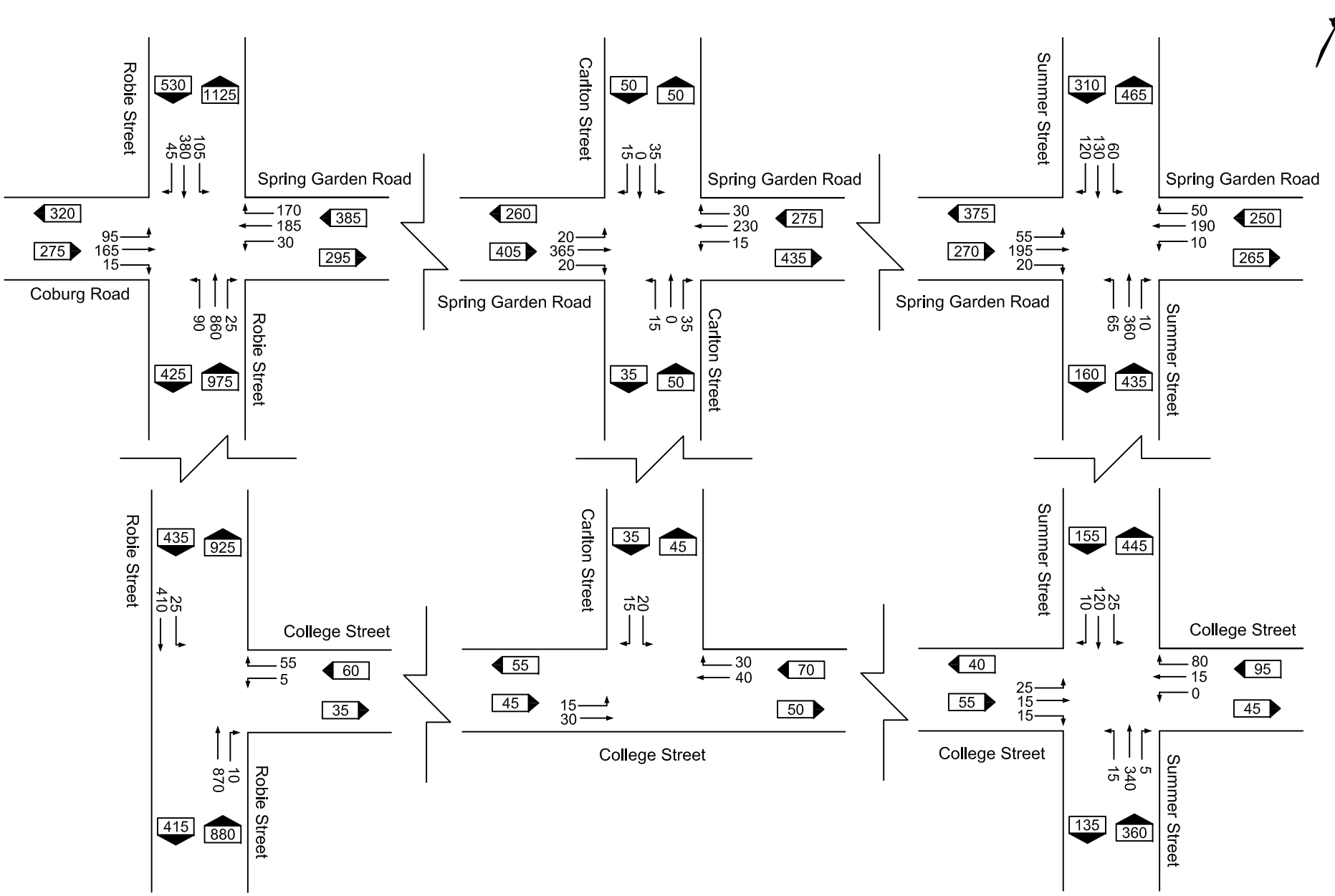



Traffic Impact Study - The Promenade
Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia

Figure A-2A

2024 Weekday AM Peak Hour
With Background Traffic and WIthout Site Development

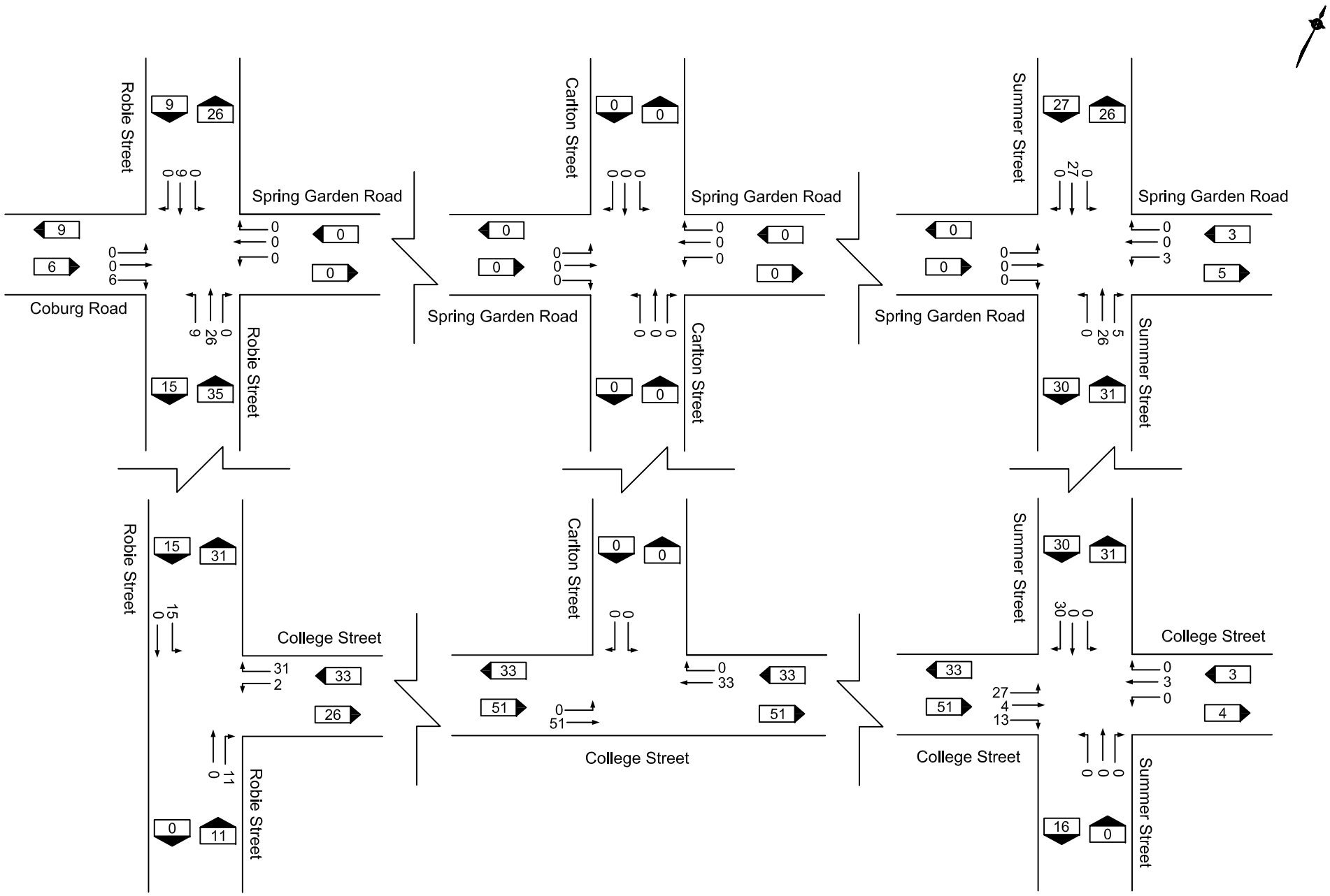
May 2020



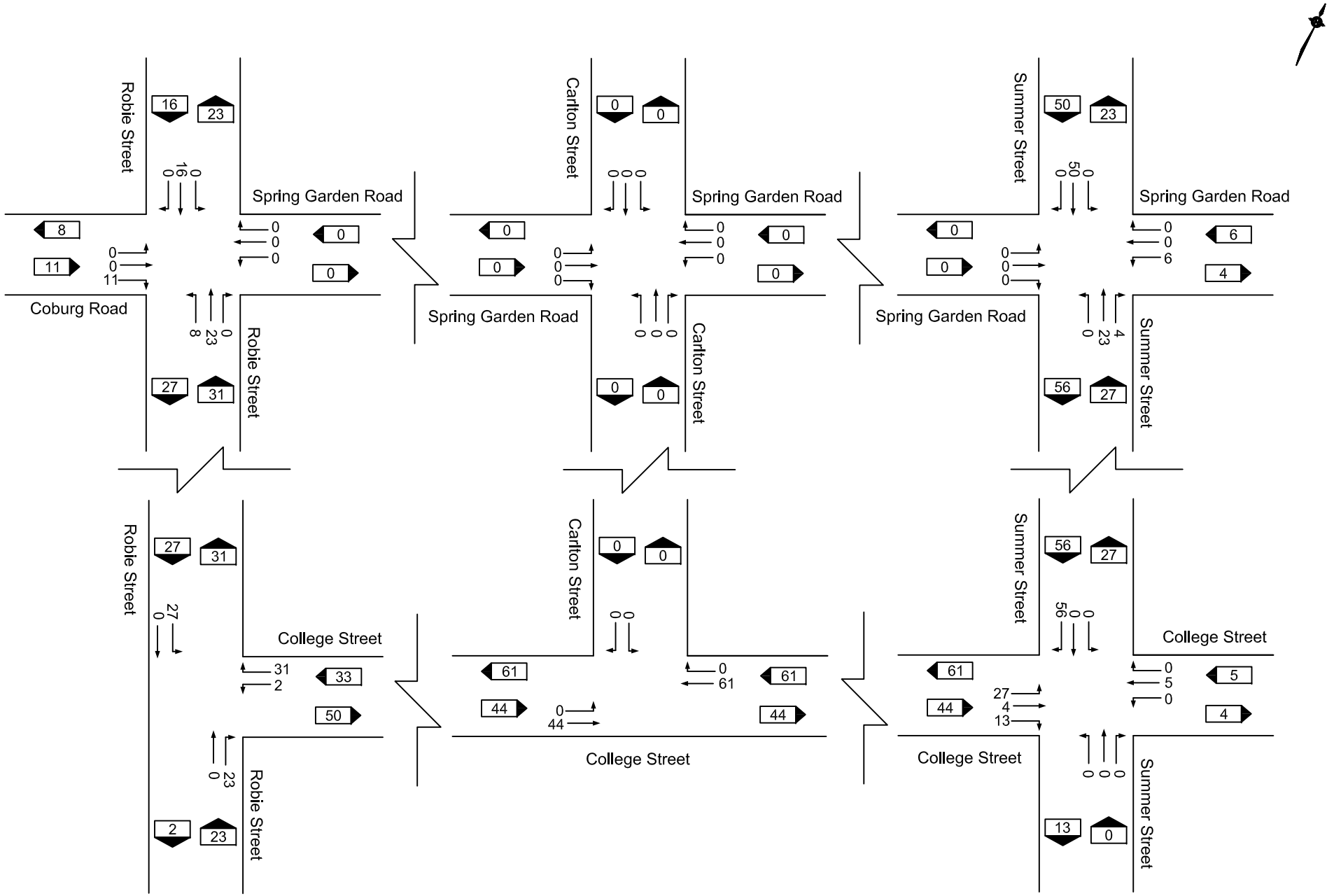

**PM Peak Hour**

NOT TO SCALE

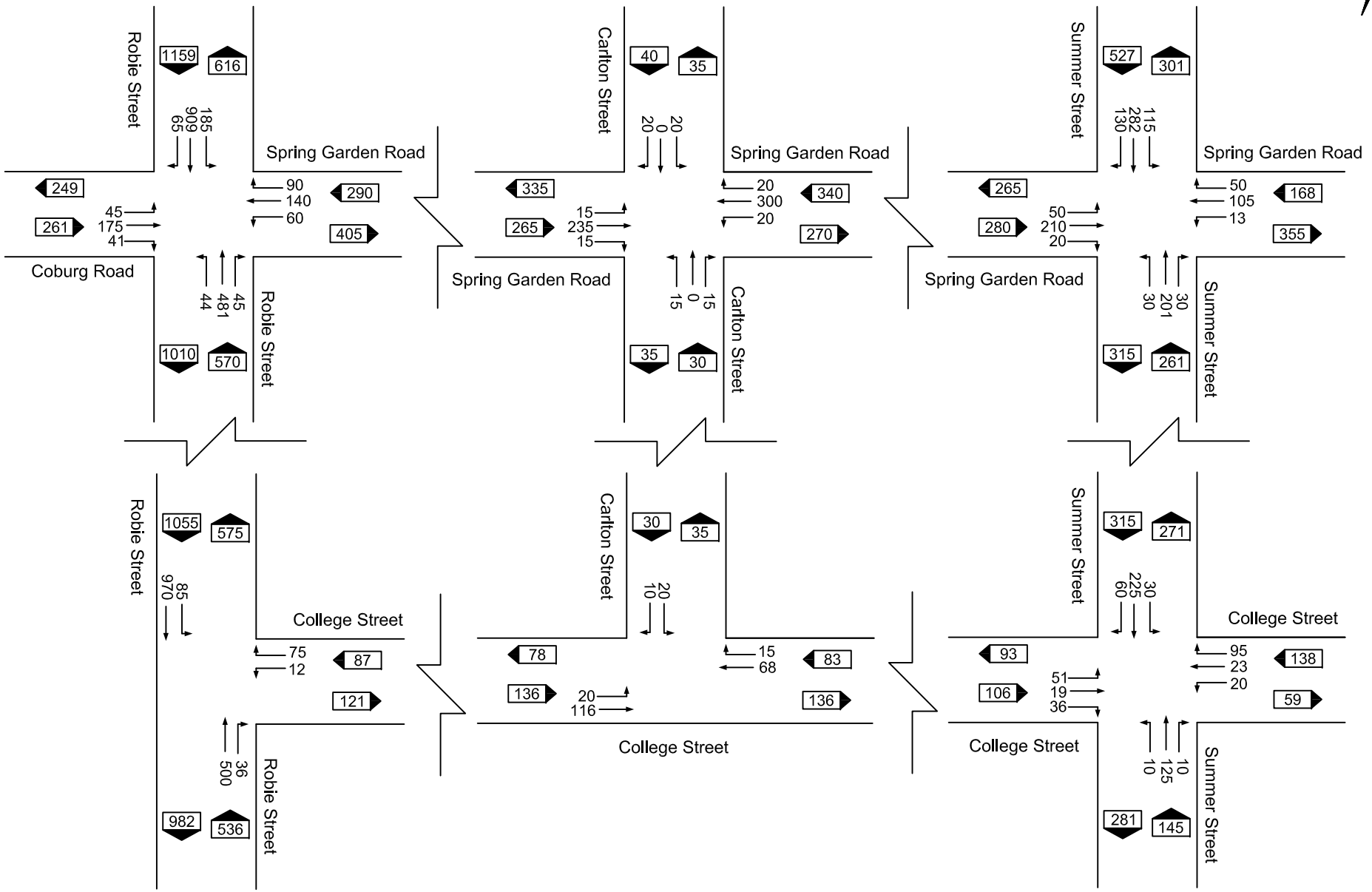
| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-2B |
| | 2024 Weekday PM Peak Hour<br>With Background Traffic and WIthout Site Development | May 2020 |




| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-3A |
| | Case 20761 Site Generated Trip Estimates<br>AM Peak Hour | May 2020 |



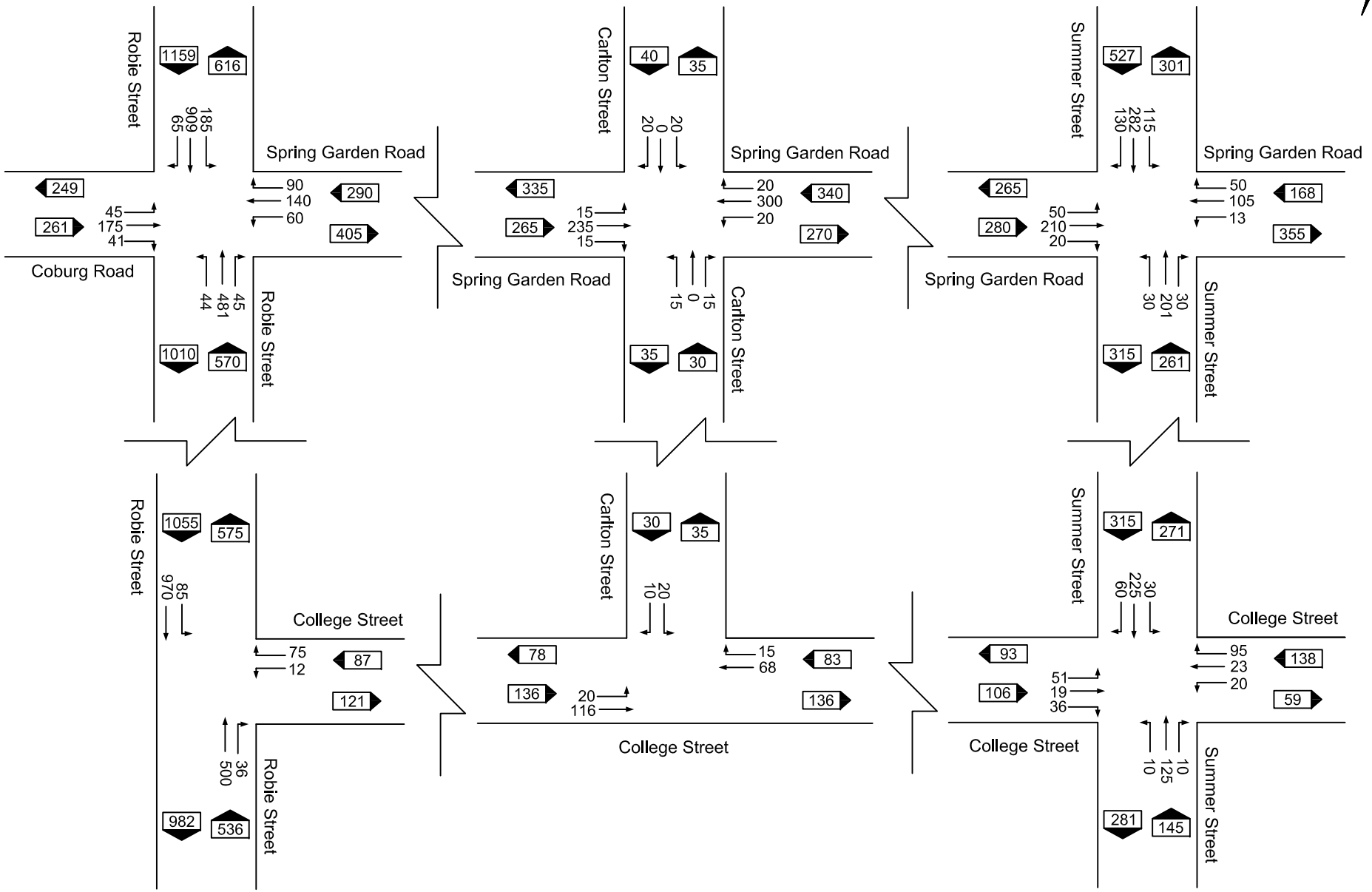

| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-3B |
| | The Promenade Site Generated Trip Estimates<br>PM Peak Hour | May 2020 |




**AM Peak Hour**

NOT TO SCALE

| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-4A |
| | 2024 Weekday AM Peak Hour<br>With Background Traffic and Site Development | May 2020 |




**PM Peak Hour**

NOT TO SCALE

| | | |
|---|---|---|
| WSP | Traffic Impact Study - The Promenade<br>Property Bound by Robie Street, College Street and Carlton Street, Halifax, Nova Scotia | Figure A-4B |
| | 2024 Weekday PM Peak Hour<br>With Background Traffic and Site Development | May 2020 |

# APPENDIX

# B

## INTERSECTION PERFORMANCE ANALYSIS

| 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 |
| Satd. Flow (prot) | 1770 | 1800 | 0 | 0 | 3277 | 0 | 0 | 3529 | 1583 | 0 | 3511 | 1583 |
| Flt Permitted | 0.469 | | | | 0.657 | | | 0.811 | | | 0.736 | |
| Satd. Flow (perm) | 829 | 1800 | 0 | 0 | 2154 | 0 | 0 | 2868 | 1336 | 0 | 2586 | 1435 |
| Satd. Flow (RTOR) | | 9 | | | 58 | | | | 65 | | | 70 |
| Lane Group Flow (vph) | 49 | 270 | 0 | 0 | 318 | 0 | 0 | 555 | 43 | 0 | 1201 | 71 |
| 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) | 19.9 | 19.9 | | | 19.9 | | | 70.1 | 70.1 | | 70.1 | 70.1 |
| Actuated g/C Ratio | 0.20 | 0.20 | | | 0.20 | | | 0.70 | 0.70 | | 0.70 | 0.70 |
| v/c Ratio | 0.30 | 0.74 | | | 0.67 | | | 0.28 | 0.05 | | 0.66 | 0.07 |
| Control Delay | 36.9 | 48.2 | | | 36.5 | | | 6.6 | 1.0 | | 11.6 | 1.9 |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | 36.9 | 48.2 | | | 36.5 | | | 6.6 | 1.0 | | 11.6 | 1.9 |
| LOS | D | D | | | D | | | A | A | | B | A |
| Approach Delay | | 46.5 | | | 36.5 | | | 6.2 | | | 11.1 | |
| Approach LOS | | D | | | D | | | A | | | B | |
| Queue Length 50th (m) | 8.6 | 50.3 | | | 25.9 | | | 19.3 | 0.0 | | 63.1 | 0.1 |
| Queue Length 95th (m) | 18.2 | 53.6 | | | 29.6 | | | 32.9 | 2.3 | | 105.5 | 5.0 |
| Internal Link Dist (m) | | 93.9 | | | 126.2 | | | 102.6 | | | 128.8 | |
| Turn Bay Length (m) | 25.0 | | | | | | | | 50.0 | | | 50.0 |
| Base Capacity (vph) | 265 | 582 | | | 728 | | | 2010 | 955 | | 1812 | 1026 |
| 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 | 0.46 | | | 0.44 | | | 0.28 | 0.05 | | 0.66 | 0.07 |

Intersection Summary

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: 0.74
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 89.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Robie St & Coburg Rd/Spring Garden Rd

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 40 | 500 | 25 | 70 | 965 |
| Future Volume (Veh/h) | 10 | 40 | 500 | 25 | 70 | 965 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.81 | 0.81 | 0.86 | 0.92 | 0.92 | 0.82 |
| Hourly flow rate (vph) | 12 | 49 | 581 | 27 | 76 | 1177 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 126 |
| pX, platoon unblocked | 0.86 | | | | | |
| vC, conflicting volume | 1335 | 304 | | | 608 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1058 | 304 | | | 608 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 93 | 93 | | | 92 | |
| cM capacity (veh/h) | 174 | 692 | | | 966 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 61 | 387 | 221 | 468 | 785 |
| Volume Left | 12 | 0 | 0 | 76 | 0 |
| Volume Right | 49 | 0 | 27 | 0 | 0 |
| cSH | 436 | 1700 | 1700 | 966 | 1700 |
| Volume to Capacity | 0.14 | 0.23 | 0.13 | 0.08 | 0.46 |
| Queue Length 95th (m) | 3.9 | 0.0 | 0.0 | 2.0 | 0.0 |
| Control Delay (s) | 14.6 | 0.0 | 0.0 | 2.2 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 14.6 | 0.0 | | 0.8 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 56.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 220 | 15 | 20 | 285 | 20 | 15 | 0 | 15 | 15 | 0 | 15 |
| Future Volume (Veh/h) | 15 | 220 | 15 | 20 | 285 | 20 | 15 | 0 | 15 | 15 | 0 | 15 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.87 | 0.92 | 0.92 | 0.84 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 253 | 16 | 22 | 339 | 22 | 16 | 0 | 16 | 16 | 0 | 16 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 150 | | | 147 | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 361 | | | 269 | | | 703 | 698 | 261 | 703 | 695 | 350 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 361 | | | 269 | | | 703 | 698 | 261 | 703 | 695 | 350 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 95 | 100 | 98 | 95 | 100 | 98 |
| cM capacity (veh/h) | 1198 | | | 1295 | | | 336 | 353 | 778 | 337 | 355 | 693 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 285 | 383 | 32 | 32 |
| Volume Left | 16 | 22 | 16 | 16 |
| Volume Right | 16 | 22 | 16 | 16 |
| cSH | 1198 | 1295 | 469 | 454 |
| Volume to Capacity | 0.01 | 0.02 | 0.07 | 0.07 |
| Queue Length 95th (m) | 0.3 | 0.4 | 1.7 | 1.8 |
| Control Delay (s) | 0.6 | 0.6 | 13.2 | 13.5 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.6 | 0.6 | 13.2 | 13.5 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 32.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 65 | 35 | 15 | 20 | 10 |
| Future Volume (Veh/h) | 20 | 65 | 35 | 15 | 20 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 71 | 38 | 16 | 22 | 11 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 54 | | | | 161 | 46 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 54 | | | | 161 | 46 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 97 | 99 |
| cM capacity (veh/h) | 1551 | | | | 818 | 1023 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 93 | 54 | 33 |
| Volume Left | 22 | 0 | 22 |
| Volume Right | 0 | 16 | 11 |
| cSH | 1551 | 1700 | 877 |
| Volume to Capacity | 0.01 | 0.03 | 0.04 |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.9 |
| Control Delay (s) | 1.8 | 0.0 | 9.3 |
| Lane LOS | A | | A |
| Approach Delay (s) | 1.8 | 0.0 | 9.3 |
| Approach LOS | | | A |

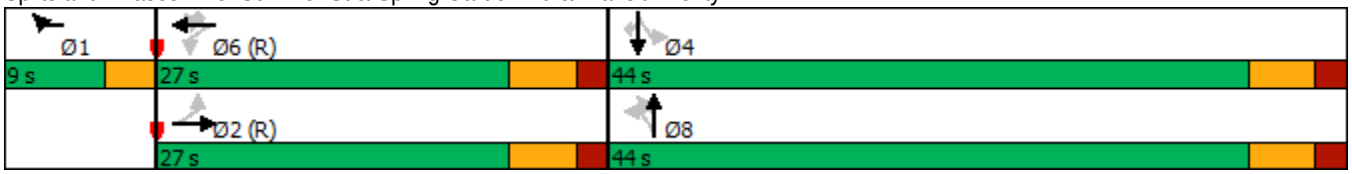
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 21.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| 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 |
| Satd. Flow (prot) | 0 | 3446 | 0 | 0 | 1853 | 808 | 1583 | 0 | 1811 | 0 | 0 | 1837 |
| Flt Permitted | | 0.889 | | | 0.960 | | | | 0.840 | | | 0.796 |
| Satd. Flow (perm) | 0 | 3042 | 0 | 0 | 1777 | 703 | 1583 | 0 | 1521 | 0 | 0 | 1465 |
| Satd. Flow (RTOR) | | 9 | | | | | 82 | | 10 | | | |
| Lane Group Flow (vph) | 0 | 336 | 0 | 0 | 116 | 11 | 54 | 0 | 257 | 0 | 0 | 444 |
| 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) | | 37.0 | | | 37.0 | 41.2 | 37.0 | | 29.2 | | | 29.2 |
| Actuated g/C Ratio | | 0.46 | | | 0.46 | 0.52 | 0.46 | | 0.36 | | | 0.36 |
| v/c Ratio | | 0.24 | | | 0.14 | 0.03 | 0.07 | | 0.46 | | | 0.83 |
| Control Delay | | 15.9 | | | 16.8 | 13.0 | 3.0 | | 20.0 | | | 36.3 |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | 0.0 |
| Total Delay | | 15.9 | | | 16.8 | 13.0 | 3.0 | | 20.0 | | | 36.3 |
| LOS | | B | | | B | B | A | | C | | | D |
| Approach Delay | | 15.9 | | | 12.4 | | | | 20.0 | | | 31.9 |
| Approach LOS | | B | | | B | | | | C | | | C |
| Queue Length 50th (m) | | 15.2 | | | 9.8 | 0.8 | 0.0 | | 29.2 | | | 63.0 |
| Queue Length 95th (m) | | 29.0 | | | 25.1 | 4.1 | 4.9 | | 40.4 | | | 69.2 |
| Internal Link Dist (m) | | 24.0 | | | 105.6 | | | | 101.9 | | | 97.8 |
| Turn Bay Length (m) | | | | | | 35.0 | 35.0 | | | | | |
| Base Capacity (vph) | | 1410 | | | 821 | 370 | 775 | | 727 | | | 695 |
| 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 | 0.03 | 0.07 | | 0.35 | | | 0.64 |

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 6:WBTL and 2:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 23.1
Intersection LOS: C
Intersection Capacity Utilization 72.4%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Summer St & Spring Garden Rd & Transit Priority



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 125 |
| Future Volume (vph) | 125 |
| Satd. Flow (prot) | 1583 |
| Flt Permitted | |
| Satd. Flow (perm) | 1379 |
| Satd. Flow (RTOR) | |
| Lane Group Flow (vph) | 136 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 4 |
| Total Split (s) | 44.0 |
| Total Lost Time (s) | 6.0 |
| Act Effct Green (s) | 29.2 |
| Actuated g/C Ratio | 0.36 |
| v/c Ratio | 0.27 |
| Control Delay | 17.5 |
| Queue Delay | 0.0 |
| Total Delay | 17.5 |
| LOS | B |
| Approach Delay | |
| Approach LOS | |
| Queue Length 50th (m) | 14.9 |
| Queue Length 95th (m) | 23.3 |
| Internal Link Dist (m) | |
| Turn Bay Length (m) | 35.0 |
| Base Capacity (vph) | 655 |
| Starvation Cap Reductn | 0 |
| Spillback Cap Reductn | 0 |
| Storage Cap Reductn | 0 |
| Reduced v/c Ratio | 0.21 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Volume (veh/h) | 20 | 15 | 20 | 20 | 20 | 95 | 10 | 125 | 10 | 30 | 225 | 30 |
| Future Volume (Veh/h) | 20 | 15 | 20 | 20 | 20 | 95 | 10 | 125 | 10 | 30 | 225 | 30 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.57 | 0.92 | 0.92 | 0.59 | 0.92 | 0.92 | 0.88 | 0.92 | 0.92 | 0.80 | 0.92 |
| Hourly flow rate (vph) | 22 | 26 | 22 | 22 | 34 | 103 | 11 | 142 | 11 | 33 | 281 | 33 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 126 | |
| pX, platoon unblocked | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | | 0.84 | | | | | |
| vC, conflicting volume | 653 | 538 | 298 | 568 | 550 | 148 | 314 | | | 153 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 492 | 355 | 69 | 391 | 369 | 148 | 88 | | | 153 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 93 | 94 | 97 | 95 | 93 | 89 | 99 | | | 98 | | |
| cM capacity (veh/h) | 334 | 464 | 835 | 434 | 456 | 899 | 1266 | | | 1428 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 70 | 159 | 164 | 347 |
| Volume Left | 22 | 22 | 11 | 33 |
| Volume Right | 22 | 103 | 11 | 33 |
| cSH | 472 | 663 | 1266 | 1428 |
| Volume to Capacity | 0.15 | 0.24 | 0.01 | 0.02 |
| Queue Length 95th (m) | 4.1 | 7.5 | 0.2 | 0.6 |
| Control Delay (s) | 14.0 | 12.1 | 0.6 | 0.9 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.0 | 12.1 | 0.6 | 0.9 |
| Approach LOS | B | B | | |

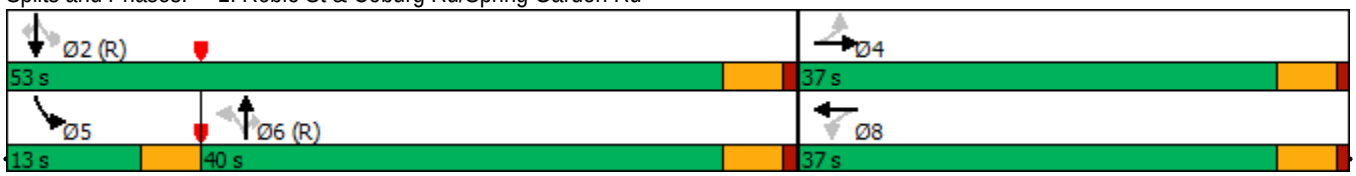
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.5 | | | |
| Intersection Capacity Utilization | 37.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| 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 |
| Satd. Flow (prot) | 1770 | 1825 | 0 | 0 | 3190 | 0 | 0 | 3522 | 1583 | 0 | 3507 | 1583 |
| Flt Permitted | 0.338 | | | | 0.895 | | | 0.821 | | | 0.640 | |
| Satd. Flow (perm) | 606 | 1825 | 0 | 0 | 2855 | 0 | 0 | 2896 | 1358 | 0 | 2265 | 1448 |
| Satd. Flow (RTOR) | | 6 | | | 179 | | | | 73 | | | 49 |
| Lane Group Flow (vph) | 103 | 192 | 0 | 0 | 434 | 0 | 0 | 1033 | 27 | 0 | 578 | 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) | 17.2 | 17.2 | | | 17.2 | | | 62.8 | 62.8 | | 62.8 | 62.8 |
| Actuated g/C Ratio | 0.19 | 0.19 | | | 0.19 | | | 0.70 | 0.70 | | 0.70 | 0.70 |
| v/c Ratio | 0.89 | 0.54 | | | 0.63 | | | 0.51 | 0.03 | | 0.37 | 0.05 |
| Control Delay | 92.9 | 36.1 | | | 22.4 | | | 8.6 | 0.0 | | 7.4 | 2.3 |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | 92.9 | 36.1 | | | 22.4 | | | 8.6 | 0.0 | | 7.4 | 2.3 |
| LOS | F | D | | | C | | | A | A | | A | A |
| Approach Delay | | 56.0 | | | 22.4 | | | 8.4 | | | 7.0 | |
| Approach LOS | | E | | | C | | | A | | | A | |
| Queue Length 50th (m) | 18.5 | 30.9 | | | 22.0 | | | 39.4 | 0.0 | | 19.1 | 0.0 |
| Queue Length 95th (m) | #38.2 | 44.4 | | | 26.1 | | | 75.5 | 0.0 | | 33.7 | 4.3 |
| Internal Link Dist (m) | | 93.9 | | | 126.2 | | | 102.6 | | | 128.8 | |
| Turn Bay Length (m) | 25.0 | | | | | | | | 50.0 | | | 50.0 |
| Base Capacity (vph) | 215 | 652 | | | 1130 | | | 2020 | 969 | | 1579 | 1024 |
| 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 | 0.48 | 0.29 | | | 0.38 | | | 0.51 | 0.03 | | 0.37 | 0.05 |

Intersection Summary

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: 16.3 Intersection LOS: B
Intersection Capacity Utilization 86.6% 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 St & Coburg Rd/Spring Garden Rd



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 5 | 55 | 870 | 10 | 25 | 410 |
| Future Volume (Veh/h) | 5 | 55 | 870 | 10 | 25 | 410 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.78 | 0.78 | 0.91 | 0.92 | 0.92 | 0.87 |
| Hourly flow rate (vph) | 6 | 71 | 956 | 11 | 27 | 471 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 126 |
| pX, platoon unblocked | 0.98 | | | | | |
| vC, conflicting volume | 1251 | 484 | | | 967 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1207 | 484 | | | 967 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 96 | 87 | | | 96 | |
| cM capacity (veh/h) | 165 | 529 | | | 708 | |

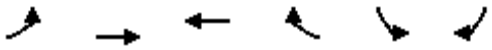
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 77 | 637 | 330 | 184 | 314 |
| Volume Left | 6 | 0 | 0 | 27 | 0 |
| Volume Right | 71 | 0 | 11 | 0 | 0 |
| cSH | 451 | 1700 | 1700 | 708 | 1700 |
| Volume to Capacity | 0.17 | 0.37 | 0.19 | 0.04 | 0.18 |
| Queue Length 95th (m) | 4.9 | 0.0 | 0.0 | 1.0 | 0.0 |
| Control Delay (s) | 14.6 | 0.0 | 0.0 | 1.9 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 14.6 | 0.0 | | 0.7 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 40.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 345 | 20 | 15 | 215 | 25 | 15 | 0 | 15 | 30 | 0 | 15 |
| Future Volume (Veh/h) | 20 | 345 | 20 | 15 | 215 | 25 | 15 | 0 | 15 | 30 | 0 | 15 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.84 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 375 | 22 | 16 | 256 | 27 | 16 | 0 | 16 | 33 | 0 | 16 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 150 | | | 147 | | | | | | | |
| pX, platoon unblocked | 0.98 | | | 0.92 | | | 0.93 | 0.93 | 0.92 | 0.93 | 0.93 | 0.98 |
| vC, conflicting volume | 283 | | | 397 | | | 748 | 745 | 386 | 748 | 742 | 270 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 261 | | | 303 | | | 648 | 646 | 291 | 648 | 643 | 247 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 99 | | | 95 | 100 | 98 | 90 | 100 | 98 |
| cM capacity (veh/h) | 1280 | | | 1159 | | | 341 | 352 | 689 | 340 | 353 | 777 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 419 | 299 | 32 | 49 |
| Volume Left | 22 | 16 | 16 | 33 |
| Volume Right | 22 | 27 | 16 | 16 |
| cSH | 1280 | 1159 | 456 | 417 |
| Volume to Capacity | 0.02 | 0.01 | 0.07 | 0.12 |
| Queue Length 95th (m) | 0.4 | 0.3 | 1.8 | 3.2 |
| Control Delay (s) | 0.6 | 0.6 | 13.5 | 14.8 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.6 | 0.6 | 13.5 | 14.8 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 35.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 30 | 40 | 30 | 20 | 15 |
| Future Volume (Veh/h) | 15 | 30 | 40 | 30 | 20 | 15 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.81 | 0.79 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 37 | 51 | 33 | 22 | 16 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 84 | | | | 136 | 68 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 84 | | | | 136 | 68 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 97 | 98 |
| cM capacity (veh/h) | 1513 | | | | 848 | 996 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 53 | 84 | 38 |
| Volume Left | 16 | 0 | 22 |
| Volume Right | 0 | 33 | 16 |
| cSH | 1513 | 1700 | 904 |
| Volume to Capacity | 0.01 | 0.05 | 0.04 |
| Queue Length 95th (m) | 0.3 | 0.0 | 1.1 |
| Control Delay (s) | 2.3 | 0.0 | 9.2 |
| Lane LOS | A | | A |
| Approach Delay (s) | 2.3 | 0.0 | 9.2 |
| Approach LOS | | | A |

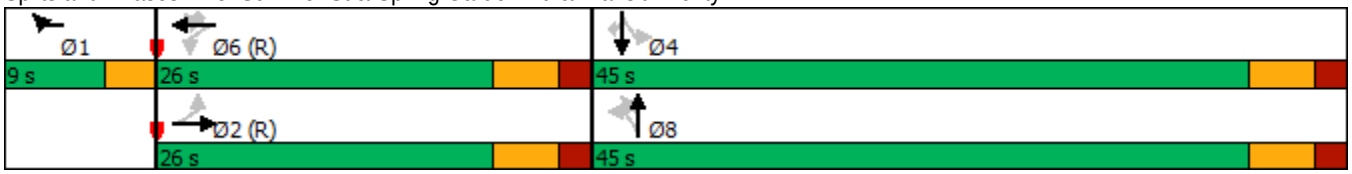
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 19.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| 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 |
| Satd. Flow (prot) | 0 | 3436 | 0 | 0 | 1857 | 808 | 1583 | 0 | 1841 | 0 | 0 | 1837 |
| Flt Permitted | | 0.864 | | | 0.978 | | | | 0.920 | | | 0.721 |
| Satd. Flow (perm) | 0 | 2954 | 0 | 0 | 1815 | 703 | 1583 | 0 | 1687 | 0 | 0 | 1333 |
| Satd. Flow (RTOR) | | 10 | | | | | 82 | | 2 | | | |
| Lane Group Flow (vph) | 0 | 303 | 0 | 0 | 209 | 16 | 54 | 0 | 480 | 0 | 0 | 228 |
| 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) | | 37.1 | | | 37.1 | 41.7 | 37.1 | | 28.7 | | | 28.7 |
| Actuated g/C Ratio | | 0.46 | | | 0.46 | 0.52 | 0.46 | | 0.36 | | | 0.36 |
| v/c Ratio | | 0.22 | | | 0.25 | 0.04 | 0.07 | | 0.79 | | | 0.48 |
| Control Delay | | 15.7 | | | 17.4 | 12.6 | 3.1 | | 32.3 | | | 22.0 |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | 0.0 |
| Total Delay | | 15.7 | | | 17.4 | 12.6 | 3.1 | | 32.3 | | | 22.0 |
| LOS | | B | | | B | B | A | | C | | | C |
| Approach Delay | | 15.7 | | | 14.4 | | | | 32.3 | | | 20.5 |
| Approach LOS | | B | | | B | | | | C | | | C |
| Queue Length 50th (m) | | 13.3 | | | 18.4 | 1.2 | 0.0 | | 66.7 | | | 27.5 |
| Queue Length 95th (m) | | 26.8 | | | 43.0 | 5.2 | 4.9 | | 84.9 | | | 34.0 |
| Internal Link Dist (m) | | 24.0 | | | 105.6 | | | | 101.9 | | | 97.8 |
| Turn Bay Length (m) | | | | | | 35.0 | 35.0 | | | | | |
| Base Capacity (vph) | | 1376 | | | 842 | 375 | 778 | | 823 | | | 649 |
| 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 | | | 0.25 | 0.04 | 0.07 | | 0.58 | | | 0.35 |

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 6:WBTL and 2:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 22.3
Intersection LOS: C
Intersection Capacity Utilization 87.0%
ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Summer St & Spring Garden Rd & Transit Priority



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 115 |
| Future Volume (vph) | 115 |
| Satd. Flow (prot) | 1583 |
| Flt Permitted | |
| Satd. Flow (perm) | 1379 |
| Satd. Flow (RTOR) | |
| Lane Group Flow (vph) | 125 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 4 |
| Total Split (s) | 45.0 |
| Total Lost Time (s) | 6.0 |
| Act Effct Green (s) | 28.7 |
| Actuated g/C Ratio | 0.36 |
| v/c Ratio | 0.25 |
| Control Delay | 17.6 |
| Queue Delay | 0.0 |
| Total Delay | 17.6 |
| LOS | B |
| Approach Delay | |
| Approach LOS | |
| Queue Length 50th (m) | 13.8 |
| Queue Length 95th (m) | 21.8 |
| Internal Link Dist (m) | |
| Turn Bay Length (m) | 35.0 |
| Base Capacity (vph) | 672 |
| Starvation Cap Reductn | 0 |
| Spillback Cap Reductn | 0 |
| Storage Cap Reductn | 0 |
| Reduced v/c Ratio | 0.19 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 25 | 15 | 15 | 0 | 15 | 80 | 15 | 335 | 5 | 25 | 120 | 10 |
| Future Volume (Veh/h) | 25 | 15 | 15 | 0 | 15 | 80 | 15 | 335 | 5 | 25 | 120 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.58 | 0.92 | 0.92 | 0.52 | 0.92 | 0.92 | 0.86 | 0.92 | 0.92 | 0.81 | 0.92 |
| Hourly flow rate (vph) | 27 | 26 | 16 | 0 | 29 | 87 | 16 | 390 | 5 | 27 | 148 | 11 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 126 | |
| pX, platoon unblocked | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | | 0.96 | | | | | |
| vC, conflicting volume | 734 | 634 | 154 | 661 | 638 | 392 | 159 | | | 395 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 706 | 603 | 105 | 631 | 606 | 392 | 110 | | | 395 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 90 | 93 | 98 | 100 | 92 | 87 | 99 | | | 98 | | |
| cM capacity (veh/h) | 270 | 385 | 917 | 345 | 383 | 656 | 1428 | | | 1164 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 69 | 116 | 411 | 186 |
| Volume Left | 27 | 0 | 16 | 27 |
| Volume Right | 16 | 87 | 5 | 11 |
| cSH | 373 | 557 | 1428 | 1164 |
| Volume to Capacity | 0.19 | 0.21 | 0.01 | 0.02 |
| Queue Length 95th (m) | 5.4 | 6.2 | 0.3 | 0.6 |
| Control Delay (s) | 16.8 | 13.2 | 0.4 | 1.4 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 16.8 | 13.2 | 0.4 | 1.4 |
| Approach LOS | C | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.0 | | |
| Intersection Capacity Utilization | 36.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 175 | 35 | 60 | 140 | 90 | 35 | 455 | 45 | 185 | 900 | 65 |
| Future Volume (vph) | 45 | 175 | 35 | 60 | 140 | 90 | 35 | 455 | 45 | 185 | 900 | 65 |
| Satd. Flow (prot) | 1770 | 1803 | 0 | 0 | 3271 | 0 | 0 | 3529 | 1583 | 0 | 3511 | 1583 |
| Flt Permitted | 0.440 | | | | 0.642 | | | 0.809 | | | 0.730 | |
| Satd. Flow (perm) | 781 | 1803 | 0 | 0 | 2102 | 0 | 0 | 2861 | 1336 | 0 | 2564 | 1435 |
| Satd. Flow (RTOR) | | 8 | | | 61 | | | | 65 | | | 69 |
| Lane Group Flow (vph) | 49 | 284 | 0 | 0 | 347 | 0 | 0 | 555 | 49 | 0 | 1212 | 71 |
| 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) | 20.7 | 20.7 | | | 20.7 | | | 69.3 | 69.3 | | 69.3 | 69.3 |
| Actuated g/C Ratio | 0.21 | 0.21 | | | 0.21 | | | 0.69 | 0.69 | | 0.69 | 0.69 |
| v/c Ratio | 0.30 | 0.75 | | | 0.72 | | | 0.28 | 0.05 | | 0.68 | 0.07 |
| Control Delay | 36.6 | 48.1 | | | 38.3 | | | 6.9 | 1.4 | | 12.5 | 2.0 |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | 36.6 | 48.1 | | | 38.3 | | | 6.9 | 1.4 | | 12.5 | 2.0 |
| LOS | D | D | | | D | | | A | A | | B | A |
| Approach Delay | | 46.4 | | | 38.3 | | | 6.5 | | | 11.9 | |
| Approach LOS | | D | | | D | | | A | | | B | |
| Queue Length 50th (m) | 8.5 | 53.3 | | | 28.8 | | | 19.8 | 0.0 | | 66.5 | 0.1 |
| Queue Length 95th (m) | 18.1 | 55.6 | | | 32.3 | | | 34.0 | 3.0 | | 112.3 | 5.2 |
| Internal Link Dist (m) | | 93.9 | | | 126.2 | | | 102.6 | | | 128.8 | |
| Turn Bay Length (m) | 25.0 | | | | | | | | 50.0 | | | 50.0 |
| Base Capacity (vph) | 249 | 582 | | | 714 | | | 1982 | 945 | | 1776 | 1015 |
| 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 | 0.20 | 0.49 | | | 0.49 | | | 0.28 | 0.05 | | 0.68 | 0.07 |

Intersection Summary

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: 0.75
Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 90.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Robie St & Coburg Rd/Spring Garden Rd

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 40 | 500 | 25 | 70 | 970 |
| Future Volume (Veh/h) | 10 | 40 | 500 | 25 | 70 | 970 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.81 | 0.81 | 0.86 | 0.92 | 0.92 | 0.82 |
| Hourly flow rate (vph) | 12 | 49 | 581 | 27 | 76 | 1183 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 126 |
| pX, platoon unblocked | 0.85 | | | | | |
| vC, conflicting volume | 1338 | 304 | | | 608 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1049 | 304 | | | 608 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 93 | 93 | | | 92 | |
| cM capacity (veh/h) | 175 | 692 | | | 966 | |

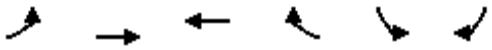
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 61 | 387 | 221 | 470 | 789 |
| Volume Left | 12 | 0 | 0 | 76 | 0 |
| Volume Right | 49 | 0 | 27 | 0 | 0 |
| cSH | 437 | 1700 | 1700 | 966 | 1700 |
| Volume to Capacity | 0.14 | 0.23 | 0.13 | 0.08 | 0.46 |
| Queue Length 95th (m) | 3.8 | 0.0 | 0.0 | 2.0 | 0.0 |
| Control Delay (s) | 14.6 | 0.0 | 0.0 | 2.2 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 14.6 | 0.0 | | 0.8 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 235 | 15 | 20 | 300 | 20 | 15 | 0 | 15 | 20 | 0 | 20 |
| Future Volume (Veh/h) | 15 | 235 | 15 | 20 | 300 | 20 | 15 | 0 | 15 | 20 | 0 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.87 | 0.92 | 0.92 | 0.84 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 270 | 16 | 22 | 357 | 22 | 16 | 0 | 16 | 22 | 0 | 22 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 150 | | | 147 | | | | | | | |
| pX, platoon unblocked | 0.99 | | | | | | 0.99 | 0.99 | | 0.99 | 0.99 | 0.99 |
| vC, conflicting volume | 379 | | | 286 | | | 744 | 733 | 278 | 738 | 730 | 368 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 373 | | | 286 | | | 740 | 729 | 278 | 734 | 726 | 362 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 95 | 100 | 98 | 93 | 100 | 97 |
| cM capacity (veh/h) | 1179 | | | 1276 | | | 313 | 337 | 761 | 319 | 339 | 679 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 302 | 401 | 32 | 44 |
| Volume Left | 16 | 22 | 16 | 22 |
| Volume Right | 16 | 22 | 16 | 22 |
| cSH | 1179 | 1276 | 443 | 434 |
| Volume to Capacity | 0.01 | 0.02 | 0.07 | 0.10 |
| Queue Length 95th (m) | 0.3 | 0.4 | 1.9 | 2.7 |
| Control Delay (s) | 0.6 | 0.6 | 13.8 | 14.2 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.6 | 0.6 | 13.8 | 14.2 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 33.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 65 | 35 | 15 | 20 | 10 |
| Future Volume (Veh/h) | 20 | 65 | 35 | 15 | 20 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 71 | 38 | 16 | 22 | 11 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 54 | | | | 161 | 46 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 54 | | | | 161 | 46 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 97 | 99 |
| cM capacity (veh/h) | 1551 | | | | 818 | 1023 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 93 | 54 | 33 |
| Volume Left | 22 | 0 | 22 |
| Volume Right | 0 | 16 | 11 |
| cSH | 1551 | 1700 | 877 |
| Volume to Capacity | 0.01 | 0.03 | 0.04 |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.9 |
| Control Delay (s) | 1.8 | 0.0 | 9.3 |
| Lane LOS | A | | A |
| Approach Delay (s) | 1.8 | 0.0 | 9.3 |
| Approach LOS | | | A |

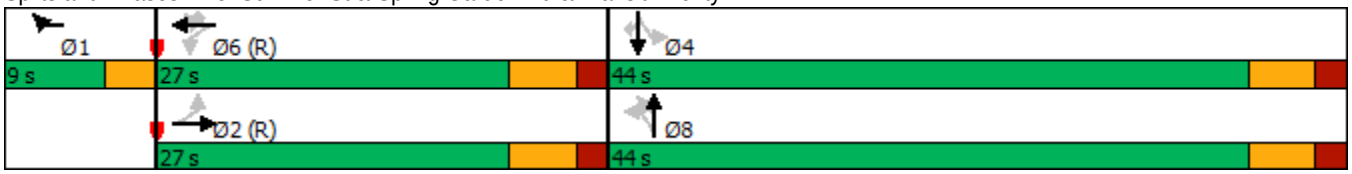
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 21.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | NBL2 | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 50 | 210 | 20 | 10 | 95 | 10 | 50 | 30 | 175 | 25 | 115 | 255 |
| Future Volume (vph) | 50 | 210 | 20 | 10 | 95 | 10 | 50 | 30 | 175 | 25 | 115 | 255 |
| Satd. Flow (prot) | 0 | 3451 | 0 | 0 | 1855 | 808 | 1583 | 0 | 1811 | 0 | 0 | 1837 |
| Flt Permitted | | 0.889 | | | 0.962 | | | | 0.840 | | | 0.796 |
| Satd. Flow (perm) | 0 | 3048 | 0 | 0 | 1782 | 703 | 1583 | 0 | 1521 | 0 | 0 | 1465 |
| Satd. Flow (RTOR) | | 8 | | | | | 82 | | 10 | | | |
| Lane Group Flow (vph) | 0 | 349 | 0 | 0 | 128 | 11 | 54 | 0 | 257 | 0 | 0 | 444 |
| 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) | | 37.0 | | | 37.0 | 41.2 | 37.0 | | 29.2 | | | 29.2 |
| Actuated g/C Ratio | | 0.46 | | | 0.46 | 0.52 | 0.46 | | 0.36 | | | 0.36 |
| v/c Ratio | | 0.25 | | | 0.16 | 0.03 | 0.07 | | 0.46 | | | 0.83 |
| Control Delay | | 16.0 | | | 16.8 | 13.0 | 3.0 | | 20.0 | | | 36.3 |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | 0.0 |
| Total Delay | | 16.0 | | | 16.8 | 13.0 | 3.0 | | 20.0 | | | 36.3 |
| LOS | | B | | | B | B | A | | C | | | D |
| Approach Delay | | 16.0 | | | 12.7 | | | | 20.0 | | | 31.8 |
| Approach LOS | | B | | | B | | | | C | | | C |
| Queue Length 50th (m) | | 15.9 | | | 10.9 | 0.8 | 0.0 | | 29.2 | | | 63.0 |
| Queue Length 95th (m) | | 30.1 | | | 27.3 | 4.1 | 4.9 | | 40.4 | | | 69.2 |
| Internal Link Dist (m) | | 24.0 | | | 105.6 | | | | 101.9 | | | 97.8 |
| Turn Bay Length (m) | | | | | | 35.0 | 35.0 | | | | | |
| Base Capacity (vph) | | 1412 | | | 823 | 370 | 775 | | 727 | | | 695 |
| 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 | | 0.25 | | | 0.16 | 0.03 | 0.07 | | 0.35 | | | 0.64 |

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 6:WBTL and 2:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 23.0
Intersection LOS: C
Intersection Capacity Utilization 72.4%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Summer St & Spring Garden Rd & Transit Priority



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 130 |
| Future Volume (vph) | 130 |
| Satd. Flow (prot) | 1583 |
| Flt Permitted | |
| Satd. Flow (perm) | 1379 |
| Satd. Flow (RTOR) | |
| Lane Group Flow (vph) | 141 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 4 |
| Total Split (s) | 44.0 |
| Total Lost Time (s) | 6.0 |
| Act Effct Green (s) | 29.2 |
| Actuated g/C Ratio | 0.36 |
| v/c Ratio | 0.28 |
| Control Delay | 17.7 |
| Queue Delay | 0.0 |
| Total Delay | 17.7 |
| LOS | B |
| Approach Delay | |
| Approach LOS | |
| Queue Length 50th (m) | 15.5 |
| Queue Length 95th (m) | 24.0 |
| Internal Link Dist (m) | |
| Turn Bay Length (m) | 35.0 |
| Base Capacity (vph) | 655 |
| Starvation Cap Reductn | 0 |
| Spillback Cap Reductn | 0 |
| Storage Cap Reductn | 0 |
| Reduced v/c Ratio | 0.22 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Volume (veh/h) | 20 | 15 | 20 | 20 | 20 | 95 | 10 | 125 | 10 | 30 | 225 | 30 |
| Future Volume (Veh/h) | 20 | 15 | 20 | 20 | 20 | 95 | 10 | 125 | 10 | 30 | 225 | 30 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.57 | 0.92 | 0.92 | 0.59 | 0.92 | 0.92 | 0.88 | 0.92 | 0.92 | 0.80 | 0.92 |
| Hourly flow rate (vph) | 22 | 26 | 22 | 22 | 34 | 103 | 11 | 142 | 11 | 33 | 281 | 33 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 126 | |
| pX, platoon unblocked | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | | 0.84 | | | | | |
| vC, conflicting volume | 653 | 538 | 298 | 568 | 550 | 148 | 314 | | | 153 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 492 | 355 | 69 | 391 | 369 | 148 | 88 | | | 153 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 93 | 94 | 97 | 95 | 93 | 89 | 99 | | | 98 | | |
| cM capacity (veh/h) | 334 | 464 | 835 | 434 | 456 | 899 | 1266 | | | 1428 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 70 | 159 | 164 | 347 |
| Volume Left | 22 | 22 | 11 | 33 |
| Volume Right | 22 | 103 | 11 | 33 |
| cSH | 472 | 663 | 1266 | 1428 |
| Volume to Capacity | 0.15 | 0.24 | 0.01 | 0.02 |
| Queue Length 95th (m) | 4.1 | 7.5 | 0.2 | 0.6 |
| Control Delay (s) | 14.0 | 12.1 | 0.6 | 0.9 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.0 | 12.1 | 0.6 | 0.9 |
| Approach LOS | B | B | | |

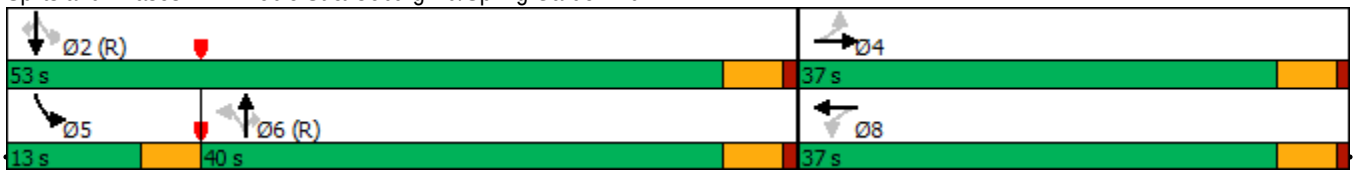
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.5 | | | |
| Intersection Capacity Utilization | 37.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 95 | 165 | 15 | 30 | 185 | 170 | 90 | 860 | 25 | 105 | 380 | 45 |
| Future Volume (vph) | 95 | 165 | 15 | 30 | 185 | 170 | 90 | 860 | 25 | 105 | 380 | 45 |
| Satd. Flow (prot) | 1770 | 1828 | 0 | 0 | 3194 | 0 | 0 | 3522 | 1583 | 0 | 3504 | 1583 |
| Flt Permitted | 0.324 | | | | 0.888 | | | 0.820 | | | 0.629 | |
| Satd. Flow (perm) | 582 | 1828 | 0 | 0 | 2837 | 0 | 0 | 2893 | 1358 | 0 | 2226 | 1448 |
| Satd. Flow (RTOR) | | 5 | | | 185 | | | | 73 | | | 49 |
| Lane Group Flow (vph) | 103 | 204 | 0 | 0 | 452 | 0 | 0 | 1033 | 27 | 0 | 583 | 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) | 17.7 | 17.7 | | | 17.7 | | | 62.3 | 62.3 | | 62.3 | 62.3 |
| Actuated g/C Ratio | 0.20 | 0.20 | | | 0.20 | | | 0.69 | 0.69 | | 0.69 | 0.69 |
| v/c Ratio | 0.90 | 0.56 | | | 0.64 | | | 0.52 | 0.03 | | 0.38 | 0.05 |
| Control Delay | 96.4 | 36.5 | | | 22.6 | | | 8.9 | 0.0 | | 7.7 | 2.4 |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | 96.4 | 36.5 | | | 22.6 | | | 8.9 | 0.0 | | 7.7 | 2.4 |
| LOS | F | D | | | C | | | A | A | | A | A |
| Approach Delay | | 56.6 | | | 22.6 | | | 8.6 | | | 7.3 | |
| Approach LOS | | E | | | C | | | A | | | A | |
| Queue Length 50th (m) | 18.5 | 33.1 | | | 23.2 | | | 40.3 | 0.0 | | 19.7 | 0.0 |
| Queue Length 95th (m) | #38.8 | 46.8 | | | 27.0 | | | 77.1 | 0.0 | | 35.0 | 4.4 |
| Internal Link Dist (m) | | 93.9 | | | 126.2 | | | 102.6 | | | 128.8 | |
| Turn Bay Length (m) | 25.0 | | | | | | | | 50.0 | | | 50.0 |
| Base Capacity (vph) | 206 | 653 | | | 1127 | | | 2003 | 962 | | 1541 | 1017 |
| 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 | 0.50 | 0.31 | | | 0.40 | | | 0.52 | 0.03 | | 0.38 | 0.05 |

Intersection Summary

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: 0.90
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 86.8% 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 St & Coburg Rd/Spring Garden Rd



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 5 | 55 | 870 | 10 | 25 | 410 |
| Future Volume (Veh/h) | 5 | 55 | 870 | 10 | 25 | 410 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.78 | 0.78 | 0.91 | 0.92 | 0.92 | 0.87 |
| Hourly flow rate (vph) | 6 | 71 | 956 | 11 | 27 | 471 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 126 |
| pX, platoon unblocked | 0.97 | | | | | |
| vC, conflicting volume | 1251 | 484 | | | 967 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1206 | 484 | | | 967 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 96 | 87 | | | 96 | |
| cM capacity (veh/h) | 165 | 529 | | | 708 | |

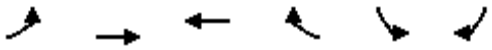
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 77 | 637 | 330 | 184 | 314 |
| Volume Left | 6 | 0 | 0 | 27 | 0 |
| Volume Right | 71 | 0 | 11 | 0 | 0 |
| cSH | 452 | 1700 | 1700 | 708 | 1700 |
| Volume to Capacity | 0.17 | 0.37 | 0.19 | 0.04 | 0.18 |
| Queue Length 95th (m) | 4.9 | 0.0 | 0.0 | 1.0 | 0.0 |
| Control Delay (s) | 14.6 | 0.0 | 0.0 | 1.9 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 14.6 | 0.0 | | 0.7 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 40.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 365 | 20 | 15 | 230 | 30 | 15 | 0 | 35 | 35 | 0 | 15 |
| Future Volume (Veh/h) | 20 | 365 | 20 | 15 | 230 | 30 | 15 | 0 | 35 | 35 | 0 | 15 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.84 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 397 | 22 | 16 | 274 | 33 | 16 | 0 | 38 | 38 | 0 | 16 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 150 | | | 147 | | | | | | | |
| pX, platoon unblocked | 0.97 | | | 0.91 | | | 0.93 | 0.93 | 0.91 | 0.93 | 0.93 | 0.97 |
| vC, conflicting volume | 307 | | | 419 | | | 790 | 791 | 408 | 812 | 786 | 290 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 271 | | | 318 | | | 666 | 666 | 305 | 689 | 660 | 254 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 99 | | | 95 | 100 | 94 | 88 | 100 | 98 |
| cM capacity (veh/h) | 1255 | | | 1136 | | | 331 | 342 | 671 | 308 | 345 | 762 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 441 | 323 | 54 | 54 |
| Volume Left | 22 | 16 | 16 | 38 |
| Volume Right | 22 | 33 | 38 | 16 |
| cSH | 1255 | 1136 | 515 | 374 |
| Volume to Capacity | 0.02 | 0.01 | 0.10 | 0.14 |
| Queue Length 95th (m) | 0.4 | 0.3 | 2.8 | 4.0 |
| Control Delay (s) | 0.6 | 0.5 | 12.8 | 16.3 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 0.6 | 0.5 | 12.8 | 16.3 |
| Approach LOS | | | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 39.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 30 | 40 | 30 | 20 | 15 |
| Future Volume (Veh/h) | 15 | 30 | 40 | 30 | 20 | 15 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.81 | 0.79 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 37 | 51 | 33 | 22 | 16 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 84 | | | | 136 | 68 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 84 | | | | 136 | 68 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 97 | 98 |
| cM capacity (veh/h) | 1513 | | | | 848 | 996 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 53 | 84 | 38 |
| Volume Left | 16 | 0 | 22 |
| Volume Right | 0 | 33 | 16 |
| cSH | 1513 | 1700 | 904 |
| Volume to Capacity | 0.01 | 0.05 | 0.04 |
| Queue Length 95th (m) | 0.3 | 0.0 | 1.1 |
| Control Delay (s) | 2.3 | 0.0 | 9.2 |
| Lane LOS | A | | A |
| Approach Delay (s) | 2.3 | 0.0 | 9.2 |
| Approach LOS | | | A |

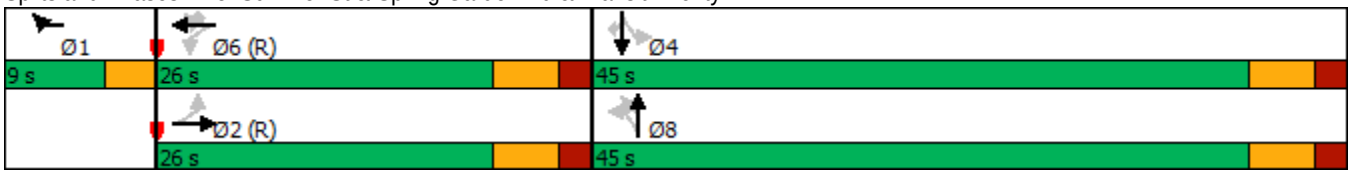
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 19.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | NBL2 | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 55 | 195 | 20 | 10 | 175 | 15 | 50 | 65 | 360 | 10 | 60 | 130 |
| Future Volume (vph) | 55 | 195 | 20 | 10 | 175 | 15 | 50 | 65 | 360 | 10 | 60 | 130 |
| Satd. Flow (prot) | 0 | 3443 | 0 | 0 | 1859 | 808 | 1583 | 0 | 1841 | 0 | 0 | 1837 |
| Flt Permitted | | 0.857 | | | 0.978 | | | | 0.913 | | | 0.726 |
| Satd. Flow (perm) | 0 | 2937 | 0 | 0 | 1816 | 703 | 1583 | 0 | 1673 | 0 | 0 | 1343 |
| Satd. Flow (RTOR) | | 9 | | | | | 82 | | 2 | | | |
| Lane Group Flow (vph) | 0 | 335 | 0 | 0 | 227 | 16 | 54 | 0 | 486 | 0 | 0 | 228 |
| 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) | | 36.8 | | | 36.8 | 41.2 | 36.8 | | 29.2 | | | 29.2 |
| Actuated g/C Ratio | | 0.46 | | | 0.46 | 0.52 | 0.46 | | 0.36 | | | 0.36 |
| v/c Ratio | | 0.25 | | | 0.27 | 0.04 | 0.07 | | 0.80 | | | 0.47 |
| Control Delay | | 16.2 | | | 17.8 | 12.9 | 3.1 | | 32.0 | | | 21.4 |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | 0.0 |
| Total Delay | | 16.2 | | | 17.8 | 12.9 | 3.1 | | 32.0 | | | 21.4 |
| LOS | | B | | | B | B | A | | C | | | C |
| Approach Delay | | 16.2 | | | 14.9 | | | | 32.0 | | | 19.9 |
| Approach LOS | | B | | | B | | | | C | | | B |
| Queue Length 50th (m) | | 15.2 | | | 20.5 | 1.2 | 0.0 | | 67.5 | | | 27.2 |
| Queue Length 95th (m) | | 29.6 | | | 46.3 | 5.3 | 4.9 | | 84.7 | | | 33.2 |
| Internal Link Dist (m) | | 24.0 | | | 105.6 | | | | 101.9 | | | 97.8 |
| Turn Bay Length (m) | | | | | | 35.0 | 35.0 | | | | | |
| Base Capacity (vph) | | 1355 | | | 834 | 370 | 772 | | 816 | | | 654 |
| 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 | | 0.25 | | | 0.27 | 0.04 | 0.07 | | 0.60 | | | 0.35 |

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 6:WBTL and 2:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.0
Intersection LOS: C
Intersection Capacity Utilization 87.3%
ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Summer St & Spring Garden Rd & Transit Priority



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 120 |
| Future Volume (vph) | 120 |
| Satd. Flow (prot) | 1583 |
| Flt Permitted | |
| Satd. Flow (perm) | 1379 |
| Satd. Flow (RTOR) | |
| Lane Group Flow (vph) | 130 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 4 |
| Total Split (s) | 45.0 |
| Total Lost Time (s) | 6.0 |
| Act Effct Green (s) | 29.2 |
| Actuated g/C Ratio | 0.36 |
| v/c Ratio | 0.26 |
| Control Delay | 17.4 |
| Queue Delay | 0.0 |
| Total Delay | 17.4 |
| LOS | B |
| Approach Delay | |
| Approach LOS | |
| Queue Length 50th (m) | 14.2 |
| Queue Length 95th (m) | 22.2 |
| Internal Link Dist (m) | |
| Turn Bay Length (m) | 35.0 |
| Base Capacity (vph) | 672 |
| Starvation Cap Reductn | 0 |
| Spillback Cap Reductn | 0 |
| Storage Cap Reductn | 0 |
| Reduced v/c Ratio | 0.19 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 25 | 15 | 15 | 0 | 15 | 80 | 15 | 340 | 5 | 25 | 120 | 10 |
| Future Volume (Veh/h) | 25 | 15 | 15 | 0 | 15 | 80 | 15 | 340 | 5 | 25 | 120 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.58 | 0.92 | 0.92 | 0.52 | 0.92 | 0.92 | 0.86 | 0.92 | 0.92 | 0.81 | 0.92 |
| Hourly flow rate (vph) | 27 | 26 | 16 | 0 | 29 | 87 | 16 | 395 | 5 | 27 | 148 | 11 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 126 | |
| pX, platoon unblocked | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | | 0.97 | | | | | |
| vC, conflicting volume | 738 | 640 | 154 | 666 | 642 | 398 | 159 | | | 400 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 712 | 609 | 106 | 637 | 612 | 398 | 112 | | | 400 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 90 | 93 | 98 | 100 | 92 | 87 | 99 | | | 98 | | |
| cM capacity (veh/h) | 267 | 382 | 916 | 342 | 381 | 652 | 1428 | | | 1159 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 69 | 116 | 416 | 186 |
| Volume Left | 27 | 0 | 16 | 27 |
| Volume Right | 16 | 87 | 5 | 11 |
| cSH | 370 | 553 | 1428 | 1159 |
| Volume to Capacity | 0.19 | 0.21 | 0.01 | 0.02 |
| Queue Length 95th (m) | 5.4 | 6.3 | 0.3 | 0.6 |
| Control Delay (s) | 17.0 | 13.2 | 0.4 | 1.4 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 17.0 | 13.2 | 0.4 | 1.4 |
| Approach LOS | C | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.0 | | | |
| Intersection Capacity Utilization | 36.8% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 175 | 41 | 60 | 140 | 90 | 44 | 481 | 45 | 185 | 909 | 65 |
| Future Volume (vph) | 45 | 175 | 41 | 60 | 140 | 90 | 44 | 481 | 45 | 185 | 909 | 65 |
| Satd. Flow (prot) | 1770 | 1794 | 0 | 0 | 3271 | 0 | 0 | 3525 | 1583 | 0 | 3511 | 1583 |
| Flt Permitted | 0.438 | | | | 0.629 | | | 0.774 | | | 0.717 | |
| Satd. Flow (perm) | 778 | 1794 | 0 | 0 | 2060 | 0 | 0 | 2736 | 1336 | 0 | 2519 | 1435 |
| Satd. Flow (RTOR) | | 9 | | | 56 | | | | 65 | | | 71 |
| Lane Group Flow (vph) | 49 | 291 | 0 | 0 | 347 | 0 | 0 | 595 | 49 | 0 | 1222 | 71 |
| 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) | 30.8 | 30.8 | | 30.8 | 30.8 | | 57.2 | 57.2 | 57.2 | 12.0 | 69.2 | 69.2 |
| Total Lost Time (s) | 5.0 | 5.0 | | | 5.0 | | | 5.0 | 5.0 | | 5.0 | 5.0 |
| Act Effct Green (s) | 20.5 | 20.5 | | | 20.5 | | | 69.5 | 69.5 | | 69.5 | 69.5 |
| Actuated g/C Ratio | 0.20 | 0.20 | | | 0.20 | | | 0.70 | 0.70 | | 0.70 | 0.70 |
| v/c Ratio | 0.31 | 0.78 | | | 0.74 | | | 0.31 | 0.05 | | 0.70 | 0.07 |
| Control Delay | 37.4 | 50.6 | | | 40.9 | | | 7.0 | 1.2 | | 12.7 | 1.8 |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | 37.4 | 50.6 | | | 40.9 | | | 7.0 | 1.2 | | 12.7 | 1.8 |
| LOS | D | D | | | D | | | A | A | | B | A |
| Approach Delay | | 48.7 | | | 40.9 | | | 6.6 | | | 12.1 | |
| Approach LOS | | D | | | D | | | A | | | B | |
| Queue Length 50th (m) | 8.5 | 54.5 | | | 29.4 | | | 22.3 | 0.0 | | 69.5 | 0.0 |
| Queue Length 95th (m) | 18.6 | 58.6 | | | 34.0 | | | 35.1 | 2.8 | | 109.0 | 4.7 |
| Internal Link Dist (m) | | 93.9 | | | 126.2 | | | 102.6 | | | 128.8 | |
| Turn Bay Length (m) | 25.0 | | | | | | | | 50.0 | | | 50.0 |
| Base Capacity (vph) | 200 | 469 | | | 573 | | | 1901 | 948 | | 1751 | 1019 |
| 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 | 0.24 | 0.62 | | | 0.61 | | | 0.31 | 0.05 | | 0.70 | 0.07 |

Intersection Summary

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: 0.78
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 90.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Robie St & Coburg Rd/Spring Garden Rd

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 12 | 75 | 500 | 36 | 85 | 970 |
| Future Volume (Veh/h) | 12 | 75 | 500 | 36 | 85 | 970 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.81 | 0.81 | 0.86 | 0.92 | 0.92 | 0.82 |
| Hourly flow rate (vph) | 15 | 93 | 581 | 39 | 92 | 1183 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 126 |
| pX, platoon unblocked | 0.85 | | | | | |
| vC, conflicting volume | 1376 | 310 | | | 620 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1091 | 310 | | | 620 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 91 | 86 | | | 90 | |
| cM capacity (veh/h) | 161 | 686 | | | 956 | |

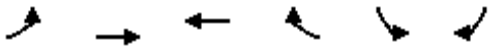
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 108 | 387 | 233 | 486 | 789 |
| Volume Left | 15 | 0 | 0 | 92 | 0 |
| Volume Right | 93 | 0 | 39 | 0 | 0 |
| cSH | 472 | 1700 | 1700 | 956 | 1700 |
| Volume to Capacity | 0.23 | 0.23 | 0.14 | 0.10 | 0.46 |
| Queue Length 95th (m) | 7.0 | 0.0 | 0.0 | 2.5 | 0.0 |
| Control Delay (s) | 14.9 | 0.0 | 0.0 | 2.7 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 14.9 | 0.0 | | 1.0 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 235 | 15 | 20 | 300 | 20 | 15 | 0 | 15 | 20 | 0 | 20 |
| Future Volume (Veh/h) | 15 | 235 | 15 | 20 | 300 | 20 | 15 | 0 | 15 | 20 | 0 | 20 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.87 | 0.92 | 0.92 | 0.84 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 270 | 16 | 22 | 357 | 22 | 16 | 0 | 16 | 22 | 0 | 22 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 150 | | | 147 | | | | | | | |
| pX, platoon unblocked | 0.99 | | | | | | 0.99 | 0.99 | | 0.99 | 0.99 | 0.99 |
| vC, conflicting volume | 379 | | | 286 | | | 744 | 733 | 278 | 738 | 730 | 368 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 371 | | | 286 | | | 738 | 727 | 278 | 732 | 724 | 359 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 95 | 100 | 98 | 93 | 100 | 97 |
| cM capacity (veh/h) | 1179 | | | 1276 | | | 313 | 337 | 761 | 319 | 339 | 680 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 302 | 401 | 32 | 44 |
| Volume Left | 16 | 22 | 16 | 22 |
| Volume Right | 16 | 22 | 16 | 22 |
| cSH | 1179 | 1276 | 443 | 435 |
| Volume to Capacity | 0.01 | 0.02 | 0.07 | 0.10 |
| Queue Length 95th (m) | 0.3 | 0.4 | 1.9 | 2.7 |
| Control Delay (s) | 0.6 | 0.6 | 13.8 | 14.2 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.6 | 0.6 | 13.8 | 14.2 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 33.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 116 | 68 | 15 | 20 | 10 |
| Future Volume (Veh/h) | 20 | 116 | 68 | 15 | 20 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 126 | 74 | 16 | 22 | 11 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 90 | | | | 252 | 82 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 90 | | | | 252 | 82 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 97 | 99 |
| cM capacity (veh/h) | 1505 | | | | 726 | 978 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 148 | 90 | 33 |
| Volume Left | 22 | 0 | 22 |
| Volume Right | 0 | 16 | 11 |
| cSH | 1505 | 1700 | 794 |
| Volume to Capacity | 0.01 | 0.05 | 0.04 |
| Queue Length 95th (m) | 0.4 | 0.0 | 1.0 |
| Control Delay (s) | 1.2 | 0.0 | 9.7 |
| Lane LOS | A | | A |
| Approach Delay (s) | 1.2 | 0.0 | 9.7 |
| Approach LOS | | | A |

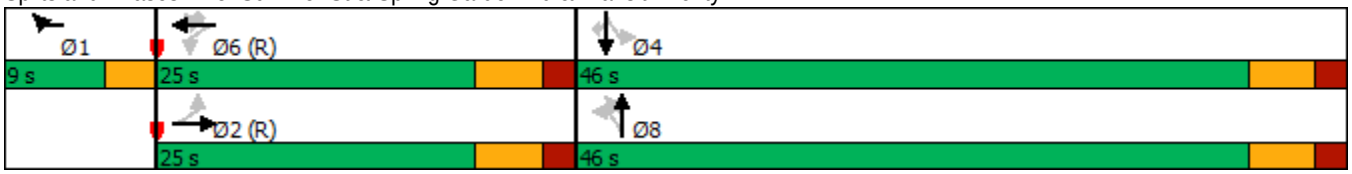
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 23.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | NBL2 | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 50 | 210 | 20 | 13 | 95 | 10 | 50 | 30 | 201 | 30 | 115 | 282 |
| Future Volume (vph) | 50 | 210 | 20 | 13 | 95 | 10 | 50 | 30 | 201 | 30 | 115 | 282 |
| Satd. Flow (prot) | 0 | 3451 | 0 | 0 | 1853 | 808 | 1583 | 0 | 1808 | 0 | 0 | 1839 |
| Flt Permitted | | 0.887 | | | 0.949 | | | | 0.850 | | | 0.792 |
| Satd. Flow (perm) | 0 | 3042 | 0 | 0 | 1755 | 703 | 1583 | 0 | 1538 | 0 | 0 | 1460 |
| Satd. Flow (RTOR) | | 8 | | | | | 82 | | 11 | | | |
| Lane Group Flow (vph) | 0 | 349 | 0 | 0 | 131 | 11 | 54 | 0 | 292 | 0 | 0 | 478 |
| 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) | 25.0 | 25.0 | | 25.0 | 25.0 | 9.0 | 25.0 | 46.0 | 46.0 | | 46.0 | 46.0 |
| Total Lost Time (s) | | 6.0 | | | 6.0 | 3.0 | 6.0 | | 6.0 | | | 6.0 |
| Act Effct Green (s) | | 35.0 | | | 35.0 | 39.2 | 35.0 | | 31.2 | | | 31.2 |
| Actuated g/C Ratio | | 0.44 | | | 0.44 | 0.49 | 0.44 | | 0.39 | | | 0.39 |
| v/c Ratio | | 0.26 | | | 0.17 | 0.03 | 0.07 | | 0.48 | | | 0.84 |
| Control Delay | | 17.4 | | | 18.3 | 14.2 | 3.2 | | 19.2 | | | 35.4 |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | 0.0 |
| Total Delay | | 17.4 | | | 18.3 | 14.2 | 3.2 | | 19.2 | | | 35.4 |
| LOS | | B | | | B | B | A | | B | | | D |
| Approach Delay | | 17.4 | | | 13.9 | | | | 19.2 | | | 31.0 |
| Approach LOS | | B | | | B | | | | B | | | C |
| Queue Length 50th (m) | | 16.8 | | | 11.8 | 0.9 | 0.0 | | 32.5 | | | 67.0 |
| Queue Length 95th (m) | | 31.2 | | | 28.9 | 4.3 | 5.0 | | 43.8 | | | 72.1 |
| Internal Link Dist (m) | | 24.0 | | | 105.6 | | | | 101.9 | | | 97.8 |
| Turn Bay Length (m) | | | | | | 35.0 | 35.0 | | | | | |
| Base Capacity (vph) | | 1335 | | | 767 | 353 | 738 | | 774 | | | 730 |
| 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 | | | 0.17 | 0.03 | 0.07 | | 0.38 | | | 0.65 |

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 6:WBTL and 2:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 23.1
Intersection LOS: C
Intersection Capacity Utilization 74.4%
ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: Summer St & Spring Garden Rd & Transit Priority



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 130 |
| Future Volume (vph) | 130 |
| Satd. Flow (prot) | 1583 |
| Flt Permitted | |
| Satd. Flow (perm) | 1379 |
| Satd. Flow (RTOR) | |
| Lane Group Flow (vph) | 141 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 4 |
| Total Split (s) | 46.0 |
| Total Lost Time (s) | 6.0 |
| Act Effct Green (s) | 31.2 |
| Actuated g/C Ratio | 0.39 |
| v/c Ratio | 0.26 |
| Control Delay | 16.2 |
| Queue Delay | 0.0 |
| Total Delay | 16.2 |
| LOS | B |
| Approach Delay | |
| Approach LOS | |
| Queue Length 50th (m) | 14.8 |
| Queue Length 95th (m) | 22.6 |
| Internal Link Dist (m) | |
| Turn Bay Length (m) | 35.0 |
| Base Capacity (vph) | 689 |
| Starvation Cap Reductn | 0 |
| Spillback Cap Reductn | 0 |
| Storage Cap Reductn | 0 |
| Reduced v/c Ratio | 0.20 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 47 | 19 | 36 | 20 | 23 | 95 | 10 | 125 | 10 | 30 | 225 | 60 |
| Future Volume (Veh/h) | 47 | 19 | 36 | 20 | 23 | 95 | 10 | 125 | 10 | 30 | 225 | 60 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.57 | 0.92 | 0.92 | 0.59 | 0.92 | 0.92 | 0.88 | 0.92 | 0.92 | 0.80 | 0.92 |
| Hourly flow rate (vph) | 51 | 33 | 39 | 22 | 39 | 103 | 11 | 142 | 11 | 33 | 281 | 65 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 126 | |
| pX, platoon unblocked | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | | 0.82 | | | | | |
| vC, conflicting volume | 672 | 554 | 314 | 604 | 582 | 148 | 346 | | | 153 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 495 | 353 | 61 | 414 | 386 | 148 | 100 | | | 153 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 84 | 93 | 95 | 94 | 91 | 89 | 99 | | | 98 | | |
| cM capacity (veh/h) | 322 | 457 | 828 | 398 | 438 | 899 | 1230 | | | 1428 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 123 | 164 | 164 | 379 |
| Volume Left | 51 | 22 | 11 | 33 |
| Volume Right | 39 | 103 | 11 | 65 |
| cSH | 443 | 633 | 1230 | 1428 |
| Volume to Capacity | 0.28 | 0.26 | 0.01 | 0.02 |
| Queue Length 95th (m) | 9.0 | 8.2 | 0.2 | 0.6 |
| Control Delay (s) | 16.2 | 12.7 | 0.6 | 0.9 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 16.2 | 12.7 | 0.6 | 0.9 |
| Approach LOS | C | B | | |

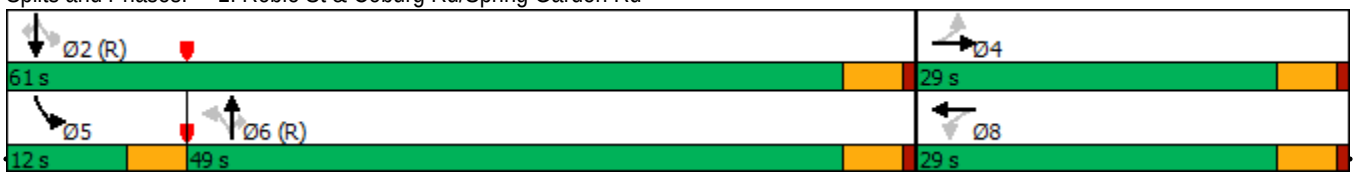
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 5.4 | | | |
| Intersection Capacity Utilization | 43.5% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 95 | 165 | 26 | 30 | 185 | 170 | 98 | 883 | 25 | 105 | 396 | 45 |
| Future Volume (vph) | 95 | 165 | 26 | 30 | 185 | 170 | 98 | 883 | 25 | 105 | 396 | 45 |
| Satd. Flow (prot) | 1770 | 1807 | 0 | 0 | 3194 | 0 | 0 | 3522 | 1583 | 0 | 3507 | 1583 |
| Flt Permitted | 0.326 | | | | 0.873 | | | 0.806 | | | 0.624 | |
| Satd. Flow (perm) | 586 | 1807 | 0 | 0 | 2790 | 0 | 0 | 2843 | 1358 | 0 | 2208 | 1448 |
| Satd. Flow (RTOR) | | 8 | | | 185 | | | | 73 | | | 49 |
| Lane Group Flow (vph) | 103 | 216 | 0 | 0 | 452 | 0 | 0 | 1067 | 27 | 0 | 603 | 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) | 29.0 | 29.0 | | 29.0 | 29.0 | | 49.0 | 49.0 | 49.0 | 12.0 | 61.0 | 61.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | | 5.0 | | | 5.0 | 5.0 | | 5.0 | 5.0 |
| Act Effct Green (s) | 17.8 | 17.8 | | | 17.8 | | | 62.2 | 62.2 | | 62.2 | 62.2 |
| Actuated g/C Ratio | 0.20 | 0.20 | | | 0.20 | | | 0.69 | 0.69 | | 0.69 | 0.69 |
| v/c Ratio | 0.89 | 0.60 | | | 0.65 | | | 0.54 | 0.03 | | 0.40 | 0.05 |
| Control Delay | 93.6 | 37.4 | | | 22.8 | | | 9.1 | 0.0 | | 7.7 | 2.1 |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | 93.6 | 37.4 | | | 22.8 | | | 9.1 | 0.0 | | 7.7 | 2.1 |
| LOS | F | D | | | C | | | A | A | | A | A |
| Approach Delay | | 55.5 | | | 22.8 | | | 8.9 | | | 7.3 | |
| Approach LOS | | E | | | C | | | A | | | A | |
| Queue Length 50th (m) | 18.2 | 34.3 | | | 22.8 | | | 45.1 | 0.0 | | 21.8 | 0.0 |
| Queue Length 95th (m) | #42.0 | 51.5 | | | 28.4 | | | 74.7 | 0.0 | | 33.2 | 4.0 |
| Internal Link Dist (m) | | 93.9 | | | 126.2 | | | 102.6 | | | 128.8 | |
| Turn Bay Length (m) | 25.0 | | | | | | | | 50.0 | | | 50.0 |
| Base Capacity (vph) | 156 | 487 | | | 879 | | | 1964 | 960 | | 1525 | 1015 |
| 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 | 0.66 | 0.44 | | | 0.51 | | | 0.54 | 0.03 | | 0.40 | 0.05 |

Intersection Summary

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: 16.9 Intersection LOS: B
Intersection Capacity Utilization 87.8% 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 St & Coburg Rd/Spring Garden Rd



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 7 | 86 | 870 | 33 | 52 | 410 |
| Future Volume (Veh/h) | 7 | 86 | 870 | 33 | 52 | 410 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.78 | 0.78 | 0.91 | 0.92 | 0.92 | 0.87 |
| Hourly flow rate (vph) | 9 | 110 | 956 | 36 | 57 | 471 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 126 |
| pX, platoon unblocked | 0.97 | | | | | |
| vC, conflicting volume | 1324 | 496 | | | 992 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1272 | 496 | | | 992 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 94 | 79 | | | 92 | |
| cM capacity (veh/h) | 142 | 519 | | | 693 | |

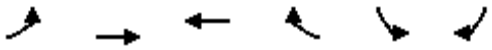
| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 119 | 637 | 355 | 214 | 314 |
| Volume Left | 9 | 0 | 0 | 57 | 0 |
| Volume Right | 110 | 0 | 36 | 0 | 0 |
| cSH | 432 | 1700 | 1700 | 693 | 1700 |
| Volume to Capacity | 0.28 | 0.37 | 0.21 | 0.08 | 0.18 |
| Queue Length 95th (m) | 8.9 | 0.0 | 0.0 | 2.1 | 0.0 |
| Control Delay (s) | 16.5 | 0.0 | 0.0 | 3.5 | 0.0 |
| Lane LOS | C | | | A | |
| Approach Delay (s) | 16.5 | 0.0 | | 1.4 | |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 53.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 365 | 20 | 15 | 230 | 30 | 15 | 0 | 35 | 35 | 0 | 15 |
| Future Volume (Veh/h) | 20 | 365 | 20 | 15 | 230 | 30 | 15 | 0 | 35 | 35 | 0 | 15 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.84 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 397 | 22 | 16 | 274 | 33 | 16 | 0 | 38 | 38 | 0 | 16 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 150 | | | 147 | | | | | | | |
| pX, platoon unblocked | 0.97 | | | 0.91 | | | 0.93 | 0.93 | 0.91 | 0.93 | 0.93 | 0.97 |
| vC, conflicting volume | 307 | | | 419 | | | 790 | 791 | 408 | 812 | 786 | 290 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 269 | | | 316 | | | 660 | 661 | 304 | 684 | 655 | 252 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 99 | | | 95 | 100 | 94 | 88 | 100 | 98 |
| cM capacity (veh/h) | 1255 | | | 1136 | | | 334 | 344 | 672 | 310 | 347 | 763 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 441 | 323 | 54 | 54 |
| Volume Left | 22 | 16 | 16 | 38 |
| Volume Right | 22 | 33 | 38 | 16 |
| cSH | 1255 | 1136 | 517 | 376 |
| Volume to Capacity | 0.02 | 0.01 | 0.10 | 0.14 |
| Queue Length 95th (m) | 0.4 | 0.3 | 2.8 | 4.0 |
| Control Delay (s) | 0.6 | 0.5 | 12.8 | 16.2 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 0.6 | 0.5 | 12.8 | 16.2 |
| Approach LOS | | | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 39.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 74 | 101 | 30 | 20 | 15 |
| Future Volume (Veh/h) | 15 | 74 | 101 | 30 | 20 | 15 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.81 | 0.79 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 91 | 128 | 33 | 22 | 16 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 161 | | | | 268 | 144 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 161 | | | | 268 | 144 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 97 | 98 |
| cM capacity (veh/h) | 1418 | | | | 714 | 903 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 107 | 161 | 38 |
| Volume Left | 16 | 0 | 22 |
| Volume Right | 0 | 33 | 16 |
| cSH | 1418 | 1700 | 783 |
| Volume to Capacity | 0.01 | 0.09 | 0.05 |
| Queue Length 95th (m) | 0.3 | 0.0 | 1.2 |
| Control Delay (s) | 1.2 | 0.0 | 9.8 |
| Lane LOS | A | | A |
| Approach Delay (s) | 1.2 | 0.0 | 9.8 |
| Approach LOS | | | A |

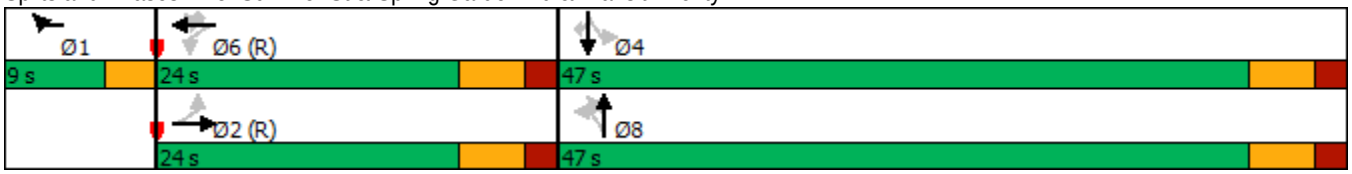
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 25.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | NBL2 | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 55 | 195 | 20 | 16 | 175 | 15 | 50 | 65 | 383 | 14 | 60 | 174 |
| Future Volume (vph) | 55 | 195 | 20 | 16 | 175 | 15 | 50 | 65 | 383 | 14 | 60 | 174 |
| Satd. Flow (prot) | 0 | 3443 | 0 | 0 | 1855 | 808 | 1583 | 0 | 1838 | 0 | 0 | 1842 |
| Flt Permitted | | 0.854 | | | 0.963 | | | | 0.908 | | | 0.768 |
| Satd. Flow (perm) | 0 | 2928 | 0 | 0 | 1785 | 703 | 1583 | 0 | 1664 | 0 | 0 | 1423 |
| Satd. Flow (RTOR) | | 8 | | | | | 82 | | 3 | | | |
| Lane Group Flow (vph) | 0 | 335 | 0 | 0 | 233 | 16 | 54 | 0 | 516 | 0 | 0 | 283 |
| 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) | 24.0 | 24.0 | | 24.0 | 24.0 | 9.0 | 24.0 | 47.0 | 47.0 | | 47.0 | 47.0 |
| Total Lost Time (s) | | 6.0 | | | 6.0 | 3.0 | 6.0 | | 6.0 | | | 6.0 |
| Act Effct Green (s) | | 34.9 | | | 34.9 | 39.4 | 34.9 | | 31.0 | | | 31.0 |
| Actuated g/C Ratio | | 0.44 | | | 0.44 | 0.49 | 0.44 | | 0.39 | | | 0.39 |
| v/c Ratio | | 0.26 | | | 0.30 | 0.05 | 0.07 | | 0.80 | | | 0.51 |
| Control Delay | | 17.6 | | | 19.5 | 14.1 | 3.3 | | 30.6 | | | 21.0 |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | 0.0 | | 0.0 | | | 0.0 |
| Total Delay | | 17.6 | | | 19.5 | 14.1 | 3.3 | | 30.6 | | | 21.0 |
| LOS | | B | | | B | B | A | | C | | | C |
| Approach Delay | | 17.6 | | | 16.3 | | | | 30.6 | | | 19.4 |
| Approach LOS | | B | | | B | | | | C | | | B |
| Queue Length 50th (m) | | 16.1 | | | 22.3 | 1.3 | 0.0 | | 70.4 | | | 33.4 |
| Queue Length 95th (m) | | 30.7 | | | 49.5 | 5.5 | 5.1 | | 87.4 | | | 38.6 |
| Internal Link Dist (m) | | 24.0 | | | 105.6 | | | | 101.9 | | | 97.8 |
| Turn Bay Length (m) | | | | | | 35.0 | 35.0 | | | | | |
| Base Capacity (vph) | | 1283 | | | 779 | 354 | 737 | | 854 | | | 729 |
| 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 | | | 0.30 | 0.05 | 0.07 | | 0.60 | | | 0.39 |

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 6:WBTL and 2:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 89.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: Summer St & Spring Garden Rd & Transit Priority



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 120 |
| Future Volume (vph) | 120 |
| Satd. Flow (prot) | 1583 |
| Flt Permitted | |
| Satd. Flow (perm) | 1379 |
| Satd. Flow (RTOR) | |
| Lane Group Flow (vph) | 130 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 4 |
| Total Split (s) | 47.0 |
| Total Lost Time (s) | 6.0 |
| Act Effct Green (s) | 31.0 |
| Actuated g/C Ratio | 0.39 |
| v/c Ratio | 0.24 |
| Control Delay | 15.9 |
| Queue Delay | 0.0 |
| Total Delay | 15.9 |
| LOS | B |
| Approach Delay | |
| Approach LOS | |
| Queue Length 50th (m) | 13.6 |
| Queue Length 95th (m) | 20.9 |
| Internal Link Dist (m) | |
| Turn Bay Length (m) | 35.0 |
| Base Capacity (vph) | 706 |
| Starvation Cap Reductn | 0 |
| Spillback Cap Reductn | 0 |
| Storage Cap Reductn | 0 |
| Reduced v/c Ratio | 0.18 |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 52 | 19 | 28 | 0 | 20 | 80 | 15 | 340 | 5 | 25 | 120 | 66 |
| Future Volume (Veh/h) | 52 | 19 | 28 | 0 | 20 | 80 | 15 | 340 | 5 | 25 | 120 | 66 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.58 | 0.92 | 0.92 | 0.52 | 0.92 | 0.92 | 0.86 | 0.92 | 0.92 | 0.81 | 0.92 |
| Hourly flow rate (vph) | 57 | 33 | 30 | 0 | 38 | 87 | 16 | 395 | 5 | 27 | 148 | 72 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | 126 | |
| pX, platoon unblocked | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | | 0.93 | | | | | |
| vC, conflicting volume | 774 | 670 | 184 | 714 | 704 | 398 | 220 | | | 400 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 717 | 605 | 81 | 653 | 641 | 398 | 120 | | | 400 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 77 | 91 | 97 | 100 | 89 | 87 | 99 | | | 98 | | |
| cM capacity (veh/h) | 248 | 369 | 908 | 310 | 352 | 652 | 1361 | | | 1159 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 120 | 125 | 416 | 247 |
| Volume Left | 57 | 0 | 16 | 27 |
| Volume Right | 30 | 87 | 5 | 72 |
| cSH | 340 | 518 | 1361 | 1159 |
| Volume to Capacity | 0.35 | 0.24 | 0.01 | 0.02 |
| Queue Length 95th (m) | 12.4 | 7.5 | 0.3 | 0.6 |
| Control Delay (s) | 21.2 | 14.2 | 0.4 | 1.1 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 21.2 | 14.2 | 0.4 | 1.1 |
| Approach LOS | C | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 5.2 | | | |
| Intersection Capacity Utilization | 39.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |