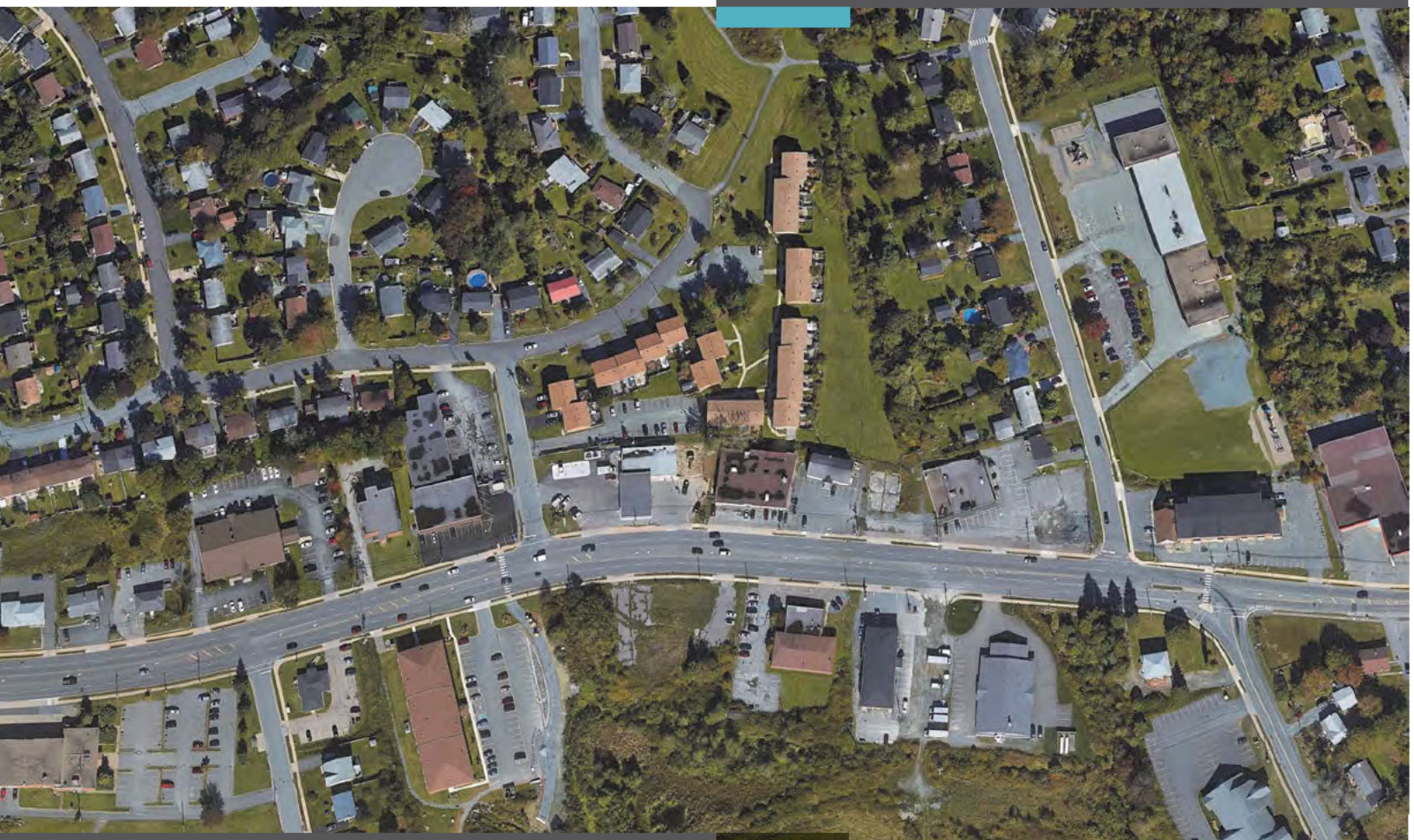
Trans4m Group



TRANSPORTATION IMPACT STUDY

Revision 1

JANUARY 22, 2024

59 Craigburn Drive
Dartmouth, Nova Scotia
Canada, B2X 3E6,
Phone: (902) 233-1152
E-mail: Roger@Trans4m.ca

GEM Health Care Group

Cole Harbour Road - Seniors Residential Development

TRANS4M
SENIORS RESIDENTIAL DEVELOPMENT

This Transportation Impact Assessment was prepared to evaluate the potential impacts of new or changing development on the existing transportation network. The "Transportation Network" includes roadways, driveways, trails, sidewalks, parking facilities, transit infrastructure, trucks, and other infrastructure associated with moving people and goods from one place to another. This infrastructure connects an unlimited number of origins and destinations including residential, commercial, industrial, institutional and public land uses.

The users of these networks are many and can include a wide range of private and commercial vehicles, trucks, buses, pedestrians, cyclists and other vulnerable road users.

This report was prepared using industry standard guidelines for such studies and utilizes the most recent information that is considered reasonable and practical for the study, at the time the study was prepared. Things change with time, therefore any recommendations, conclusions or findings contained in this report should be reevaluated as elements of the surrounding environment change.

TABLE OF

CONTENT

1. INTRODUCTION 1

1.1 EXISTING ROADWAYS 2
1.2 ANALYSIS TIME HORIZON 3
1.3 PEAK HOURS 3
1.4 OTHER STUDIES 3

2. EXISTING CONDITIONS 4

2.1 ACTIVE TRANSPORTATION 5
2.2 TRANSIT 5
2.3 COLLISION REVIEW 6
3.1 THE PROPOSED DEVELOPMENT 7

3. FUTURE CONDITIONS 7

3.2 TRIP GENERATION 8
3.3 TRIP DISTRIBUTION 8
3.4 TRIP ASSIGNMENT 8
4.1 TRANSPORTATION MODELLING 9

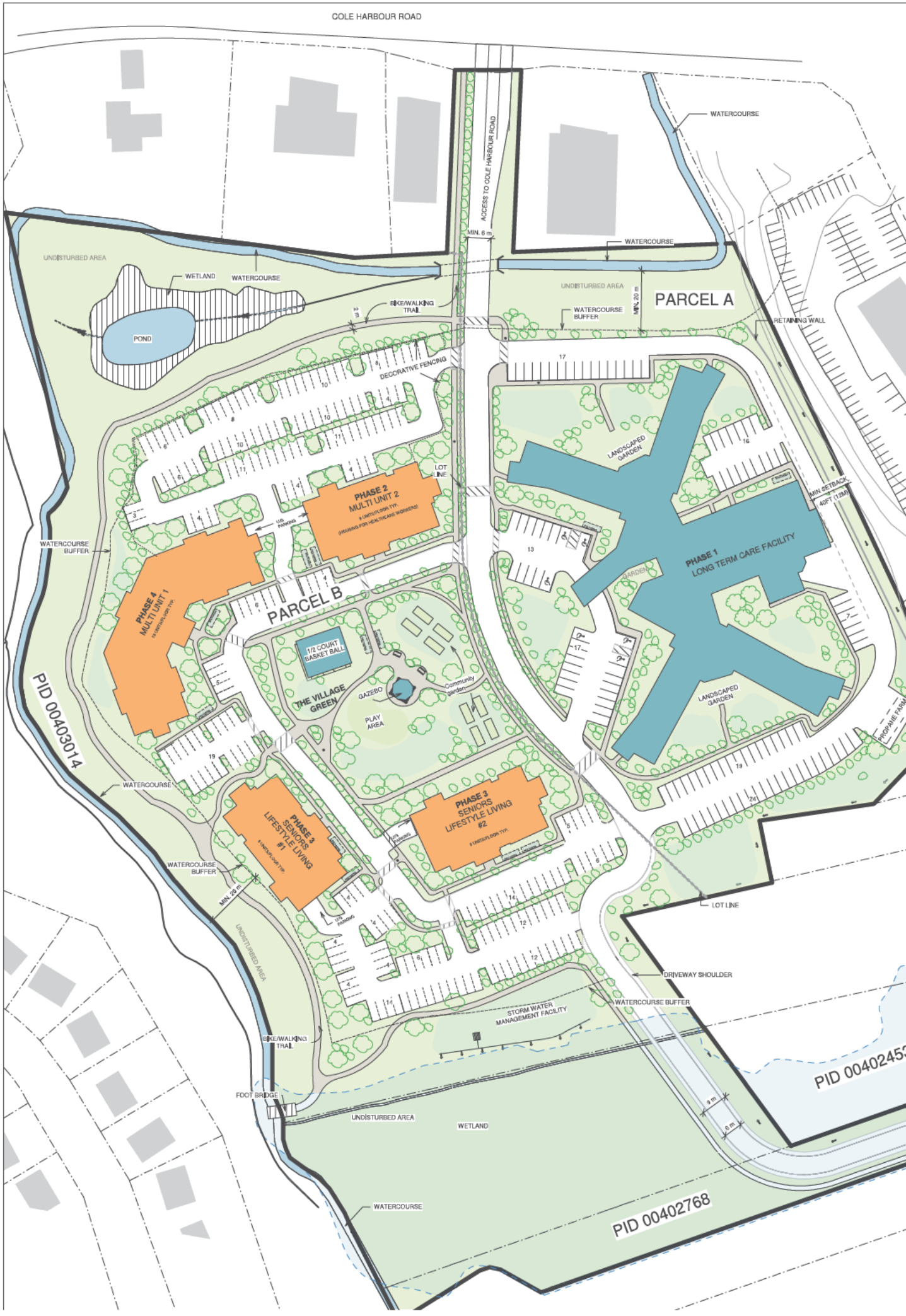
4. ANALYSIS 9

4.2 COLE HARBOUR ROAD / NEW DRIVEWAY 10
4.3 COLE HARBOUR ROAD / JOHN STEWART DRIVE 11
4.4 COLE HARBOUR ROAD / BISSETT ROAD 12
4.5 NEW DRIVEWAY 2 / BISSETT ROAD 13

5. CONCLUSIONS 14

APPENDIX A: SITE PLAN
APPENDIX B: TRAFFIC COUNTS
APPENDIX C: TRIP GENERATION
APPENDIX D: TRIP DISTRIBUTION AND ASSIGNMENT
APPENDIX E: SYNCHRO REPORTS

EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

The proposed seniors residential development has minimal impact on the adjacent road network and has direct access to active transportation and transit infrastructure.

The Trans4m Development Group is pleased to submit this Transportation Impact Study for the construction of a seniors residential development, complete with Long Term Care facility located on the south side of Cole Harbour Road and just west of Bissett Road in Cole Harbour, Nova Scotia. This study addresses the current conditions on the road network, as well as future conditions with background traffic growth and new development traffic added to the network.

The proposed development includes a Long Term Care Facility accommodating about 144 beds, 2 multi-unit seniors oriented buildings accommodating about 190 units, and 2 general multi-unit buildings containing about 321 units. The site is accessed through a primary driveway to Cole Harbour Road, located about 135 meters west of Bissett Road and is expected to include a single entrance lane and two exit lanes (right and left turns). A secondary southern access point has also been provided to Bissett Road that is intended to serve primarily as a secondary emergency access route, but also provides a convenient connection between the development and people destined to and from south Bissett Road where residents have access to extensive trail networks, recreational facilities and Rainbow Haven Beach.

The report shows that the driveway to Cole Harbour Road operates at good levels of services throughout all current and future time horizons. The main access is expected to be configured as a three-way driveway intersection that is stop controlled approaching Cole Harbour Road. Similarly, the adjacent and opposite intersection at John Stewart Drive can operate at very good levels of service now and in the future. The Bissett Road intersection operates with higher capacity utilization than the other intersections, primarily due to the narrower cross section on Cole Harbour Road at that location. As most traffic is destined to and from the west on Cole Harbour Road and towards Bissett Road south, the development has very little impact on operations at the Bissett Road intersection, with development traffic composing less than 1.5% of total traffic at that intersection. Overall, this development can be accommodated within the existing road network with minimal impact to existing operations.

Best regards,

Roger N. Boychuk, P. Eng.

SENIOR TRANSPORTATION ENGINEER
TRANS4M DEVELOPMENT GROUP

1. INTRODUCTION

GEM is pursuing the development of a multi-unit seniors residential development complex complete with a long-term care component in the eastern area of Cole Harbour, Nova Scotia.

The Trans4m Development Group was retained by GEM Health Care Group Ltd. to prepare a Transportation Impact Study (TIS) for a proposed development located immediately south of Cole Harbour Road and west of Bissett Road in Cole Harbour, Nova Scotia. The proposed development is expected to include a Long Term Care facility with about 144 beds, 190 units within 2 multi-storey seniors residential buildings, and 2 general multi-unit buildings containing about 321 units. The general nature of the residential component of this development area is intended to focus on adult and senior living arrangements.

The areas surrounding the development are primarily residential in nature, composed mostly of single family dwelling units with some multi-unit buildings in select areas. A number of schools and churches are located nearby and there is significant commercial development along Cole Harbour Road extending east and west of the site.

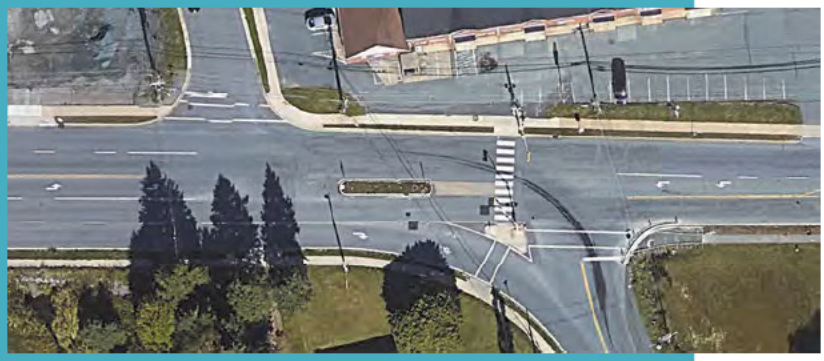
Cole Harbour Road transitions to Portland Street west of the development and continues as a primary connector to Downtown Dartmouth, intersecting with a number of major roadways including the Forest Hills Parkway, Caldwell Road and the Circumferential Highway. East of the site, Cole Harbour Road continues as Route 207 / Marine Drive along the eastern shore connecting to Route 7 about 30 kilometres northeast of the site.

Bissett Road is lined with individual residences and continues south connecting to Cow Bay Road, providing access to the Salt Marsh Trail and Rainbow Haven Beach Provincial Park.

1.1 EXISTING ROADWAYS

Cole Harbour Road (West of Bissett Road) has a 5-lane cross section, including 2-lanes in each direction and a centre left turn lane. Nearest the Bissett Road intersection the eastbound left turn lane serves as a dedicated turn lane to John Stewart Drive, while further to the west the left turns are configured as a centre two-way left turn lane. The eastbound curb lane which ultimately extends past the Circumferential Highway terminates at Bissett Road as a dedicated right turn lane, resulting in a single through lane continuing east of the Bissett Road intersection.

This configuration is shown at the **Cole Harbour Road and Bissett Road Intersection** in the figure to the right. The figure also shows that the cross section through the intersection and west of the intersection includes concrete curb and gutter and sidewalks on both sides of the street.

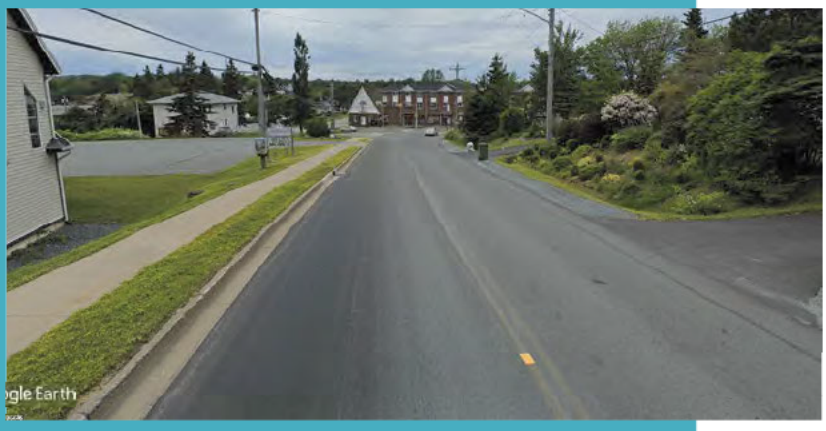


In the opposite direction, the single through lane in the westbound direction expands to two through lanes west of Bissett Road. This westbound approach includes the addition of a short dedicated left turn lane from Cole Harbour Road to Bissett Road and features a grassed median immediately west of the intersection that further highlights the termination of the westbound left turn lane.

Cole Harbour Road (East of Bissett Road) has a two-lane undivided cross section with concrete curb and gutter on the north side of the street and a variation of asphalt and concrete sidewalks and gravel shoulders on the south side.

Throughout both sections of roadway in the vicinity of Bissett Road, Cole Harbour Road has a posted speed limit of 50 km/hr.

Bissett Road is a two-lane undivided roadway with a rural cross section (gravel shoulders and ditches) on the east side of the road and an urban concrete curb/gutter and sidewalk on the west side of the roadway. This urban cross section extends about 600 meters to the south to Patrick Lane where it transitions to a rural cross section on both sides of the road.



The posted speed on Bissett Road in the vicinity of the development is 50 km/hr as the roadway provides access to numerous residential driveways and roadways. Further south, the east side of the roadway transitions to a heavily vegetated roadside environment which supports a variety of trail networks.

1.2 ANALYSIS TIME HORIZON

This study addresses a 10-year time horizon for the full build-out of the development (build-out plus 5 years). Time horizons established for the analysis include:

- 2023 baseline which includes existing traffic on the road network;
- 2033 future conditions with background traffic only added to the network (no new traffic related to the development); and,
- 2033 future conditions with background traffic and full development of the proposed seniors residential development.

1.3 PEAK HOURS

Cole Harbour Road is a major commuter route during the week and therefore represents the peak periods for analysis in this study. It is recognized that there are some additional isolated peak periods, particularly on Bissett Road that may be related to activities at Rainbow Haven Beach and local trail networks. These peaks can result in higher levels of delay and queuing on Bissett Road, but are infrequent and do not represent a reasonable peak condition to accommodate daily traffic on the road network. For these reasons, the peak hours for analysis were established as the AM and PM weekday peak hours.

1.4 OTHER STUDIES

Two other recently completed transportation impact studies have been prepared in this area for residential developments:

1. Transportation Impact Study prepare by Griffin Transportation Group Inc. (2021) for 1268 Cole Harbour Road, located just to the west of this proposed development and includes a 30-unit apartment building and 16 townhouse units. This study states that:

   "...the proposed 46 unit residential development [is] expected to have a negligible impact on the existing traffic operations in the Cole Harbour Road corridor."

   The conclusions also state that no additional modifications are required to the surrounding transportation infrastructure to accommodate the development.

2. Transportation Impact Study prepared by WSP (2022) for 1200-1216 Cole Harbour Road located just east of Bissett Road and allowing for up to 104 residential dwelling units and one access point to Cole Harbour Road. HRM documentation shows that the *"TIS Addendum dated March 10, 2022 as been reviewed and accepted by Development Engineering and Traffic Management."*

In the context of this study, both developments produce a relatively low number of new trips to the road network, therefore it is assumed that these new volumes are accounted for with the background traffic growth rates used to estimate traffic at the 10-year horizon in this study.

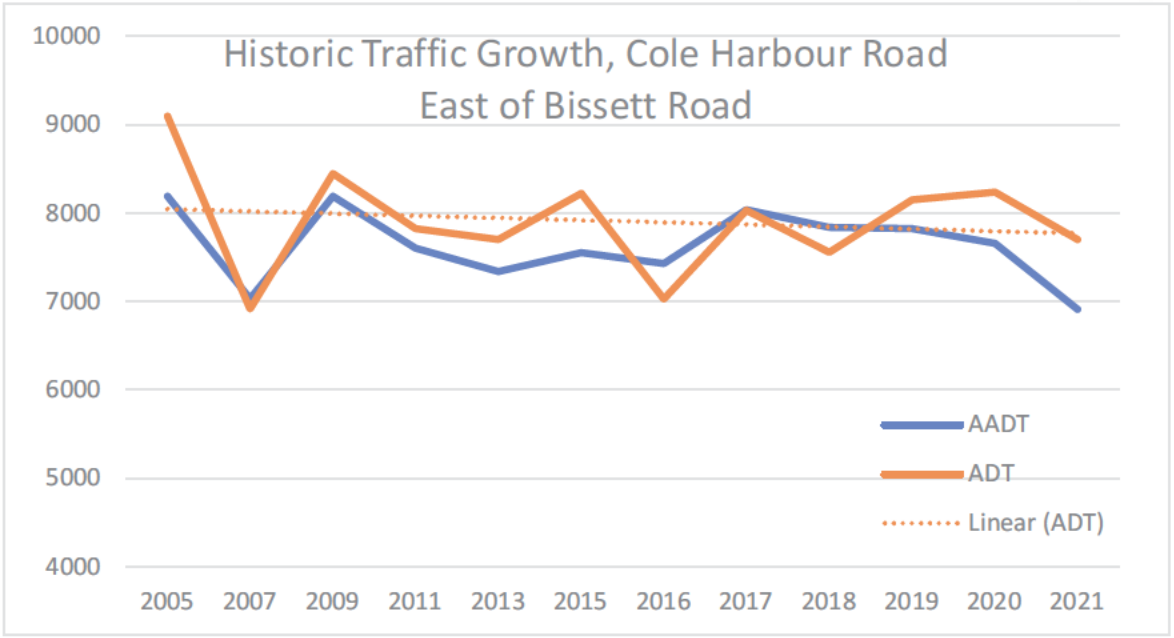
2. EXISTING CONDITIONS

Existing Traffic Volumes

Recent and historical traffic counts were obtained from HRM for the study area and the available data was supplemented by a September 2022 intersection turning movement count at Cole Harbour Road and Bissett Road. The counts were performed using the Miovision automated traffic count technologies and manual counts. All Miovision and manual counts included volumes of trucks, cyclists and pedestrians and are included in Appendix A of this report.

Background Traffic Growth

Background traffic growth rates were developed considering historic NSPW traffic counts for Cole Harbour Road east of Bissett Road and should provide a reasonable estimation of rates given past experience in the area of the study. The figure below shows that there has generally been a decline in traffic between 2005 and 2021 at the NSPW count location, though it is expected that counts west of Bissett Road would at least be similar or slightly higher. Given the current level of development in the HRM area, this study assumed a background traffic growth rate of 1.5% per year.



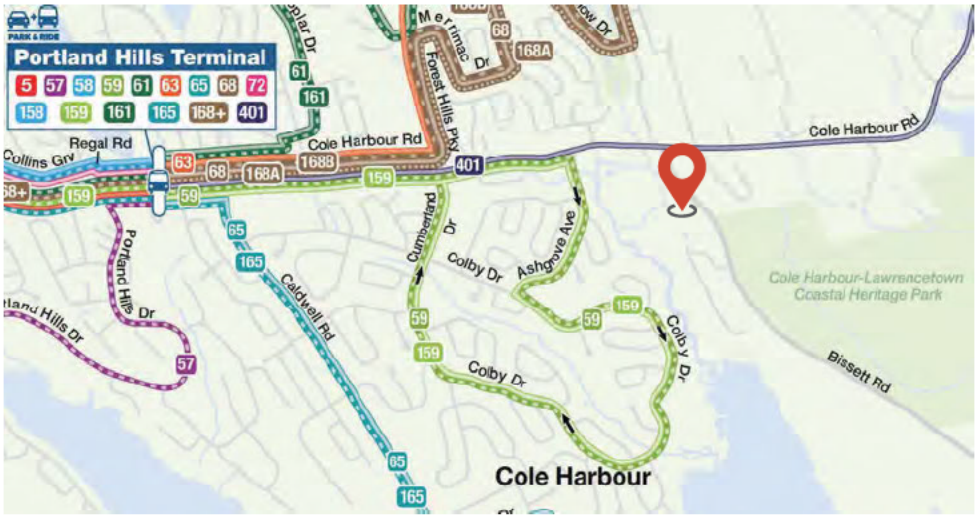
2.1 ACTIVE TRANSPORTATION

The proposed development ( ) is located in close proximity to the Cole Harbour-Lawrencetown Costal Heritage Park and the Heritage Park trail system. This in turn has direct access to the Salt Marsh Trail that is part of the Trans Canada Trail network. The connection to this extensive network is located directly off the end of the secondary driveway to the proposed development, which affords residents convenient access to these recreational areas.

As show in the figure below, taken from the HRM active transportation website, there are significant other active transportation opportunities in the area for residents of this development including linkages to the to the Trans-Canada Trail immediately west of the development and south to local street bikeways (cyan lines).

2.2 TRANSIT

The proposed development is located just east of a robust transit network concentrated around the Portland Hills Transit Terminal located about 2 kilometres west of the development. The development itself has direct access to Route 401 that travels along Cole Harbour Road east of the development and connects to the Portland Hills Transit Terminal providing connections to up 15 different routes. Existing bus stops are located about 200 meters in both directions on Cole Harbour Road east and west of the site. Residents can also access routes 59 and 159 travelling on Cole Harbour Road (about 320 meters west of the development) and looping around Ashgrove Avenue, Colby Drive, and Cumberland Drive back to the Portland Hills Terminal.



2.3 COLLISION REVIEW

Available collision records in the vicinity of the proposed development were reviewed (as provided on the HRM Open Data Portal). The figure below shows collisions recorded from 2018 to 2023 between Bissett Road to the right and just past Hugh Allen Drive and the left side of the figure. The red text shows a description of the recorded collision including the date and type of collision.

The collision records show 17 collisions occurring in this area (16 on Cole Harbour Road and 1 on Bissett Road). The following points are relevant:

- 5 collisions in 2018, 5 in 2019, 1 in 2020, 4 in 2021, 1 in 2022, and 1 in 2023 (partial year)
- 6 collisions were related to left turns, 4 were rear-end collisions, 1 was related to right turns, 3 were single vehicle collisions, 2 were sideswipe collisions and there was 1 animal related collision.
- Collisions are relatively evenly distributed throughout the area with no concentrated collision locations.
- The relative density of collisions in this area appears lower than many other areas of HRM and specifically, have a lower density than other areas of Cole Harbour Road to the west.

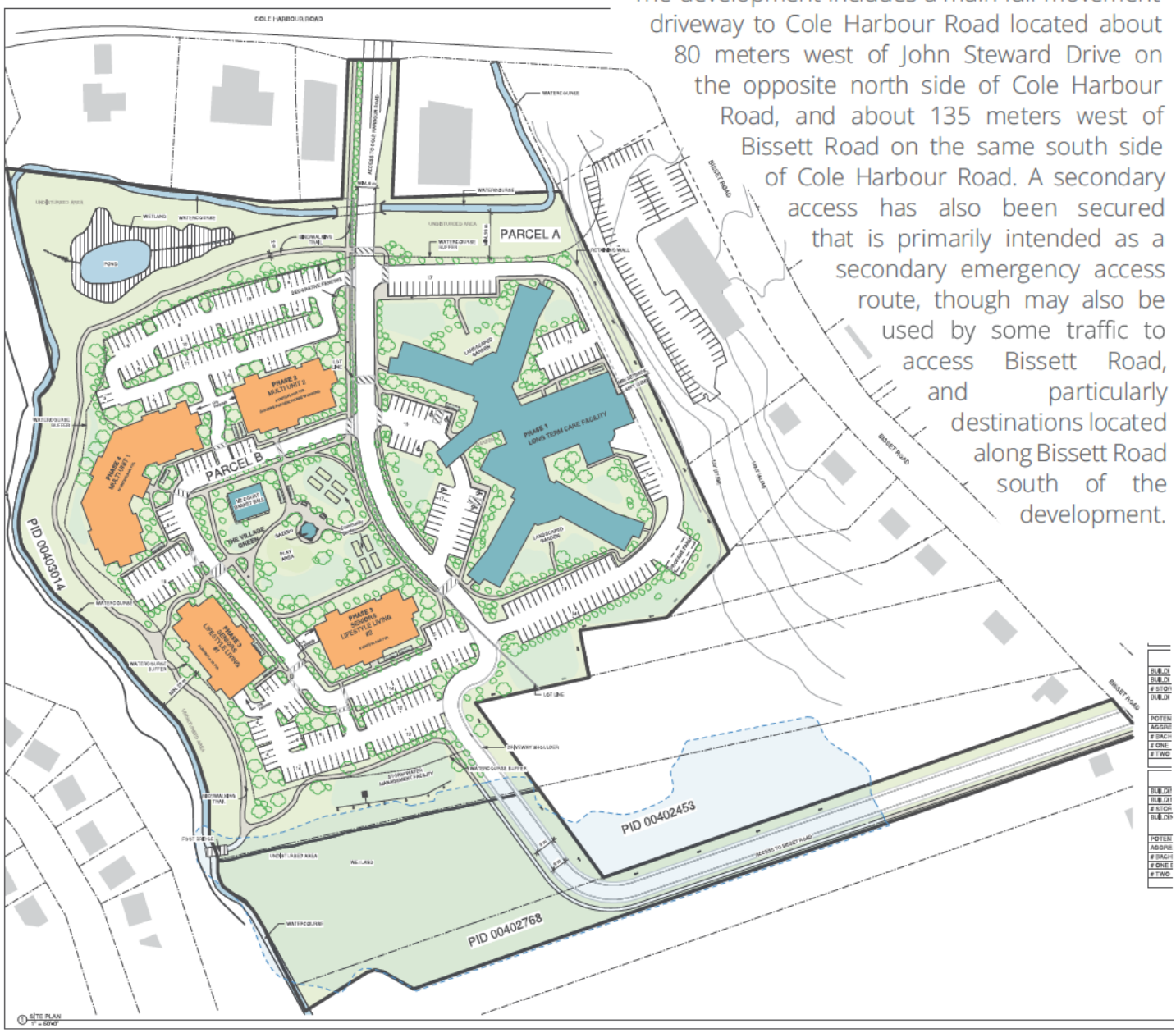
The analysis suggests that collision rates in this area are quite typical of many areas of HRM and there are no specific transportation factors that would suggest the addition of a new driveway to Cole Harbour Road would create additional safety concerns or risks above what is already present on the roadway.

There are very few collisions recorded on Bissett Road, therefore the lower volumes of traffic on Bissett Road and from the new driveway are not expected to create any safety concerns.

3. FUTURE CONDITIONS

3.1 THE PROPOSED DEVELOPMENT

The proposed development consists of a Long Term Care facility located in the eastern part of the site and backing on to the Cole Harbour Woodside United Church. This building is expected to include about 144 beds and provide for an ongoing level of permanent care for its residents resulting in regular staff change overs during the day. There are two multi-unit seniors residential buildings (about 11 storeys in height) located along the south side of the development, including a total of about 190 units over the two similarly sized buildings. Two additional multi-unit buildings generally targeting a more mobile adult or seniors population are located along the northwestern part of the development and include about 321 residential units. A variety of above ground and underground parking spaces are provided to accommodate residents in each building.



The development includes a main full-movement driveway to Cole Harbour Road located about 80 meters west of John Steward Drive on the opposite north side of Cole Harbour Road, and about 135 meters west of Bissett Road on the same south side of Cole Harbour Road. A secondary access has also been secured that is primarily intended as a secondary emergency access route, though may also be used by some traffic to access Bissett Road, and particularly destinations located along Bissett Road south of the development.

3.2 TRIP GENERATION

New trips generated by the development were based on guidance provided from the Institute of Transportation Engineers (ITE) Trip Generation Guide (11th Edition). The table below summarizes the trip generation estimates for the new site once full buildout has been completed.

Land Use	Trip Code	# Units	Variable	AM Peak			PM Peak		
				Enter	Exit	TOTAL	Enter	Exit	TOTAL
Long Term Care Facility	620	144	Beds	14	6	20	7	13	20
Senior Multi-Family Housing	252	190	Units	13	24	37	27	21	48
Multi-Family House (High Rise)	222	321	Units	23	64	87	64	39	103
Total New Trips to Network		**655**		**50**	**94**	**144**	**98**	**73**	**171**

Transit, Active Transportation and Transportation Demand Management

As this is a seniors oriented development, it is anticipated that there will be some reliance on transit services and that the use of local active transportation facilities will be relatively high. Further, developments such as this often draw family and friends to the facilities to provide transportation and visitation to residents of the development. Many of these types of trips are accounted for in the trip generation assumptions made within the ITE Trip Generation Guide, or many frequently occur during off peak hours. While there could be an increased level of AT and transit uptake at this development given the proximity to supporting infrastructure, for the purposes of this study, no reductions in generated trips have been applied in order to keep the analysis conservative.

3.3 TRIP DISTRIBUTION

It is assumed that traffic will distribute itself through the network in a manner similar to the existing traffic patterns, though given the seniors nature of the development and the availability of recreational trails and the Rainbow Haven Beach areas to the south, the percentage of traffic attributed to Bissett Road is slightly higher. The figure to the right shows the trip distribution estimate assumptions used in this report.

3.4 TRIP ASSIGNMENT

The majority of traffic is expected to enter and exit the site from the primary driveway to Cole Harbour Road as the southern route is relatively inconvenient for most movements to and from the development. That said, a small percentage of traffic was assigned to the secondary access travelling between the development and the southern portions of Bissett Road.

4. ANALYSIS

4.1 TRANSPORTATION MODELLING

A traffic model was prepared using the Synchro/SimTraffic (v.11) platform for the weekday AM and PM peak hours of analysis. The model was used to gain insight into traffic operations and capacity utilization at the main intersections potentially impacted by the proposed development under each traffic loading scenario. Results are provided for the following scenarios:

- 2023 baseline conditions (existing traffic),
- 2033 conditions with background traffic only added to the road network,
- 2033 conditions with background traffic and development traffic added.

Detailed output reports for each of the scenarios is provided in Appendix E of this report and are summarized in the figures and tables within this section of the report. The analysis results and discussion address the 4 primary intersections impacted by the development:

- Cole Harbour Road at the new development driveway,
- Cole Harbour Road at John Stewart Drive,
- Cole Harbour Road at Bissett Road, and
- Bissett Road at the secondary driveway.

The primary information and measures of performance that are summarized in tabular form on the following pages at each intersection include:

- Volume (actual or expected turning movement volumes at the intersection for each time horizon and each peak period);
- Vehicle Control Delay (average seconds per vehicle);
- Volume to Capacity (V/C) ratio (1.0 = full capacity); and,
- Queueing (95% queue lengths in vehicles).

For each intersection, AM and PM peak summary tables are presented and include the volumes at that horizon followed by the estimated delay, volume to capacity ratios and queues at each time horizon. The tables are grouped by directional approach and results for shared lanes are grouped together. The tables are accompanied by a discussion of key finding for each horizon during each peak time period.

4.2 COLE HARBOUR ROAD / NEW DRIVEWAY

The tables below show the modelling results at the intersection of the new development driveway with Cole Harbour Road for each of the three time horizons, and for both the AM and PM peak hours of traffic. Delay and queue results for the first two scenarios are blank as no driveway is present under the existing baseline conditions, and for the background traffic only growth scenario.

Volumes on Cole Harbour Road show directional peaking characteristics with the westbound volumes being significantly higher than the eastbound volumes during the AM peak and opposite during the PM peak.

With development and background traffic added in the third 2033 scenarios (shown in blue), the intersection operates at very good levels of service during the AM and PM peak hours with limited delays and queues on the driveway exit. All Volume to Capacity ratios (V/C) remain at or under 0.50 (50% capacity utilization) for Cole Harbour Road movements with the driveway operating at 0.23 and 0.25 during the AM and PM peaks respectively (PM modelled with two dedicated lanes exit though 2 lanes are not required for adequate operations).

As noted in the figure above, a westbound left turn into the development has been suggested by extending the two-way left turn lane further to the east. This relocation serves two main purposes:

1. Allows for about 20 meters of left turn storage for left turn vehicles entering the development. This is adequate for the relatively low volume of traffic entering the site from this direction and results in 95% queue lengths (in meters) of well less than 1 vehicle during the peak periods.
2. Allows for left turn movements to be maintained to the properties on the north side of Cole Harbour Road.

As shown on the following page, left turn movements at the John Stewart intersection result in limited queue lengths, therefore the minor reduction in eastbound storage from 45 to 33 meters is not considered to be an issue.

AM PEAK		Cole Harbour EB		Cole Harbour WB		Driveway 1 NB	
		Thru	Right	Left	Thru	Left	Right
2023 Baseline Volumes	Vol *veh/hr*	330	0	0	1025	0	0
	V/C Ratio	0.14	0.07	0.00	0.33	0.00	
	Delay *sec/veh*	-	-	-	-	-	
	95% Q *m*	-	-	-	-	-	
2033 Background Traffic Only	Vol *veh/hr*	383	0	0	1190	0	0
	V/C Ratio	0.16	0.08	0.00	0.38	0.00	
	Delay *sec/veh*	-	-	-	-	-	
	95% Q *m*	-	-	-	-	-	
2033 Bakground + Development	Vol *veh/hr*	383	35	12	1190	65	22
	V/C Ratio	0.16	0.10	0.01	0.38	0.23	
	Delay *sec/veh*	0.0	0.0	8.3	0.0	17.6	
	95% Q *m*	0.0	0.0	0.3	0.0	6.8	

PM PEAK		Cole Harbour EB		Cole Harbour WB		Driveway 1 NB	
		Thru	Right	Left	Thru	Left	Right
2023 Baseline Volumes	Vol *veh/hr*	1010	0	0	670	0	0
	V/C Ratio	0.43	0.22	0.0	0.21	0.00	
	Delay *sec/veh*	-	-	-	-	-	
	95% Q *m*	-	-	-	-	-	
2033 Background Traffic Only	Vol *veh/hr*	1172	0	0	778	0	0
	V/C Ratio	0.50	0.25	0.00	0.25	0.00	
	Delay *sec/veh*	-	-	-	-	-	
	95% Q *m*	-	-	-	-	-	
2033 Background + Development	Vol *veh/hr*	1172	68	23	778	51	17
	V/C Ratio	0.50	0.29	0.05	0.25	0.25	0.03
	Delay *sec/veh*	0.0	0.0	12.5	0.0	26.6	12.2
	95% Q *m*	0.0	0.0	1.2	0.0	7.2	0.8

4.3 COLE HARBOUR ROAD / JOHN STEWART DRIVE

John Stewart Drive is located on the north side of Cole Harbour Road and provides access to a limited residential area as well as the Colonel John Stuart Elementary School. The adjacent residential areas have alternative access points further to the west as well as access to the Forest Hills Parkway to the northwest. The tables below show the modelling results at the John Stewart Drive intersection, which is currently served by a dedicated left turn lane in the eastbound direction on Cole Harbour Road. The directional peaking characteristics are similar to the previous discussion at the new development driveway.

Analysis at this intersection shows that the intersection operates at good levels of service under existing conditions during the AM and PM peak hours.

Existing V/C ratios are 0.34 during the AM peak and 0.36 during the PM peak for the John Stewart approach with limited delays and queueing (about 3 vehicles maximum) at the intersection. The addition of background traffic only increases John Stewart movements to about 50% capacity utilization over the next 10 years while delays and queues remain low.

As the majority of traffic associated with the proposed development is expected to be destined to and from the west, there is little impact on this intersection related to the development. The development trips that do travel through this intersection are distributed over two through lanes in each direction, therefore there is negligible impact to operations through this intersection.

AM PEAK		Cole Harbour EB		Cole Harbour WB		John Stewart SB	
		Left	Thru	Thru	Right	Left	Right
2023 Baseline Volumes	Vol *veh/hr*	75	255	885	15	20	140
	V/C Ratio	0.12	0.08	0.38	0.20	0.34	
	Delay *sec/veh*	10.8	0.0	0.0	0.0	15.4	
	95% Q *m*	3.0	0.0	0.0	0.0	11.1	
2033 Background Traffic Only	Vol *veh/hr*	87	296	1027	17	23	162
	V/C Ratio	0.16	0.09	0.44	0.23	0.45	
	Delay *sec/veh*	12.0	0.0	0.0	0.0	19.3	
	95% Q *m*	4.2	0.0	0.0	0.0	17.2	
2033 Background + Development	Vol *veh/hr*	87	318	1039	17	23	162
	V/C Ratio	0.16	0.10	0.44	0.23	0.45	
	Delay *sec/veh*	12.1	0.0	0.0	0.0	19.7	
	95% Q *m*	4.2	0.0	0.0	0.0	17.6	

PM PEAK		Cole Harbour EB		Cole Harbour WB		John Stewart SB	
		Left	Thru	Thru	Right	Left	Right
2023 Baseline Volumes	Vol *veh/hr*	180	830	520	30	25	150
	V/C Ratio	0.20	0.27	0.22	0.13	0.36	
	Delay *sec/veh*	9.6	0.0	0.0	0.0	15.8	
	95% Q *m*	5.7	0.0	0.0	0.0	12.6	
2033 Background Traffic Only	Vol *veh/hr*	209	963	603	35	29	174
	V/C Ratio	0.25	0.31	0.26	0.15	0.51	
	Delay *sec/veh*	10.4	0.0	0.0	0.0	21.8	
	95% Q *m*	7.6	0.0	0.0	0.0	21.6	
2033 Background + Development	Vol *veh/hr*	209	981	627	35	29	174
	V/C Ratio	0.26	0.31	0.27	0.16	0.53	
	Delay *sec/veh*	10.5	0.0	0.0	0.0	22.9	
	95% Q *m*	7.9	0.0	0.0	0.0	22.9	

4.4 COLE HARBOUR ROAD / BISSETT ROAD

The Cole Harbour Road intersection with Bissett Road is a 3-leg tee intersection on the south side of Cole Harbour Road. It is characterized by a single through lane in each direction on Cole Harbour Road along with a dedicated left turn lane in the westbound direction. The two through lanes in the eastbound direction terminate with a dedicated right turn channelized movement to Bissett Road and a single through lane eastbound on Cole Harbour Road.

Bissett Road has a single lane northbound approach, though there is some potential for a right turning vehicle to "sneak" past 1 or 2 left turning vehicles if the left turning drivers remain close to the roadway centre line.

The reduced cross-section on Cole Harbour Road results in a greater concentration of through traffic in the Cole Harbour Road lanes through the intersection. This results in fewer gaps in traffic available to perform movements from Bissett Road, particularly the northbound left turn movement from Bissett Road to westbound Cole Harbour Road.

The figures to the right show that all movements at the intersection operate with good levels of service and V/C ratios, though the northbound left turn movement on Bissett Road can experience some longer delays during the PM peak period when traffic is higher on Cole Harbour Road. SYNCHRO results contained in Appendix D for this intersection have been calibrated to better reflect field observations with respect to delay and queues. The results shown to the right better reflect modelled results using the SimTraffic micro-simulation software which reasonably reflected observed field conditions.

As can be seen by comparing the 2033 Background Traffic Only (green) and the 2033 scenarios with full development, the proposed development adds minimal delay or capacity utilization to the intersection. Based on the numbers through the intersection at the 10-year horizon, development related traffic composes less than 1.5% of total traffic through the intersection during the peak hours.

AM PEAK		Cole Harbour EB		Cole Harbour WB		Bissett Road NB	
		Thru	Right	Left	Thru	Left	Right
2023 Baseline Volumes	Vol *veh/hr*	195	80	40	765	135	20
	V/C Ratio	0.12	0.05	0.03	0.49	0.39	
	Delay *sec/veh*	0.0	0.0	7.7	0.0	18.7	
	95% Q *m*	0.12	0.05	0.03	0.49	14.0	
2033 Background Traffic Only	Vol *veh/hr*	226	93	46	888	157	23
	V/C Ratio	0.14	0.06	0.04	0.57	0.53	
	Delay *sec/veh*	0.0	0.0	7.8	0.0	25.4	
	95% Q *m*	0.0	0.0	0.9	0.0	22.8	
2033 Background + Development	Vol *veh/hr*	248	93	46	899	157	23
	V/C Ratio	0.16	0.06	0.04	0.57	0.55	
	Delay *sec/veh*	0.0	0.0	7.9	0.0	26.8	
	95% Q *m*	0.0	0.0	0.9	0.0	24.1	

PM PEAK		Cole Harbour EB		Cole Harbour WB		Bissett Road NB	
		Thru	Right	Left	Thru	Left	Right
2023 Baseline Volumes	Vol *veh/hr*	665	190	35	395	155	50
	V/C Ratio	0.43	0.12	0.04	0.25	0.51	
	Delay *sec/veh*	0.0	0.0	9.3	0.0	21.5	
	95% Q *m*	0.0	0.0	1.0	0.0	21.4	
2033 Background Traffic Only	Vol *veh/hr*	772	221	41	458	180	58
	V/C Ratio	0.49	0.14	0.06	0.29	0.73	
	Delay *sec/veh*	0.0	0.0	9.8	0.0	38.6	
	95% Q *m*	0.0	0.0	1.4	0.0	42.4	
2033 Background + Development	Vol *veh/hr*	789	221	41	482	180	58
	V/C Ratio	0.50	0.14	0.06	0.31	0.76	
	Delay *sec/veh*	0.0	0.0	9.9	0.0	42.5	
	95% Q *m*	0.0	0.0	1.4	0.0	45.7	

4.5 NEW DRIVEWAY 2 / BISSETT ROAD

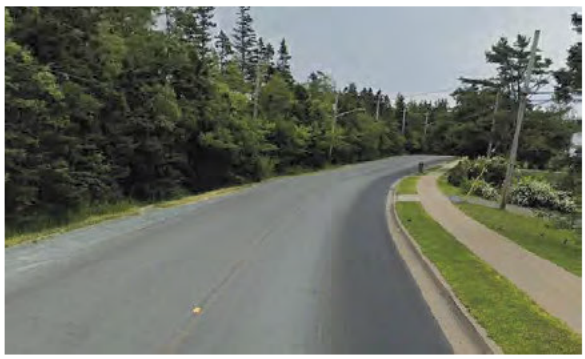
The new driveway to Bissett Road is expected to carry minimal traffic to and from the development. It is primarily intended as an secondary emergency access, though does provide some benefit to vehicles destined to and from various trails and recreational areas associated with Rainbow Haven Beach.

Volumes on Bissett Road are relatively low resulting in any movements to and from the secondary driveway operating at a very high level of service with little delay, and virtually no queuing.

The two figures below show the available sight distances in the northbound direction (top picture) and southbound direction from the proposed driveway location. Available intersection sight distances are just under 200 meters to the south and well over 200 meters to the north, both of which substantially exceed recommended sight distances contained in the Transportation Association of Canada's Geometric Design Guide (TAC GDG).

AM PEAK		NewDriveway EB		Bissett Road NB		Bissett Road SB	
		Left	Right	Left	Thru	Thru	Right
2023 Baseline Volumes	Vol *veh/hr*	0	0	0	155	120	0
	V/C Ratio	-	-	-		0.08	
	Delay *sec/veh*	-	-	-		-	
	95% Q *m*	-	-	-		-	
2033 Background Traffic Only	Vol *veh/hr*	0	0	0	180	139	0
	V/C Ratio	-	-	-		0.08	
	Delay *sec/veh*	-	-	-		-	
	95% Q *m*	-	-	-		-	
2033 Background + Development	Vol *veh/hr*	0	22	12	180	139	0
	V/C Ratio	0.03		0.01		0.09	
	Delay *sec/veh*	9.1		0.5		0.0	
	95% Q *m*	0.6		0.2		0.0	

PM PEAK		NewDriveway EB		Bissett Road NB		Bissett Road SB	
		Left	Right	Left	Thru	Thru	Right
2023 Baseline Volumes	Vol *veh/hr*	0	0	0	205	225	0
	V/C Ratio	-	-	-		0.14	
	Delay *sec/veh*	-	-	-		-	
	95% Q *m*	-	-	-		-	
2033 Background Traffic Only	Vol *veh/hr*	0	0	0	238	261	0
	V/C Ratio	-	-	-		0.17	
	Delay *sec/veh*	-	-	-		-	
	95% Q *m*	-	-	-		-	
2033 Background + Development	Vol *veh/hr*	0	17	23	238	261	0
	V/C Ratio	0.02		0.02		0.17	
	Delay *sec/veh*	9.9		0.9		0.0	
	95% Q *m*	0.6		0.5		0.0	



5. CONCLUSIONS

This study addresses the addition of a seniors residential development, complete with Long Term Care facility located on the south side of Cole Harbour Road, just to the west of Bissett Road in Cole Harbour, Nova Scotia. The study discusses the current conditions on the road network, as well as future conditions with background traffic growth and new development traffic added to the network.

The proposed development includes a Long Term Care Facility to accommodate about 144 beds, 2 multi-unit seniors oriented buildings with 190 units, and 2 multi-unit buildings targeting adult and senior populations with a total of 321 units. The site also includes a number of recreational on-site amenities in the central portions of the property. The site is accessed through a primary access driveway to Cole Harbour Road, located about 135 meters west of Bissett Road, and includes a single entrance lane and two exit lanes (right and left turns). A secondary access point has also been provided to Bissett Road further to the south that is intended to serve primarily as a secondary emergency access, but also provides a convenient route between the development and people destined to and from south Bissett Road where residents have access to an extensive trail network and recreational facilities associated with Rainbow Haven Beach.

Due to the seniors nature of the development, trip generation totals remain relatively low as senior populations tend to have lower levels of car ownership and reduced frequency of travel. This limits the number of trips to and from the site and further reduces the parking requirements on the site.

The report shows that the driveway to Cole Harbour Road operates at good levels of services throughout all current and future time horizons. The intersection is expected to be configured as a three-way driveway intersection that is stop controlled approaching Cole Harbour Road in the northbound direction. Similarly, the adjacent, opposite intersection at John Stewart Drive operates at very good levels of service now and in the future. All new driveways must meet the requirements of the Streets and Services By-Law (S-300) and satisfy the requirement of the 2021 HRM Municipal Design Guidelines.

The Bissett Road intersection operates with higher capacity utilization than the other intersections due to the narrower cross section on Cole Harbour Road east of Bissett Road. Background traffic growth alone (including contributions from the two other developments in close proximity to this project) is the primary cause of the increased capacity utilization and resulting operational delays and queues. As most of the development traffic is destined to and from the west on Cole Harbour Road, or towards Bissett Road south, the development has very little impact on operations at the Bissett Road intersection, with development traffic composing less than 1.5% of total traffic at that intersection.

Given that the majority of traffic does not travel through the Cole Harbour Road / Bissett Road intersection, there is adequate capacity at the development's driveway intersections with Cole Harbour Road and Bissett Road to accommodate additional units on this site without creating any significant deterioration in service.

As the multiple developments proposed for this area proceed, any infrastructure modifications should be coordinated with the results of the ongoing Portland Street / Cole Harbour Road Functional Plan. This plan extends to include the Cole Harbour / Bissett Road intersection and is likely to recommend some level of operational improvements at this intersection. Such improvements would be expected to improve operational conditions to better levels of service than are presented in this report, though it is important to note that such improvements are not a requirement to accommodate this proposed development.

Further, the size and magnitude of the various developments in this area suggest that extending a higher level of transit service to the Bissett Road intersection should be considered. It is expected and recommended, that such discussions be part of the Portland Street / Cole Harbour Road Functional Plan, though specific recommendations from that report were not available at the time of this report's preparation.

Overall, this development can be accommodated within the existing road network with minimal impact to existing operational conditions.

APPENDIX A

Appendix A: SITE PLAN

1 SITE PLAN
1" = 50'-0"

N

SP DUMARESQ ARCHITECT LTD

gem HEALTH CARE GROUP

SHOREHAM DEVELOPMENT

SITE SUMMARY

PARCEL A

PARCEL A LOT AREA (LTC)	**25 200 SM (271 250 SF)**
TOTAL LOT PERMEABLE GREEN SPACE	12 098 SM (130 223 SF)

PARKING SUMMARY

PARCEL A (LTC) PARKING SPOTS	113 (0.8/RESIDENT)

LTC SUMMARY

# OF RESIDENTS	144
BUILDING FOOTPRINT AREA	4 484 SM (48,275 SF)
BUILDING GROSS AREA	11 103 SM (119 520 SF)
# STOREYS	3 + MECH. PENTHOUSE
BUILDING HEIGHT	16.7 M (55 FT)

SITE SUMMARY

PARCEL B

PARCEL B LOT AREA (RESIDENTAL)	**55 000 SM (592 015 SF)**
TOTAL LOT PERMEABLE GREEN SPACE	36 204 SM (389 707 SF)
TOTAL LOT PARKING SPOTS	300
TOTAL LOT UNITS	511

AMENITY SPACE SUMMARY

MU 1 INDOOR AMENITY SPACE	105 SM (1 150 SF)
MU 2 INDOOR AMENITY SPACE	130 SM (1 440 SF)
SL 1 INDOOR AMENITY SPACE	130 SM (1 440 SF)
SL 2 INDOOR AMENITY SPACE	130 SM (1 440 SF)
SUBTOTAL INDOOR AMENITY SPACE	**495 SM (5 470SF)**
MU 1 OUTDOOR AMENITY SPACE (BALCONIES)	1 520 SM (16 360 SF)
MU 2 OUTDOOR AMENITY SPACE (BALCONIES)	725 SM (7 820 SF)
SL 1 OUTDOOR AMENITY SPACE (BALCONIES)	725 SM (7 820 SF)
SL 2 OUTDOOR AMENITY SPACE (BALCONIES)	725 SM (7 820 SF)
SUBTOTAL OUTDOOR AMENITY SPACE	**3 695 SM (39 820 SF)**
TOTAL PRIVATE AMENITY SPACE	**4 190 SM (45 290 SF)**
WALKWAY / BIKE TRAILS	2 461 SM (26 429 SF)
THE VILLAGE GREEN	4 138 SM (44 548 SF)
TOTAL PUBLIC AMENITY SPACE	**6 599 SM (70 977 SF)**

PARKING SUMMARY

PARCEL B (RESIDENTIAL) PARKING SPOTS	400 (0.8/UNIT)

MULTI UNIT 1 SUMMARY

BUILDING FOOTPRINT AREA	1735 SM (18 665 SF)
BUILDING GROSS AREA	17 350 SM (186 650SF)
# STOREYS	12 + 1 UNDERGROUND PARKING
BUILDING HEIGHT	42M (139 FT) (DOES NOT INCLUDE MECH PENHOUSE)
POTENTIAL COMMERCIAL SPACE	160 SM (1720 SF)
AGGREGATE BALCONY SPACE (1 BALCONY/UNIT)	1147.7 SM (12 354 SF)
# BACHELOR UNITS	82
# ONE BEDROOM UNITS	120
# TWO BEDROOM UNITS	24
TOTAL # UNITS	**226**

MULTI UNIT 2 SUMMARY

BUILDING FOOTPRINT AREA	845 SM (9115 SF)
BUILDING GROSS AREA	9 295 SM (100 265 SF)
# STOREYS	11 + 1 UNDERGROUND PARKING
BUILDING HEIGHT	39M (128 FT) (DOES NOT INCLUDE MECH PENHOUSE)
POTENTIAL COMMERCIAL SPACE	178 SM (1920 SF)
AGGREGATE BALCONY SPACE (1 BALCONY/UNIT)	822.5 SM (9500 SF)
# BACHELOR UNITS	22
# ONE BEDROOM UNITS	41
# TWO BEDROOM UNITS	32
TOTAL # UNITS	**95**

SENIORS LIVING 1 SUMMARY

BUILDING FOOTPRINT AREA	845 SM (9115 SF)
BUILDING GROSS AREA	9 295 SM (100 265 SF)
# STOREYS	11 + 1 UNDERGROUND PARKING
BUILDING HEIGHT	39M (128 FT) (DOES NOT INCLUDE MECH PENHOUSE)
POTENTIAL COMMERCIAL SPACE	178 SM (1920 SF)
AGGREGATE BALCONY SPACE (1 BALCONY/UNIT)	822.5 SM (9500 SF)
# BACHELOR UNITS	22
# ONE BEDROOM UNITS	41
# TWO BEDROOM UNITS	32
TOTAL # UNITS	**95**

SENIORS LIVING 2 SUMMARY

BUILDING FOOTPRINT AREA	845 SM (9115 SF)
BUILDING GROSS AREA	9 295 SM (100 265 SF)
# STOREYS	11 + 1 UNDERGROUND PARKING
BUILDING HEIGHT	39M (128 FT) (DOES NOT INCLUDE MECH PENHOUSE)
POTENTIAL COMMERCIAL SPACE	178 SM (1920 SF)
AGGREGATE BALCONY SPACE (1 BALCONY/UNIT)	822.5 SM (9500 SF)
# BACHELOR UNITS	22
# ONE BEDROOM UNITS	41
# TWO BEDROOM UNITS	32
TOTAL # UNITS	**95**

LEGEND:
- TREE
- COMMUNITY GARDEN
- LANDSCAPED BIORETENION
- GREEN SPACE
- WATER COURSE
- PROPERTY LINE
- LOT LINE
- ROOF SLOPE ARROW

PROJECT TITLE
2022 Gem Cole Harbour

DATE: DRAFT Nov 20, 2023

SHEET TITLE
Site Plan

A001

APPENDIX B

Appendix B: TRAFFIC COUNTS

Cole Harbour Rd and Bissett - AM - TMC

Tue Sep 13, 2022
Full Length (7 AM-9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987528, Location: 44.672531, -63.477935

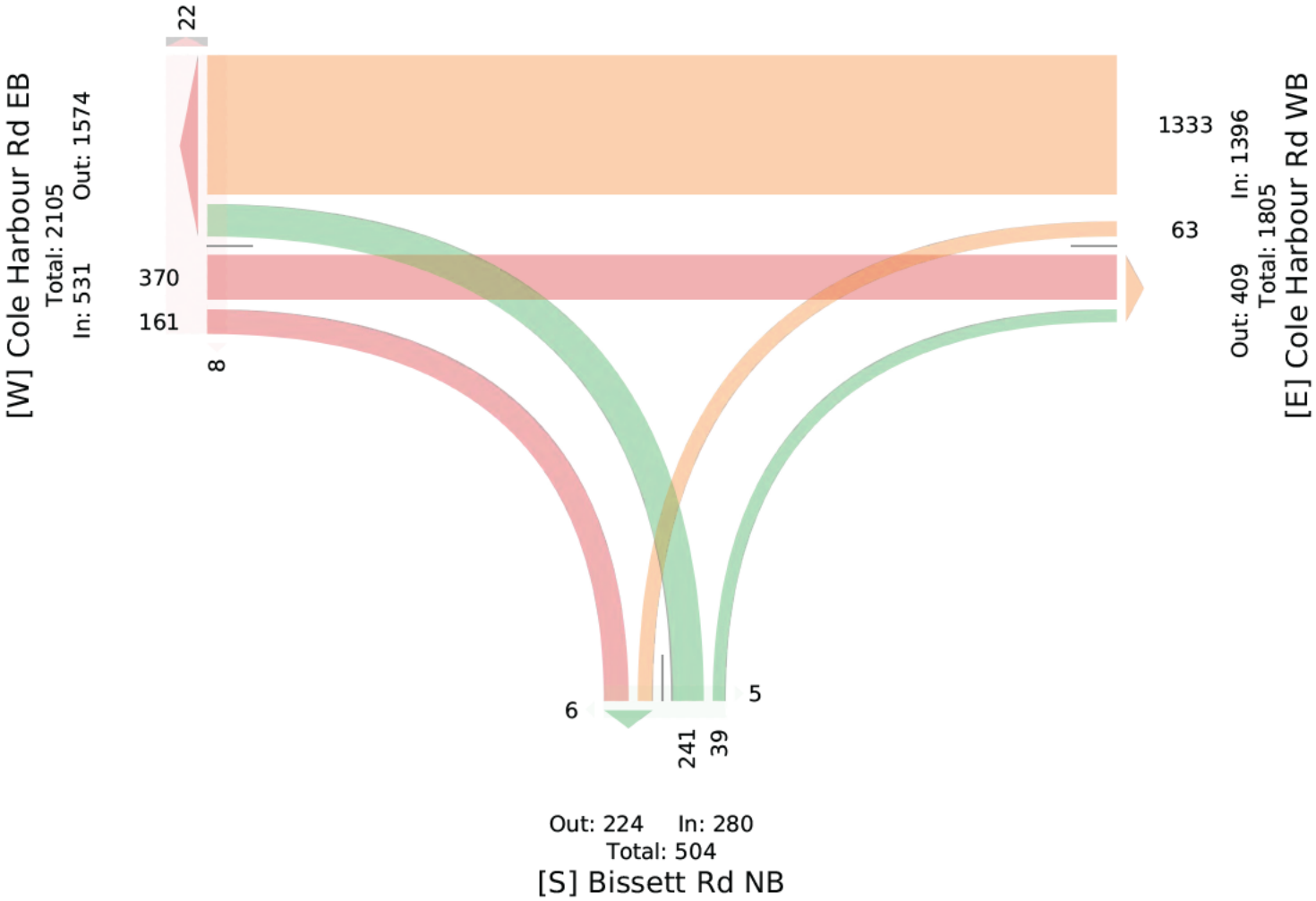
Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA

Leg / Direction	Cole Harbour Rd EB Eastbound					Cole Harbour Rd WB Westbound					Bissett Rd NB Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-09-13 7:00AM	28	10	0	38	4	5	171	0	176	0	32	5	0	37	5	251
7:15AM	42	17	0	59	2	9	193	0	202	0	17	2	0	19	2	280
7:30AM	35	17	0	52	2	8	228	0	236	0	40	5	0	45	1	333
7:45AM	48	19	0	67	2	14	180	0	194	0	33	7	0	40	0	301
Hourly Total	153	63	0	216	10	36	772	0	808	0	122	19	0	141	8	1165
8:00AM	52	17	0	69	11	8	173	0	181	0	27	5	0	32	0	282
8:15AM	59	23	0	82	8	10	185	0	195	0	36	3	0	39	3	316
8:30AM	47	27	0	74	1	7	109	0	116	0	27	5	0	32	0	222
8:45AM	59	31	0	90	0	2	94	0	96	0	29	7	0	36	0	222
Hourly Total	217	98	0	315	20	27	561	0	588	0	119	20	0	139	3	1042
Total	370	161	0	531	30	63	1333	0	1396	0	241	39	0	280	11	2207
% **Approach**	69.7%	30.3%	0%	-	-	4.5%	95.5%	0%	-	-	86.1%	13.9%	0%	-	-	-
% Total	16.8%	7.3%	0%	24.1%	-	2.9%	60.4%	0%	63.3%	-	10.9%	1.8%	0%	12.7%	-	-
Lights	349	157	0	506	-	60	1291	0	1351	-	229	33	0	262	-	2119
% **Lights**	94.3%	97.5%	0%	95.3%	-	95.2%	96.8%	0%	96.8%	-	95.0%	84.6%	0%	93.6%	-	96.0%
Articulated Trucks	1	0	0	1	-	0	1	0	1	-	1	0	0	1	-	3
% Articulated **Trucks**	0.3%	0%	0%	0.2%	-	0%	0.1%	0%	0.1%	-	0.4%	0%	0%	0.4%	-	0.1%
Buses and Single-Unit Trucks	20	3	0	23	-	3	39	0	42	-	11	5	0	16	-	81
% Buses and Single-Unit Trucks	5.4%	1.9%	0%	4.3%	-	4.8%	2.9%	0%	3.0%	-	4.6%	12.8%	0%	5.7%	-	3.7%
Bicycles on Road	0	1	0	1	-	0	2	0	2	-	0	1	0	1	-	4
% Bicycles on Road	0%	0.6%	0%	0.2%	-	0%	0.2%	0%	0.1%	-	0%	2.6%	0%	0.4%	-	0.2%
Pedestrians	-	-	-	-	30	-	-	-	-	0	-	-	-	-	11	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Cole Harbour Rd and Bissett - AM - TMC
Tue Sep 13, 2022
Full Length (7 AM-9 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987528, Location: 44.672531, -63.477935

Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA



Cole Harbour Rd and Bissett - AM - TMC

Tue Sep 13, 2022
AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987528, Location: 44.672531, -63.477935

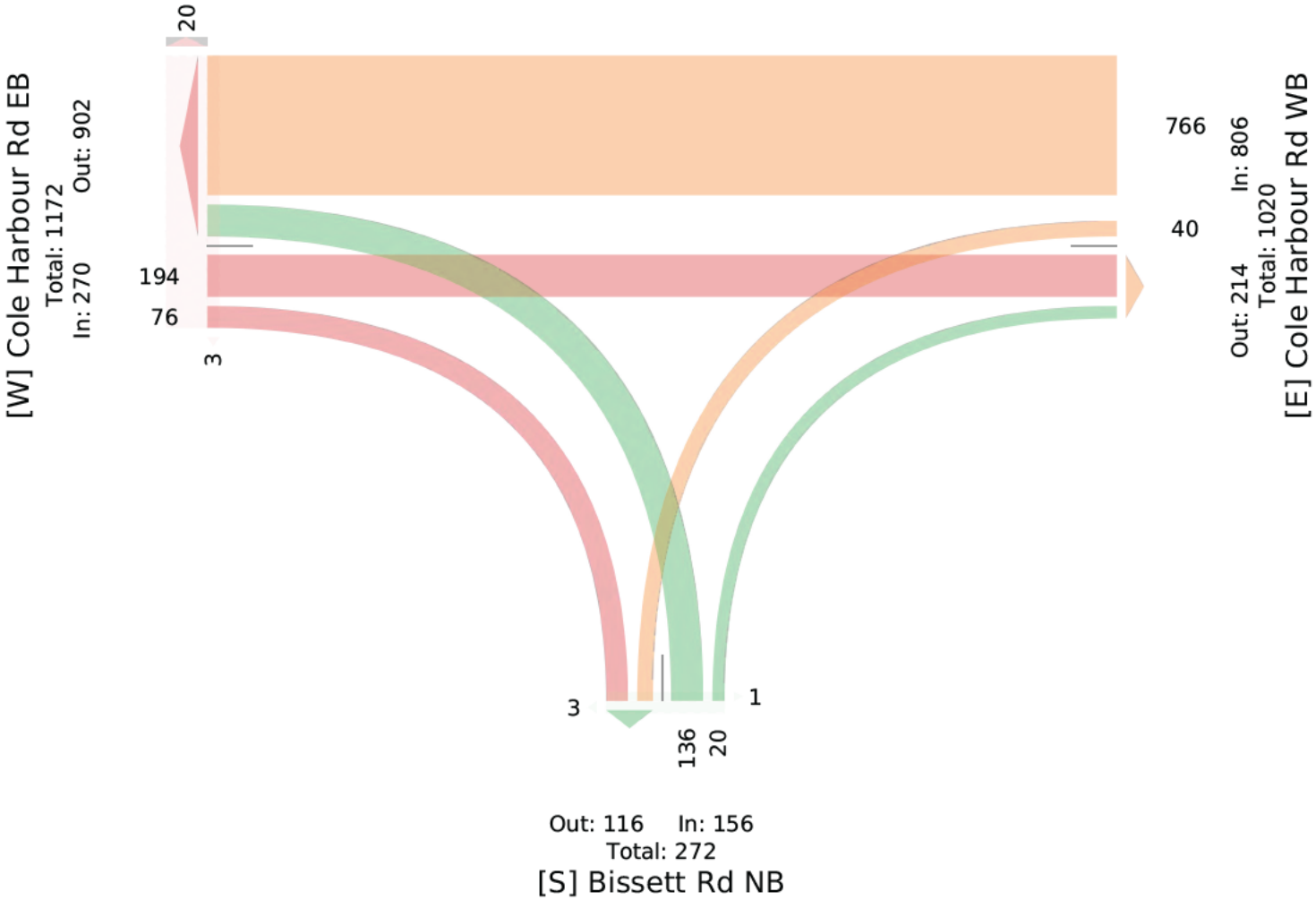
Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA

Leg / Direction	Cole Harbour Rd EB Eastbound					Cole Harbour Rd WB Westbound					Bissett Rd NB Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-09-13 7:30AM	35	17	0	52	2	8	228	0	236	0	40	5	0	45	1	333
7:45AM	48	19	0	67	2	14	180	0	194	0	33	7	0	40	0	301
8:00AM	52	17	0	69	11	8	173	0	181	0	27	5	0	32	0	282
8:15AM	59	23	0	82	8	10	185	0	195	0	36	3	0	39	3	316
Total	194	76	0	**270**	23	40	766	0	**806**	0	136	20	0	**156**	4	**1232**
% Approach	71.9%	28.1%	0%	-	-	5.0%	95.0%	0%	-	-	87.2%	12.8%	0%	-	-	-
% Total	15.7%	6.2%	0%	**21.9%**	-	3.2%	62.2%	0%	**65.4%**	-	11.0%	1.6%	0%	**12.7%**	-	-
PHF	0.822	0.826	-	**0.823**	-	0.714	0.839	-	**0.853**	-	0.850	0.679	-	**0.861**	-	0.923
Lights	181	74	0	**255**	-	39	744	0	**783**	-	127	18	0	**145**	-	1183
% Lights	93.3%	97.4%	0%	**94.4%**	-	97.5%	97.1%	0%	**97.1%**	-	93.4%	90.0%	0%	**92.9%**	-	96.0%
Articulated Trucks	1	0	0	**1**	-	0	0	0	**0**	-	1	0	0	**1**	-	2
% Articulated Trucks	0.5%	0%	0%	**0.4%**	-	0%	0%	0%	**0%**	-	0.7%	0%	0%	**0.6%**	-	0.2%
Buses and Single-Unit Trucks	12	2	0	**14**	-	1	21	0	**22**	-	8	1	0	**9**	-	45
% Buses and Single-Unit Trucks	6.2%	2.6%	0%	**5.2%**	-	2.5%	2.7%	0%	**2.7%**	-	5.9%	5.0%	0%	**5.8%**	-	3.7%
Bicycles on Road	0	0	0	**0**	-	0	1	0	**1**	-	0	1	0	**1**	-	2
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0.1%	0%	**0.1%**	-	0%	5.0%	0%	**0.6%**	-	0.2%
Pedestrians	-	-	-	-	23	-	-	-	-	0	-	-	-	-	4	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Cole Harbour Rd and Bissett - AM - TMC
Tue Sep 13, 2022
AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987528, Location: 44.672531, -63.477935

Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA



Cole Harbour Rd and Bissett PM - TMC

Tue Sep 13, 2022
Full Length (4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987529, Location: 44.672531, -63.477935

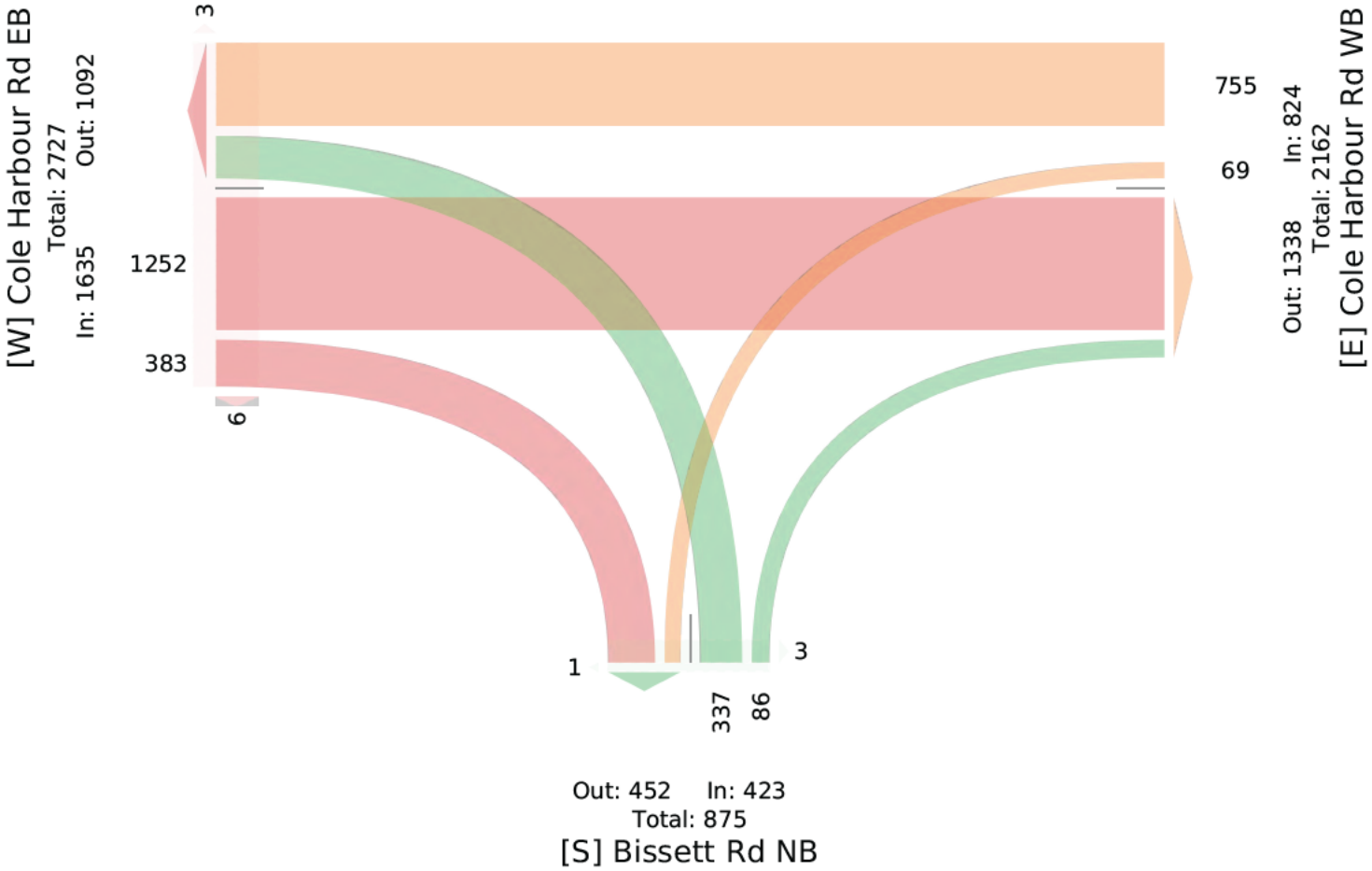
Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA

Leg / Direction	Cole Harbour Rd EB Eastbound					Cole Harbour Rd WB Westbound					Bissett Rd NB Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-09-13 4:00PM	144	40	0	184	0	11	73	0	84	0	58	14	0	72	0	340
4:15PM	154	44	0	198	4	6	96	0	102	0	41	4	0	45	0	345
4:30PM	162	57	0	219	1	6	84	0	90	0	45	17	0	62	0	371
4:45PM	162	42	0	204	0	12	113	0	125	0	45	14	0	59	2	388
Hourly Total	622	183	0	805	5	35	366	0	401	0	189	49	0	238	2	1444
5:00PM	180	43	0	223	0	5	101	0	106	0	34	9	0	43	0	372
5:15PM	158	45	0	203	2	12	95	0	107	0	31	10	0	41	1	351
5:30PM	147	53	0	200	0	11	98	0	109	0	42	7	0	49	0	358
5:45PM	145	59	0	204	2	6	95	0	101	0	41	11	0	52	1	357
Hourly Total	630	200	0	830	4	34	389	0	423	0	148	37	0	185	2	1438
Total	1252	383	0	1635	9	69	755	0	824	0	337	86	0	423	4	2882
% Approach	76.6%	23.4%	0%	-	-	8.4%	91.6%	0%	-	-	79.7%	20.3%	0%	-	-	-
% Total	43.4%	13.3%	0%	56.7%	-	2.4%	26.2%	0%	28.6%	-	11.7%	3.0%	0%	14.7%	-	-
Lights	1236	376	0	1612	-	66	750	0	816	-	333	85	0	418	-	2846
% Lights	98.7%	98.2%	0%	98.6%	-	95.7%	99.3%	0%	99.0%	-	98.8%	98.8%	0%	98.8%	-	98.8%
Articulated Trucks	2	0	0	2	-	0	1	0	1	-	1	0	0	1	-	4
% Articulated Trucks	0.2%	0%	0%	0.1%	-	0%	0.1%	0%	0.1%	-	0.3%	0%	0%	0.2%	-	0.1%
Buses and Single-Unit Trucks	14	4	0	18	-	3	4	0	7	-	2	1	0	3	-	28
% Buses and Single-Unit Trucks	1.1%	1.0%	0%	1.1%	-	4.3%	0.5%	0%	0.8%	-	0.6%	1.2%	0%	0.7%	-	1.0%
Bicycles on Road	0	3	0	3	-	0	0	0	0	-	1	0	0	1	-	4
% Bicycles on Road	0%	0.8%	0%	0.2%	-	0%	0%	0%	0%	-	0.3%	0%	0%	0.2%	-	0.1%
Pedestrians	-	-	-	-	9	-	-	-	-	0	-	-	-	-	4	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Cole Harbour Rd and Bissett PM - TMC
Tue Sep 13, 2022
Full Length (4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987529, Location: 44.672531, -63.477935

Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA



Cole Harbour Rd and Bissett PM - TMC

Tue Sep 13, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987529, Location: 44.672531, -63.477935

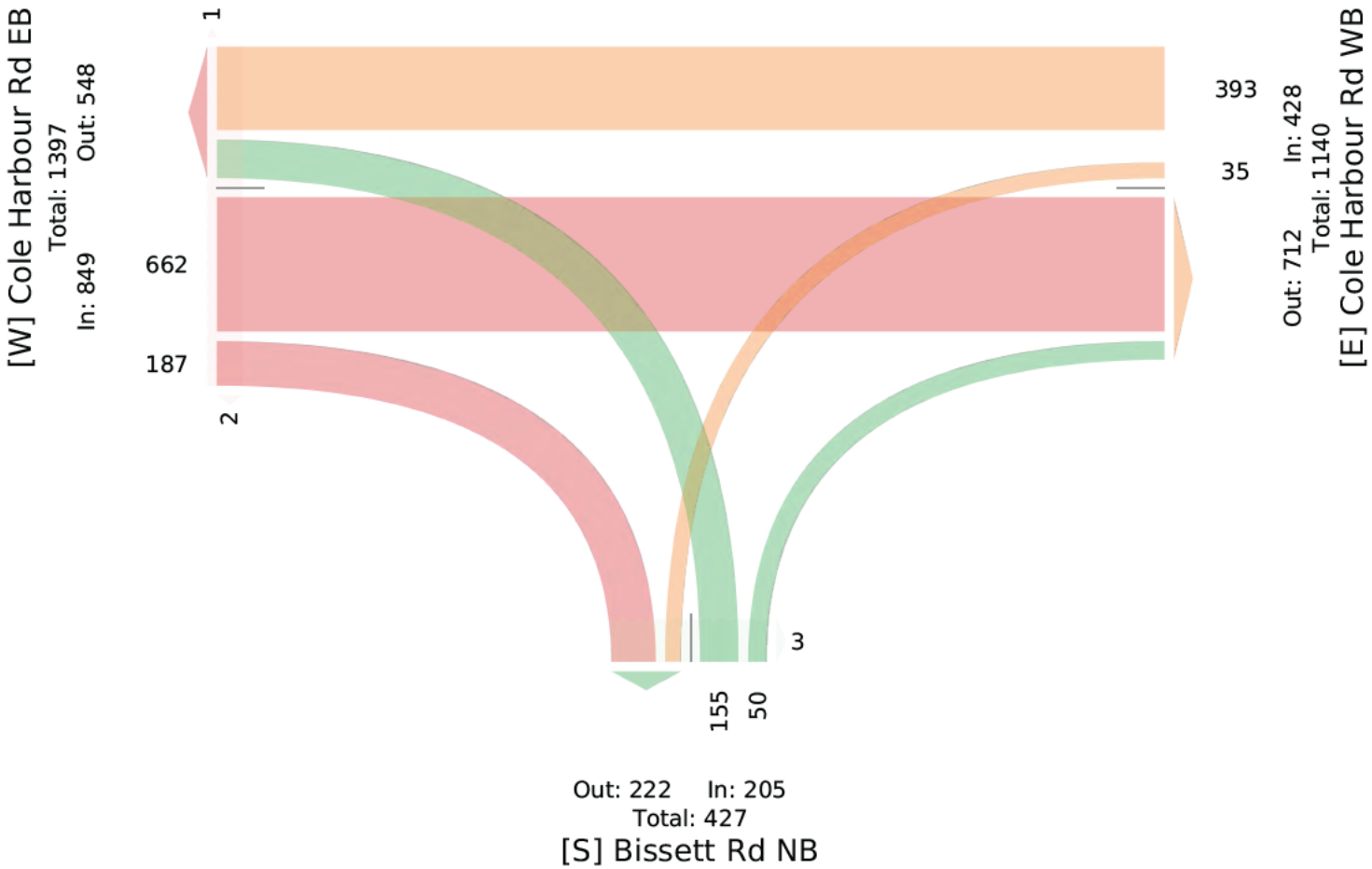
Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA

Leg / Direction	Cole Harbour Rd EB Eastbound					Cole Harbour Rd WB Westbound					Bissett Rd NB Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-09-13 4:30PM	162	57	0	219	1	6	84	0	90	0	45	17	0	62	0	371
4:45PM	162	42	0	204	0	12	113	0	125	0	45	14	0	59	2	388
5:00PM	180	43	0	223	0	5	101	0	106	0	34	9	0	43	0	372
5:15PM	158	45	0	203	2	12	95	0	107	0	31	10	0	41	1	351
Total	662	187	0	849	3	35	393	0	428	0	155	50	0	205	3	1482
% Approach	78.0%	22.0%	0%	-	-	8.2%	91.8%	0%	-	-	75.6%	24.4%	0%	-	-	-
% Total	44.7%	12.6%	0%	57.3%	-	2.4%	26.5%	0%	28.9%	-	10.5%	3.4%	0%	13.8%	-	-
PHF	0.919	0.821	-	0.953	-	0.729	0.869	-	0.856	-	0.856	0.735	-	0.836	-	0.952
Lights	654	184	0	838	-	35	389	0	424	-	153	50	0	203	-	1465
% Lights	98.8%	98.4%	0%	98.7%	-	100%	99.0%	0%	99.1%	-	98.7%	100%	0%	99.0%	-	98.9%
Articulated Trucks	2	0	0	2	-	0	1	0	1	-	1	0	0	1	-	4
% Articulated Trucks	0.3%	0%	0%	0.2%	-	0%	0.3%	0%	0.2%	-	0.6%	0%	0%	0.5%	-	0.3%
Buses and Single-Unit Trucks	6	0	0	6	-	0	3	0	3	-	0	0	0	0	-	9
% Buses and Single-Unit Trucks	0.9%	0%	0%	0.7%	-	0%	0.8%	0%	0.7%	-	0%	0%	0%	0%	-	0.6%
Bicycles on Road	0	3	0	3	-	0	0	0	0	-	1	0	0	1	-	4
% Bicycles on Road	0%	1.6%	0%	0.4%	-	0%	0%	0%	0%	-	0.6%	0%	0%	0.5%	-	0.3%
Pedestrians	-	-	-	-	3	-	-	-	-	0	-	-	-	-	3	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Cole Harbour Rd and Bissett PM - TMC
Tue Sep 13, 2022
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
All Movements
ID: 987529, Location: 44.672531, -63.477935

Provided by: Trans4m Development Group
59 Craigburn Drive,
Dartmouth, NS, B2X 3E6, CA



HALIFAX REGIONAL MUNICIPALITY
TRANSPORTATION & PUBLIC WORKS
TRAFFIC MANAGEMENT

CODE NO. 19TM566

MANUAL TRAFFIC COUNTS

INTERSECTION: COLE HARBOUR RD AT BISSET RD

WEATHER SUNNY
RECORDER SAM CRIMP & MIKE SMITH

DAY	DATE	MONTH	YEAR
WEDNES	27	OVEMBE	2019

STREET:		COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			
TIME:		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
07:00:00 AM	07:15:00 AM	1	127	0	9	22	4	1	0	28	27	2	2	223
07:15:00 AM	07:30:00 AM	6	230	6	18	34	13	3	0	35	34	0	6	385
07:30:00 AM	07:45:00 AM	7	244	0	17	44	12	1	0	36	41	0	1	403
07:45:00 AM	08:00:00 AM	15	158	0	31	54	20	3	3	38	21	1	2	346
TOTAL		29	759	6	75	154	49	8	3	137	123	3	11	1357
PEAK			794			278			148			137		
4(15 MIN PEAK)			1004			420			176			168		
PEAK HOUR FACTOR			0.79			0.66			0.84			0.82		AAWT
TWO WAY TOTALS			967			1297			232			218		FACTOR
														1.00
														1357

DAY	DATE	MONTH	YEAR
WEDNES	27	OVEMBE	2019

TIME:		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
08:00:00 AM	08:15:00 AM	11	183	3	30	42	8	1	0	54	33	1	5	371
08:15:00 AM	08:30:00 AM	5	171	2	33	47	13	1	0	52	43	0	3	370
08:30:00 AM	08:45:00 AM	10	111	0	20	49	13	7	2	34	24	1	3	274
08:45:00 AM	09:00:00 AM	6	106	1	35	45	17	3	1	33	26	1	3	277
TOTAL		32	571	6	118	183	51	12	3	173	126	3	14	1292
PEAK			609			352			188			143		
4(15 MIN PEAK)			788			388			220			184		
PEAK HOUR FACTOR			0.77			0.91			0.85			0.78		AAWT
TWO WAY TOTALS			818			1222			315			229		FACTOR
														1.00
														1292

Intersection Peak Hour

		COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:15 - 08:15	Car	38	801	10	113	184	50	12	0	174	127	0	13	1522
	Truck	1	14	0	1	8	4	0	0	4	4	0	1	20
	Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vehicle Total	39	815	10	114	192	54	12	0	178	131	0	14	1559
	Approach Factor		0.86			0.86			0.86			0.86		FACTOR
														1
														1559

Peak Hour Pedestrians

		NE			NW			SW			SE			Total
07:15 - 08:15		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	0	0	0	9	0	9	1	1	2	1	0	1	12

Car traffic

Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	1	127	0	9	20	4	0	0	27	25	2	2	217
7:15	6	227	6	18	32	12	3	0	34	32	0	5	375
7:30	7	236	0	17	41	10	1	0	36	40	0	1	389
7:45	14	158	0	30	53	19	3	0	38	21	1	2	339
8:00	11	180	3	30	40	7	1	0	53	33	1	5	364
8:15	5	166	1	33	45	11	1	0	51	38	0	3	354
8:30	10	109	0	20	46	13	7	0	32	24	1	3	265
8:45	6	105	1	34	44	17	3	0	33	25	1	3	272
TOTAL	60	1308	11	191	321	93	19	0	304	238	6	24	2575

Truck traffic

Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	0	2	0	1	0	1	2	0	0	6
7:15	0	3	0	0	2	1	0	0	1	2	0	1	10
7:30	0	8	0	0	3	2	0	0	0	1	0	0	14
7:45	1	0	0	1	1	1	0	0	0	1	0	0	5
8:00	0	3	0	0	2	1	0	0	1	0	0	0	7
8:15	0	5	1	0	2	2	0	0	1	5	0	0	16
8:30	0	2	0	0	3	0	0	0	2	1	0	0	8
8:45	0	1	0	1	1	0	0	0	0	2	0	0	5
TOTAL	1	22	1	2	16	7	1	0	6	14	0	1	71

Bicycle traffic

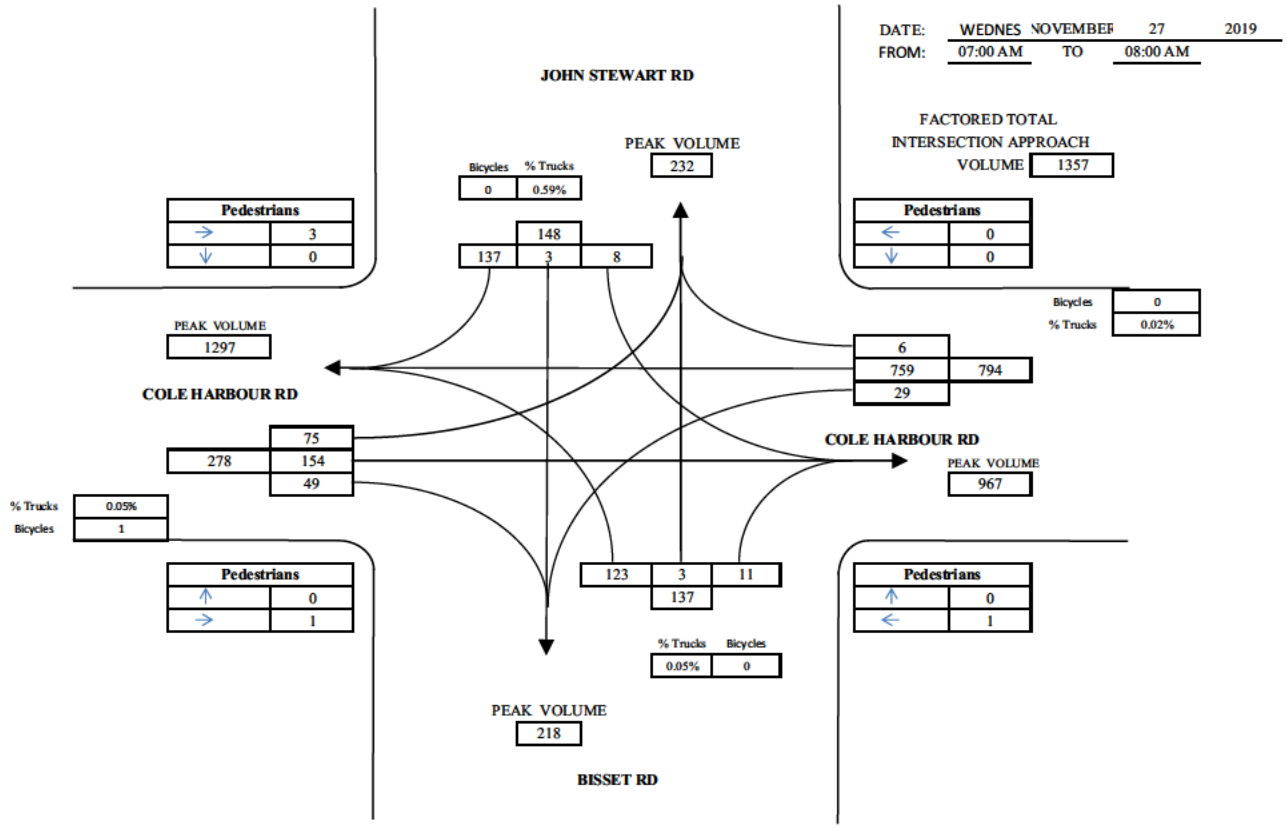
Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	1	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	1	0	0	0	1	0	0	2

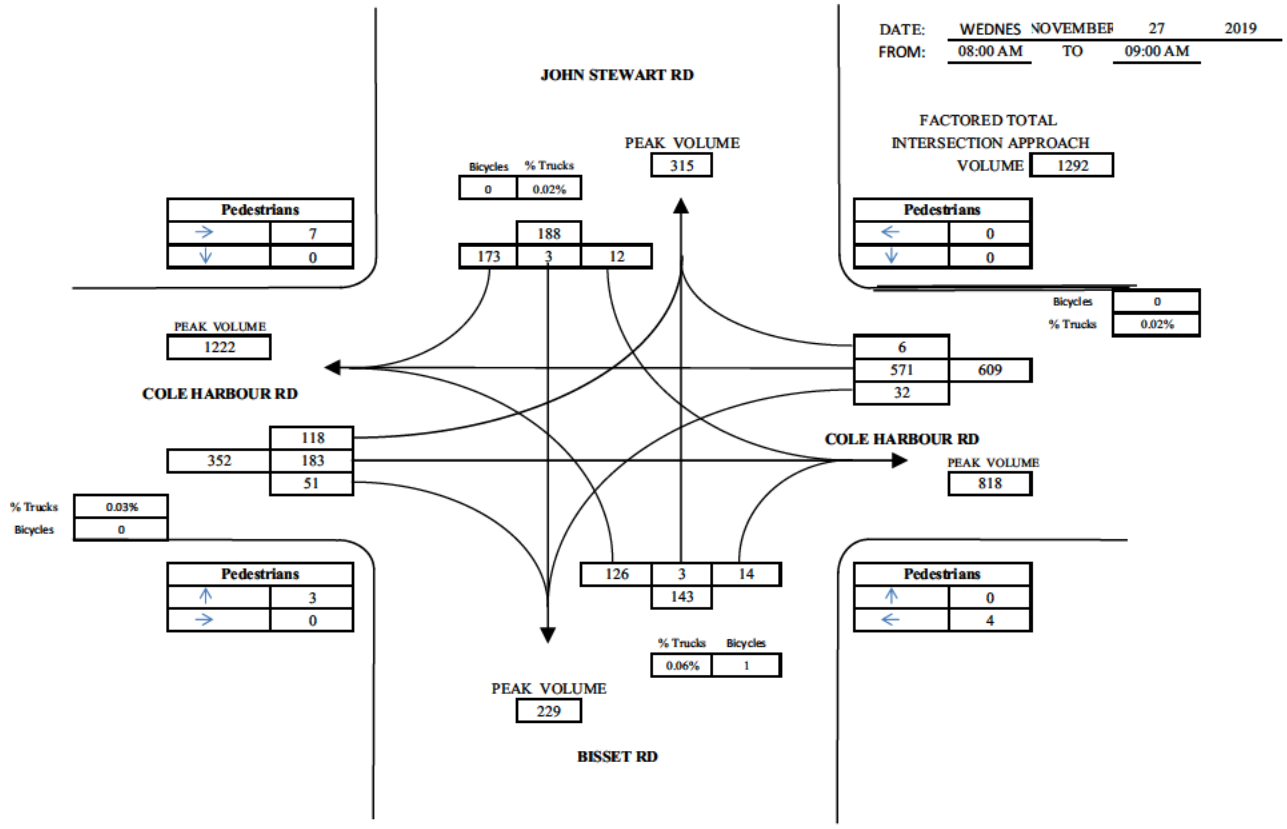
Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	1	0	1	0	0	0	1	0	1	2
7:30	0	0	0	0	0	0	0	1	1	0	0	0	1
7:45	0	0	0	2	0	2	0	0	0	0	0	0	2
8:00	0	0	0	3	0	3	1	0	1	0	0	0	4
8:15	0	0	0	4	0	4	2	0	2	0	0	0	6
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	4	0	4	4
TOTAL	0	0	0	10	0	10	3	1	4	5	0	5	19

VEHICULAR GRAPHIC SUMMARY SHEET

COLE HARBOUR RD AT BISSET RD





HALIFAX REGIONAL MUNICIPALITY
TRANSPORTATION & PUBLIC WORKS
TRAFFIC MANAGEMENT

CODE NO. 19TM566

MANUAL TRAFFIC COUNTS

INTERSECTION: COLE HARBOUR RD AT BISSET RD

WEATHER SUNNY
RECORDER SAM CRIMP & MIKE SMITH

DAY	DATE	MONTH	YEAR
WEDNES	27	OVEMBE	2019

STREET:		COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			
TIME:		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
11:00:00 AM	11:15:00 AM	2	63	1	15	46	13	3	0	22	26	3	2	196
11:15:00 AM	11:30:00 AM	3	76	0	21	62	25	1	0	13	24	1	2	228
11:30:00 AM	11:45:00 AM	5	91	1	34	76	34	4	2	18	35	0	4	304
11:45:00 AM	12:00:00 PM	4	61	3	19	55	29	1	0	24	18	2	3	219
TOTAL		14	291	5	89	239	101	9	2	77	103	6	11	947
PEAK			310			429			88			120		
4(15 MIN PEAK)			388			576			100			156		
PEAK HOUR FACTOR			0.8			0.74			0.88			0.77		AAWT
TWO WAY TOTALS			569			900			188			237		FACTOR
														1.00
														947

DAY	DATE	MONTH	YEAR
WEDNES	27	OVEMBE	2019

TIME:		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
12:00:00 PM	12:15:00 PM	2	93	0	23	64	16	2	0	37	24	0	2	263
12:15:00 PM	12:30:00 PM	3	90	0	20	80	19	3	0	29	37	0	1	282
12:30:00 PM	12:45:00 PM	5	92	2	43	82	22	2	0	26	25	2	2	303
12:45:00 PM	01:00:00 PM	5	82	2	42	78	28	9	5	26	20	0	3	300
TOTAL		15	357	4	128	304	85	16	5	118	106	2	8	1148
PEAK			376			517			139			116		
4(15 MIN PEAK)			396			592			160			152		
PEAK HOUR FACTOR			0.95			0.87			0.87			0.76		AAWT
TWO WAY TOTALS			704			1098			273			221		FACTOR
														1.00
														1148

Intersection Peak Hour

		COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12:00 - 13:00	Car	15	353	4	126	299	83	15	0	117	103	2	6	1123
	Truck	0	4	0	2	5	2	1	0	1	5	0	2	20
	Bicycle	1	0	0	0	0	0	0	0	0	0	0	0	0
	Vehicle Total	16	357	4	128	304	85	16	0	118	108	2	8	1146
	Approach Factor		0.94			0.87			0.86			0.78		FACTOR
														1
														1146

Peak Hour Pedestrians

		NE			NW			SW			SE			Total
12:00 - 13:00		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	0	0	0	6	3	9	2	0	2	1	0	1	12

Car traffic

Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00	2	62	1	15	43	13	3	0	22	26	3	2	192
11:15	3	76	0	21	59	24	1	0	13	24	1	2	224
11:30	5	90	1	33	71	31	4	0	17	33	0	4	289
11:45	4	58	3	19	55	28	1	0	23	18	2	3	214
12:00	2	92	0	23	63	16	1	0	37	23	0	1	258
12:15	3	89	0	19	80	18	3	0	29	35	0	1	277
12:30	5	91	2	43	80	21	2	0	26	25	2	2	299
12:45	5	81	2	41	76	28	9	0	25	19	0	2	288
TOTAL	29	639	9	214	527	179	24	0	192	203	8	17	2041

Truck traffic

Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00	0	1	0	0	3	0	0	0	0	1	0	0	5
11:15	0	0	0	0	3	1	0	0	0	0	0	0	4
11:30	0	1	0	1	5	3	0	0	1	2	0	0	13
11:45	0	3	1	0	0	1	0	0	1	1	1	0	8
12:00	0	1	0	0	1	0	1	0	0	1	0	1	5
12:15	0	1	0	1	0	1	0	0	0	2	0	0	5
12:30	0	1	0	0	2	1	0	0	0	1	0	0	5
12:45	0	1	0	1	2	0	0	0	1	1	0	1	7
TOTAL	0	9	1	3	16	7	1	0	3	9	1	2	52

Bicycle traffic

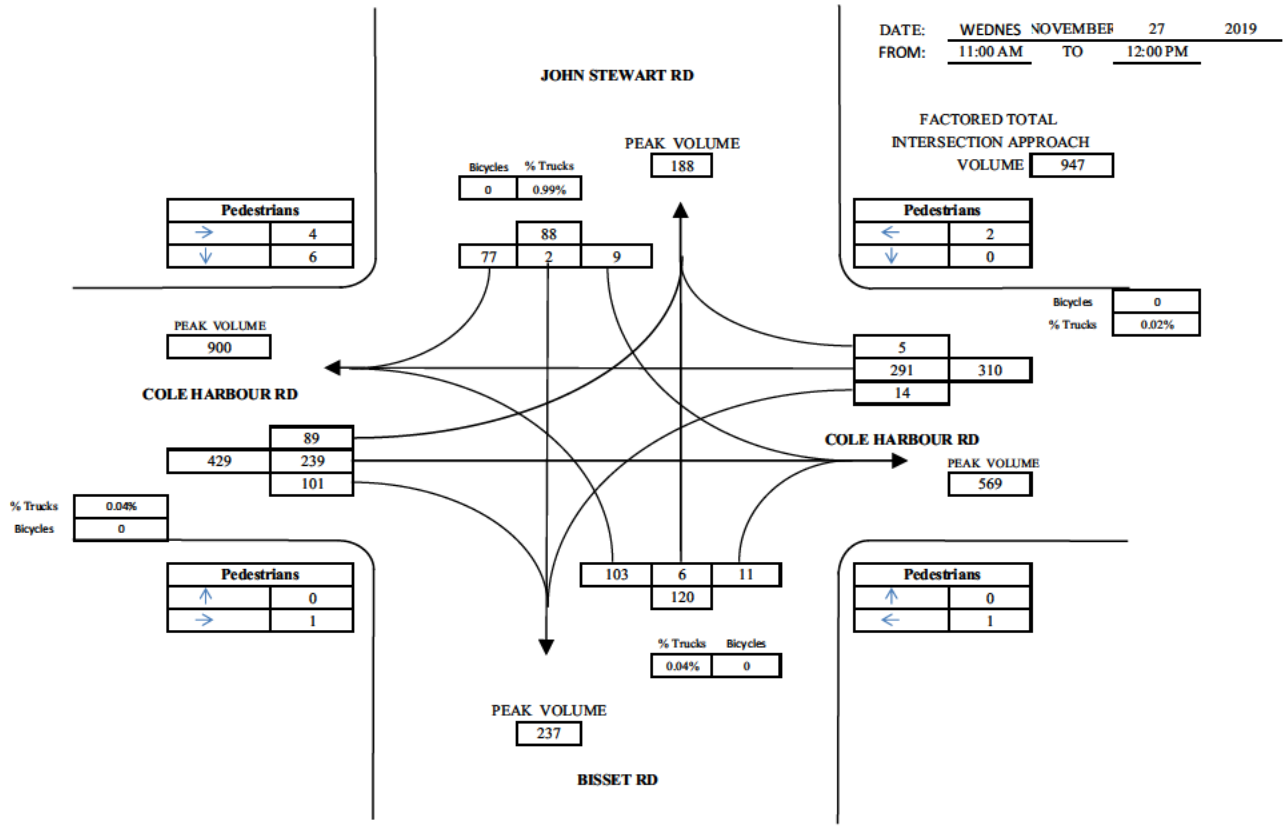
Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	1	0	0	0	0	0	0	0	0	0	0	0	1
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	0	0	0	0	0	0	0	0	0	0	1

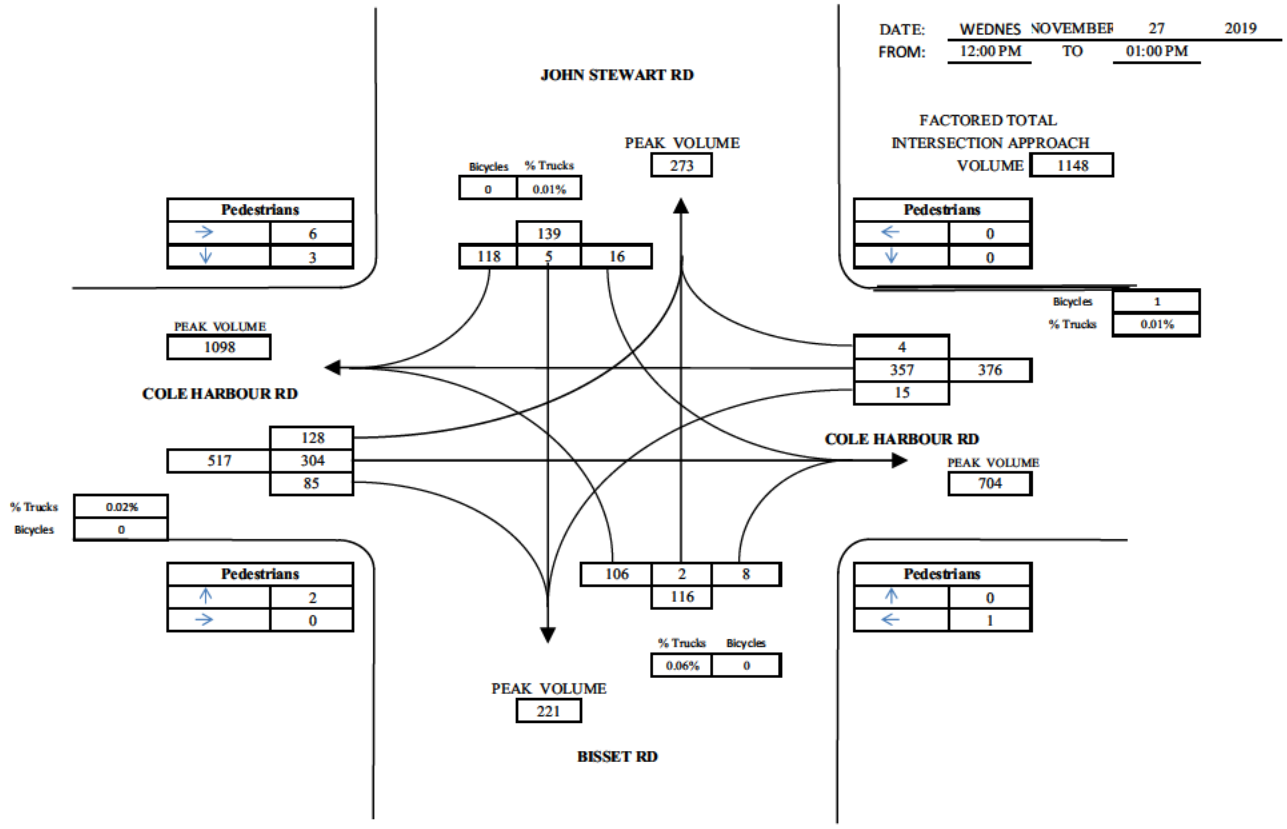
Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
11:00	0	0	0	0	0	0	0	0	0	1	0	1	1
11:15	0	0	0	2	3	5	0	0	0	0	0	0	5
11:30	0	1	1	1	3	4	0	1	1	0	0	0	6
11:45	0	1	1	1	0	1	0	0	0	0	0	0	2
12:00	0	0	0	2	1	3	1	0	1	1	0	1	5
12:15	0	0	0	1	1	2	1	0	1	0	0	0	3
12:30	0	0	0	3	1	4	0	0	0	0	0	0	4
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	2	2	10	9	19	2	1	3	2	0	2	26

VEHICULAR GRAPHIC SUMMARY SHEET

COLE HARBOUR RD AT BISSET RD





HALIFAX REGIONAL MUNICIPALITY
TRANSPORTATION & PUBLIC WORKS
TRAFFIC MANAGEMENT

CODE NO. 19TM566

MANUAL TRAFFIC COUNTS

INTERSECTION: COLE HARBOUR RD AT BISSET RD

WEATHER SUNNY
RECORDER SAM CRIMP & MIKE SMITH

DAY	DATE	MONTH	YEAR
WEDNES	27	OVEMBE	2019

STREET:		COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			
TIME:		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
04:00:00 PM	04:15:00 PM	6	74	0	27	82	19	1	1	24	27	1	11	273
04:15:00 PM	04:30:00 PM	5	92	0	53	182	36	11	2	27	25	2	2	437
04:30:00 PM	04:45:00 PM	6	94	3	48	161	34	7	0	33	28	1	6	421
04:45:00 PM	05:00:00 PM	1	75	3	48	157	32	4	0	39	23	0	8	390
TOTAL		18	335	6	176	582	121	23	3	123	103	4	27	1521
PEAK			359			879			149			134		
4(15 MIN PEAK)			412			1084			172			156		
PEAK HOUR FACTOR			0.87			0.81			0.87			0.86		AAWT
TWO WAY TOTALS			991			1440			335			276		FACTOR
														1.00
														1521

DAY	DATE	MONTH	YEAR
WEDNES	27	OVEMBE	2019

TIME:		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
05:00:00 PM	05:15:00 PM	4	100	2	46	161	24	4	1	31	25	1	12	411
05:15:00 PM	05:30:00 PM	2	85	4	45	132	24	6	3	30	26	4	7	368
05:30:00 PM	05:45:00 PM	6	96	1	47	176	25	3	0	41	21	0	3	419
05:45:00 PM	06:00:00 PM	17	83	3	37	118	25	5	2	46	19	2	7	364
TOTAL		29	364	10	175	587	98	18	6	148	91	7	29	1562
PEAK			403			860			172			127		
4(15 MIN PEAK)			424			992			212			152		
PEAK HOUR FACTOR			0.95			0.87			0.81			0.84		AAWT
TWO WAY TOTALS			1037			1463			364			260		FACTOR
														1.00
														1562

Intersection Peak Hour

		COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:15 - 17:15	Car	29	361	12	189	648	124	26	0	130	98	2	26	1645
	Truck	0	3	0	6	13	2	0	0	0	2	0	3	20
	Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vehicle Total	29	364	12	195	661	126	26	0	130	100	2	29	1674
	Approach Factor		0.95			0.91			0.91			0.82		FACTOR
														1
														1674

Peak Hour Pedestrians

		NE			NW			SW			SE			Total
16:15 - 17:15		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	0	0	0	6	6	12	2	0	2	0	0	0	14

Car traffic

Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	6	73	0	26	80	19	1	0	24	27	1	11	268
16:15	5	90	0	50	176	35	11	0	27	25	2	2	423
16:30	5	94	4	46	159	33	7	0	33	29	1	6	417
16:45	1	75	3	47	154	32	4	0	39	23	0	8	386
17:00	4	100	2	46	159	24	4	0	31	24	1	10	405
17:15	2	85	4	45	132	24	6	0	30	26	4	7	365
17:30	6	93	1	47	173	23	3	0	41	21	0	3	411
17:45	17	83	3	37	115	25	5	0	46	19	2	6	358
TOTAL	46	693	17	344	1148	215	41	0	271	194	11	53	3033

Truck traffic

Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	1	0	1	2	0	0	0	0	0	0	0	4
16:15	0	2	0	3	6	1	0	0	0	0	0	0	12
16:30	1	0	0	2	2	1	0	0	0	0	0	0	6
16:45	0	0	0	1	3	0	0	0	0	0	0	0	4
17:00	0	0	0	0	2	0	0	0	0	2	0	2	6
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	3	0	0	3	2	0	0	0	0	0	0	8
17:45	0	0	0	0	3	0	0	0	0	0	0	1	4
TOTAL	1	6	0	7	21	4	0	0	0	2	0	3	44

Bicycle traffic

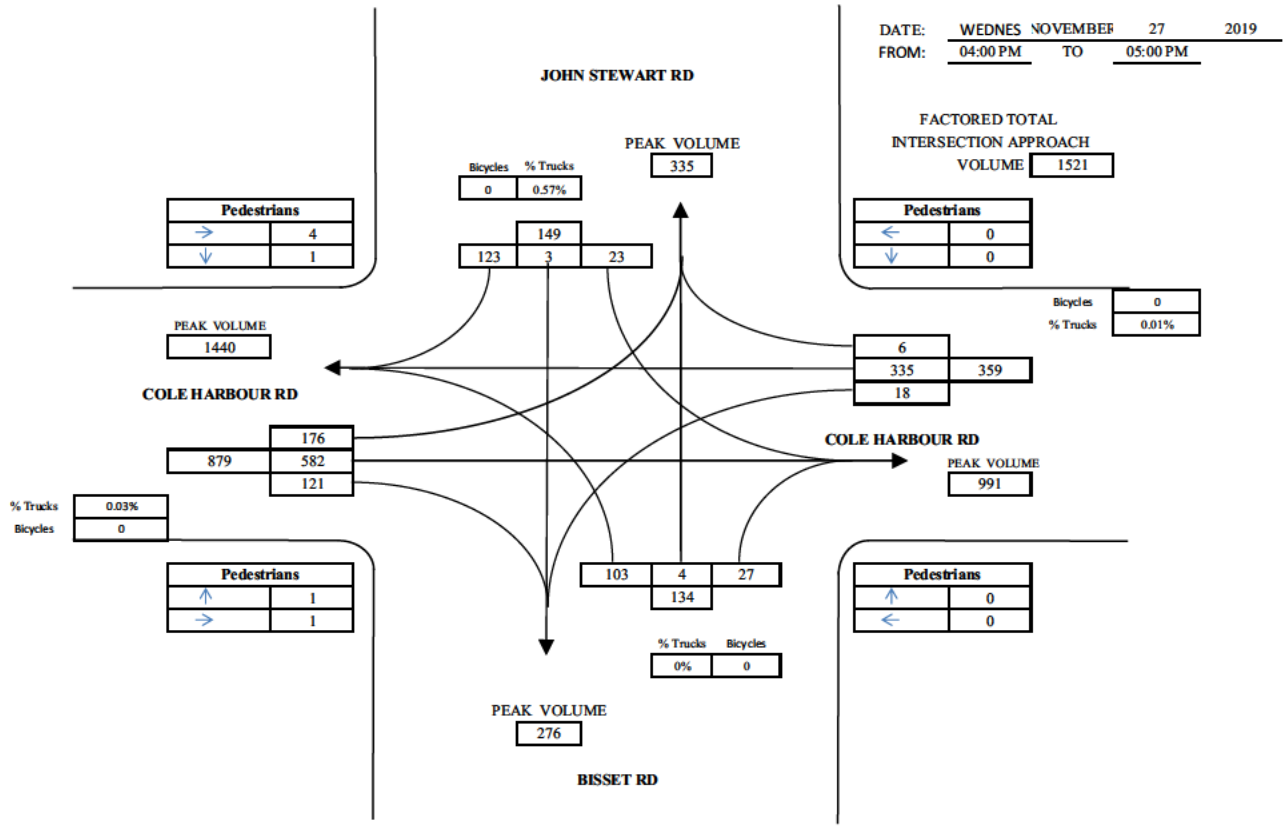
Interval starts	COLE HARBOUR RD			COLE HARBOUR RD			JOHN STEWART RD			BISSET RD			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0

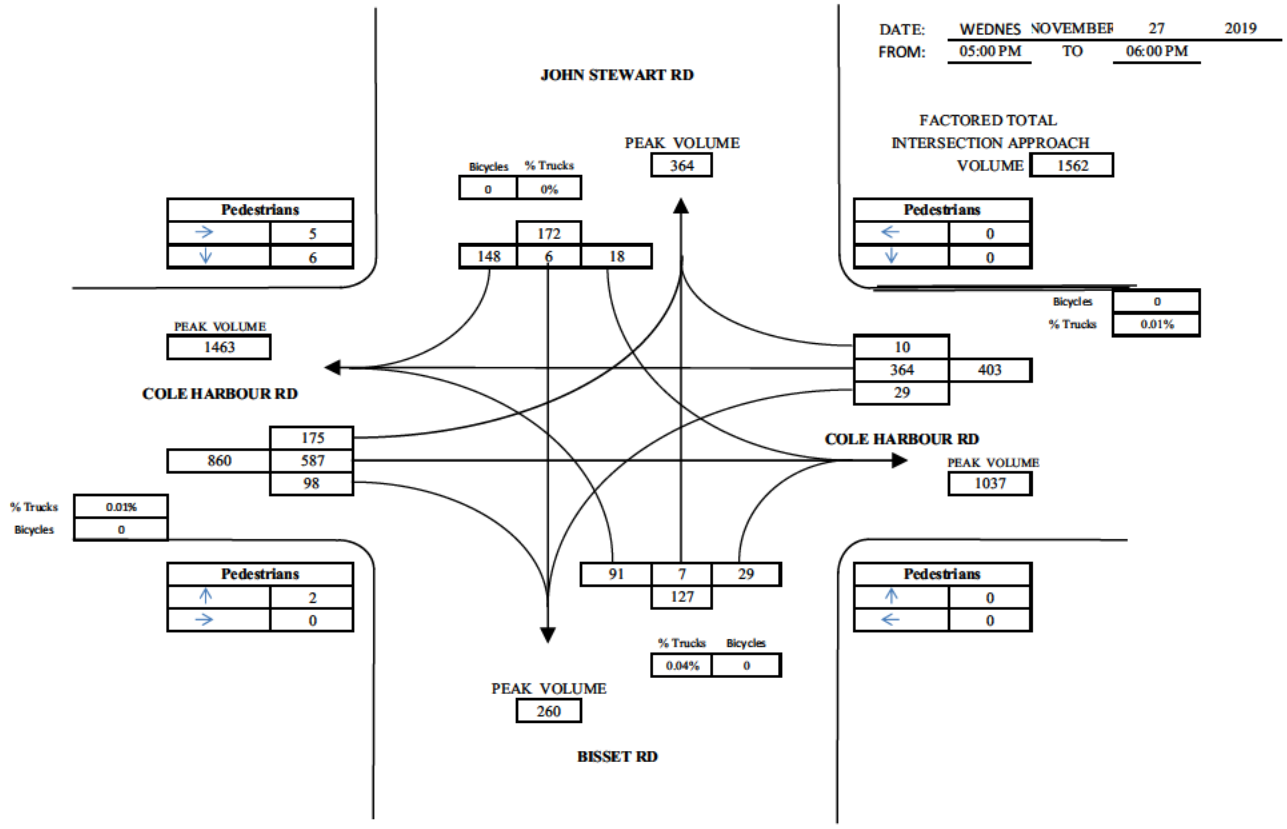
Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	0	0	0	0	0	0	1	0	1	0	0	0	1
16:15	0	0	0	0	0	0	0	1	1	0	0	0	1
16:30	0	0	0	1	1	2	0	0	0	0	0	0	2
16:45	0	0	0	3	0	3	0	0	0	0	0	0	3
17:00	0	0	0	2	2	4	2	0	2	0	0	0	6
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	2	1	3	0	0	0	0	0	0	3
17:45	0	0	0	1	3	4	0	0	0	0	0	0	4
TOTAL	0	0	0	9	7	16	3	1	4	0	0	0	20

VEHICULAR GRAPHIC SUMMARY SHEET

COLE HARBOUR RD AT BISSET RD

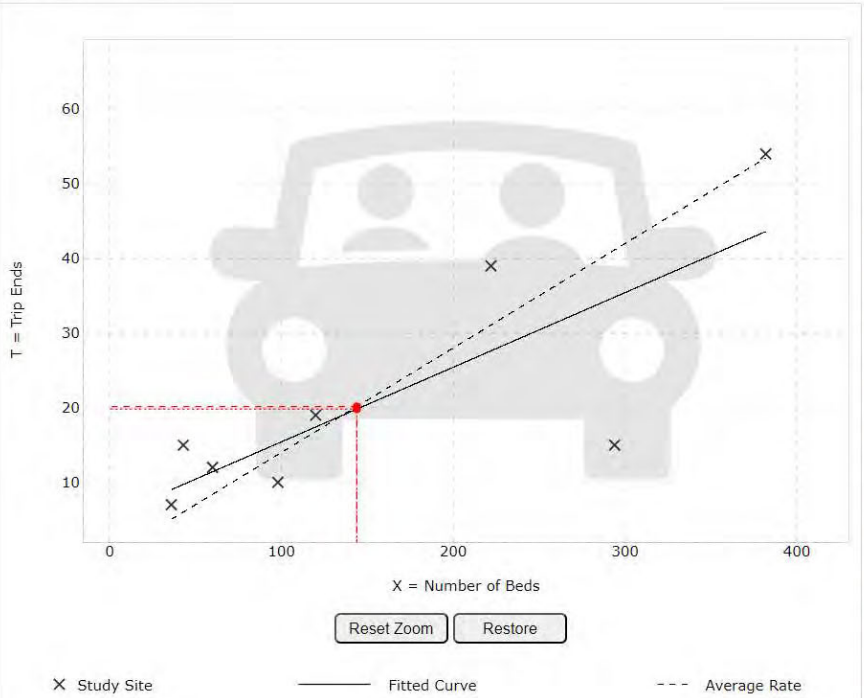




APPENDIX C

Appendix C: TRIP GENERATION

Data Plot and Equation



DATA STATISTICS

Land Use:
Nursing Home (620) Click for Description and Data Plots

Independent Variable:
Beds

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
8

Avg. Num. of Beds:
157

Average Rate:
0.14

Range of Rates:
0.05 - 0.35

Standard Deviation:
0.07

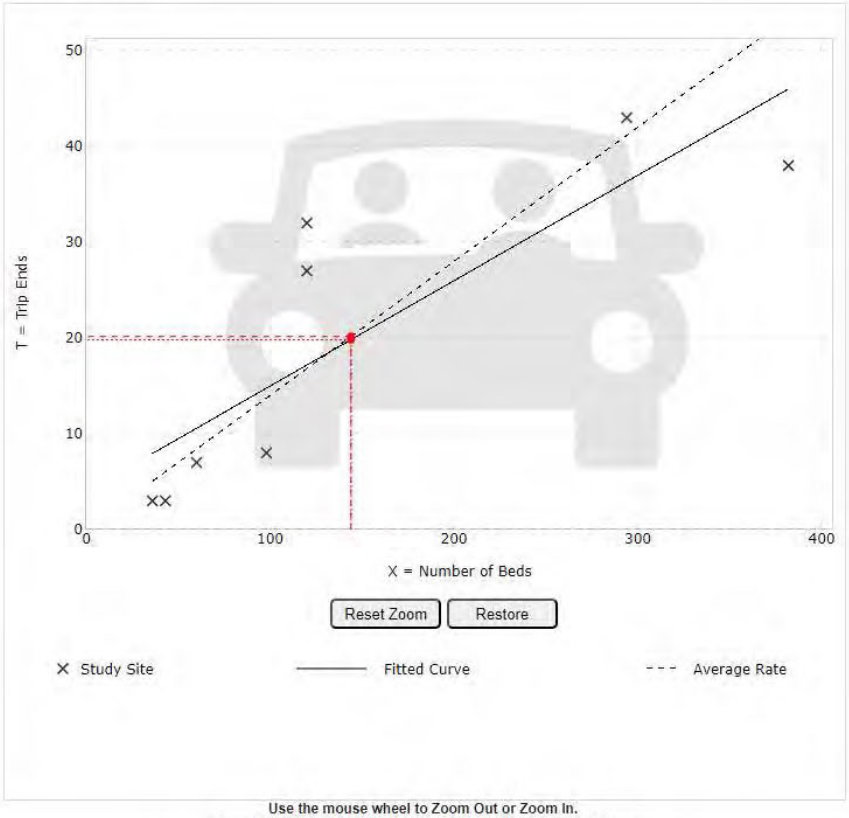
Fitted Curve Equation:
T = 0.10(X) + 5.42

R^2:
0.63

Directional Distribution:
72% entering, 28% exiting

Calculated Trip Ends:
Average Rate: 20 (Total), 15 (Entry), 5 (Exit)
Fitted Curve: 20 (Total), 14 (Entry), 6 (Exit)

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Nursing Home (620) Click for Description and Data Plots

Independent Variable:
Beds

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
8

Avg. Num. of Beds:
144

Average Rate:
0.14

Range of Rates:
0.07 - 0.27

Standard Deviation:
0.06

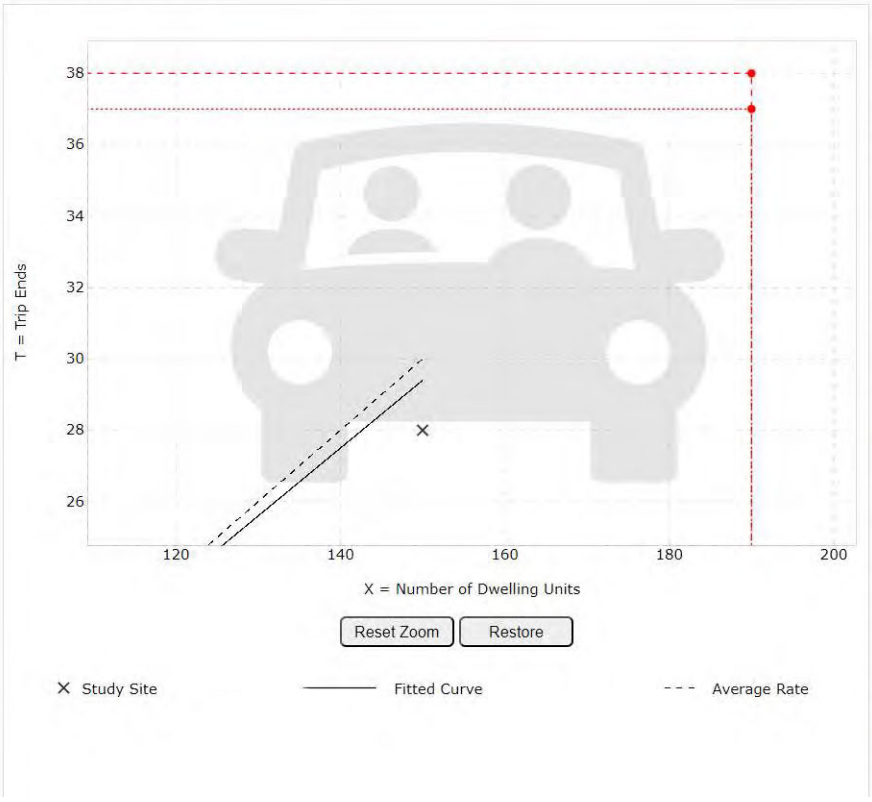
Fitted Curve Equation:
T = 0.11(X) + 3.98

R^2:
0.72

Directional Distribution:
33% entering, 67% exiting

Calculated Trip Ends:
Average Rate: 20 (Total), 7 (Entry), 13 (Exit)
Fitted Curve: 20 (Total), 7 (Entry), 13 (Exit)

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Multifamily (252) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
9

Avg. Num. of Dwelling Units:
73

Average Rate:
0.20

Range of Rates:
0.13 - 0.27

Standard Deviation:
0.04

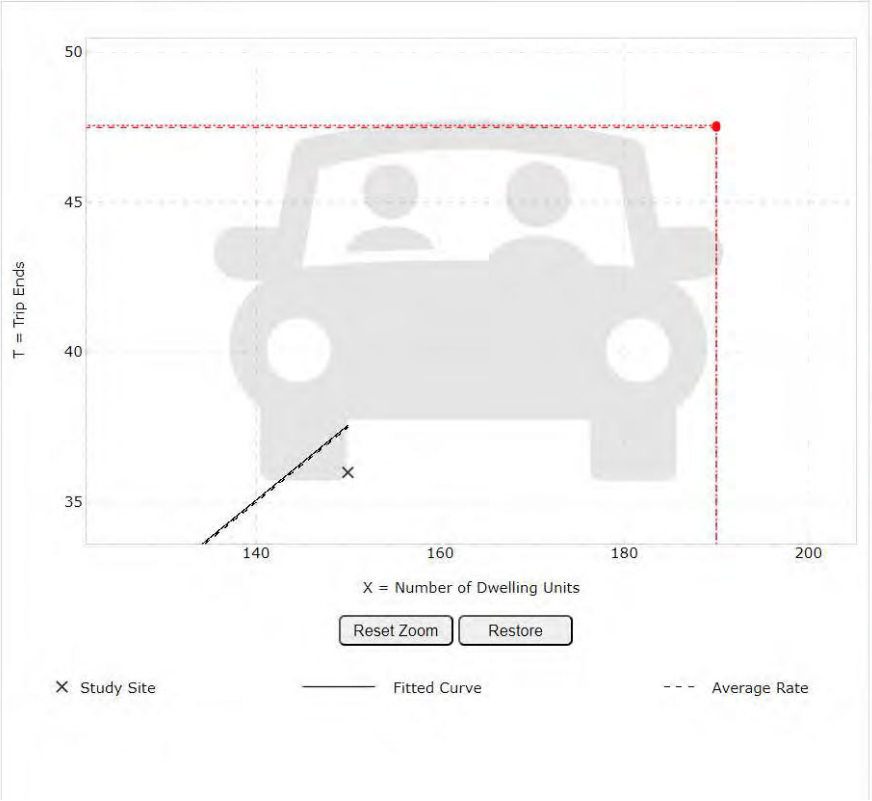
Fitted Curve Equation:
T = 0.19(X) + 0.90

R^2:
0.85

Directional Distribution:
34% entering, 66% exiting

Calculated Trip Ends:
Average Rate: 38 (Total), 13 (Entry), 25 (Exit)
Fitted Curve: 37 (Total), 13 (Entry), 24 (Exit)

Data Plot and Equation



DATA STATISTICS

Land Use:
Senior Adult Housing - Multifamily (252) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
9

Avg. Num. of Dwelling Units:
73

Average Rate:
0.25

Range of Rates:
0.16 - 0.36

Standard Deviation:
0.06

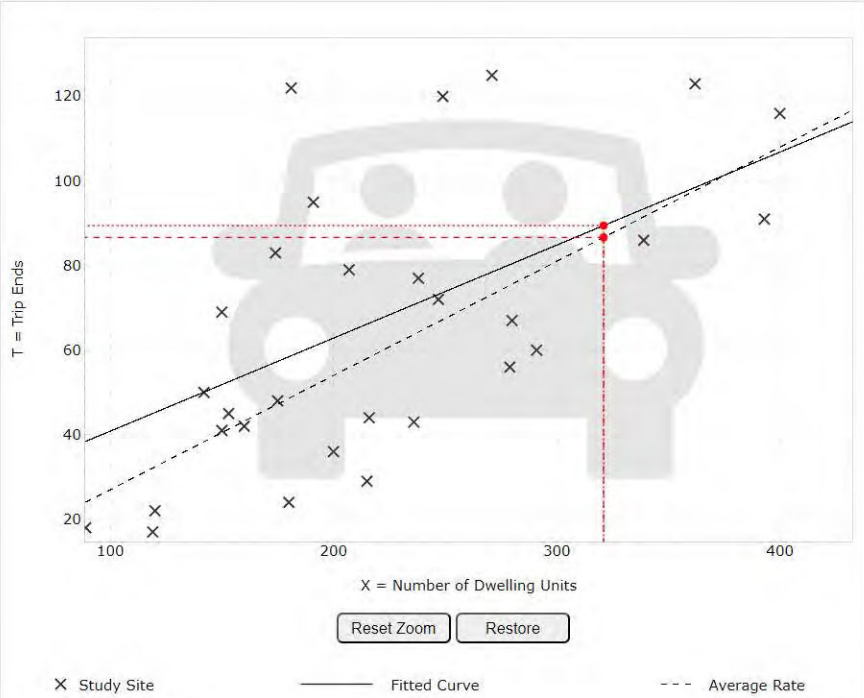
Fitted Curve Equation:
T = 0.25(X) + 0.07

R^2:
0.84

Directional Distribution:
56% entering, 44% exiting

Calculated Trip Ends:
Average Rate: 48 (Total), 27 (Entry), 21 (Exit)
Fitted Curve: 48 (Total), 27 (Entry), 21 (Exit)

Data Plot and Equation



DATA STATISTICS

Land Use:
Multifamily Housing (High-Rise) - Not Close to Rail Transit (222) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
45

Avg. Num. of Dwelling Units:
372

Average Rate:
0.27

Range of Rates:
0.09 - 0.67

Standard Deviation:
0.11

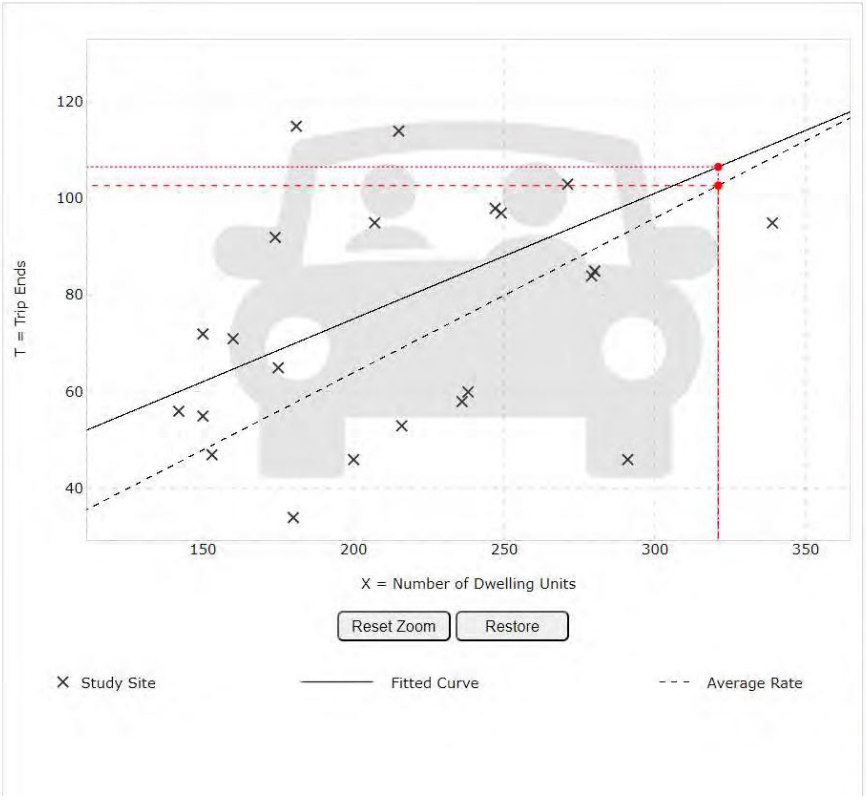
Fitted Curve Equation:
T = 0.22(X) + 18.85

R^2:
0.64

Directional Distribution:
26% entering, 74% exiting

Calculated Trip Ends:
Average Rate: 87 (Total), 23 (Entry), 64 (Exit)
Fitted Curve: 89 (Total), 23 (Entry), 66 (Exit)

Data Plot and Equation



DATA STATISTICS

Land Use:
Multifamily Housing (High-Rise) - Not Close to Rail Transit (222) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
45

Avg. Num. of Dwelling Units:
372

Average Rate:
0.32

Range of Rates:
0.09 - 0.80

Standard Deviation:
0.13

Fitted Curve Equation:
T = 0.26(X) + 23.12

R^2:
0.67

Directional Distribution:
62% entering, 38% exiting

Calculated Trip Ends:
Average Rate: 103 (Total), 64 (Entry), 39 (Exit)
Fitted Curve: 107 (Total), 66 (Entry), 41 (Exit)

APPENDIX D

Appendix D: TRIP DISTRIBUTION AND ASSIGNMENT

Development: GEM Cole Harbour Development

Driveway: 1 GEM Driveway 1

Origin #	Route	To		From	
		Distribution %	Trips	Distribution %	Trips
1	GEM Driveway 1 to Bissett South	0.00	0	0.00	0
2	GEM Driveway 1 to Cole Harbour East	20.00	10	20.00	19
3	GEM Driveway 1 to Cole Harbour West	60.00	30	60.00	56

Development: GEM Cole Harbour Development

Driveway: 2 GEM Driveway 2

Origin #	Route	To		From	
		Distribution %	Trips	Distribution %	Trips
1	GEM Driveway 2 to Bissett South	20.00	10	20.00	19
2	GEM Driveway 2 to Cole Harbour East	0.00	0	0.00	0
3	GEM Driveway 2 to Cole Harbour West	0.00	0	0.00	0

Development: GEM Cole Harbour Development

Driveway: 1 GEM Driveway 1

Origin #	Route	To		From	
		Distribution %	Trips	Distribution %	Trips
1	GEM Driveway 1 to Bissett South	0.00	0	0.00	0
2	GEM Driveway 1 to Cole Harbour East	20.00	20	20.00	15
3	GEM Driveway 1 to Cole Harbour West	60.00	59	60.00	44

Development: GEM Cole Harbour Development

Driveway: 2 GEM Driveway 2

Origin #	Route	To		From	
		Distribution %	Trips	Distribution %	Trips
1	GEM Driveway 2 to Bissett South	20.00	20	20.00	15
2	GEM Driveway 2 to Cole Harbour East	0.00	0	0.00	0
3	GEM Driveway 2 to Cole Harbour West	0.00	0	0.00	0

APPENDIX E

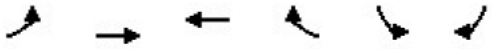
Appendix E: SYNCHRO REPORTS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	0	0	1025	0	0
Future Volume (Veh/h)	330	0	0	1025	0	0
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)	359	0	0	1114	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			359		916	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		916	180
tC, single (s)			4.1		*5.5	*5.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1196		382	894

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	239	120	0	557	557	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.14	0.07	0.00	0.33	0.33	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	255	885	15	20	140
Future Volume (Veh/h)	75	255	885	15	20	140
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)	82	277	962	16	22	152
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	978				1272	489
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978				1272	489
tC, single (s)	4.1				*5.5	*5.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				90	76
cM capacity (veh/h)	701				226	638

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	82	138	138	641	337	174
Volume Left	82	0	0	0	0	22
Volume Right	0	0	0	0	16	152
cSH	701	1700	1700	1700	1700	519
Volume to Capacity	0.12	0.08	0.08	0.38	0.20	0.34
Queue Length 95th (m)	3.0	0.0	0.0	0.0	0.0	11.1
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	15.4
Lane LOS	B					C
Approach Delay (s)	2.5			0.0		15.4
Approach LOS						C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	195	80	40	765	135	20
Future Volume (Veh/h)	195	80	40	765	135	20
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)	212	87	43	832	147	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)						
pX, platoon unblocked						
vC, conflicting volume			212		1130	212
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			212		1130	212
tC, single (s)			4.1		*4.5	*5.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		63	98
cM capacity (veh/h)			1358		399	890

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	212	87	43	832	169
Volume Left	0	0	43	0	147
Volume Right	0	87	0	0	22
cSH	1700	1700	1358	1700	429
Volume to Capacity	0.12	0.05	0.03	0.49	0.39
Queue Length 95th (m)	0.0	0.0	0.7	0.0	14.0
Control Delay (s)	0.0	0.0	7.7	0.0	18.7
Lane LOS			A		C
Approach Delay (s)	0.0		0.4		18.7
Approach LOS					C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	155	120	0
Future Volume (Veh/h)	0	0	0	155	120	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	168	130	0
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	298	130	130			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	298	130	130			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	693	920	1455			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	168	130
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1455	1700
Volume to Capacity	0.00	0.00	0.08
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

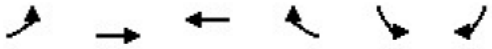
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	0	0	1025	0	0
Future Volume (Veh/h)	383	0	0	1190	0	0
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)	416	0	0	1293	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			416		1062	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			416		1062	208
tC, single (s)			4.1		*5.5	*5.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1139		324	867

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	277	139	0	646	646	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.16	0.08	0.00	0.38	0.38	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	255	885	15	20	140
Future Volume (Veh/h)	87	296	1027	17	23	162
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)	95	322	1116	18	25	176
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	1134				1476	567
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1134				1476	567
tC, single (s)	4.1				*5.5	*5.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				85	70
cM capacity (veh/h)	612				171	586

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	95	161	161	744	390	201
Volume Left	95	0	0	0	0	25
Volume Right	0	0	0	0	18	176
cSH	612	1700	1700	1700	1700	450
Volume to Capacity	0.16	0.09	0.09	0.44	0.23	0.45
Queue Length 95th (m)	4.2	0.0	0.0	0.0	0.0	17.2
Control Delay (s)	12.0	0.0	0.0	0.0	0.0	19.3
Lane LOS	B					C
Approach Delay (s)	2.7			0.0		19.3
Approach LOS						C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	195	80	40	765	135	20
Future Volume (Veh/h)	226	93	46	888	157	23
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)	246	101	50	965	171	25
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			246		1311	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			246		1311	246
tC, single (s)			4.1		*4.5	*5.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		50	97
cM capacity (veh/h)			1320		339	862

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	246	101	50	965	196
Volume Left	0	0	50	0	171
Volume Right	0	101	0	0	25
cSH	1700	1700	1320	1700	368
Volume to Capacity	0.14	0.06	0.04	0.57	0.53
Queue Length 95th (m)	0.0	0.0	0.9	0.0	22.8
Control Delay (s)	0.0	0.0	7.8	0.0	25.4
Lane LOS			A		D
Approach Delay (s)	0.0		0.4		25.4
Approach LOS					D

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	155	120	0
Future Volume (Veh/h)	0	0	0	180	139	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	168	130	0
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	298	130	130			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	298	130	130			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	693	920	1455			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	168	130
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1455	1700
Volume to Capacity	0.00	0.00	0.08
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

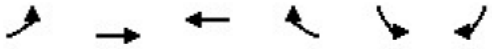
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		11.5%	ICU Level of Service
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	0	0	1025	0	0
Future Volume (Veh/h)	383	35	12	1190	65	22
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)	416	38	13	1293	71	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			454		1108	227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			454		1108	227
tC, single (s)			4.1		*5.5	*5.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		77	97
cM capacity (veh/h)			1103		305	850

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	277	177	13	646	646	95
Volume Left	0	0	13	0	0	71
Volume Right	0	38	0	0	0	24
cSH	1700	1700	1103	1700	1700	408
Volume to Capacity	0.16	0.10	0.01	0.38	0.38	0.23
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.0	6.8
Control Delay (s)	0.0	0.0	8.3	0.0	0.0	17.6
Lane LOS			A			C
Approach Delay (s)	0.0		0.1			17.6
Approach LOS						C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	255	885	15	20	140
Future Volume (Veh/h)	87	318	1039	17	23	162
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)	95	346	1129	18	25	176
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	1147				1501	574
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1147				1501	574
tC, single (s)	4.1				*5.5	*5.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				85	70
cM capacity (veh/h)	605				166	581

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	95	173	173	753	394	201
Volume Left	95	0	0	0	0	25
Volume Right	0	0	0	0	18	176
cSH	605	1700	1700	1700	1700	443
Volume to Capacity	0.16	0.10	0.10	0.44	0.23	0.45
Queue Length 95th (m)	4.2	0.0	0.0	0.0	0.0	17.6
Control Delay (s)	12.1	0.0	0.0	0.0	0.0	19.7
Lane LOS	B					C
Approach Delay (s)	2.6			0.0		19.7
Approach LOS						C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	195	80	40	765	135	20
Future Volume (Veh/h)	248	93	46	899	157	23
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)	270	101	50	977	171	25
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			270		1347	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			270		1347	270
tC, single (s)			4.1		*4.5	*5.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		48	97
cM capacity (veh/h)			1293		329	842

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	270	101	50	977	196
Volume Left	0	0	50	0	171
Volume Right	0	101	0	0	25
cSH	1700	1700	1293	1700	356
Volume to Capacity	0.16	0.06	0.04	0.57	0.55
Queue Length 95th (m)	0.0	0.0	0.9	0.0	24.1
Control Delay (s)	0.0	0.0	7.9	0.0	26.8
Lane LOS			A		D
Approach Delay (s)	0.0		0.4		26.8
Approach LOS					D

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	155	120	0
Future Volume (Veh/h)	0	22	12	180	139	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	13	196	151	0
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	373	151	151			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	373	151	151			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	99			
cM capacity (veh/h)	622	895	1430			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	209	151
Volume Left	0	13	0
Volume Right	24	0	0
cSH	895	1430	1700
Volume to Capacity	0.03	0.01	0.09
Queue Length 95th (m)	0.6	0.2	0.0
Control Delay (s)	9.1	0.5	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.5	0.0
Approach LOS	A		

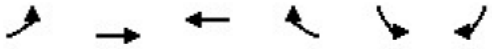
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	11.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1010	0	0	670	0	0
Future Volume (Veh/h)	1010	0	0	670	0	0
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)	1098	0	0	728	0	0
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			1098		1462	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1098		1462	549
tC, single (s)			4.1		*4.5	*5.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			631		309	597

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	732	366	0	364	364	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.43	0.22	0.00	0.21	0.21	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	180	830	520	30	25	150
Future Volume (Veh/h)	180	830	520	30	25	150
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)	196	902	565	33	27	163
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	598				1424	299
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	598				1424	299
tC, single (s)	4.1				*5.5	*5.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				84	79
cM capacity (veh/h)	975				172	786

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	196	451	451	377	221	190
Volume Left	196	0	0	0	0	27
Volume Right	0	0	0	0	33	163
cSH	975	1700	1700	1700	1700	521
Volume to Capacity	0.20	0.27	0.27	0.22	0.13	0.36
Queue Length 95th (m)	5.7	0.0	0.0	0.0	0.0	12.6
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	15.8
Lane LOS	A					C
Approach Delay (s)	1.7			0.0		15.8
Approach LOS						C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	665	190	35	395	155	50
Future Volume (Veh/h)	665	190	35	395	155	50
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)	723	207	38	429	168	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			723		1228	723
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			723		1228	723
tC, single (s)			4.1		*4.5	*5.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		54	90
cM capacity (veh/h)			879		362	545

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	723	207	38	429	222
Volume Left	0	0	38	0	168
Volume Right	0	207	0	0	54
cSH	1700	1700	879	1700	437
Volume to Capacity	0.43	0.12	0.04	0.25	0.51
Queue Length 95th (m)	0.0	0.0	1.0	0.0	21.4
Control Delay (s)	0.0	0.0	9.3	0.0	21.5
Lane LOS			A		C
Approach Delay (s)	0.0		0.8		21.5
Approach LOS					C

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	50.3%	ICU Level of Service		A
Analysis Period (min)	15			

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	205	225	0
Future Volume (Veh/h)	0	0	0	205	225	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	223	245	0
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	468	245	245			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468	245	245			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	553	794	1321			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	223	245
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1321	1700
Volume to Capacity	0.00	0.00	0.14
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

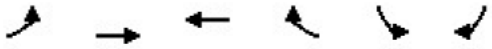
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1010	0	0	670	0	0
Future Volume (Veh/h)	1172	0	0	778	0	0
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)	1274	0	0	846	0	0
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			1274		1697	637
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1274		1697	637
tC, single (s)			4.1		*4.5	*5.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			541		251	542

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	849	425	0	423	423	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.50	0.25	0.00	0.25	0.25	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	180	830	520	30	25	150
Future Volume (Veh/h)	209	963	603	35	29	174
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)	227	1047	655	38	32	189
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	693				1652	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	693				1652	346
tC, single (s)	4.1				*5.5	*5.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				74	75
cM capacity (veh/h)	898				124	746

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	227	524	524	437	256	221
Volume Left	227	0	0	0	0	32
Volume Right	0	0	0	0	38	189
cSH	898	1700	1700	1700	1700	431
Volume to Capacity	0.25	0.31	0.31	0.26	0.15	0.51
Queue Length 95th (m)	7.6	0.0	0.0	0.0	0.0	21.6
Control Delay (s)	10.4	0.0	0.0	0.0	0.0	21.8
Lane LOS	B					C
Approach Delay (s)	1.8			0.0		21.8
Approach LOS						C

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	665	190	35	395	155	50
Future Volume (Veh/h)	772	221	41	458	180	58
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)	839	240	45	498	196	63
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			839		1427	839
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			839		1427	839
tC, single (s)			4.1		*4.5	*5.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		35	87
cM capacity (veh/h)			796		301	486

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	839	240	45	498	259
Volume Left	0	0	45	0	196
Volume Right	0	240	0	0	63
cSH	1700	1700	796	1700	353
Volume to Capacity	0.49	0.14	0.06	0.29	0.73
Queue Length 95th (m)	0.0	0.0	1.4	0.0	42.4
Control Delay (s)	0.0	0.0	9.8	0.0	38.6
Lane LOS			A		E
Approach Delay (s)	0.0		0.8		38.6
Approach LOS					E

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	205	225	0
Future Volume (Veh/h)	0	0	0	238	261	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	259	284	0
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	543	284	284			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543	284	284			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	501	755	1278			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	259	284
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1278	1700
Volume to Capacity	0.00	0.00	0.17
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

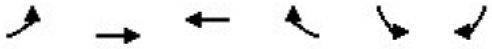
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		15.2%	ICU Level of Service
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1010	0	0	670	0	0
Future Volume (Veh/h)	1172	68	23	778	51	17
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)	1274	74	25	846	55	18
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			1348		1784	674
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1348		1784	674
tC, single (s)			4.1		*4.5	*5.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		75	97
cM capacity (veh/h)			507		221	520

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	849	499	25	423	423	55	18
Volume Left	0	0	25	0	0	55	0
Volume Right	0	74	0	0	0	0	18
cSH	1700	1700	507	1700	1700	221	520
Volume to Capacity	0.50	0.29	0.05	0.25	0.25	0.25	0.03
Queue Length 95th (m)	0.0	0.0	1.2	0.0	0.0	7.2	0.8
Control Delay (s)	0.0	0.0	12.5	0.0	0.0	26.6	12.2
Lane LOS			B			D	B
Approach Delay (s)	0.0		0.4			23.0	
Approach LOS						C	

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	180	830	520	30	25	150
Future Volume (Veh/h)	209	981	627	35	29	174
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)	227	1066	682	38	32	189
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	720				1688	360
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	720				1688	360
tC, single (s)	4.1				*5.5	*5.5
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				73	74
cM capacity (veh/h)	877				117	735

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	227	533	533	455	265	221
Volume Left	227	0	0	0	0	32
Volume Right	0	0	0	0	38	189
cSH	877	1700	1700	1700	1700	417
Volume to Capacity	0.26	0.31	0.31	0.27	0.16	0.53
Queue Length 95th (m)	7.9	0.0	0.0	0.0	0.0	22.9
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	22.9
Lane LOS	B					C
Approach Delay (s)	1.8			0.0		22.9
Approach LOS						C

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	665	190	35	395	155	50
Future Volume (Veh/h)	789	221	41	482	180	58
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)	858	240	45	524	196	63
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			858		1472	858
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			858		1472	858
tC, single (s)			4.1		*4.5	*5.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		32	87
cM capacity (veh/h)			783		289	477

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	858	240	45	524	259
Volume Left	0	0	45	0	196
Volume Right	0	240	0	0	63
cSH	1700	1700	783	1700	340
Volume to Capacity	0.50	0.14	0.06	0.31	0.76
Queue Length 95th (m)	0.0	0.0	1.4	0.0	45.7
Control Delay (s)	0.0	0.0	9.9	0.0	42.5
Lane LOS			A		E
Approach Delay (s)	0.0		0.8		42.5
Approach LOS					E

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	205	225	0
Future Volume (Veh/h)	0	17	23	238	261	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	18	25	259	284	0
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	593	284	284			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	593	284	284			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	98			
cM capacity (veh/h)	459	755	1278			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	18	284	284
Volume Left	0	25	0
Volume Right	18	0	0
cSH	755	1278	1700
Volume to Capacity	0.02	0.02	0.17
Queue Length 95th (m)	0.6	0.5	0.0
Control Delay (s)	9.9	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	9.9	0.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		