1919 Riverside Drive

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report (Revised)

Prepared for:

Schlegel Villages
325 Max Becker Drive #201
Kitchener, ON, N2E 4H5

Prepared by:

13 Markham Avenue
Ottawa, ON K2G 3Z1

April 2022

PN: 2021-045

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1 Screening

This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This TIA is in support of a zoning by-law amendment and site plan application.

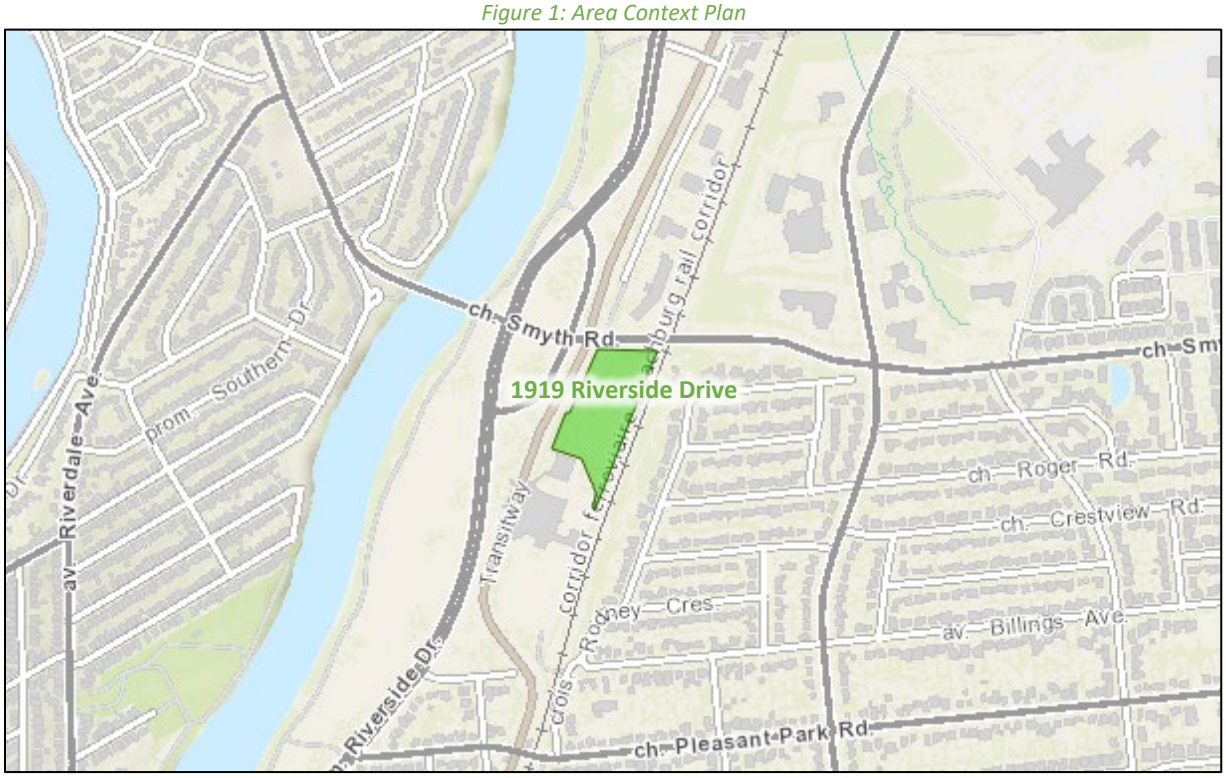
2 Existing and Planned Conditions

2.1 Proposed Development

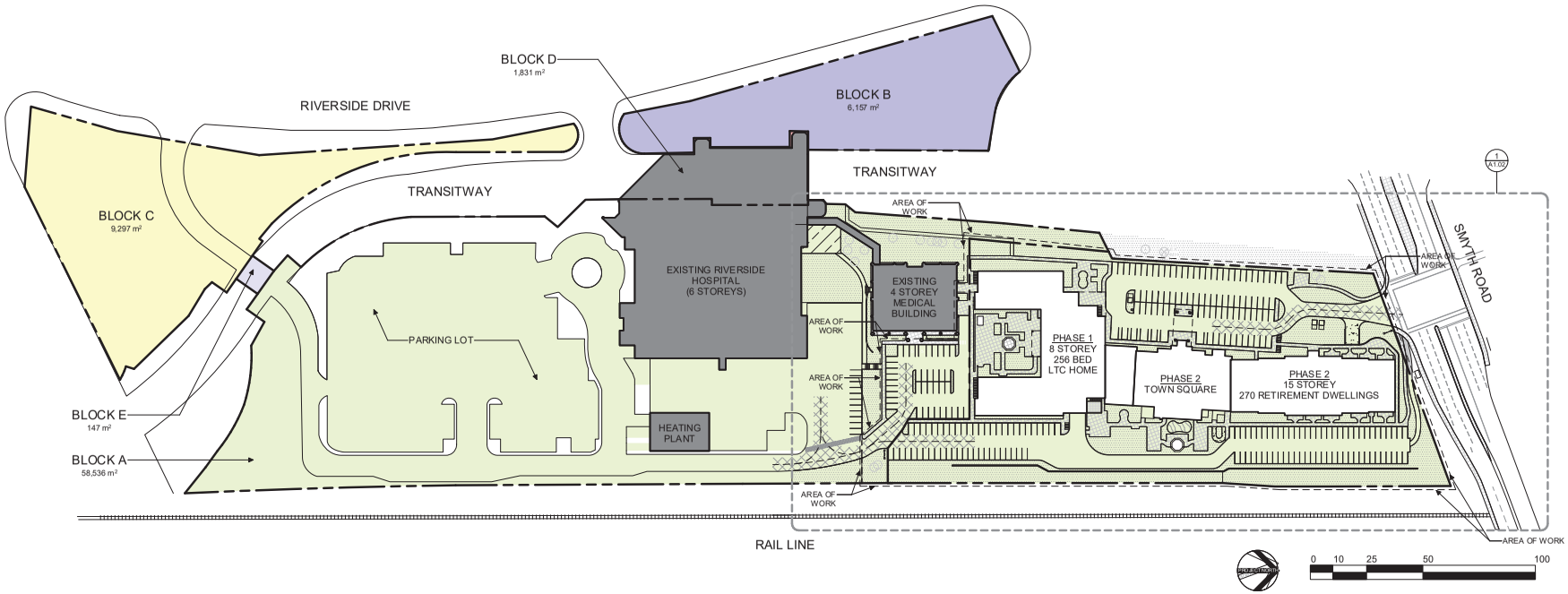
The subject site is currently zoned as Major Institutional (I2 F(1.0)) and is occupied by The Ottawa Hospital Riverside Campus' surface parking lots. The development concept proposes the replacement of these parking facilities with a continuing care facility comprising an eight-storey building with 256 long-term care beds and a 15-storey building with 270 retirement dwelling units, each structure connected by a town square building. Total parking for the development is proposed as 275 vehicle spaces with 209 in surface lots and 66 underground. Access to two surface lots is proposed via a connection to the hospital's existing signalized access intersection with Riverside Drive, and access to the underground parking and another surface lot is proposed via the hospital's existing signalized intersection at Smyth Road. Through the redevelopment, the hospital's access to Smyth Road is proposed as being severed with this access only serving the proposed development. The long-term care home structure is to be built-out in the first phase and the retirement dwelling structure and town square connection are to be built-out in the second phase, by 2026.

Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: April 28, 2021



1 SITE PLAN - CAMPUS PLAN
A1.01 1 : 1000 (WHEN PLOTTED ON A1 SIZED SHEET)

LEGAL DESCRIPTION:

PART OF WESTERLY, NORTHERLY AND EASTERLY LIMIT OF PIN 04201-0191 AND ALL OF PIN 04201-0147 BEING

PART OF LOTS 15 AND 16
CONCESSION JUNCTION GORE AND PART OF ROAD ALLOWANCE BETWEEN LOTS 15 AND 16
CONCESSION JUNCTION GORE
(CLOSED BY BY-LAW 174-88, INST. N451929)
GEOGRAPHIC TOWNSHIP OF CLOUCESTER
CITY OF OTTAWA

REFERENCE SURVEY:

BASED ON INFORMATION FROM A PLAN OF SURVEY PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DATED JANUARY 6, 2021.

ADDITIONAL INFORMATION OBTAINED FROM A SURVEY PREPARED BY FAIRHALL MOFFATT & WOODLAND DATED DECEMBER 20, 2011.

MUNICIPAL ADDRESS:

1919 RIVERSIDE DRIVE, OTTAWA, ONTARIO.

ZONING INFORMATION:

SITE AREA: (ENTIRE HOSPITAL)	75,968 m²
SITE AREA: (SCHLEGEL VILLAGES)	20,571 m²
BUILDING AREA:	5,858 m²
BUILDING HEIGHT:	PHASE 1 LONG TERM CARE - 27.7 m PHASE 2 RETIREMENT HOME - 52.6 m
PARKETTE AREA:	517.0 m²
ZONE:	MAJOR INSTITUTIONAL
SCHEDULE 1:	AREA B
SCHEDULE 1A:	AREA X
SCHEDULE 2:	Within 300 m of a Rapid Transit Station

FLOOR SPACE INDEX CALCULATION:

HOSPITAL FLOOR AREA (EXCL. BASEMENT)	28,262 m²
MEDICAL BUILDING FLOOR AREA	5,030 m²
TOTAL EXISITNG FLOOR AREA	**33,292 m²**
AREA BLOCK A	58,536 m²
EXISTING FSI	**0.57**
AREA BLOCKS A, B, C & D	75,968 m²
EXISTING FSI	**0.44**
PROPOSED SENIORS VILLAGE TOTAL PROPOSED AREA	27,711 m² 61,003 m²
PROPOSED FSI (INCLUDING BLOCKS A, B, C, D)	**0.80**
MAXIMUM PERMITTED	1.0

SITE PLAN GENERAL NOTES:

1. ALL GENERAL SITE INFORMATION AND CONDITIONS COMPILED FROM EXISTING PLANS AND SURVEYS
2. DO NOT SCALE THIS DRAWING
3. REPORT ANY DISCREPANCIES PRIOR TO COMMENCING WORK. NO RESPONSIBILITY IS BORN BY THE CONSULTANT FOR UNKNOWN SUBSURFACE CONDITIONS
4. CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY ERRORS AND/OR OMISSIONS TO THE CONSULTANT
5. REINSTATE ALL AREAS AND ITEMS DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES TO THE SATISFACTION OF THE CONSULTANT
6. CONTRACTOR TO LAYOUT PLANTING BEDS, PATHWAYS ETC. TO APPROVAL OF CONSULTANT PRIOR TO ANY JOB EXCAVATION
7. THE ACCURACY OF THE POSITION OF UTILITIES IS NOT GUARANTEED - CONTRACTOR TO VERIFY PRIOR TO EXCAVATION
8. INDIVIDUAL UTILITY COMPANY MUST BE CONTACTED FOR CONFIRMATION OF UTILITY EXISTENCE AND LOCATION PRIOR TO DIGGING
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE NOTED

ZONING PROVISION	REQUIRED	PROVIDED
MAXIMUM GFA OF ANCILLARY USES	Max. 10% of total GFA	0
MIN. LOT WIDTH	No Minimum	9.4m
MIN. LOT AREA	No Minimum	-
MIN. FRONT YARD SETBACK	7.5 m	3.99 m*
MIN. REAR YARD SETBACK	7.5 m	n/a
MIN. INTERIOR YARD SETBACK	3.0 m	10.5 m & 27.9 m
MAX. HEIGHT	No Maximum (more than 12 m from an R1-3 Zone)	-
AMENITY AREA	Retirement Home: 250 Units x 6 m² = 1,500 m² Residential Care Facilty: 10% of the GFA of each unit = 1,010 m²	2,847 m² LTC Garden, Village Courtyard, Common Garden & Area West of LTC
LANDSCAPED BUFFER	3.0 m at all property lines	1.5 m at West property line*

* indicates variance required

PARKING PROVISIONS:

ENTIRE HOSPITAL SITE

ZONING PROVISION	REQUIRED	PROVIDED
HOSPITAL (Area - 29,922 m²)	209 (Minimum 0.7 spaces/100 m²)	393
MEDICAL BUILDING (Area 3,380 m²)	68 (Minimum 2.0 spaces/100 m²)	39
Total Requirement for Existing	**277**	**432**

ZONING PROVISION	REQUIRED	PROVIDED
SCHLEGEL VILLAGES SITE		
Residential Care Units - 256	32 (0.125 per Unit)	
Retirement Home Units - 270	68 (0.25 per Unit)	
Residential Care Services (Area - 350 m²)	2 (0.5 spaces per 100m²)	
Retirement Home Sevices (Area - 350 m²)	4 (1.0 space /100 m2)	
Visitor Spaces	27 (0.1 spaces per Retirment Dwelling Unit	
Total	**133**	**275** (Including 66 underground spaces)
Typical Parking Space Dimensions	2.6 m x 5.2 m	2.6 m x 5.2 m
Reduced Size Parking Dimensions	2.4 m x 5.2 m	2.4 m x 5.2 m
Number of Reduced Size Spaces (40% of non visitor spaces)	99 spaces	88 spaces
Barrier-Free Parking	7 spaces (2% + 2)	11 spaces
Type A Spaces	3 spaces	6 spaces
Type B Spaces	4 spaces	5 spaces
Driveway Width	6.0 Minimum	6.0 Minimum
Drive Aisle Width	6.0 m Min. (Accessory to residential use) 6.7 m Min. (Accessory to other uses)	6.0 m & 6.7 m (refer to plans)
Minimum Parking Lot Landscaping	887 m² (15% of parking lot area)	3,972 m²

ZONING PROVISION	REQUIRED	PROVIDED
Minimum Required Bicycle Parking		
Retirement Home	68 spaces (0.25 per dwelling unit)	
Long Term Care Home	6 spaces (One space per 1,500 m² GFA)	
Total Bicycle Parking Spaces	**74**	**76**
Minimum Bicycle Parking Dimensions	0.6 m x 1.8 m	0.6 m x 1.8 m
Minimum Required Loading Spaces (Long Term Care Home)	2	2
Minimum Loading Space Dimensions	3.5 m x 7.0 m	3.5 m x 7.0 m
Loading Space Drive Aisle	9.0 m	8.6 m

100-190 O'Connor St. Ottawa ON, Canada K 5C7
P 613 544 8118
www.csv.ca

CSV ARCHITECTS
sustainable design - conception écologique

2021-12-23	RESPOND TO SITE PLAN COMMENTS
2022-04-06	RESPOND TO SITE PLAN COMMENTS - RE-SUBMISSION

SCHLEGEL VILLAGES

SCHLEGEL VILLAGES OTTAWA
SMYTH ROAD & RIVERSIDE DRIVE, OTTAWA, ONTARIO

CAMPUS PLAN AND ZONING INFORMATION

Project No.: 202090
Drawn By: MM
Plot Date: 2022-04-06 2:02:07:10 PM

A1.01

City Project Number: D07-12-21-0170

2.2 Existing Conditions

2.2.1 Area Road Network

Riverside Drive: Riverside Drive is a City of Ottawa arterial road with a divided four-lane urban cross-section including a sidewalk on the east side of the road. Bike lanes are along both sides of the road north of the Smyth Road north ramp. On the east side of Riverside Drive, an auxiliary receiving lane from the hospital access transitions to a transit priority lane to the Transitway access, which becomes an auxiliary turn lane for the downstream ramp to Smyth Road. The posted speed limit is 60 km/h and the City-protected right of way is 44.5 metres to the north and 37.5 metres to the south of Smyth Road within the study area.

Smyth Road: Smyth Road is a City of Ottawa arterial road with a divided four-lane urban cross-section including sidewalks on both sides of the road. Bike lanes are along both sides of the road west of the ramps to Riverside Drive. Smyth Road passes over the Transitway and Riverside Drive, and the cross-section is undivided west of the ramps to Riverside Drive. The posted speed limit is 50 km/h and the City-protected right of way is 30.0 metres east of Alta Vista Drive and the measured right of way is 42.5 metres between Alta vista and the Transitway, and 67.5 metres to the west within the study area.

Alta Vista Drive: Alta Vista Drive is a City of Ottawa major collector road with a two-lane urban cross-section including bike lanes and sidewalks on both sides of the road. The posted speed limit is 50 km/h and the City-protected right of way is subject to the Alta Vista Transportation Corridor Environmental Assessment Study and the measured right of way is 30.5 metres within the study area.

2.2.2 Existing Intersections

The key existing signalized area intersections within 400 metres of the site have been summarized below:

Smyth Road North Ramp at Riverside Drive	The intersection of the Smyth Road north ramp at Riverside Drive is a signalized intersection. The northbound approach of Riverside Drive consists of two through lanes and an auxiliary channelized right-turn lane, and the southbound approach consists of two through lanes and an auxiliary left-turn lane. The westbound approach consists of a left-turn lane and an auxiliary channelized right-turn lane, and an upstream inlet to the transitway is located adjacent to the right-turn channel. Northbound U-turns are restricted at this intersection.
Smyth Road South Ramp at Riverside Drive	The intersection of the Smyth Road south ramp at Riverside Drive is a signalized intersection. The northbound approach consists of two through lanes and a right-turn lane, and the southbound approach consists of two through lanes and an auxiliary left-turn lane. The westbound approach consists of a left-turn lane and an auxiliary channelized right-turn lane. Northbound U-turns are restricted at this intersection.
Transitway at Riverside Drive	The intersection of the Transitway at Riverside Drive is a signalized intersection. The northbound approach consists of two through lanes and an auxiliary channelized transit-only right-turn lane and the southbound approach consist of a through lane and a shared through/transit-only left-turn lane. The westbound approach consists of a shared right-turn/left-turn lane. All turning movements onto the east leg of the intersection are restricted to buses only.

The Ottawa Hospital Riverside Campus at Riverside Drive	The intersection of The Ottawa Hospital Riverside Campus access at Riverside Drive is a signalized intersection. The northbound approach consists of two through lanes and a right-turn lane, and the southbound approach consists of two through lanes and an auxiliary left-turn lane. The westbound approach consists of a left-turn lane and an auxiliary channelized right-turn lane. No turn restrictions were noted.
Smyth Road at Ramps to Riverside Drive	The intersection of Smyth Road at its ramps to Riverside Drive is an unsignalized intersection, yield controlled on the minor approaches of the ramps. The northbound and southbound approaches each consist of a channelized right-turn lane and the eastbound and westbound approaches each consist of two through lanes and an auxiliary right-turn lane. A median and right-turn islands prevent all but the right-turn movement on all approaches and the through movements on the eastbound and westbound approaches. No turn restrictions were noted beyond the physical restrictions of the centre median.
Smyth Road at The Ottawa Hospital Riverside Campus	The intersection of Smyth Road at The Ottawa Hospital Riverside Campus access is a signalized intersection. The northbound approach consists of an auxiliary left-turn lane and a right-turn lane and the southbound approach consists of a ten-metre segment of two-way bicycle path that connects to a sidewalk to the north. The eastbound approach consists of two through lanes and a shared through/right-turn lane and the westbound approach consists of an auxiliary left-turn lane, two through lanes, and an auxiliary through lane. No turn restrictions were noted.
Smyth Road at Alta Vista Drive	The intersection of Smyth Road at Alta Vista Drive is a signalized intersection with auxiliary left-turn lanes and auxiliary channelized right-turn lanes on each approach. The northbound and southbound approaches each also have a through lane and a bike lane between the through and right-turn lanes, and the eastbound and westbound approaches each also have two through lanes. A mixed-use path (MUP) extension of Balmoral Place connects to the intersection at the pedestrian crossing of the southwest turn channel. No turn restrictions were noted.

2.2.3 Existing Driveways

No driveways are present along Smyth Road within 200 metres of the site access. Eight driveways to detached residential dwellings are present on the east side of Riverside Drive south of The Ottawa Hospital Riverside Campus access at Riverside Drive intersection.

The subject redevelopment proposes severing The Ottawa Hospital Riverside Campus' access to Smyth Road, which would redirect all of the hospital traffic to the Riverside Drive access.

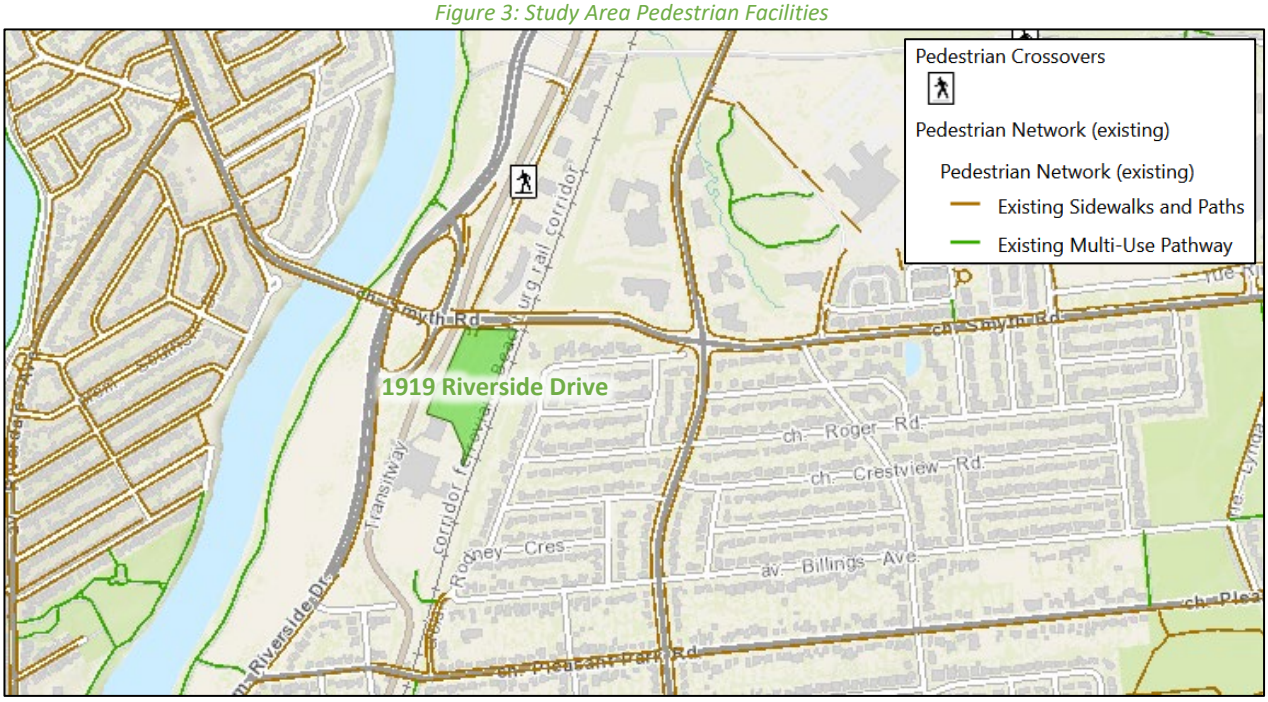
2.2.4 Cycling and Pedestrian Facilities

Figure 3 illustrates the pedestrian facilities in the study area and Figure 4 illustrates the cycling facilities.

Sidewalks are provided along both sides of Smyth Road, its ramps to Riverside Drive, and Alta Vista Drive and along the east side of Riverside Drive. A pedestrian pathway is present opposite The Ottawa Hospital Riverside Campus at Smyth Road.

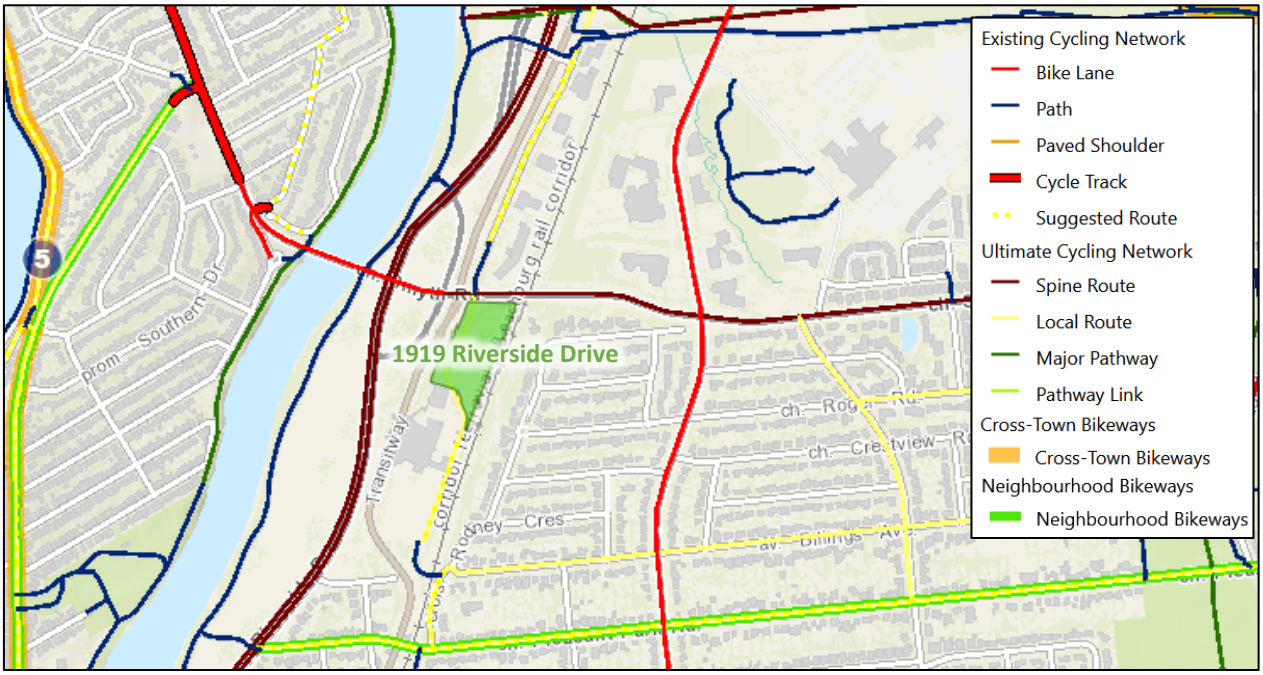
Cycling facilities include bike lanes along Alta Vista Drive, Riverside Drive to the north of the north ramp to Smyth Road, and along Smyth Road west of its ramps to Riverside Drive. The Rideau River Eastern Pathway is present along the east side of the river and the Rideau River Nature Trail is present along the west side within the study area. Riverside Drive, Smyth Road, and Alta Vista Drive are spine routes, Frobisher Lane is a local route that continues through the subject site connecting to Rodney Crescent and Billings Avenue

Figure 3: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: April 28, 2021

Figure 4: Study Area Cycling Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: April 28, 2021

Pedestrian and cyclist volumes included in study area intersection counts, presented in Section 2.2.7, have been compiled and are illustrated in Figure 5 and Figure 6 respectively.

Figure 5: Existing Pedestrian Volumes

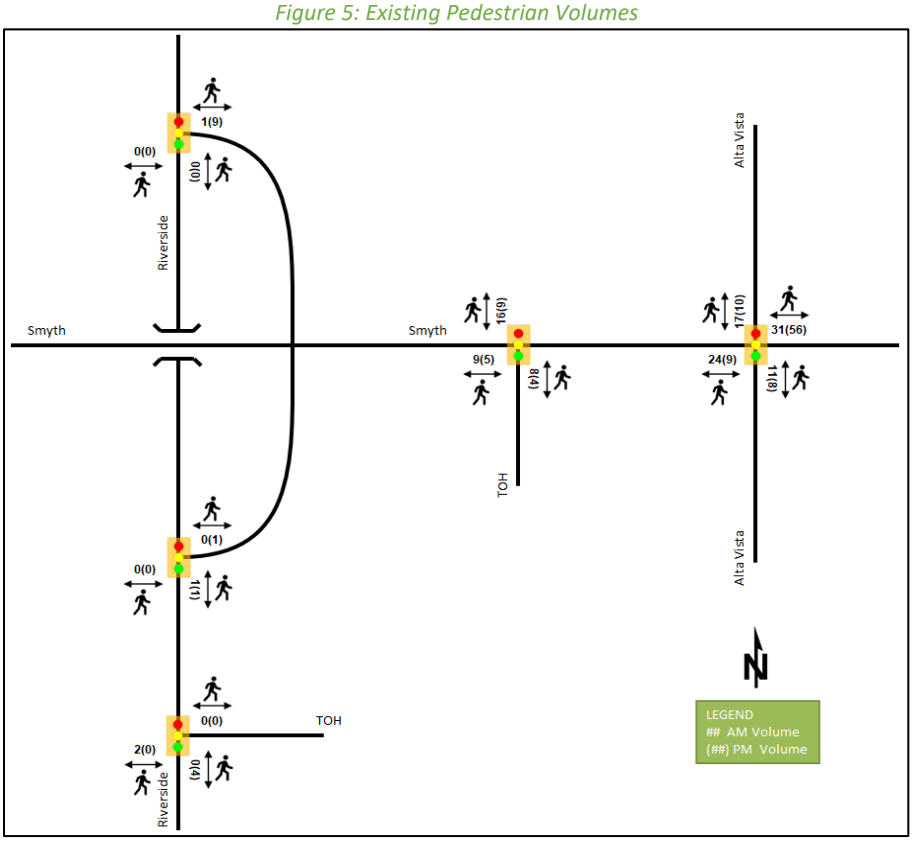
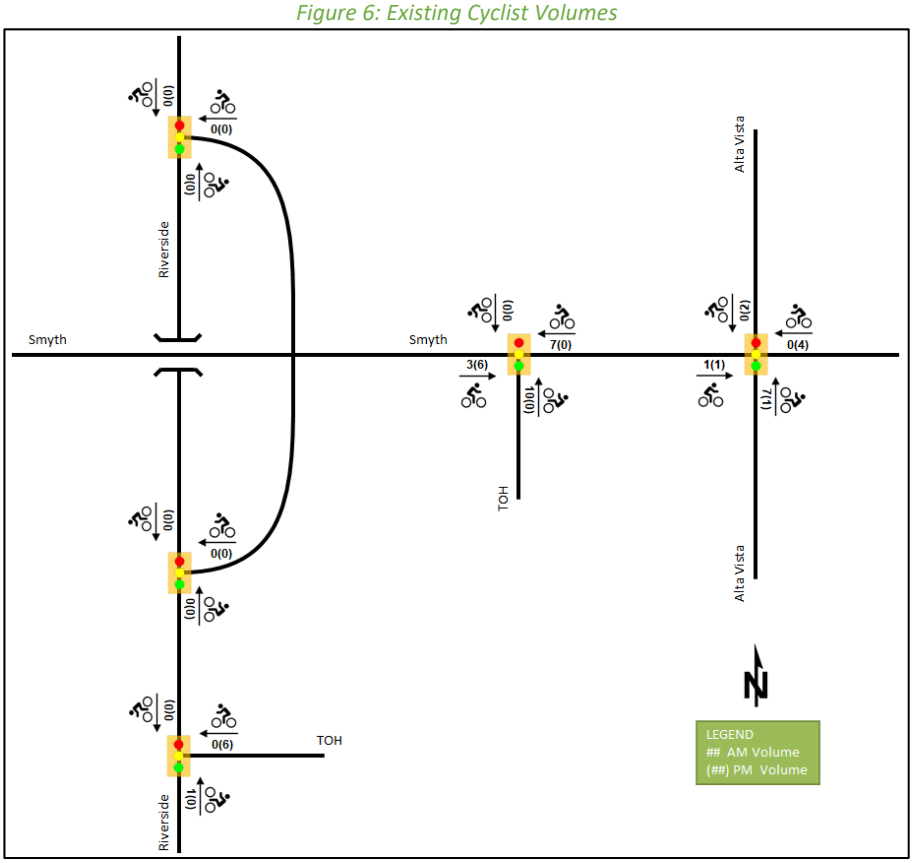


Figure 6: Existing Cyclist Volumes



2.2.5 Existing Transit

Within the study area, the routes #10, 40, 48, 49, 88, 90, 92, 93, 96, 97, 98, 99, 190, 199, 290, 291, 294, 299 travel along the transitway stopping at Riverside Station, the route #55 travels along Smyth Road, and the route #44 travels along Alta Vista Drive. The frequency of these routes within proximity of the proposed site currently are:

- Route # 10 – 15-minute daytime service, 30-minute after 6:30PM
- Route # 40 – 15-minute service in the peak period/direction only
- Route # 44 – 15-minute daytime service, 30-minute after 7:00PM
- Route # 48 – 15-minute service in peak period/direction, 30-minute daytime service, one-hour service after 8:00PM
- Route # 49 – 20-30-minute service operating primarily during peak periods
- Route # 55 – 15-minute daytime service, 30-minute after 7:00PM
- Route # 88 – 7-10-minute service during peak periods, 15-minute daytime service, 20-minute service after 9:00PM
- Route # 90 – 15-minute daytime service, 30-minute service after 7:00PM
- Route # 92 – 15-minute service during peak periods, 30-minute service all day
- Route # 93 – 7-10-minute service in peak direction, 30-minute service in off-peak direction, operating during peak periods only
- Route # 96 – 15-minute service in peak period/direction, one-hour service all day
- Route # 97 – 15-minute service all day
- Route # 98 – 15-minute daytime service, 30-minute after 8:00PM

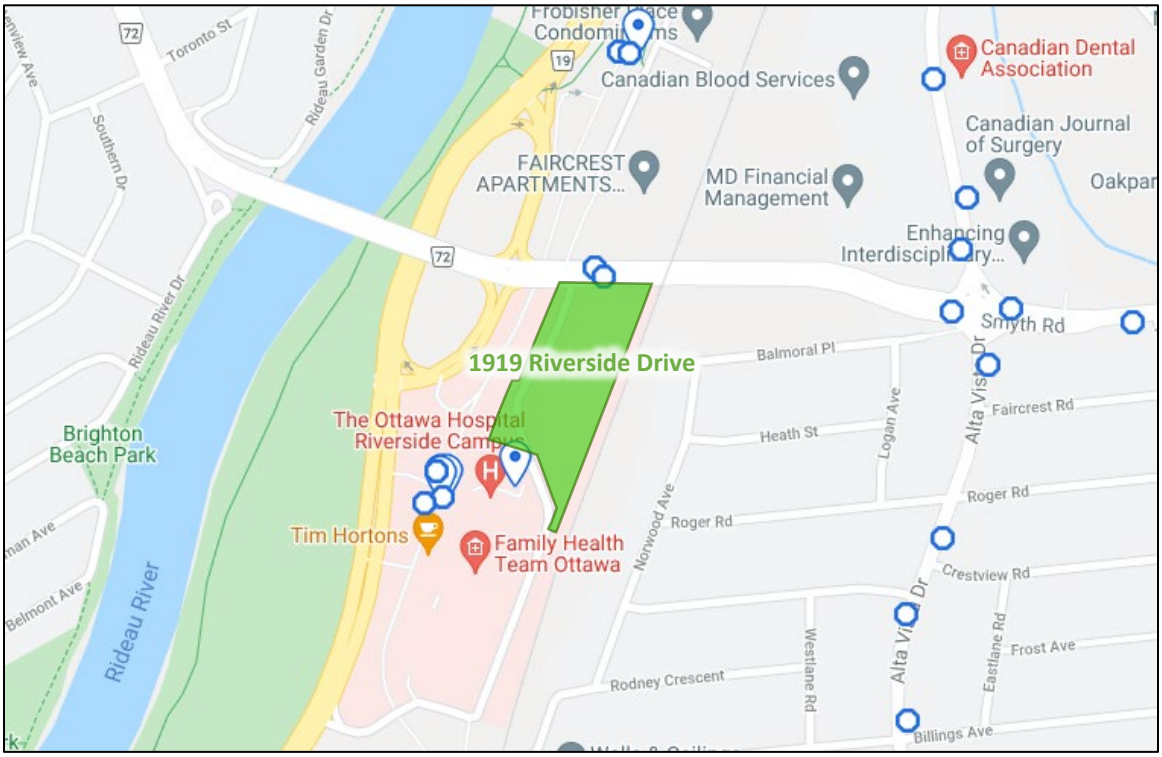
- Route # 99 – 15-minute service in peak direction, 30-minute service in off-peak direction, operating during peak periods only
- Route # 190 – one bus in each direction per peak period
- Route # 199 – two buses each peak period/direction only
- Route # 290 – 30-minute service in peak period/direction only
- Route # 291 – 15-30-minute service in peak period/direction only
- Route # 294 – 30-minute service in peak period/direction only
- Route # 299 – two buses each peak period/direction only

Figure 7 illustrates the transit system map in the study area and Figure 8 illustrates nearby transit stops.

Figure 7: Existing Study Area Transit Service

Source: http://www.octranspo.com/ Accessed: April 28, 2021

Figure 8: Existing Study Area Transit Stops



Source: http://www.octranspo.com/ Accessed: April 28, 2021

2.2.6 Existing Area Traffic Management Measures

There are no existing area traffic management measures within the study area.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were acquired from the City of Ottawa for the existing study area intersections. Table 1 summarizes the intersection count dates.

Table 1: Intersection Count Date

Intersection	Count Date
Smyth Road North Ramp at Riverside Drive	Wednesday, November 29, 2017
Smyth Road South Ramp at Riverside Drive	Tuesday, November 21, 2017
The Ottawa Hospital RC at Riverside Drive	Thursday, August 20, 2015
Smyth Road at The Ottawa Hospital RC	Tuesday, November 20, 2018
Smyth Road at Alta Vista Drive	Wednesday, February 14, 2018

Figure 9 illustrates the existing traffic counts balanced along the Riverside Drive and Smyth Road Corridors and Table 2 summarizes the existing intersection operations. It is noted that the volumes at the intersection of Smyth Road with its ramps to Riverside Drive were estimated from the adjacent intersection volumes. The level of service for signalized intersections is based on volume-to-capacity ratio (v/c) calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 9: Existing Traffic Counts

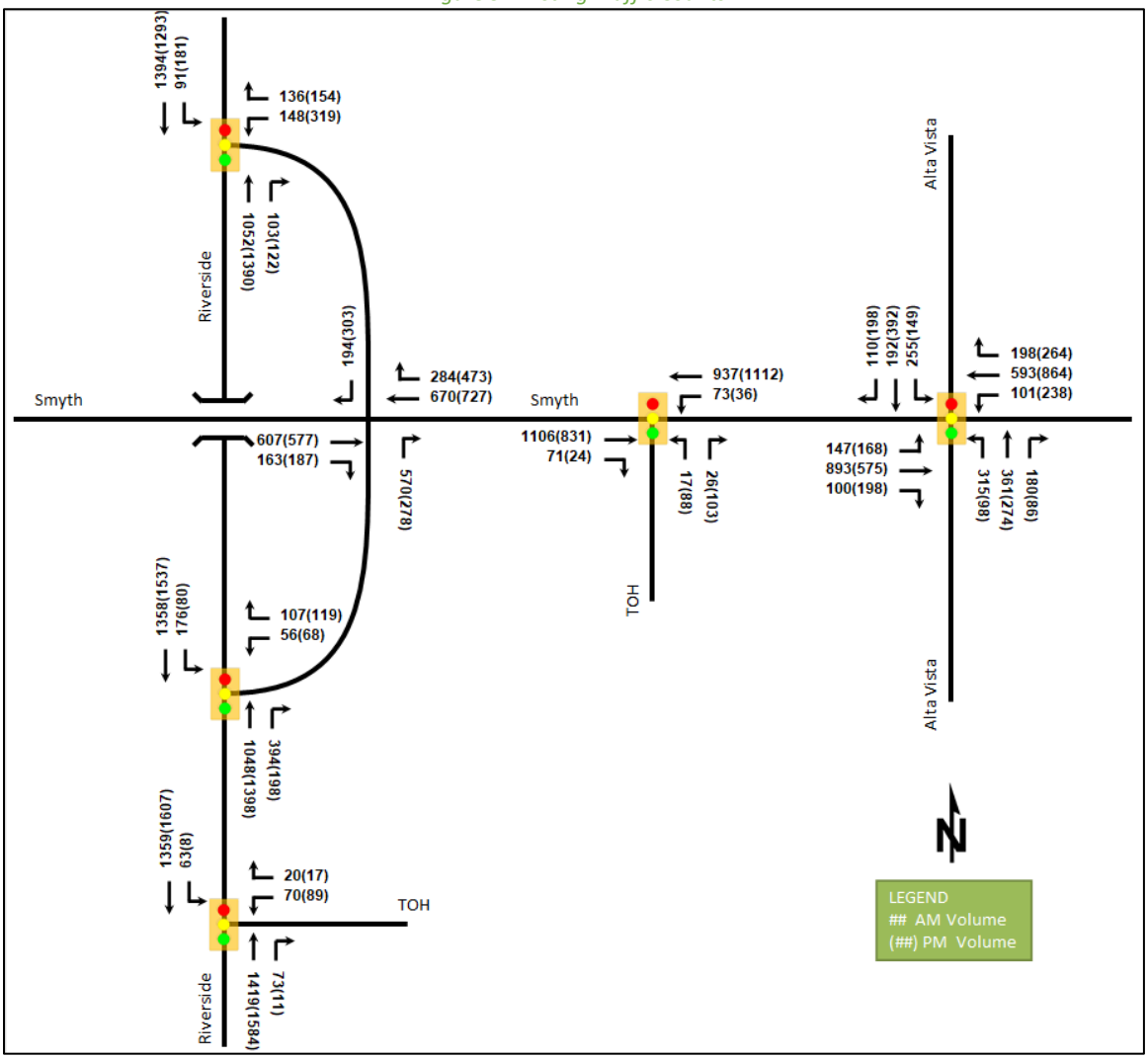


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive ***Signalized***	WBL	B	0.62	45.2	43.3	D	0.90	59.7	**#104.9**
	WBR	A	0.50	19.6	24.4	A	0.48	27.2	38.0
	NBT	A	0.49	1.6	7.6	C	0.74	4.7	24.0
	NBR	A	0.11	0.2	m0.2	A	0.14	0.5	m0.0
	SBL	A	0.38	11.3	19.5	**F**	**1.75**	**391.9**	**#75.3**
	SBT	B	0.66	9.4	106.2	B	0.68	13.0	101.3
	Overall	**B**	**0.65**	**8.6**	-	**F**	**1.51**	**33.9**	-
Smyth Road South Ramp at Riversie Drive ***Signalized***	WBL	A	0.33	41.3	21.4	A	0.40	42.5	24.6
	WBR	A	0.43	12.4	14.5	A	0.44	11.6	15.0
	NBT	A	0.59	9.9	41.9	C	0.74	11.8	70.9
	NBR	A	0.42	2.0	16.4	A	0.22	2.8	m12.0
	SBL	A	0.49	10.6	m29.8	A	0.39	10.5	m10.0
	SBT	A	0.57	9.2	129.8	B	0.69	10.6	115.6
	Overall	**B**	**0.62**	**9.3**	-	**C**	**0.72**	**11.3**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
The Ottawa Hospital Riverside Campus at Riverside Drive ***Signalized***	WBL	A	0.34	36.6	21.1	A	0.46	43.1	30.0
	WBR	A	0.10	12.7	5.4	A	0.09	15.2	5.9
	NBT	B	0.62	8.0	129.8	B	0.66	7.1	107.2
	NBR	A	0.07	3.0	7.9	A	0.01	2.6	1.6
	SBL	A	0.40	11.8	m8.5	A	0.06	3.6	m0.6
	SBT	A	0.59	4.8	61.9	B	0.67	4.6	53.7
	Overall	**A**	**0.60**	**7.2**	**-**	**B**	**0.68**	**6.9**	**-**
Smyth Road at The Ottawa Hospital Riverside Campus ***Signalized***	EBT	A	0.37	8.7	70.0	A	0.31	7.7	48.1
	WBL	A	0.34	17.9	26.1	A	0.13	9.9	10.5
	WBT	A	0.29	8.1	53.0	A	0.40	8.4	66.1
	NBL	A	0.06	25.8	7.4	A	0.32	26.4	22.7
	NBR	A	0.10	9.8	6.0	A	0.31	7.2	10.6
	SBT	A	-	-	-	A	-	-	-
	Overall	**A**	**0.34**	**8.9**	**-**	**A**	**0.39**	**8.8**	**-**
Smyth Road at Alta Vista Drive ***Signalized***	EBL	A	0.55	26.9	35.9	C	0.75	39.2	**#51.8**
	EBT	E	0.95	57.1	**#160.7**	A	0.57	33.6	81.6
	EBR	A	0.21	3.1	6.9	A	0.37	11.6	30.2
	WBL	A	0.58	34.2	28.7	B	0.69	25.9	49.8
	WBT	B	0.67	39.9	91.2	C	0.76	36.2	123.8
	WBR	A	0.45	15.3	35.7	A	0.54	17.8	52.3
	NBL	C	0.80	40.0	**#89.7**	A	0.60	39.1	29.1
	NBT	D	0.87	60.8	**#139.3**	C	0.79	58.6	**#108.3**
	NBR	A	0.41	13.9	30.2	A	0.22	3.1	4.7
	SBL	E	0.94	63.6	**#89.8**	A	0.60	35.3	42.6
	SBT	A	0.47	39.2	63.1	**F**	**1.03**	**94.0**	**#166.6**
	SBR	A	0.25	5.1	10.5	A	0.48	17.7	37.3
	Overall	**E**	**0.91**	**42.6**	**-**	**D**	**0.87**	**38.9**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 0.90
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections operate satisfactorily where queuing issues are present at the intersection of Smyth Road and Alta Vista Drive and capacity issues are noted on various movements throughout the study area.

The intersection of the Smyth Road north ramp at Riverside Drive is modelled as being over theoretical capacity during the PM peak hour. The westbound left movement may exhibit extended queues, and the southbound left-turn movement is over theoretical capacity and may experience high delays and extended queues also during the PM peak hour.

The Smyth Road at Alta Vista Drive intersection may exhibit extended queues on the eastbound through, northbound left, northbound through, and southbound left movements during the AM peak hour and on the eastbound left and northbound through movements during the PM peak hour. The southbound through movement is also over theoretical capacity during the PM peak hour and may be subject to high delays and extended queues.

Mitigation during the PM peak hour for the intersection of the Smyth Road north ramp at Riverside Drive may include the addition of a protected southbound left-turn phase which would reduce v/c of all movements at this

intersection to 1.00 or below with existing traffic. Signal phase optimization could resolve the theoretical capacity issues at the intersection of Smyth Road at Alta Vista Drive.

2.2.8 Collision Analysis

Collision data have been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study are road network. Table 3 summarizes the collisions types and conditions in the study area, Figure 10 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data are included in Appendix D.

Table 3: Study Area Collision Summary, 2015-2019

		Number	%
Total Collisions		**225**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	48	21%
	Property Damage Only	177	79%
Initial Impact Type	**Angle**	12	5%
	Rear end	100	44%
	Sideswipe	18	8%
	Turning Movement	76	34%
	SMV Other	14	6%
	Other	5	2%
Road Surface Condition	**Dry**	164	73%
	Wet	37	16%
	Loose Snow	7	3%
	Slush	5	2%
	Packed Snow	3	1%
	Ice	9	4%
Pedestrian Involved		1	0%
Cyclists Involved		6	3%

Figure 10: Study Area Collision Records – Representation of 2015-2019

Table 4: Summary of Collision Locations, 2015-2019

	Number	%
Intersections / Segments	**225**	**100%**
Smyth Road North Ramp at Riverside Drive	30	11%
Smyth Road South Ramp at Riverside Drive	38	13%
The Ottawa Hospital RC at Riverside Drive	11	4%
Smyth Road at Ramps to Riverside Drive	19	7%
Smyth Road at The Ottawa Hospital RC	18	6%
Smyth Road at Alta Vista Drive	98	35%
Smyth Road between Riverside Hospital & Smyth Road South Side Ramp	5	2%
Smyth Road between Riverside Hospital & Alta Vista Drive	6	2%

Within the study area, the intersections of the Smyth Road north ramp at Riverside Drive, the Smyth Road south ramp at Riverside Drive, Smyth Road at its ramps to Riverside Drive, Smyth Road at The Ottawa Hospital Riverside Campus, and Smyth Road at Alta Vista Drive are noted to have experienced higher collisions than other locations. Table 5, Table 6, Table 7, Table 8 and Table 9 summarize the collision types and conditions for the intersections of Smyth Road at its ramps to Riverside Drive, Smyth Road at The Ottawa Hospital Riverside Campus, and Smyth Road at Alta Vista Drive respectively.

It is additionally noteworthy that the three cyclist collisions occurred on the segment of Smyth Road between The Ottawa Hospital Riverside Campus access and the south side ramp to Riverside Drive. As the bike lane ends before the south side ramp, cyclists are left to navigate a short lane between the ramp and the Ottawa Hospital access and either merging into vehicles flowing onto Smyth Road or avoiding vehicles merging through them onto the continuous lanes on Smyth Road.

The Smyth Road Cycling Safety Improvements project includes the goal of modifying the ramps on Smyth Road and to provide cycling facilities between Riverside Drive and the hospital access. The City's design team is currently

finalizing plans, which currently include the removal of the dedicated receiving lane from the Riverside Drive south ramp and the inclusion of cycletracks through the intersection. As this area is being addressed, no mitigation is required as part of the subject development application.

Table 5: Smyth Road North Ramp at Riverside Drive Collision Summary

		Number	%
Total Collisions		**30**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	6	20%
	Property Damage Only	24	80%
Initial Impact Type	**Angle**	1	3%
	Rear end	13	43%
	Sideswipe	5	17%
	Turning Movement	7	23%
	SMV Other	4	13%
Road Surface Condition	**Dry**	20	67%
	Wet	5	17%
	Slush	2	7%
	Ice	3	10%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Smyth Road north ramp at Riverside Drive intersection had a total of 30 collisions during the 2015-2019 time period, with 24 involving property damage only and the remaining six having non-fatal injuries. The collision types are most represented by rear end with 13 collisions, followed by turning movement with seven, sideswipe with five, SMV (other) with four, and angle with one. Rear end and sideswipe collisions are typically associated with congestion. Turning movement collisions may be associated with the two right-turn channels at the intersection. To improve conditions at this intersection, the City may wish to investigate the addition of a ramp to the adjacent MUP from the on-street cycling facilities that terminate at this intersection on the southbound approach. Weather conditions are not considered to affect collisions at this location.

Table 6: Smyth Road South Ramp at Riverside Drive Collision Summary

		Number	%
Total Collisions		**38**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	9	24%
	Property Damage Only	29	76%
Initial Impact Type	**Angle**	3	8%
	Rear end	21	55%
	Sideswipe	1	3%
	Turning Movement	11	29%
	SMV Other	2	5%
Road Surface Condition	**Dry**	25	66%
	Wet	6	16%
	Loose Snow	4	11%
	Slush	1	3%
	Ice	2	5%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Smyth Road south ramp at Riverside Drive intersection had a total of 38 collisions during the 2015-2019 time period, with 29 involving property damage only and the remaining nine having non-fatal injuries. The collision types are most represented by rear end with 21 collisions, followed by turning movement with 11, angle with three, SMV (other) with two, and sideswipe with one. Rear end collisions are typically associated with congestion and turning movement collisions may be associated with the right-turn channel, the intersection skew, or the large northbound right-turn radius. Weather conditions are not considered to affect collisions at this location.

Table 7: Smyth Road at Ramps to Riverside Drive Collision Summary

		Number	%
Total Collisions		**19**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	4	21%
	Property Damage Only	15	79%
Initial Impact Type	**Angle**	2	11%
	Rear end	15	79%
	SMV Other	2	11%
Road Surface Condition	**Dry**	14	74%
	Wet	4	21%
	Slush	1	5%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Smyth Road at its ramps to Riverside Drive intersection had a total of 19 collisions during the 2015-2019 time period, with 15 involving property damage only and the remaining four having non-fatal injuries. The collision types are most represented by rear end with 15 collisions, followed by angle and SMV (other) with two collisions each. Rear end collisions are typically associated with congestion. Weather conditions do not affect collisions at this location. As noted above, the Smyth Road Cycling Safety Improvements may also improve the collision rates at this intersection.

Table 8: Smyth Road at The Ottawa Hospital Riverside Campus Collision Summary

		Number	%
Total Collisions		**18**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	5	28%
	Property Damage Only	13	72%
Initial Impact Type	**Angle**	1	6%
	Rear end	7	39%
	Sideswipe	1	6%
	Turning Movement	8	44%
	SMV Other	1	6%
Road Surface Condition	**Dry**	16	89%
	Wet	2	11%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Smyth Road at The Ottawa Hospital Riverside Campus intersection had a total of 18 collisions during the 2015-2019 time period, with 13 involving property damage only and the remaining five having non-fatal injuries. The collision types are most represented by turning movement with eight collisions, followed by rear end with seven, and one each as angle, sideswipe, and SMV (other). Turning movement collisions are likely associated with the right-turn out of the Ottawa Hospital access onto Smyth Road, where there is a short merge lane and a bus stop

located in close proximity to the corner. Rear end collisions are typical of congested conditions and may have contributing factors along Smyth Road from the merge lanes on the south side, lane additions on the north side, and bus stops located within these lanes. Weather conditions do not affect collisions at this location. As noted above, the Smyth Road Cycling Safety Improvements may also improve the collision rates at this intersection.

Table 9: Smyth Road at Alta Vista Drive Collision Summary

		Number	%
Total Collisions		**98**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	16	16%
	Property Damage Only	82	84%
Initial Impact Type	**Angle**	4	4%
	Rear end	37	38%
	Sideswipe	6	6%
	Turning Movement	46	47%
	SMV Other	1	1%
	Other	4	4%
Road Surface Condition	**Dry**	73	74%
	Wet	17	17%
	Loose Snow	2	2%
	Slush	1	1%
	Packed Snow	2	2%
	Ice	3	3%
Pedestrian Involved		1	1%
Cyclists Involved		0	0%

The Smyth Road at Alta Vista Drive intersection had a total of 98 collisions during the 2015-2019 time period, with 82 involving property damage only and the remaining 16 having non-fatal injuries. The collision types are most represented by turning movement with 46 collisions, followed by rear end with 37, sideswipe with six, angle and other with four collisions each, and SMV (other) with one. Turning movement and sideswipe collisions may be associated with the four right-turn channels at the intersection, and rear end and sideswipe collisions are typically associated with congestion. Weather conditions do not affect collisions at this location. The intersection would require reconstruction to remove the right turn channels or convert them to smart channels to reduce turning movement collisions.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

Within the vicinity of the study area, the Transportation Master Plan's Road Network's Network Concept diagram shows a new arterial extending from Conroy Road at Walkley Road through Smyth Avenue, curving westward north of the hospital to connect to Riverside Drive and beyond to Lees Avenue, however it is not included in the Affordable Network. Hospital Link Road is a newly constructed local road that intersects this right of way.

The Smyth Road Cycling Safety Improvements project was initially scheduled to be completed by 2021 and proposes improvements throughout and surrounding the study area that include:

- The provision of cycling facilities on Smyth Road between Riverside Drive and the hospital access
- Modifications to the ramps to Riverside Drive at Smyth Road
- Improvements at the intersection of Smyth Road at The Ottawa Hospital Riverside Campus access
- Cycling facilities at the south end of Frobisher Lane connecting to Smyth Road

- Cycling facilities and/or route and wayfinding signage along Pleasant Park Road, Rodney Crescent, Billings Avenue

2.3.2 Other Study Area Developments

At the time of this report, no other development applications were available for the adjacent properties.

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of:

- Riverside Drive at:
  - Smyth Road North Ramp
  - Smyth Road South Ramp
  - The Ottawa Hospital Riverside Campus access
- Smyth Road
  - The Ottawa Hospital Riverside Campus access
  - Alta Vista Drive

While the intersection of the Transitway and Riverside Drive is a signalized intersection within 400 metres of the proposed development, it is discounted from analysis due to the low potential for site-generated impact from additional through movements.

The boundary roads will be Smyth Road and Riverside Drive and, while not analyzed as part of this study, TRANS screenline SL19 is to the west of the site intersecting the Smyth Road Bridge, and SL54 is to the north of the site intersecting the Rideau River Eastern Pathway, Riverside Drive, the Transitway, and Alta Vista Drive.

3.2 Time Periods

As the proposed development is composed primarily of residential units, the AM and PM peak hours will be examined.

3.3 Horizon Years

The anticipated build-out year is 2026. As a result, the full build-out plus five years horizon year is 2031.

4 Exemption Review

Table 10 summarizes the exemptions for this TIA.

Table 10: Exemption Review

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Required
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt

Module	Element	Explanation	Exempt/Required
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

5 Development-Generated Travel Demand

5.1 Trip Generation and Mode Shares

This TIA has been prepared using the vehicle trip rates and derived person trip rates for Continuing Care Retirement Communities from the ITE Trip Generation Manual 10th Edition (2017) using the fitted curve rates and the City-prescribed conversion factor of 1.28. Table 11 summarizes the person trip rates for the proposed land use.

Table 11: Trip Generation Person Trip Rates

Dwelling Type	Land Use Code	Peak Hour	Vehicle Trip Rate	Person Trip Rates
Continuing Care Retirement Community	255 (ITE)	AM	0.17	0.22
		PM	0.24	0.31

Using the above Person Trip rates, the total person trip generation has been estimates. Table 12 below illustrates the total person trip generation for the land use.

Table 12: Total Person Trip Generation

Land Use	Units / Beds	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Continuing Care Retirement Community	526	75	41	116	64	99	163

As is typical of such land uses, it is assumed that a majority of the peak hour trip generation for the site will be from staff and deliveries. As such, the subject land use will be considered under the category of "Employment Generator." From the TRANS Trip Generation Manual (2020), derived from most recent National Capital Region Origin-Destination survey (OD Survey), the existing Employment Generator mode shares for Alta Vista have been determined. Additionally presented are mode shares with increased transit use based upon the proximity to Riverside Station on the Transitway. Table 13 summarizes these modal shares.

Table 13: Mode Shares

Travel Mode	Alta Vista – Employment Generator – AM and PM Mode Shares	Transitway – Employment Generator – AM and PM Mode Shares
Auto Driver	69%	42%
Auto Passenger	7%	7%
Transit	18%	45%
Cycling	3%	3%

Travel Mode	Alta Vista – Employment Generator – AM and PM Mode Shares	Transitway – Employment Generator – AM and PM Mode Shares
Walking	3%	3%
Total	100%	100%

Using the above Transitway mode share targets and person trip rates, the person trips by mode have been projected. Table 14 summarizes the trip generation by mode.

Table 14: Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	42%	32	17	49	27	42	68
Auto Passenger	7%	5	3	8	4	7	11
Transit	45%	34	18	52	29	45	73
Cycling	3%	2	1	3	2	3	5
Walking	3%	2	1	3	2	3	5
Total	**100%**	**75**	**41**	**116**	**64**	**99**	**163**

As shown above, 49 new AM and 68 new PM peak hour two-way vehicle trips are projected as a result of the proposed development.

5.2 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the travel for the district, and these patterns were applied based on the build-out of Alta Vista. Table 15 below summarizes the distributions.

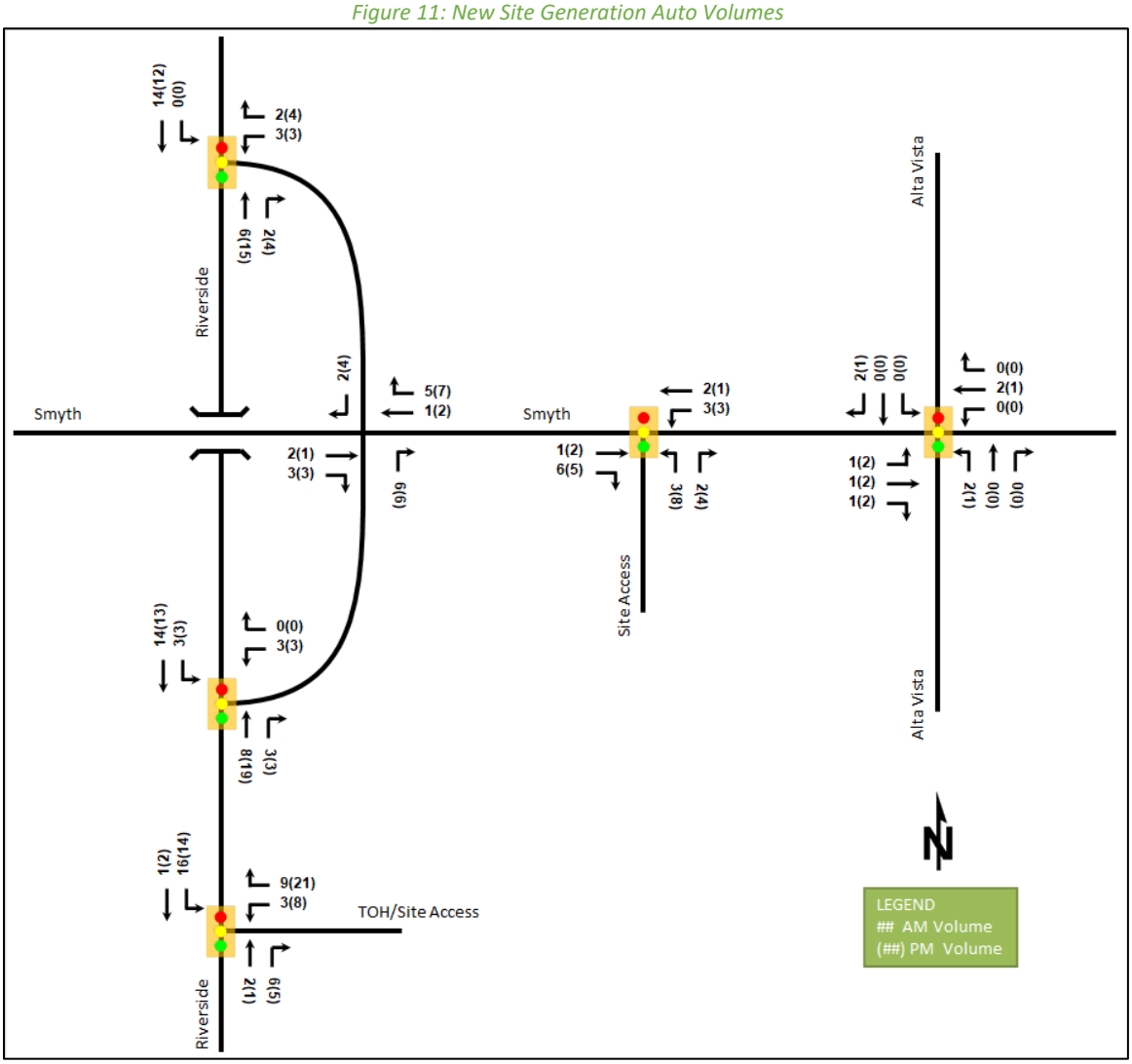
Table 15: OD Survey Distribution – Alta Vista

To/From	% of Trips	Via
North	30%	15% Smyth Rd (W), 10% Riverside Dr, 5% Alta Vista Dr
South	25%	20% Riverside Dr 5% Alta Vista Dr
East	25%	5% Smyth Rd, 20% Riverside Dr (N)
West	20%	15% Riverside Dr (N), 5% Riverside Dr (S)
Total	**100%**	**100%**

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Figure 11 illustrates the new site generated volumes.

Figure 11: New Site Generation Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. The Smyth Road Cycling Safety Improvements project has not yet arrived at a recommended design, and therefore will not be included in the future conditions.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways, and these horizons were compared to the existing roadway volumes. Table 16 summarizes the results of the model, and the projections are provided in Appendix E.

Table 16: TRANS Regional Model Projections – Study Area Growth Rates

Street	Direction Growth % from 2011 to 2031		Direction Growth % from Existing to 2031	
	Eastbound	Westbound	Eastbound	Westbound
North Ramp	-1.04%	9.93%	-2.16%	-4.99%
South Ramp	0.00%	-1.64%	-3.60%	-13.98%

Street	Direction Growth % from 2011 to 2031		Direction Growth % from Existing to 2031	
	Eastbound	Westbound	Eastbound	Westbound
Smyth Rd	0.27%	-1.35%	-0.07%	-1.21%
	Northbound	**Southbound**	**Northbound**	**Southbound**
Riverside Dr	0.36%	-0.44%	1.51%	-1.28%
Alta Vista Dr	0.26%	-2.15%	-2.71%	-6.51%

From examining the remaining growth required to meet the 2031 TRANS model horizon volumes, it is noted that the study area roadways have generally achieved any predicted growth from the 2011 model horizon, where not forecasted to contract. Growth rates derived from the existing volumes, rounded to the nearest 0.25% per annum, will be applied to mainline volumes on Riverside Drive in the AM peak hour and reversed in the PM peak hour, with all other negative growth rates within the study area taken as zero. Table 17 summarizes the applied growth rates.

Table 17: Applied Growth Rates

	AM Peak Hour		PM Peak Hour	
Street	**Eastbound**	**Westbound**	**Eastbound**	**Westbound**
North Ramp	-	-	-	-
South Ramp	-	-	-	-
Smyth Rd	-	-	-	-
	Northbound	**Southbound**	**Northbound**	**Southbound**
Riverside Dr	1.50%	-	-	1.50%
Alta Vista Dr	-	-	-	-

6.3 Other Developments

As no developments were noted in the study area in Section 2.3.2, all study area growth is assumed to be captured within the background rates applied.

7 Demand Rationalization

7.1 2026 Future Background Operations

Figure 12 illustrates the 2026 background volumes and Table 18 summarizes the 2026 background intersection operations. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets for the 2026 future background horizon are provided in Appendix F.

Figure 12: 2026 Future Background Volumes

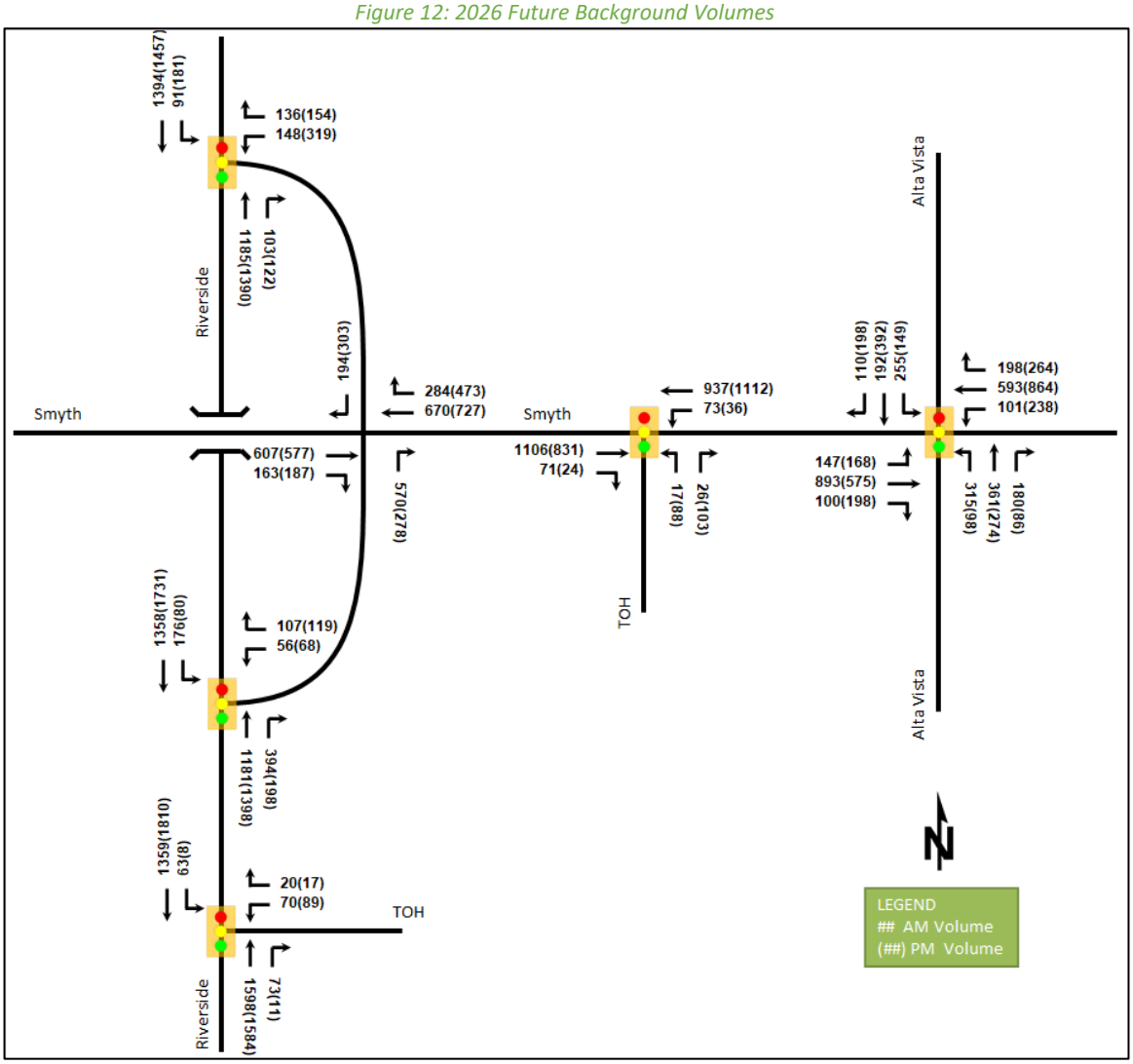


Table 18: 2026 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive ***Signalized***	WBL	A	0.59	44.5	40.1	D	0.85	54.1	**#90.4**
	WBR	A	0.47	18.2	21.5	A	0.44	22.5	31.2
	NBT	A	0.50	1.5	6.9	B	0.66	3.8	19.4
	NBR	A	0.10	0.2	m0.1	A	0.13	0.3	m0.0
	SBL	A	0.35	10.1	16.6	**F**	**1.15**	**141.5**	**#51.6**
	SBT	A	0.59	7.9	85.1	B	0.68	12.6	103.9
	Overall	**A**	**0.59**	**7.5**	-	**F**	**1.07**	**19.3**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road South Ramp at Riverside Drive ***Signalized***	WBL	A	0.30	40.9	19.9	A	0.37	42.0	22.8
	WBR	A	0.41	12.7	14.1	A	0.42	11.9	14.4
	NBT	A	0.58	9.2	43.4	B	0.66	9.6	54.3
	NBR	A	0.38	1.9	16.2	A	0.20	1.6	6.4
	SBL	A	0.46	10.4	29.9	A	0.30	7.7	m7.9
	SBT	A	0.52	7.5	108.8	B	0.70	10.6	121.0
	Overall	**A**	**0.59**	**8.3**	-	**B**	**0.70**	**10.3**	-
The Ottawa Hospital Riverside Campus at Riverside Drive ***Signalized***	WBL	A	0.30	35.9	19.3	A	0.43	42.8	27.5
	WBR	A	0.10	12.9	5.2	A	0.09	16.3	5.6
	NBT	B	0.62	8.1	133.2	A	0.59	5.9	82.6
	NBR	A	0.07	3.0	7.3	A	0.01	2.4	1.4
	SBL	A	0.37	10.8	m7.9	A	0.04	3.0	m0.5
	SBT	A	0.53	3.9	43.6	B	0.68	4.7	53.6
	Overall	**A**	**0.60**	**6.9**	-	**B**	**0.68**	**6.2**	-
Smyth Road at The Ottawa Hospital Riverside Campus ***Signalized***	EBT	A	0.33	8.3	60.9	A	0.26	6.9	42.7
	WBL	A	0.26	14.2	20.0	A	0.10	9.2	9.3
	WBT	A	0.26	7.9	46.8	A	0.33	7.4	58.0
	NBL	A	0.05	26.1	7.0	A	0.28	25.7	20.7
	NBR	A	0.09	10.3	5.7	A	0.29	7.2	10.1
	Overall	**A**	**0.31**	**8.5**	-	**A**	**0.35**	**8.0**	-
Smyth Road at Alta Vista Drive ***Signalized***	EBL	A	0.47	24.3	32.7	B	0.62	26.1	31.6
	EBT	D	0.85	45.9	**#135.3**	A	0.51	31.9	72.4
	EBR	A	0.19	2.4	4.6	A	0.33	9.6	24.6
	WBL	A	0.50	28.2	23.5	A	0.59	22.0	44.6
	WBT	A	0.60	37.6	80.7	B	0.68	33.3	108.0
	WBR	A	0.40	12.8	29.3	A	0.48	15.2	43.5
	NBL	B	0.69	32.8	71.2	A	0.48	32.9	26.4
	NBT	C	0.78	51.6	**#118.2**	C	0.71	52.6	**#91.9**
	NBR	A	0.37	11.5	24.7	A	0.20	2.0	2.3
	SBL	C	0.77	39.4	**#58.4**	A	0.50	31.3	38.3
	SBT	A	0.42	38.1	57.3	E	0.92	70.5	**#144.1**
	SBR	A	0.23	3.6	7.7	A	0.43	14.9	31.0
	Overall	**C**	**0.78**	**35.2**	-	**C**	**0.76**	**33.0**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections at the 2026 future background operate similarly to the existing conditions. No new capacity issues are noted, and minor operational improvements are noted at the intersection of Smyth Road at Alta Vista Drive with the peak hour factor of 1.00 for forecasted conditions, including a reduction of the v/c ratio of the southbound through movement from 1.03 to 0.92. Table 19 summarizes the operations at this horizon with the proposed mitigation of the inclusion of a protected southbound left-turn phase at the intersection of the Smyth Road north ramp at Riverside Drive.

Table 19: 2026 Future Background Intersection Operations with New Phasing

Intersection	Lane	PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive ***Signalized***	WBL	D	0.89	61.2	**#97.0**
	WBR	A	0.37	7.8	14.7
	NBT	D	0.84	16.6	55.1
	NBR	A	0.16	3.5	m5.7
	SBL	C	0.80	43.0	**#49.6**
	SBT	B	0.67	11.6	96.5
	Overall	**D**	**0.87**	**19.0**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The addition of a protected southbound left-turn phase result in operational improvements at the Smyth Road north ramp at Riverside Drive intersection during the PM peak hour, with the overall intersection and the southbound left-turn movement levels of service reduced to D and C respectively from F.

7.2 2031 Future Background Operations

Figure 13 illustrates the 2031 background volumes and Table 20 summarizes the 2031 background intersection operations. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets for the 2031 future background horizon are provided in Appendix G.

Figure 13: 2031 Future Background Volumes

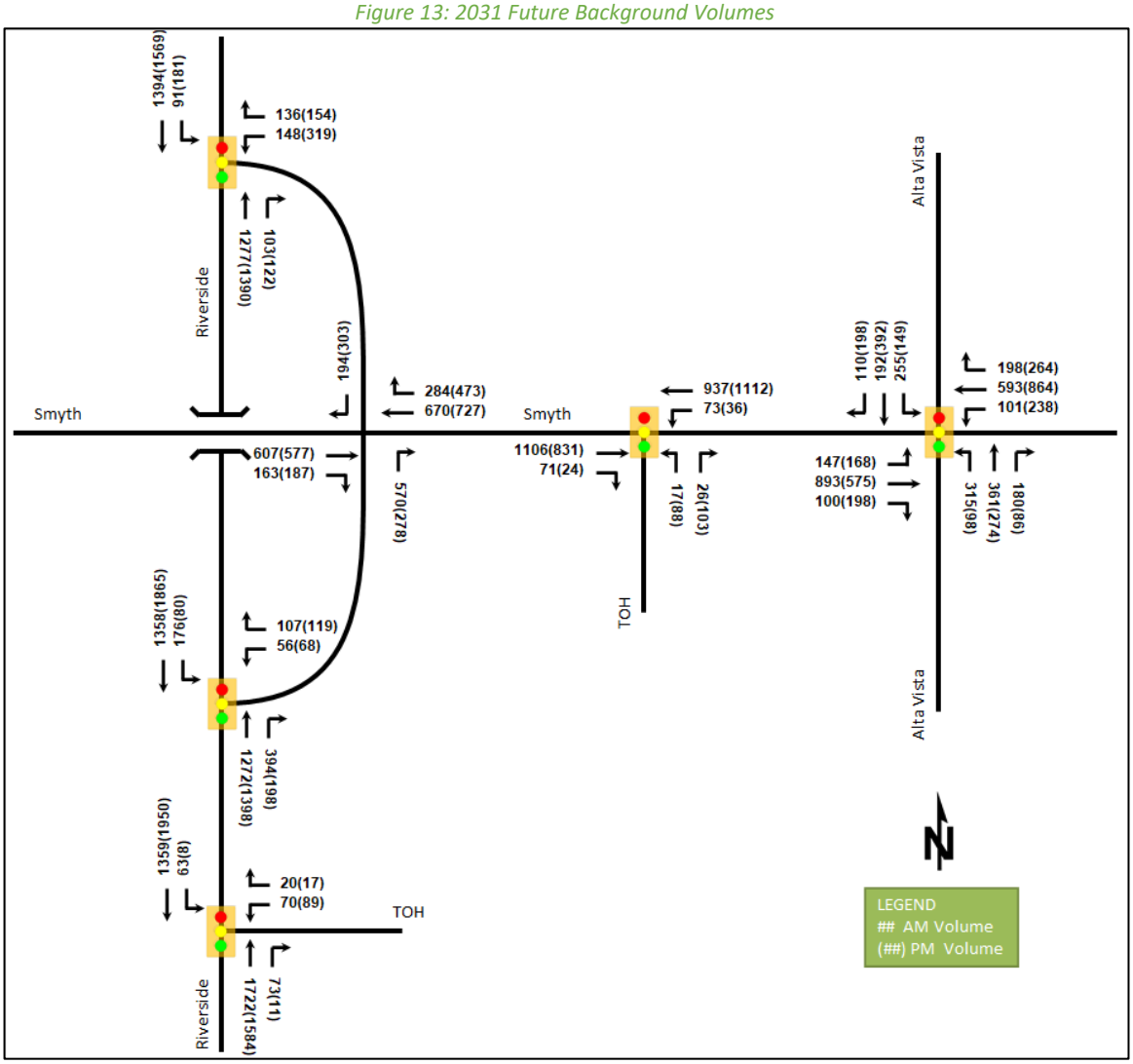


Table 20: 2031 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive ***Signalized***	WBL	A	0.59	44.5	40.1	D	0.85	54.1	**#90.4**
	WBR	A	0.49	22.6	24.6	A	0.44	22.5	31.2
	NBT	A	0.54	1.5	6.9	B	0.66	3.8	19.4
	NBR	A	0.10	0.2	m0.0	A	0.13	0.3	m0.0
	SBL	A	0.39	12.0	18.7	**F**	**1.15**	**141.5**	**#51.6**
	SBT	A	0.59	7.9	85.1	C	0.73	13.8	119.3
	Overall	**A**	**0.59**	**7.6**	-	**F**	**1.07**	**19.6**	-
Smyth Road South Ramp at Riverside Drive ***Signalized***	WBL	A	0.30	40.9	19.9	A	0.37	42.0	22.8
	WBR	A	0.41	12.7	14.1	A	0.42	11.9	14.4
	NBT	B	0.63	9.8	49.4	B	0.66	9.6	54.3
	NBR	A	0.38	2.0	18.6	A	0.20	1.6	6.4
	SBL	A	0.50	12.0	30.8	A	0.30	7.3	m7.0
	SBT	A	0.52	7.5	108.8	C	0.75	12.1	143.0
	Overall	**B**	**0.62**	**8.7**	-	**C**	**0.75**	**11.0**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
The Ottawa Hospital Riverside Campus at Riverside Drive *Signalized*	WBL	A	0.30	35.9	19.3	A	0.43	42.8	27.5
	WBR	A	0.10	12.9	5.2	A	0.09	16.3	5.6
	NBT	B	0.67	9.1	155.8	A	0.59	5.9	82.6
	NBR	A	0.07	3.2	7.5	A	0.01	2.4	1.4
	SBL	A	0.45	17.9	**m#24.5**	A	0.04	3.2	m0.5
	SBT	A	0.53	3.9	43.6	C	0.73	5.1	62.2
	Overall	**B**	**0.64**	**7.6**	-	**C**	**0.73**	**6.4**	-
Smyth Road at The Ottawa Hospital Riverside Campus *Signalized*	EBT	A	0.33	8.3	60.9	A	0.26	6.9	42.7
	WBL	A	0.26	14.2	20.0	A	0.10	9.2	9.3
	WBT	A	0.26	7.9	46.8	A	0.33	7.4	58.0
	NBL	A	0.05	26.1	7.0	A	0.28	25.7	20.7
	NBR	A	0.09	10.3	5.7	A	0.29	7.2	10.1
	Overall	**A**	**0.31**	**8.5**	-	**A**	**0.35**	**8.0**	-
Smyth Road at Alta Vista Drive *Signalized*	EBL	A	0.47	24.3	32.7	B	0.62	26.4	31.6
	EBT	D	0.85	45.9	**#135.3**	A	0.51	31.9	72.4
	EBR	A	0.19	2.4	4.6	A	0.33	9.6	24.6
	WBL	A	0.50	28.2	23.5	A	0.59	22.0	44.6
	WBT	A	0.60	37.6	80.7	B	0.68	33.2	108.0
	WBR	A	0.40	12.8	29.3	A	0.48	15.2	43.5
	NBL	B	0.69	32.7	71.2	A	0.48	32.9	26.4
	NBT	C	0.78	51.6	**#118.2**	C	0.71	52.6	**#91.9**
	NBR	A	0.37	11.5	24.7	A	0.20	2.0	2.3
	SBL	C	0.77	39.4	**#58.6**	A	0.50	31.3	38.3
	SBT	A	0.42	38.1	57.3	E	0.92	70.5	**#144.1**
	SBR	A	0.23	3.6	7.7	A	0.43	14.9	31.0
	Overall	**C**	**0.78**	**35.2**	-	**C**	**0.76**	**33.0**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the 2031 future background study area intersections operate similarly to the 2026 future background conditions. During the AM peak hour, the southbound left movement at the intersection of The Ottawa Hospital Riverside Campus access at Riverside Drive may exhibit extended queues at this horizon. Table 21 summarizes the operations at the 2031 future background horizon with the inclusion of a protected southbound left-turn phase at the intersection of the Smyth Road north ramp at Riverside Drive.

Table 21: 2031 Future Background Intersection Operations with New Phasing

Intersection	Lane	PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive *Signalized*	WBL	D	0.89	61.2	**#97.0**
	WBR	A	0.37	7.8	14.7
	NBT	D	0.84	16.6	55.1
	NBR	A	0.16	3.5	m5.7
	SBL	C	0.80	43.0	**#49.6**
	SBT	C	0.72	12.8	110.6
	Overall	**D**	**0.87**	**19.3**	-

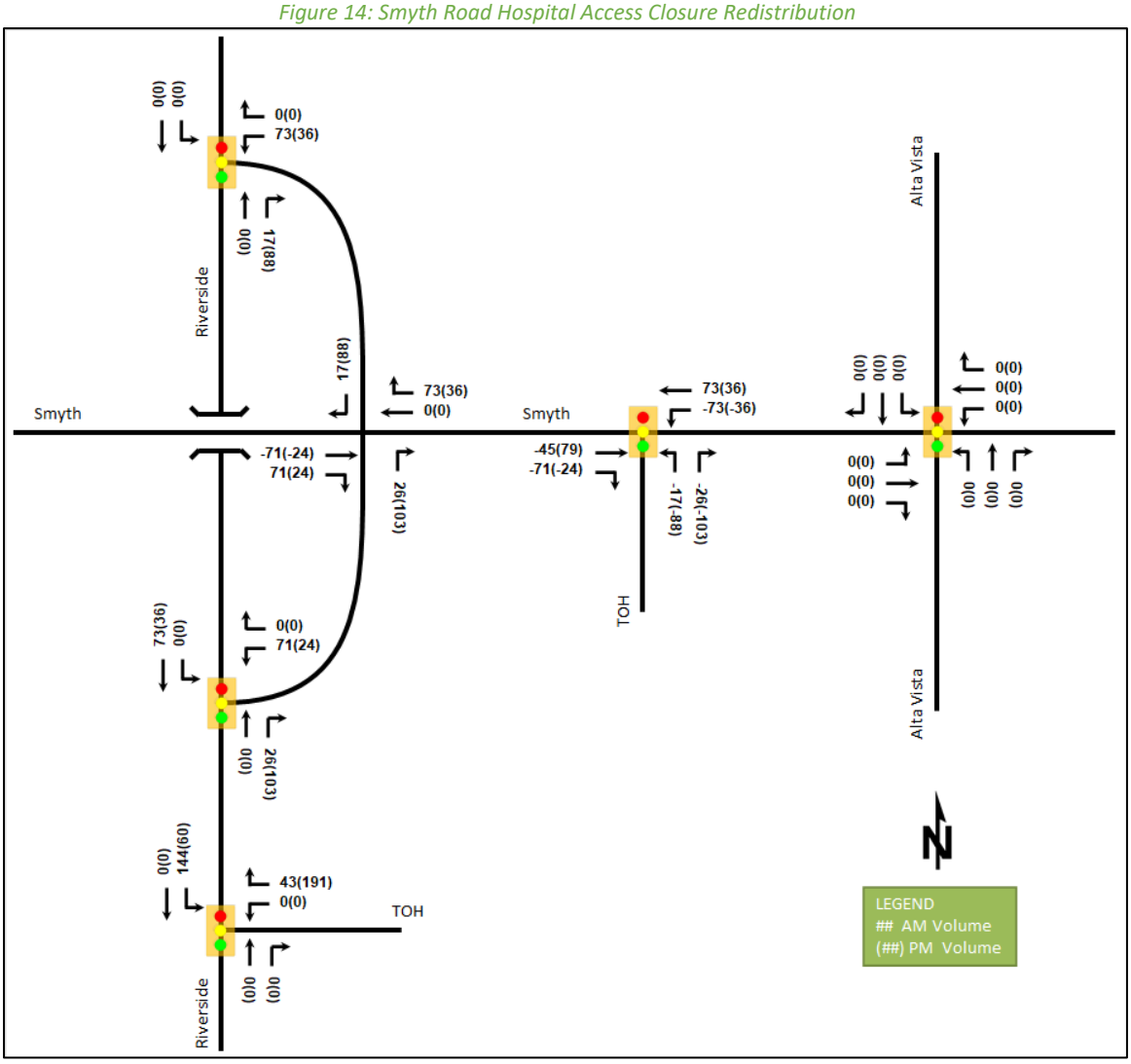
Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The Smyth Road north ramp at Riverside Drive intersection with new signal phasing at the 2031 future background horizon operate similarly to the 2026 future background conditions with the new phasing. No new capacity issues are noted.

7.3 Study Area Changes from Redevelopment

At this time, the hospital is exploring options for additional parking to offset the loss in surface parking through the redevelopment of the site. Based upon the current site plan, and absent any proposed parking reductions introduced by the hospital in the context of the parking examination, the proposed redevelopment would result all traffic associated with The Ottawa Hospital Riverside Campus relocating to its access at Riverside Drive. Figure 14 illustrates the redistribution of the Smyth Road access volumes to the Riverside Drive access.

Figure 14: Smyth Road Hospital Access Closure Redistribution



7.4 Modal Share Sensitivity and Demand Rationalization Conclusions

As the site directly accesses the Transitway, more than a doubling of the of the district transit mode share is proposed as a value more typical of BRT contexts. Given there is residual capacity at all study area intersections as modeled, no substantial impacts are anticipated from the failure to achieve modal shares, and no rationalization for adjusted demand is required.

8 Development Design

8.1 Design for Sustainable Modes

The proposed development is a continuing care facility with parking provided both underground, accessed via Smyth Road, and in two surface lots, one for visitors on Smyth Road and one for staff from Riverside Drive through the Riverside Campus internal drive aisle. Bicycle parking is proposed via racks interspersed around the site near the major building entrances and within the underground parking level.

A MUP is proposed along the north end of the property connecting the drive aisle that accesses Riverside Drive to the signalized site access intersection at Smyth Road. Walkways are proposed as circulating the building, connecting all building entrances to the surrounding pedestrian facilities on Smyth Road and on the hospital property.

8.2 Circulation and Access

The site will be accessed via the existing Smyth Road intersection and an internal aisle with the Riverside Campus to Riverside Drive. The Smyth Road intersection will support visitors and residents of the site and the internal access to the Riverside Campus will be for staff. Garbage and loading operations will be accessed through the internal Riverside Campus drive aisle. The Phase 1 Long Term Care Facility building will have a fire route within the rear parking lot from the Riverside Campus and the proximity to Smyth Road does not require a fire route for the Phase 2 retirement dwelling and town square buildings.

9 Parking

9.1 Parking Supply

The site provides 275 vehicle parking spaces, with 93 spaces in a surface lot and 66 underground spaces connecting to Smyth Road and 116 spaces in a surface lot connecting through the Riverside Campus to Riverside Drive.

A total of 76 bicycle parking spaces are provided through a combination of surface racks and internal storage locations.

As the facility is within 600 metres of a rapid transit station, the zoning by-law prescribes 68 vehicle spaces for the retirement dwelling residents, 27 for the retirement dwelling visitors, 32 for the long-term care units, and six for the on-site services. The total minimum vehicle parking for the proposed development is 133. The minimum bicycle parking rate for the development is 74 spaces.

The minimum vehicle and bicycle parking provision rates are being met by the site plan.

10 Boundary Street Design

Table 22 summarizes the MMLOS analysis for the boundary streets of Smyth Road. The existing and future conditions for Smyth Road will be the same and are considered in one row. The boundary street analysis is based on the policy area of “Within 600m of a rapid transit station”. The MMLOS worksheets has been provided in Appendix H.

Table 22: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Smyth Road	**D**	A	**F**	C	D	D	A	D

The boundary street does not meet the pedestrian and cycling MMLOS targets.

Given the operating speeds of the boundary road, no sidewalk configuration can meet pedestrian LOS targets, and separated cycling facilities would be required to meet bicycle LOS targets.

No cycling improvements are recommended outside of the context of a corridor implementation plan for the boundary street. It is noted that the planned Smyth Road Cycling Safety Improvements project's scope includes cycling facilities west of the site access on Smyth Road.

11 Access Intersections Design

11.1 Location and Design of Access

The facility accesses will connect to the adjacent arterial road network via the existing signalized intersection on Smyth Road for the residents and visitors, and through the Riverside Campus to Riverside Drive for staff. It is understood that the Smyth Road Cycling Safety Improvements project will arrive at a recommended design for the intersection subsequent to the approval of the subject site plan.

At the site access on Smyth Road, TAC Table 8.9.3 identifies a desired throat length of 40 metres from the intersection for an apartment site with over 200 units and the underground parking garage ramp for the resident parking is located 15 metres from Smyth Road. While it is noted the grading of the site, and adjacent facilities such as Smyth Road, the CN Rail line and the Transitway restrict the ability to shift the underground parking access and above ground lots, the TAC land use for apartments does not directly apply to this site and the 40-metre requirement is considered excessive to what a continuing care facility would require.

To assess the throat length needs for the site, garage surveys were conducted at other Schlegel facilities to determine if the garage ramp would present a conflict point near the access. During the winter months, which would represent the highest proportional auto use, the total two-way volumes for the garages averaged 45 cars per day. Assuming a similar operation for the proposed site, this would be less than a single car per 10 minutes during the peak hours entering or exiting the garage ramp. The results of this volume would result in approximately 10 two-way vehicles accessing the surface parking lot, or a single car ever 6 minutes passing the garage ramp. These low volumes do not represent a risk for outbound vehicles queuing across the garage ramp nor a delay for turning into the garage ramp and queuing to the Smyth Road intersection.

Therefore, it is recommended that a 15-metre throat length is adequate for the proposed site, meeting the minimum throat length for any land use accessing an arterial road.

11.2 Intersection Control

No change in control is proposed for the existing signalized site accesses.

11.3 Access Intersection Design

11.3.1 2026 Future Total Access Intersection Operations

The 2026 future total intersection volumes are illustrated in Figure 15 and the access intersection operations are summarized below in Table 23. The level of service for signalized intersections is based on v/c calculations for

individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets have been provided in Appendix I.

Figure 15: 2026 Future Total Volumes

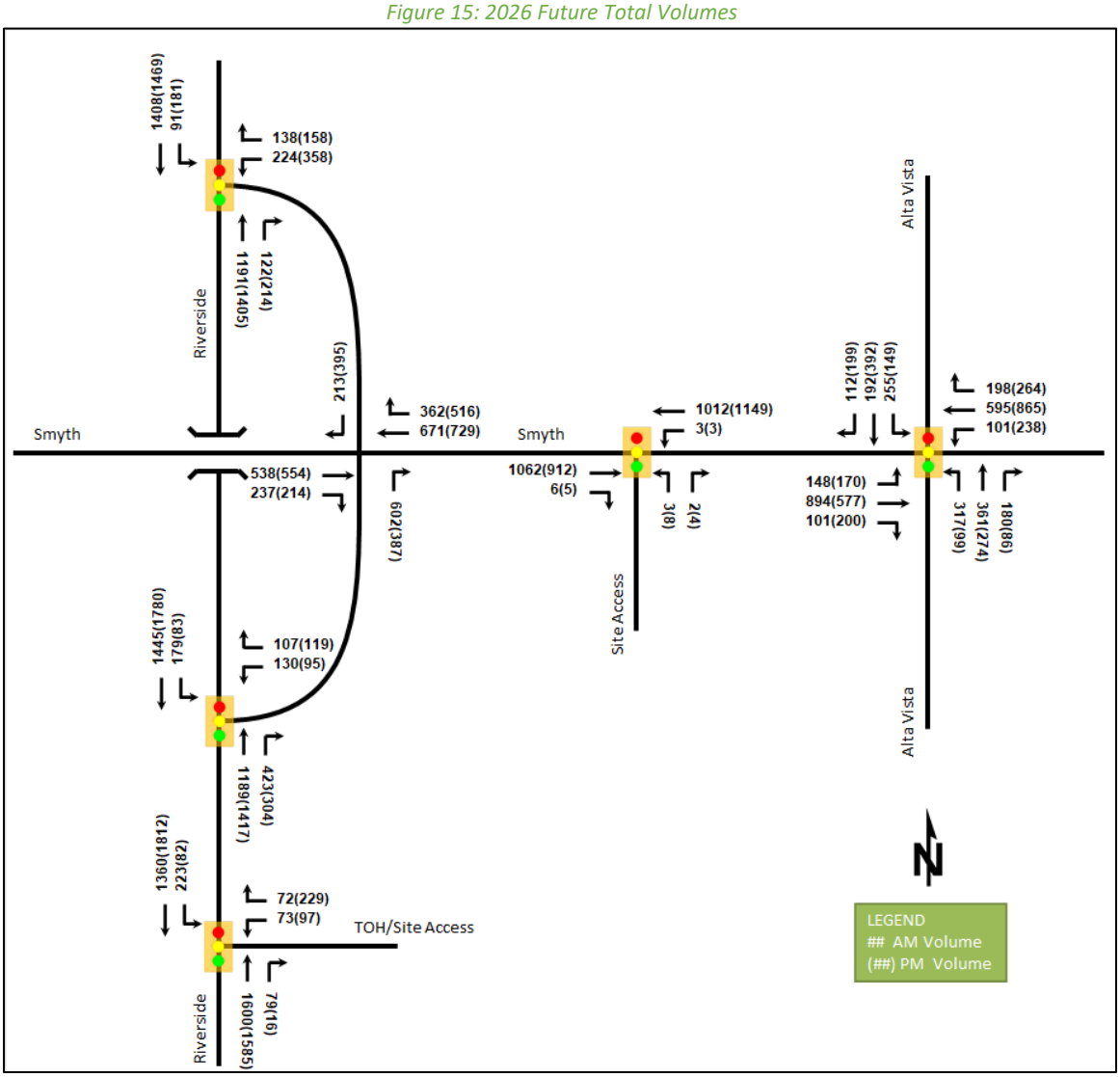


Table 23: 2026 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
The Ottawa Hospital Riverside Campus at Riverside Drive *Signalized*	WBL	A	0.32	36.1	20.1	A	0.30	31.2	25.0
	WBR	A	0.33	24.7	15.6	C	0.75	43.6	51.5
	NBT	B	0.62	8.1	133.3	B	0.70	11.8	129.4
	NBR	A	0.07	3.0	7.7	A	0.02	4.7	2.9
	SBL	**F**	**1.31**	**192.1**	**#99.5**	B	0.63	33.5	**m#18.8**
	SBT	A	0.53	5.2	71.7	C	0.80	15.8	**#186.1**
	Overall	**F**	**1.21**	**19.8**	-	**C**	**0.78**	**16.5**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road at Site Access ***Signalized***	EBT	A	0.27	7.0	53.9	A	0.23	4.0	40.1
	WBL	A	0.01	10.0	1.6	A	0.01	6.3	1.4
	WBT	A	0.26	6.9	50.6	A	0.28	4.2	52.3
	NBL	A	0.01	25.7	2.6	A	0.03	26.0	4.3
	NBR	A	0.01	18.5	1.7	A	0.01	16.8	2.4
	Overall	**A**	**0.27**	**7.0**	**-**	**A**	**0.30**	**4.2**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The site access intersection at Smyth Road for the 2026 future total horizon operates well, where capacity issues are noted in the AM peak hour for the Riverside Drive access with existing signal phasing for both the southbound left movement and the overall intersection, and queueing is noted on the southbound left and through movements at the intersection during the PM peak hour. As Riverside Campus auto volumes have shifted from the Smyth Road intersection to the Riverside Drive intersection, AM peak hour operations with newly proposed signal phasing, with the introduction of a protected southbound left-turn phase, are summarized in Table 24.

Table 24: 2026 Future Total Access Intersection Operations with New Phasing

Intersection	Lane	AM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)
The Ottawa Hospital RC at Riverside Drive ***Signalized***	WBL	A	0.32	36.1	20.1
	WBR	A	0.28	10.3	9.5
	NBT	E	0.91	30.3	**#195.5**
	NBR	A	0.10	8.3	11.6
	SBL	A	0.60	28.8	**#77.6**
	SBT	A	0.53	7.5	101.6
	Overall	**B**	**0.65**	**20.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The Riverside Drive access intersection with signal phasing changes horizon operate adequately. Queuing is noted on the northbound through and southbound left movement. It is noted that queueing is not anticipated to exceed existing turning lane storage.

11.3.2 2031 Future Total Access Intersection Operations

The 2031 future total intersection volumes are illustrated in Figure 16 and the access intersection operations, including the addition of the protected movement proposed in Section 11.3.1, are summarized below in Table 25. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets have been provided in Appendix J.

Figure 16: 2031 Future Total Volumes

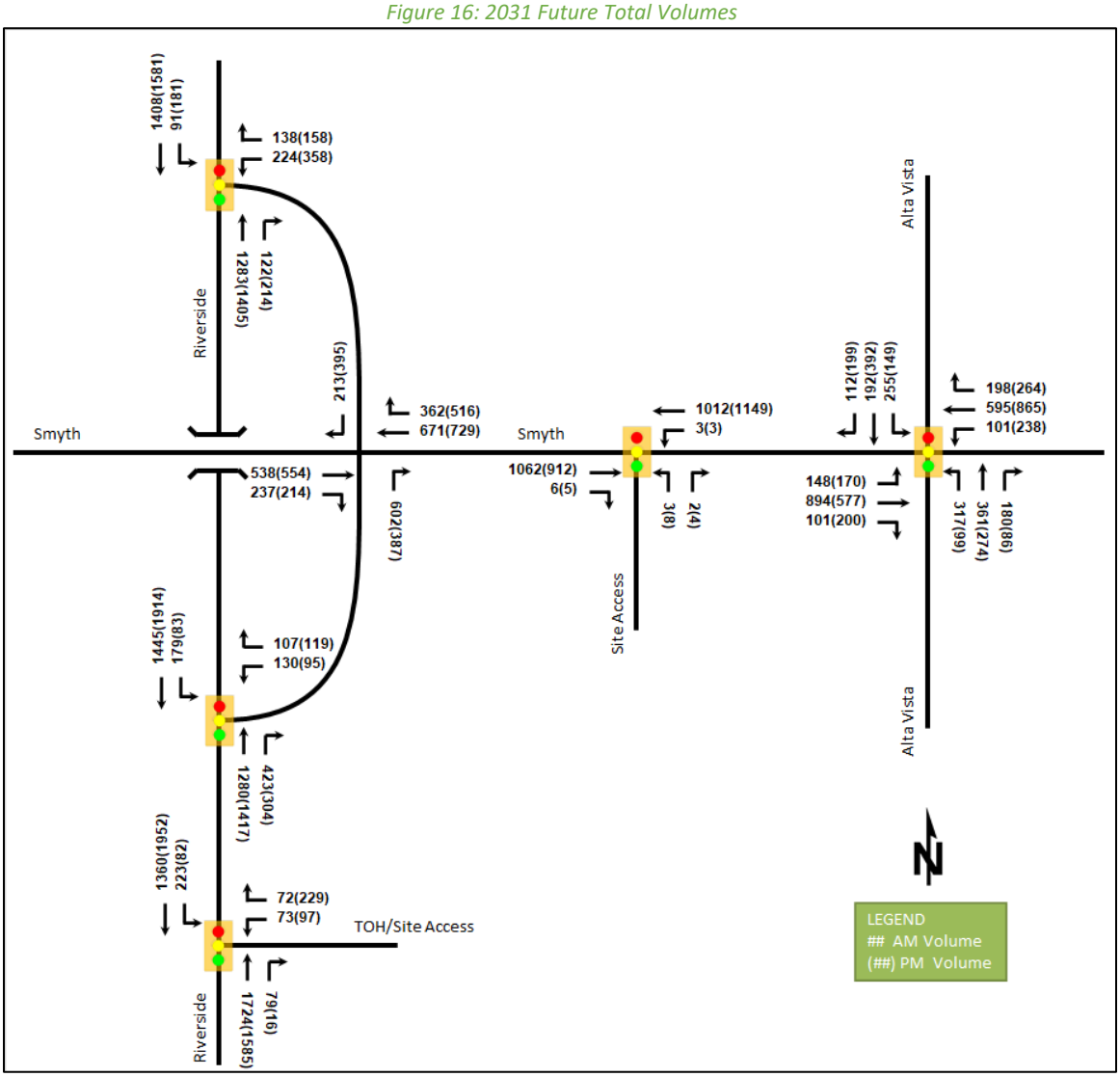


Table 25: 2031 Future Total Access Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
The Ottawa Hospital Riverside Campus at Riverside Drive *Signalized*	WBL	A	0.32	36.1	20.1	A	0.30	31.2	25.0
	WBR	A	0.28	10.3	9.5	C	0.75	43.6	51.5
	NBT	E	0.99	41.4	**#219.6**	B	0.70	11.8	129.4
	NBR	A	0.10	8.5	11.7	A	0.02	4.7	2.9
	SBL	A	0.60	28.8	**#77.6**	B	0.63	31.3	m7.4
	SBT	A	0.53	7.5	101.6	D	0.86	17.4	**#221.3**
	Overall	**C**	**0.83**	**26.1**	-	**D**	**0.83**	**17.2**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road at Site Access *Signalized*	EBT	A	0.27	7.0	53.9	A	0.23	4.6	45.2
	WBL	A	0.01	10.0	1.6	A	0.01	7.3	1.6
	WBT	A	0.26	6.9	50.6	A	0.28	4.8	59.0
	NBL	A	0.01	25.7	2.6	A	0.03	27.2	4.7
	NBR	A	0.01	18.5	1.7	A	0.02	17.8	2.5
	Overall	**A**	**0.27**	**7.0**	**-**	**A**	**0.30**	**4.8**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The access intersections for the 2031 future total horizon operate similar to the 2031 future background conditions.

11.3.3 Access Intersection MMLOS

Table 26 summarizes the MMLOS analysis for the site access intersections. The existing and future conditions for both intersections will be the same and are considered in one row. The intersection analysis is based on the policy area of "Within 600m of a rapid transit station". The MMLOS worksheets has been provided in Appendix H.

Table 26: Access Intersection MMLOS Analysis

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
The Ottawa Hospital Riverside Campus at Riverside Drive	F	A	F	C	-	-	-	-	D	E
Smyth Road at Site Access	F	A	F	C	A	D	-	-	A	E

The MMLOS targets for the pedestrian and bicycle LOS will not be met at both signalized access intersections.

The pedestrian level of service would require crossing distances of a maximum of two lane-widths at each crossing to meet a LOS A.

To meet bicycle LOS targets, the westbound approach at the Smyth Road access intersection and the southbound approach at the Riverside Drive access intersection would require a left-turn box or two-stage left-turn, and the westbound approach at the Riverside Drive access intersection would nominally require a pocket bike lane.

The Smyth Road access intersection is understood to be under consideration within the Smyth Road Cycling Safety Improvements project. As the Riverside Drive access intersection is a T-intersection, the pocket bike lane on the westbound approach is not considered to be an appropriate treatment, and this condition is considered adequate.

11.3.4 Recommended Design Elements

A protected southbound left-turn phase should be included at the Riverside Drive and The Ottawa Hospital access intersection. No other changes are noted for the access intersections.

12 Transportation Demand Management

12.1 Context for TDM

The mode shares used within the TIA represent a shift from auto modes to transit modes, due to the proximity of the site to Riverside Station along the Transitway. Overall, the modal shares are likely to be achieved and supporting TDM measures should be provided.

The subject site is not within a design priority area. A total of 426 bedrooms are estimated for the site, including both long term care and retirement dwelling units. The site will serve retired and senior adults.

12.2 Need and Opportunity

The subject site has been assumed to rely predominantly on auto travel with an increase in transit ridership with the proximity to the Riverside BRT station, and those assumptions have been carried through the analysis. The study area intersections are anticipated to have residual capacity and the increase in transit ridership is achievable.

12.3 TDM Program

The "suite of post occupancy TDM measures" has been summarized in the TDM checklists for the residential land uses. The checklist is provided in Appendix K. The key TDM measures recommended include:

- Display local area maps with walking cycling destinations, relevant transit schedules and route maps at entrances
- Provide a shuttle service for seniors' homes (e.g. scheduled mall or supermarket runs)
- Provide a multimodal information package to new employees and residents
- Offer personalized trip planning to new residents
- Inclusion of a 6-month Presto card for first time new unit rental, with a set time frame for this offer (e.g. 3 months) from the initial opening of the site

13 Transit

13.1 Route Capacity

In Section 5.1 the trip generation by mode was estimated, including an estimate of the number of transit trips that will be generated by the proposed development. Table 27 summarizes the transit trip generation.

Table 27: Trip Generation by Transit Mode

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Transit	45%	34	18	52	29	45	73

The proposed development is anticipated to generate an additional 52 AM peak hour transit trips and 73 PM peak hour transit trips. Of these trips, 34 inbound AM trips and 45 outbound PM trips are anticipated.

It is assumed that a majority of site transit users will use the Transitway bus routes given it lies less than 300 metres from the site, however even if half of all of forecasted transit trips were taken via the route #55, this would amount to fewer than five additional riders per bus averaged over the peak hours. Thus, no transit service changes are anticipated to be required from the proposed development.

13.2 Transit Priority

No change in Transit LOS is noted for any of the transit movements within the study area due to the traffic associated with the proposed development.

14 Network Intersection Design

14.1 Network Intersection Control

No change to the existing signalized control is recommended for the network intersections.

14.2 Network Intersection Design

14.2.1 2026 Future Total Network Intersection Operations

The 2026 future total network intersection operations, including the signal phasing changes recommended in Section 7.1, are summarized below in Table 28. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets have been provided in Appendix I.

Table 28: 2026 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive ***Signalized***	WBL	C	0.73	47.8	57.2	E	0.95	72.8	**#113.4**
	WBR	A	0.41	15.9	21.4	A	0.38	9.5	17.2
	NBT	A	0.52	1.4	7.6	D	0.87	20.6	**#59.3**
	NBR	A	0.12	0.2	m0.0	A	0.27	4.6	m10.3
	SBL	A	0.38	12.9	18.9	C	0.80	42.7	**#49.2**
	SBT	B	0.63	10.0	95.0	C	0.74	13.4	112.2
	Overall	**B**	**0.65**	**9.4**	-	**E**	**0.90**	**22.2**	-
Smyth Road South Ramp at Riverside Drive ***Signalized***	WBL	A	0.56	44.4	36.4	A	0.47	43.5	28.8
	WBR	A	0.36	10.2	13.0	A	0.40	10.9	13.9
	NBT	B	0.66	13.9	77.0	B	0.68	12.5	94.9
	NBR	A	0.43	2.2	16.1	A	0.30	3.2	m20.1
	SBL	A	0.52	13.9	34.3	A	0.33	7.3	m6.6
	SBT	B	0.61	12.1	123.3	C	0.78	8.3	m108.7
	Overall	**B**	**0.66**	**12.8**	-	**C**	**0.74**	**10.3**	-
Smyth Road at Alta Vista Drive ***Signalized***	EBL	A	0.47	24.5	32.8	B	0.63	26.8	32.0
	EBT	D	0.85	45.9	**#135.6**	A	0.51	31.9	72.7
	EBR	A	0.19	2.4	4.8	A	0.34	9.6	24.8
	WBL	A	0.50	28.3	23.5	A	0.59	22.0	44.6
	WBT	A	0.60	37.6	81.3	B	0.68	33.3	108.0
	WBR	A	0.40	12.8	29.3	A	0.48	15.2	43.5
	NBL	B	0.70	33.1	72.0	A	0.49	33.0	26.8
	NBT	C	0.78	51.6	**#118.2**	C	0.71	52.6	**#91.9**
	NBR	A	0.37	11.5	24.7	A	0.20	2.0	2.3
	SBL	C	0.77	39.4	**#58.4**	A	0.50	31.3	38.3
	SBT	A	0.42	38.1	57.3	E	0.92	70.6	**#144.1**
	SBR	A	0.23	3.9	8.0	A	0.43	15.1	31.2
	Overall	**C**	**0.78**	**35.2**	-	**C**	**0.77**	**33.1**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The network intersections for the 2026 future total horizon operate similarly to the 2026 future background conditions. The northbound through movement at the intersection of Riverside Drive at the Smyth Road north ramp may exhibit extended queuing. Of note at this intersection, the westbound left movement is approaching capacity, however, while capacity exists on the conflicting north and southbound movements, the proposed splits are considered appropriate to prioritize flow on the Riverside Drive corridor.

14.2.2 2031 Future Total Network Intersection Operations

The 2031 future total network intersection operations, including the signal phasing changes recommended in Section 7.2, are summarized below in Table 29. The level of service for signalized intersections is based on v/c

calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. The synchro worksheets have been provided in Appendix J.

Table 29: 2031 Future Total Network Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95th)	LOS	V/C	Delay (s)	Q (95th)
Smyth Road North Ramp at Riverside Drive ***Signalized***	WBL	C	0.73	47.8	57.2	E	0.95	72.8	**#113.4**
	WBR	A	0.43	19.5	24.3	A	0.37	9.5	17.0
	NBT	A	0.56	1.5	7.6	D	0.87	20.3	**#58.3**
	NBR	A	0.12	0.2	m0.0	A	0.27	4.6	m10.1
	SBL	A	0.43	15.6	21.7	C	0.80	42.7	**#49.2**
	SBT	B	0.63	10.0	95.0	C	0.74	13.4	111.7
	Overall	**B**	**0.65**	**9.4**	-	**E**	**0.91**	**22.1**	-
Smyth Road South Ramp at Riverside Drive ***Signalized***	WBL	A	0.56	44.4	36.4	A	0.47	43.4	28.8
	WBR	A	0.36	10.2	13.0	A	0.40	11.0	13.9
	NBT	C	0.71	8.1	m23.8	B	0.68	12.5	94.5
	NBR	A	0.43	1.0	m1.3	A	0.30	3.2	m20.2
	SBL	A	0.56	15.7	35.0	A	0.32	7.1	m6.4
	SBT	B	0.61	12.1	123.3	C	0.78	8.2	m108.3
	Overall	**B**	**0.70**	**10.6**	-	**C**	**0.79**	**10.3**	-
Smyth Road at Alta Vista Drive ***Signalized***	EBL	A	0.47	24.5	32.8	B	0.63	26.8	32.0
	EBT	D	0.85	45.9	**#135.6**	A	0.51	31.9	72.7
	EBR	A	0.19	2.4	4.8	A	0.34	9.6	24.8
	WBL	A	0.50	28.3	23.5	A	0.59	22.0	44.6
	WBT	A	0.60	37.6	81.3	B	0.68	33.3	108.0
	WBR	A	0.40	12.8	29.3	A	0.48	15.2	43.5
	NBL	B	0.70	33.1	72.0	A	0.49	33.0	26.8
	NBT	C	0.78	51.6	**#118.2**	C	0.71	52.6	**#91.9**
	NBR	A	0.37	11.5	24.7	A	0.20	2.0	2.3
	SBL	C	0.77	39.4	**#58.4**	A	0.50	31.3	38.3
	SBT	A	0.42	38.1	57.3	E	0.92	70.6	**#144.1**
	SBR	A	0.23	3.9	8.0	A	0.43	15.1	31.2
	Overall	**C**	**0.78**	**35.2**	-	**C**	**0.77**	**33.1**	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The network intersections for the 2031 future total horizon operate similarly to the 2026 future total conditions. No new capacity issues are noted.

14.2.3 Network Intersection MMLOS

Table 30 summarizes the MMLOS analysis for the network intersections of Smyth Road at the north and south ramps to Riverside Drive, and Smyth Road at Alta Vista Drive. The existing and future conditions for both intersections will be the same and are considered in one row. The intersection analysis is based on the policy area of "Within 600m of a rapid transit station". The MMLOS worksheets has been provided in Appendix H.

Table 30: Study Area Intersection MMLOS Analysis

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
Smyth Road North Ramp at Riverside Drive	F	A	F	C	-	-	C	D	E	E
Smyth Road South Ramp at Riverside Drive	F	A	F	C	-	-	C	D	C	E
Smyth Road at Alta Vista Drive	F	A	F	C	F	D	-	-	C	E

The MMLOS targets will not be met for the pedestrian and bicycle LOS at all network intersections, transit LOS at the intersection of Smyth Road and Alta Vista Drive.

The pedestrian level of service would require crossing distances of a maximum of two lane-widths at each crossing to meet a LOS A.

To meet bicycle LOS targets, the eastbound and westbound approaches at the intersection of Smyth Road and Alta Vista Drive would require pocket bike lanes, and all approaches would require two stage left-turn boxes. To meet bicycle LOS targets on the Riverside Drive intersections, the southbound approaches would require bike boxes or two-stage left turns, and the northbound approach at the south Smyth Road ramp would require separated facilities.

Transit LOS is limited by the mixed flow conditions and high delays at the intersection of Smyth Road at Alta Vista Drive and would require delays on all through movements to be reduced to 30 seconds or less.

No improvements are recommended within this study for the network intersections.

14.2.4 Recommended Design Elements

No study area intersection design elements are proposed as part of this study.

15 Summary of Improvements Indicated and Modifications Options

The following summarizes the analysis and results presented in this TIA report:

Proposed Site and Screening

- The proposed site concept is a continuing care facility with 256 long-term care beds and 270 retirement dwelling units, replacing surface parking for the adjacent hospital and medical building on-site
- Accesses will be provided along via the existing signalized site access for The Ottawa Hospital Riverside Campus on Smyth Road and Riverside Drive, severing the internal connection between these intersections
- The development is proposed to be completed as two phases by 2026
- The Trip Generation and Safety Triggers were met for the TIA Screening
- This report is in support of a zoning by-law amendment and site plan application

Existing Conditions

- Riverside Drive and Smyth Road are arterial roads, and Alta Vista Drive is a major collector road in the study area
- Sidewalks are provided on both sides of Smyth Road and Alta Vista Drive and on the east side of Riverside Drive within the study area, and a pathway is provided on the east side of Riverside Drive along the river within the study area

- Bike lanes are present along Alta Vista Drive, along Riverside Drive north of the northern ramp to Smyth Road, and along Smyth Road west of the ramps to Riverside Drive
- Riverside Drive, Smyth Road, and Alta Vista Drive are spine cycling routes, Frobisher Lane is a local route that continues through the subject site connecting to Rodney Crescent and Billings Avenue
- The site is within 300 metres of Riverside Station along the Transitway BRT corridor
- The high volumes roadways have produced a high number of collisions at the study area intersections, primarily at the Smyth Road at Alta Vista Drive and the Smyth Road ramps at Riverside Drive intersections
- The collisions are predominantly rear end and turning movement collisions indicating that they may be associated with congestion and right-turn channels
- Capacity issues are noted in the PM peak hour at the intersection of Riverside Drive and the Smyth Road north Ramp, and queueing and capacity issues are noted at the intersection of Smyth Road at Alta Vista Drive

Development Generated Travel Demand

- The proposed development is forecasted produce 116 two-way people trips during the AM peak hour and 163 two-way people trips during the PM peak hour
- Of the forecasted people trips, 49 two-way trips will be vehicle trips during the AM peak hour and 68 two-way trips will be vehicle trips during the PM peak hour based on a 42% auto and 45% transit modal share target
- Of the forecasted trips, 30% are anticipated to travel north, 25% to travel each south and east, and 20% to travel west

Background Conditions

- No background developments were noted within the study area, and a background growth of 1.50% per annum along Riverside Drive northbound in the AM peak and southbound in the PM peak was applied
- The study area intersections at both future background horizons are forecasted to operate similarly to the existing conditions, with operational improvements noted for the intersection of the Smyth Road north ramp at Riverside Drive with signal phasing changes
- Severing the internal connection between the site accesses will cause existing site traffic accessing the Smyth Road access to detour to the Riverside Drive access

Development Design

- The bike parking will be via surface racks interspersed around major building entrances on site, and auto parking areas are to be located surrounding the site in surface lots each accessing the separate accesses, and via an underground garage accessing the drive aisle to the Smyth Road access
- Pedestrian connections will be made from all building entrances to the surrounding pedestrian facilities on Smyth Road and on Riverside Drive via the hospital pedestrian network, with a multi-use pathway connection along the north of the site from the Smyth Road access intersection to the drive aisle connected to the Riverside Drive access
- Garbage and loading operations are proposed to access the surface lot connecting to Riverside Drive, and emergency services are anticipated to access this lot and the surface lot connecting to Smyth Road

Parking

- The site plan includes 275 vehicle parking spaces, meeting the by-law minimum of 133, with 66 of these being within the underground parking level
- Bicycle parking is located across surface racks and within the underground parking level, meeting the minimum provision of 74 spaces

Boundary Street Design

- The boundary street cannot meet pedestrian MMLOS targets, due to operating speeds and bicycle LOS due to lack of separated facilities
- No cycling improvements are proposed within outside of a corridor study and it is noted that the Smyth Road Cycling Safety Improvements project will be including modifications to this access and westward as part of its scope

Access Intersections Design

- The site will use the existing access intersections at Smyth Road and Riverside Drive, and no geometric changes are proposed to support site operations
- The proposed 15-metre throat length at the access intersection on Smyth Road is considered to be adequate based upon the low site volumes
- The re-assignment of traffic from the closure of hospital access from Smyth Road results in capacity issues at the Riverside Drive access intersection with existing signal phasing
- The inclusion of a protected southbound left-turn phase would be required for this intersection to operate adequately, and the Smyth Road access intersection is forecasted to operate well
- The MMLOS targets for pedestrians and bicycles will not be met, where the conditions at the Riverside Drive access intersection are deemed to be appropriate, and the Smyth Road intersection design is within the scope of the Smyth Road Cycling Safety Improvements project

TDM

- Supportive TDM measures to be included within the proposed development should include:
  - Display local area maps with walking cycling destinations, relevant transit schedules and route maps at entrances
  - Provide a shuttle service for seniors homes (e.g. scheduled mall or supermarket runs)
  - Provide a multimodal information package to new employees and residents
  - Offer personalized trip planning to new residents
  - Inclusion of a 6-month Presto card for first time new townhome purchase and apartment rental, with a set time frame for this offer (e.g. 3 months) from the initial opening of the site

Transit

- The site is within 300 metres of the Riverside BRT station along the Transitway
- Transitway routes should be able to accommodate site transit users and service on existing local area routes should is not forecasted to be impacted by site transit users
- No specific transit priority measures were considered as part of this development

Network Intersection Design

- Generally, the network intersections with the addition of site traffic and the reassignment from the access connection severance will operate similarly to the background conditions
- The MMLOS targets will not be met for the pedestrian and bicycle LOS at all network intersections, transit LOS at the intersection of Smyth Road and Alta Vista Drive
- Improved cycling facilities, generally including left-turn configurations out of mixed flow and pocket bike lanes or separated facilities could meet the LOS targets, but due to the nature of arterials roadways, the pedestrian and transit LOS cannot be met
- No network intersection improvements are recommended within the study area

16 Conclusion

It is recommended that, from a transportation perspective, the proposed development applications proceed.

Prepared By:

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Transportation Engineering-Intern

Reviewed By:

Andrew Harte, P.Eng
Senior Transportation Engineer

Appendix A

TIA Screening Form and PM Certification Form

13 Markham Avenue
Ottawa ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 28-Apr-21
Project Number: 2021-045
Project Reference: Schlegel Villages

1.1 Description of Proposed Development	
Municipal Address	1919 Riverside Drive
Description of Location	South of Smyth Rd, between Transitway and rail line
Land Use Classification	Major Institutional: I2 F(1.0)
Development Size	256 Long-term Care Beds, 250 Retirement Units
Accesses	Existing signalized onto Smyth Rd, Connection to TOH parking with connection to Riverside Dr
Phase of Development	Two
Buildout Year	2025
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	250	Units
Trip Generation Trigger	Yes	

1.3 Location Triggers		
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	No	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	No	
Location Trigger	No	

1.4. Safety Triggers		
Are posted speed limits on a boundary street 80 km/hr or greater?	No	
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No	Existing Driveway
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	No	Existing Driveway
Is the proposed driveway within auxiliary lanes of an intersection?	No	Existing Driveway
Does the proposed driveway make use of an existing median break that serves an existing site?	No	Existing Driveway
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	Yes	Smyth Rd @ Alta Vista Dr: 98 collisions 2015-2019
Does the development include a drive-thru facility?	No	
Safety Trigger	Yes	

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

City Of Ottawa
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Urbanisme et Gestion de la croissance
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Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Ottawa_____ this __20__ day of _____September_____, 2018.
(City)

Name: _____Andrew Harte_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 13 Markham Avenue
City / Postal Code: Ottawa / K2G 3Z1
Telephone / Extension: (613) 697-3797
E-Mail Address: Andrew.Harte@CGHTransportation.com

Appendix B

Turning Movement Counts

Transportation Services - Traffic Services

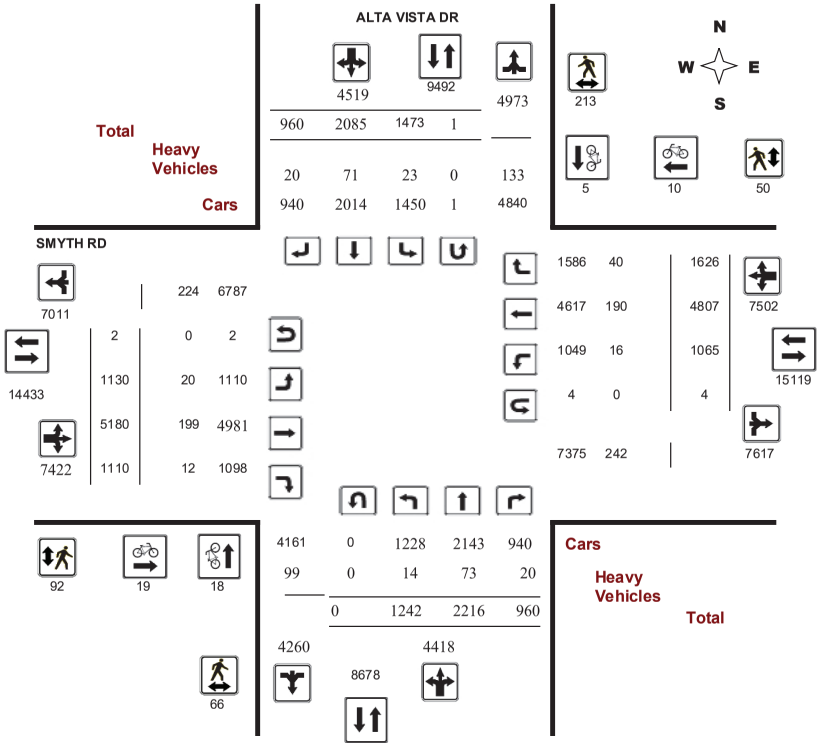
Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

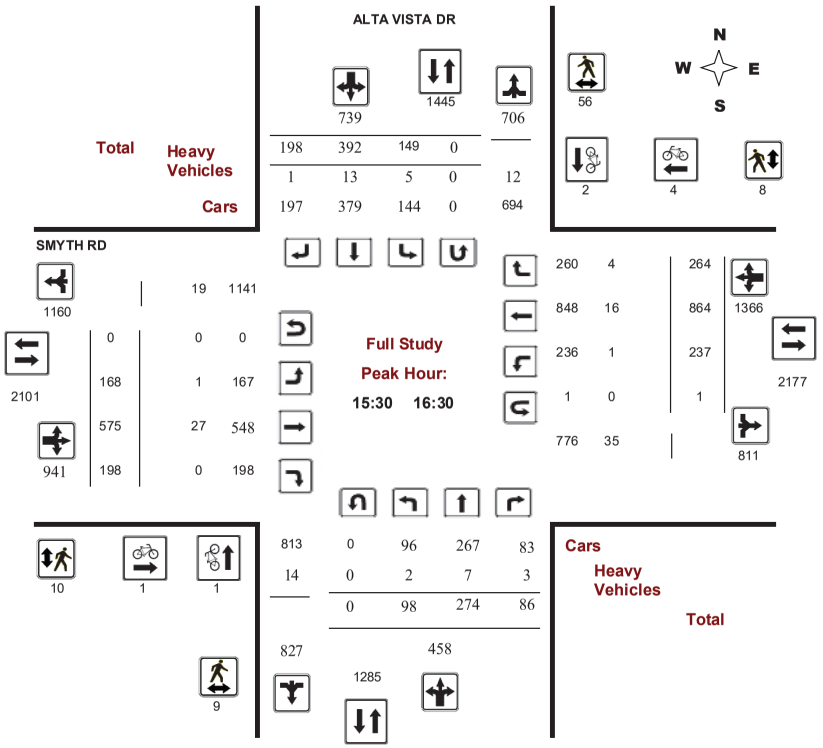
Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



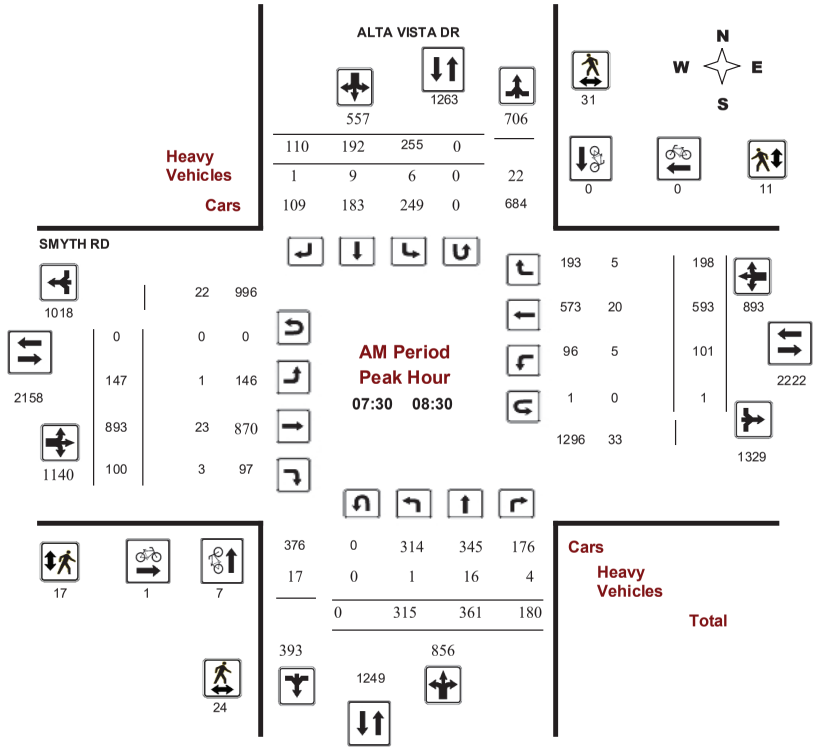
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision



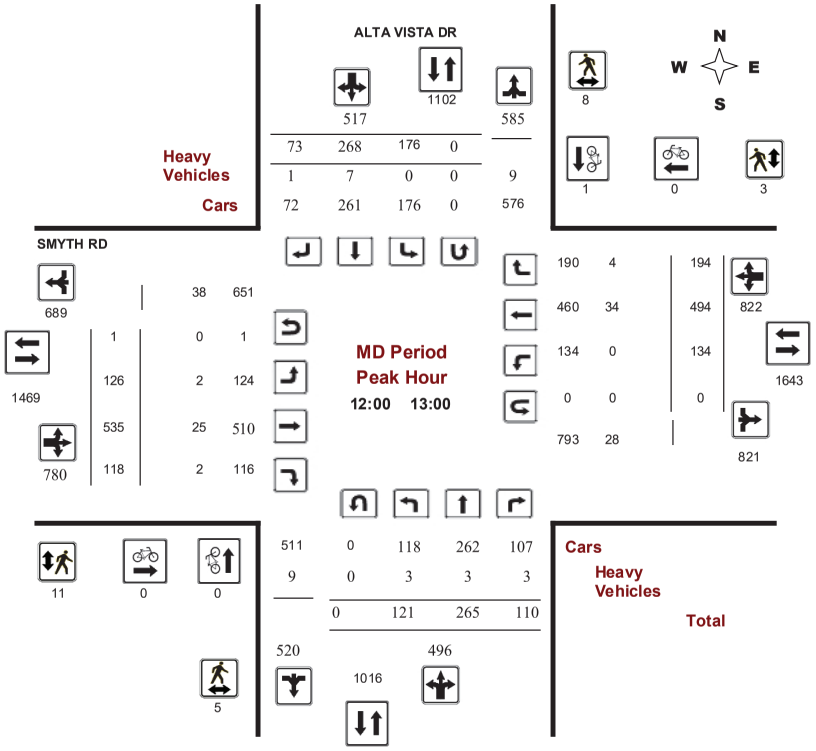
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision



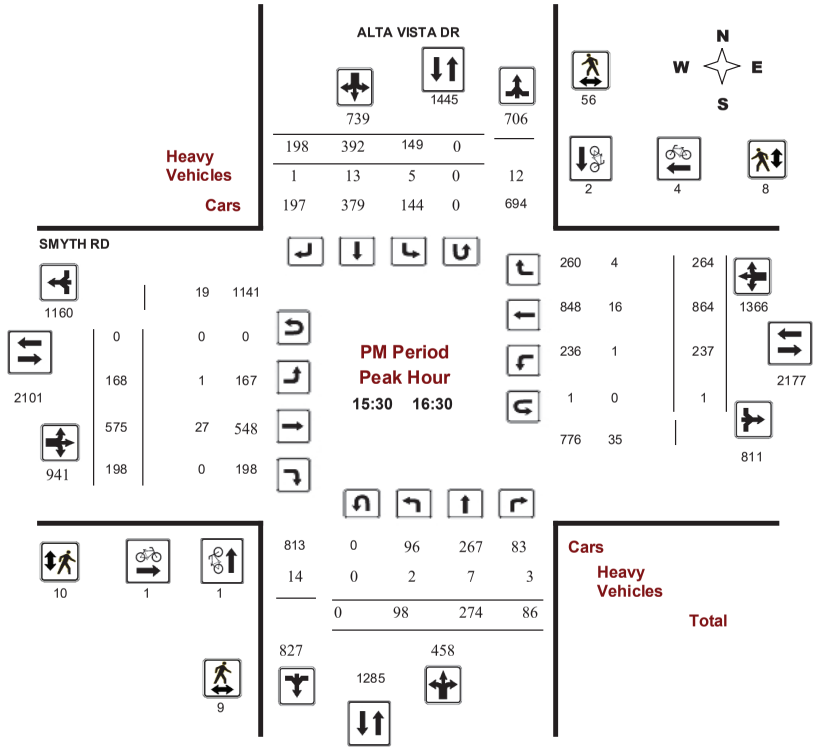
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, February 14, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 1

Eastbound: 2 Westbound: 4

AADT Factor 1.00

	ALTA VISTA DR								SMYTH RD								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	235	263	178	**676**	211	160	104	**475**	**1151**	125	933	90	**1148**	95	560	197	**852**	**2000**	**3151**
08:00 09:00	264	397	197	**858**	273	205	117	**595**	**1453**	177	849	108	**1134**	98	563	184	**845**	**1979**	**3432**
09:00 10:00	151	245	126	**522**	227	168	95	**490**	**1012**	132	643	104	**879**	96	416	162	**674**	**1553**	**2565**
11:30 12:30	103	271	103	**477**	147	250	66	**463**	**940**	110	498	109	**717**	138	474	220	**832**	**1549**	**2489**
12:30 13:30	119	256	94	**469**	188	256	88	**532**	**1001**	119	511	123	**753**	98	470	180	**748**	**1501**	**2502**
15:00 16:00	122	257	93	**472**	167	355	174	**696**	**1168**	151	541	181	**873**	219	917	260	**1396**	**2269**	**3437**
16:00 17:00	121	290	86	**497**	133	378	184	**695**	**1192**	184	624	194	**1002**	185	740	239	**1164**	**2166**	**3358**
17:00 18:00	127	237	83	**447**	127	313	132	**572**	**1019**	132	581	201	**914**	136	667	184	**987**	**1901**	**2920**
Sub Total	1242	2216	960	**4418**	1473	2085	960	**4518**	**8936**	1130	5180	1110	**7420**	1065	4807	1626	**7498**	**14918**	**23854**
U Turns	0			**0**	1			**1**	**1**	**2**			**2**	4			**4**	**6**	**7**
Total	1242	2216	960	**4418**	1474	2085	960	**4519**	**8937**	1132	5180	1110	**7422**	1069	4807	1626	**7502**	**14924**	**23861**
EQ 12Hr	1726	3080	1334	**6140**	2049	2898	1334	**6281**	**12421**	1573	7200	1543	**10316**	1486	6682	2260	**10428**	**20744**	**33165**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1726	3080	1334	**6140**	2049	2898	1334	**6281**	**12421**	1573	7200	1543	**10316**	1486	6682	2260	**10428**	**20744**	**33165**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	2261	4035	1748	**8044**	2684	3796	1748	**8228**	**16272**	2061	9432	2021	**13514**	1947	8753	2961	**13661**	**27175**	**43447**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		ALTA VISTA DR									SMYTH RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	35	36	49	120	45	40	21	106	**226**	26	227	31	284	20	100	35	155	**439**	**665**
07:15	07:30	48	57	44	149	46	36	31	113	**262**	25	224	16	265	20	145	50	215	**480**	**742**
07:30	07:45	62	77	44	183	64	49	29	142	**325**	33	249	21	303	27	159	51	237	**540**	**865**
07:45	08:00	90	93	41	224	56	35	23	114	**338**	41	233	22	296	28	156	61	245	**541**	**879**
08:00	08:15	90	81	56	227	64	45	31	140	**367**	32	199	24	255	20	147	42	209	**464**	**831**
08:15	08:30	73	110	39	222	71	63	27	161	**383**	41	212	33	286	27	131	44	202	**488**	**871**
08:30	08:45	56	99	56	211	65	48	33	146	**357**	48	225	20	293	22	140	50	212	**505**	**862**
08:45	09:00	45	107	46	198	73	49	26	148	**346**	56	213	31	300	30	145	48	223	**523**	**869**
09:00	09:15	55	84	44	183	72	56	32	160	**343**	41	206	24	271	26	133	60	219	**490**	**833**
09:15	09:30	35	59	26	120	58	38	28	124	**244**	38	139	25	202	29	96	22	147	**349**	**593**
09:30	09:45	35	45	32	112	51	37	19	107	**219**	20	167	26	213	17	109	37	163	**376**	**595**
09:45	10:00	26	57	24	107	46	37	16	99	**206**	33	131	29	193	24	78	43	145	**338**	**544**
11:30	11:45	26	58	21	105	27	56	15	98	**203**	20	108	18	146	30	119	43	192	**338**	**541**
11:45	12:00	25	79	33	137	39	64	22	125	**262**	30	112	26	168	30	104	67	201	**369**	**631**
12:00	12:15	24	62	20	106	29	77	10	116	**222**	32	130	31	193	43	121	61	225	**418**	**640**
12:15	12:30	28	72	29	129	52	53	19	124	**253**	28	148	34	210	35	130	49	214	**424**	**677**
12:30	12:45	40	75	33	148	47	61	18	126	**274**	35	115	28	178	29	121	54	204	**382**	**656**
12:45	13:00	29	56	28	113	48	77	26	151	**264**	32	142	25	199	27	122	30	179	**378**	**642**
13:00	13:15	21	70	15	106	49	55	20	124	**230**	31	130	37	198	21	126	49	196	**394**	**624**
13:15	13:30	29	55	18	102	44	63	24	131	**233**	22	124	33	179	22	101	47	170	**349**	**582**
15:00	15:15	38	66	24	128	47	69	40	156	**284**	36	127	41	204	56	250	60	366	**570**	**854**
15:15	15:30	38	66	25	129	43	83	39	165	**294**	34	129	45	208	43	232	73	348	**556**	**850**
15:30	15:45	28	63	18	109	49	102	49	200	**309**	39	139	50	228	58	225	58	341	**569**	**878**
15:45	16:00	18	62	26	106	28	101	46	175	**281**	42	146	45	233	63	210	69	342	**575**	**856**
16:00	16:15	26	69	23	118	40	97	54	191	**309**	43	148	41	232	66	214	71	351	**583**	**892**
16:15	16:30	26	80	19	125	32	92	49	173	**298**	44	142	62	248	51	215	66	332	**580**	**878**
16:30	16:45	30	81	23	134	27	86	35	148	**282**	45	153	44	242	31	156	61	248	**490**	**772**
16:45	17:00	39	60	21	120	35	103	46	184	**304**	52	181	47	280	38	155	41	234	**514**	**818**
17:00	17:15	27	52	15	94	37	84	30	151	**245**	41	132	56	229	46	191	64	301	**530**	**775**
17:15	17:30	31	61	22	114	23	88	46	157	**271**	38	149	46	233	33	178	45	256	**489**	**760**
17:30	17:45	38	66	25	129	28	67	26	121	**250**	21	140	47	208	33	169	36	238	**446**	**696**
17:45	18:00	31	58	21	110	39	74	30	143	**253**	33	160	52	245	24	129	39	192	**437**	**690**
Total:		1242	2216	960	4418	1474	2085	960	4519	**8937**	1132	5180	1110	7422	1069	4807	1626	7502	**8937**	**23,861**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		ALTA VISTA DR			SMYTH RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	2	0	**2**	1	0	**1**	**3**
07:15	07:30	3	1	**4**	0	0	**0**	**4**
07:30	07:45	2	0	**2**	0	0	**0**	**2**
07:45	08:00	1	0	**1**	0	0	**0**	**1**
08:00	08:15	3	0	**3**	1	0	**1**	**4**
08:15	08:30	1	0	**1**	0	0	**0**	**1**
08:30	08:45	1	0	**1**	1	0	**1**	**2**
08:45	09:00	0	0	**0**	2	1	**3**	**3**
09:00	09:15	1	0	**1**	0	1	**1**	**2**
09:15	09:30	1	0	**1**	0	0	**0**	**1**
09:30	09:45	0	0	**0**	1	0	**1**	**1**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	1	**1**	0	0	**0**	**1**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	2	0	**2**	**2**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	2	0	**2**	0	1	**1**	**3**
15:30	15:45	0	1	**1**	0	1	**1**	**2**
15:45	16:00	0	0	**0**	1	1	**2**	**2**
16:00	16:15	0	0	**0**	0	1	**1**	**1**
16:15	16:30	1	1	**2**	0	1	**1**	**3**
16:30	16:45	0	1	**1**	2	0	**2**	**3**
16:45	17:00	0	0	**0**	2	0	**2**	**2**
17:00	17:15	0	0	**0**	3	1	**4**	**4**
17:15	17:30	0	0	**0**	1	1	**2**	**2**
17:30	17:45	0	0	**0**	1	1	**2**	**2**
17:45	18:00	0	0	**0**	1	0	**1**	**1**
Total		18	5	**23**	19	10	**29**	**52**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

		ALTA VISTA DR			SMYTH RD			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	0	3	**3**	1	0	**1**	**4**
07:15	07:30	1	3	**4**	3	1	**4**	**8**
07:30	07:45	1	6	**7**	2	1	**3**	**10**
07:45	08:00	5	10	**15**	4	2	**6**	**21**
08:00	08:15	8	7	**15**	3	3	**6**	**21**
08:15	08:30	10	8	**18**	8	5	**13**	**31**
08:30	08:45	3	7	**10**	2	0	**2**	**12**
08:45	09:00	4	12	**16**	8	3	**11**	**27**
09:00	09:15	0	13	**13**	4	2	**6**	**19**
09:15	09:30	1	3	**4**	1	1	**2**	**6**
09:30	09:45	0	4	**4**	3	1	**4**	**8**
09:45	10:00	0	6	**6**	1	0	**1**	**7**
11:30	11:45	0	1	**1**	0	0	**0**	**1**
11:45	12:00	2	3	**5**	2	2	**4**	**9**
12:00	12:15	0	2	**2**	0	1	**1**	**3**
12:15	12:30	1	1	**2**	4	1	**5**	**7**
12:30	12:45	2	2	**4**	3	0	**3**	**7**
12:45	13:00	2	3	**5**	4	1	**5**	**10**
13:00	13:15	1	1	**2**	3	0	**3**	**5**
13:15	13:30	0	1	**1**	1	0	**1**	**2**
15:00	15:15	1	9	**10**	1	3	**4**	**14**
15:15	15:30	0	4	**4**	4	1	**5**	**9**
15:30	15:45	0	19	**19**	5	0	**5**	**24**
15:45	16:00	0	12	**12**	0	0	**0**	**12**
16:00	16:15	2	13	**15**	1	4	**5**	**20**
16:15	16:30	7	12	**19**	4	4	**8**	**27**
16:30	16:45	2	16	**18**	4	2	**6**	**24**
16:45	17:00	2	6	**8**	3	2	**5**	**13**
17:00	17:15	3	11	**14**	4	3	**7**	**21**
17:15	17:30	2	8	**10**	6	5	**11**	**21**
17:30	17:45	4	4	**8**	1	2	**3**	**11**
17:45	18:00	2	3	**5**	2	0	**2**	**7**
Total	.....	66	213	**279**	92	50	**142**	**421**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		ALTA VISTA DR									SMYTH RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	2	0	**2**	0	3	1	**4**	**6**	0	6	1	**7**	0	3	2	**5**	**12**	**18**
07:15	07:30	2	3	0	**5**	0	2	3	**5**	**10**	0	7	0	**7**	2	10	0	**12**	**19**	**29**
07:30	07:45	0	1	0	**1**	0	2	0	**2**	**3**	0	6	0	**6**	0	5	0	**5**	**11**	**14**
07:45	08:00	1	6	2	**9**	1	2	0	**3**	**12**	0	3	2	**5**	0	5	1	**6**	**11**	**23**
08:00	08:15	0	5	2	**7**	2	1	0	**3**	**10**	0	8	1	**9**	1	3	1	**5**	**14**	**24**
08:15	08:30	0	4	0	**4**	3	4	1	**8**	**12**	1	6	0	**7**	4	7	3	**14**	**21**	**33**
08:30	08:45	0	5	1	**6**	0	1	0	**1**	**7**	1	8	1	**10**	1	15	1	**17**	**27**	**34**
08:45	09:00	1	4	2	**7**	0	1	1	**2**	**9**	1	11	0	**12**	0	8	2	**10**	**22**	**31**
09:00	09:15	1	5	3	**9**	2	4	2	**8**	**17**	1	12	1	**14**	0	8	4	**12**	**26**	**43**
09:15	09:30	0	2	0	**2**	1	3	4	**8**	**10**	1	3	0	**4**	1	5	2	**8**	**12**	**22**
09:30	09:45	0	2	0	**2**	2	1	1	**4**	**6**	0	5	1	**6**	1	8	0	**9**	**15**	**21**
09:45	10:00	0	2	0	**2**	1	1	1	**3**	**5**	0	7	0	**7**	0	7	2	**9**	**16**	**21**
11:30	11:45	1	1	0	**2**	0	1	0	**1**	**3**	0	8	0	**8**	1	6	0	**7**	**15**	**18**
11:45	12:00	0	3	0	**3**	1	1	1	**3**	**6**	1	8	1	**10**	0	6	1	**7**	**17**	**23**
12:00	12:15	1	0	1	**2**	0	2	1	**3**	**5**	1	4	2	**7**	0	5	1	**6**	**13**	**18**
12:15	12:30	1	2	1	**4**	0	1	0	**1**	**5**	0	5	0	**5**	0	10	2	**12**	**17**	**22**
12:30	12:45	0	1	1	**2**	0	1	0	**1**	**3**	1	6	0	**7**	0	9	1	**10**	**17**	**20**
12:45	13:00	1	0	0	**1**	0	3	0	**3**	**4**	0	10	0	**10**	0	10	0	**10**	**20**	**24**
13:00	13:15	0	2	0	**2**	0	3	0	**3**	**5**	1	5	0	**6**	0	8	1	**9**	**15**	**20**
13:15	13:30	1	1	0	**2**	1	2	1	**4**	**6**	1	6	1	**8**	0	7	4	**11**	**19**	**25**
15:00	15:15	1	3	1	**5**	2	1	0	**3**	**8**	1	7	0	**8**	1	8	2	**11**	**19**	**27**
15:15	15:30	0	1	0	**1**	1	3	0	**4**	**5**	0	6	1	**7**	0	4	5	**9**	**16**	**21**
15:30	15:45	1	1	0	**2**	3	3	0	**6**	**8**	0	9	0	**9**	1	5	0	**6**	**15**	**23**
15:45	16:00	0	1	0	**1**	1	4	1	**6**	**7**	0	6	0	**6**	0	4	2	**6**	**12**	**19**
16:00	16:15	1	3	1	**5**	0	3	0	**3**	**8**	1	6	0	**7**	0	2	1	**3**	**10**	**18**
16:15	16:30	0	2	2	**4**	1	3	0	**4**	**8**	0	6	0	**6**	0	5	1	**6**	**12**	**20**
16:30	16:45	0	2	0	**2**	0	4	0	**4**	**6**	1	4	0	**5**	0	3	1	**4**	**9**	**15**
16:45	17:00	0	3	2	**5**	0	2	1	**3**	**8**	1	4	0	**5**	0	4	0	**4**	**9**	**17**
17:00	17:15	0	2	0	**2**	1	3	0	**4**	**6**	2	4	0	**6**	1	3	0	**4**	**10**	**16**
17:15	17:30	0	0	0	**0**	0	3	0	**3**	**3**	2	4	0	**6**	1	1	0	**2**	**8**	**11**
17:30	17:45	0	1	0	**1**	0	0	1	**1**	**2**	1	5	0	**6**	1	3	0	**4**	**10**	**12**
17:45	18:00	1	3	1	**5**	0	3	0	**3**	**8**	1	4	0	**5**	0	3	0	**3**	**8**	**16**
Total:	None	14	73	20	**107**	23	71	20	**114**	**221**	20	199	12	**231**	16	190	40	**246**	**477**	**698**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ALTA VISTA DR @ SMYTH RD

Survey Date: Wednesday, February 14, 2018 **WO No:** 37527

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

ALTA VISTA DR SMYTH RD

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	1	**1**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	1	0	**1**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	1	**1**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	1	**1**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	1	**1**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	1	0	0	**1**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	1	0	**1**
Total		0	1	2	4	**7**

Transportation Services - Traffic Services

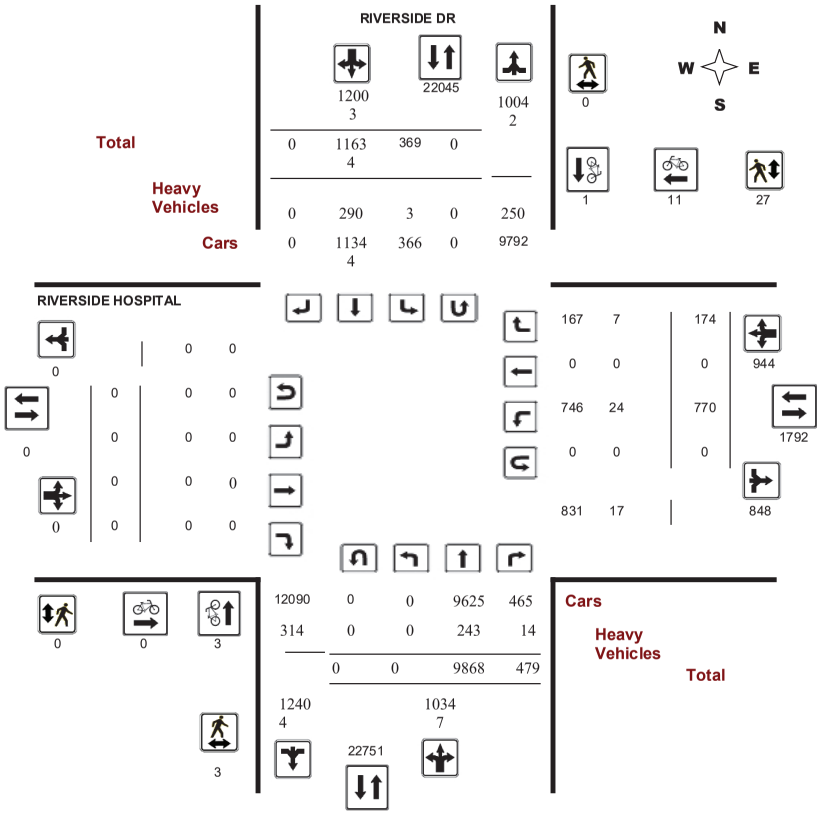
Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study Diagram



Transportation Services - Traffic Services

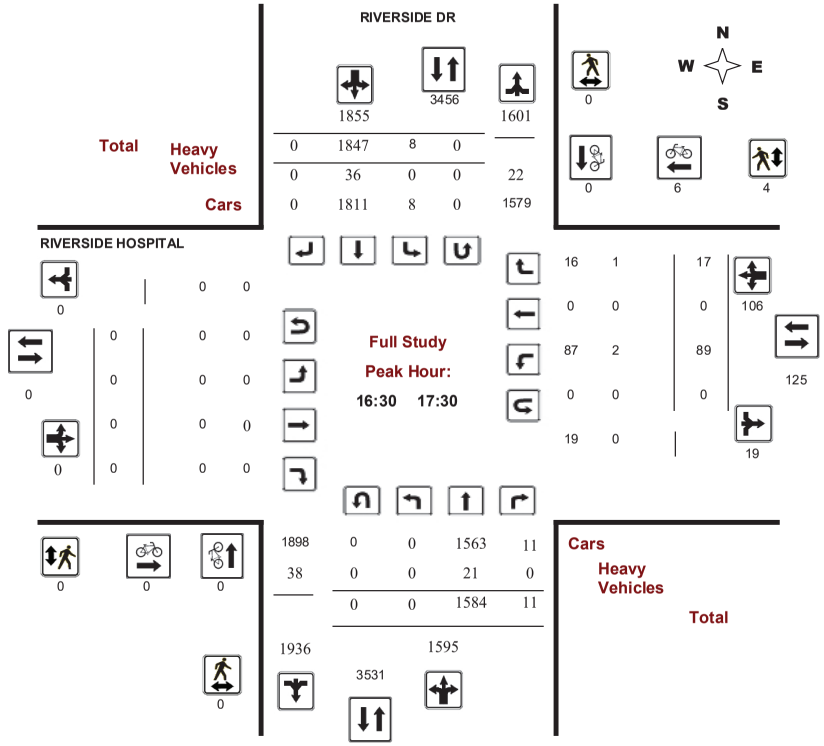
Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study Peak Hour Diagram



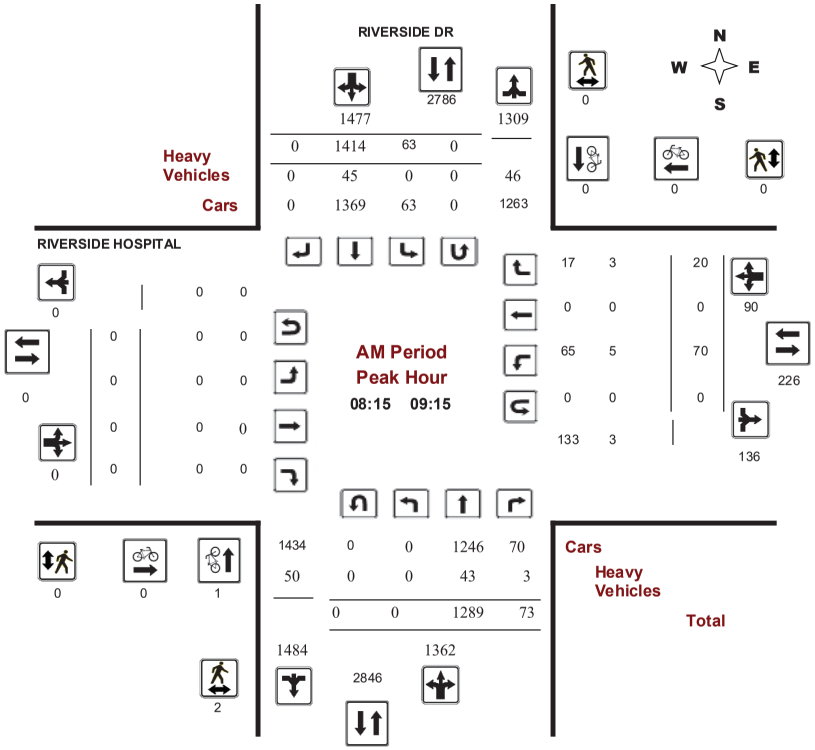
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc



Comments

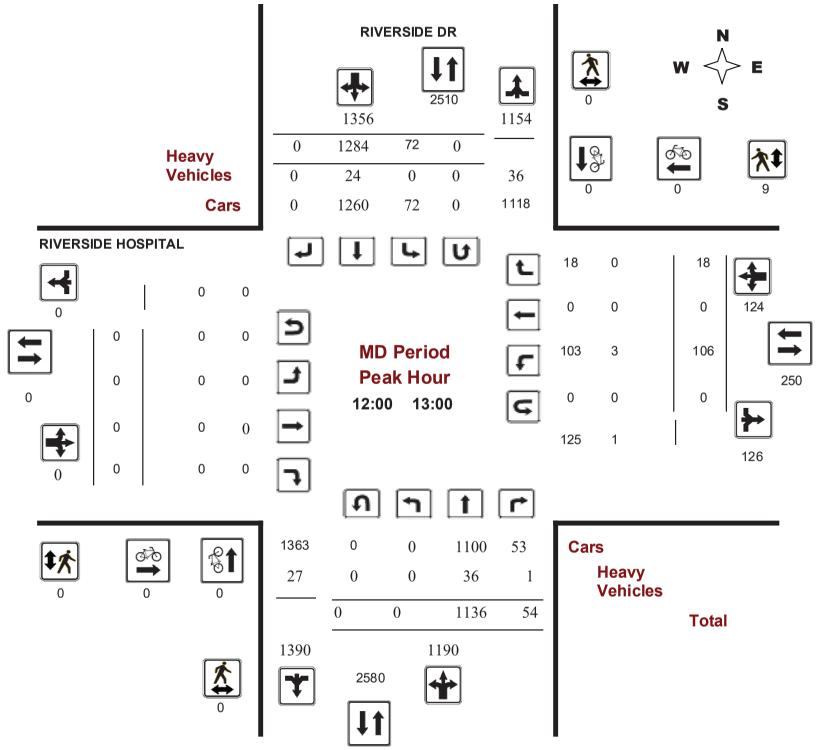
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015
Start Time: 07:00

WO No: 35269
Device: Jamar Technologies, Inc



Comments

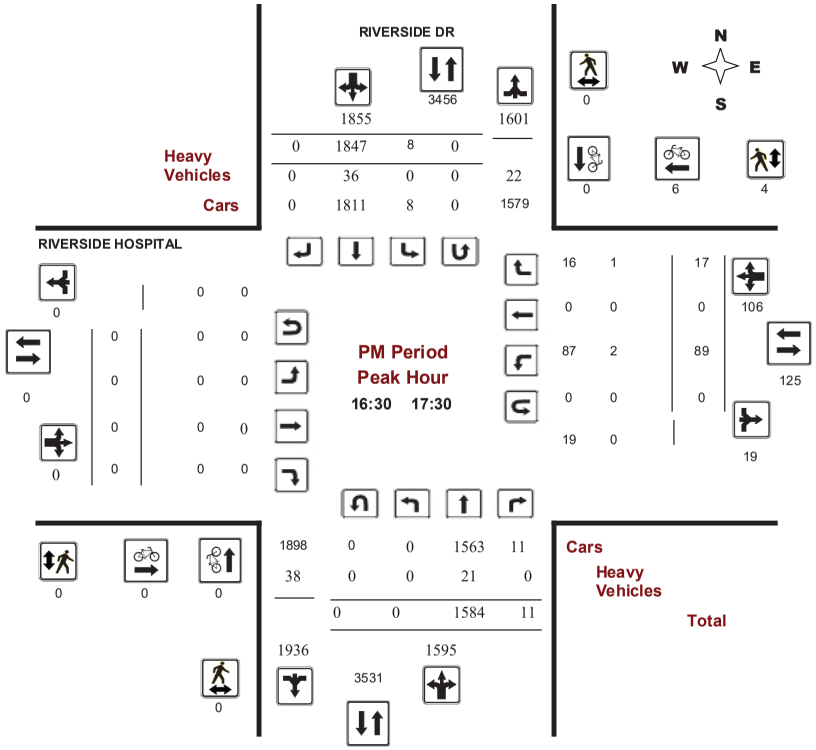
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015
Start Time: 07:00

WO No: 35269
Device: Jamar Technologies, Inc



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study Summary (8 HR Standard)

Survey Date: Thursday, August 20, 2015

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

	RIVERSIDE DR									RIVERSIDE HOSPITAL									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	1202	116	**1318**	55	1288	0	**1343**	**2661**	0	0	0	**0**	30	0	12	**42**	**42**	**2703**
08:00 09:00	0	1276	92	**1368**	57	1403	0	**1460**	**2828**	0	0	0	**0**	69	0	19	**88**	**88**	**2916**
09:00 10:00	0	1252	85	**1337**	72	1207	0	**1279**	**2616**	0	0	0	**0**	89	0	33	**122**	**122**	**2738**
11:30 12:30	0	1124	41	**1165**	58	1222	0	**1280**	**2445**	0	0	0	**0**	120	0	29	**149**	**149**	**2594**
12:30 13:30	0	1077	60	**1137**	62	1205	0	**1267**	**2404**	0	0	0	**0**	97	0	10	**107**	**107**	**2511**
15:00 16:00	0	1185	55	**1240**	48	1710	0	**1758**	**2998**	0	0	0	**0**	166	0	41	**207**	**207**	**3205**
16:00 17:00	0	1253	23	**1276**	8	1993	0	**2001**	**3277**	0	0	0	**0**	143	0	18	**161**	**161**	**3438**
17:00 18:00	0	1499	7	**1506**	9	1606	0	**1615**	**3121**	0	0	0	**0**	56	0	12	**68**	**68**	**3189**
Sub Total	0	9868	479	**10347**	369	11634	0	**12003**	**22350**	0	0	0	**0**	770	0	174	**944**	**944**	**23294**
U Turns	0			**0**	0			**0**	**0**	**0**			**0**	0			**0**	**0**	**0**
Total	0	9868	479	**10347**	369	11634	0	**12003**	**22350**	0	0	0	**0**	770	0	174	**944**	**944**	**23294**
EQ 12Hr	0	13717	666	**14383**	513	16171	0	**16684**	**31067**	0	0	0	**0**	1070	0	242	**1312**	**1312**	**32379**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	12345	599	**12944**	462	14554	0	**15016**	**27960**	0	0	0	**0**	963	0	218	**1181**	**1181**	**29141**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	0	16172	785	**16957**	605	19066	0	**19671**	**36628**	0	0	0	**0**	1262	0	286	**1548**	**1548**	**38176**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study 15 Minute Increments

		RIVERSIDE DR									RIVERSIDE HOSPITAL									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	283	20	303	1	332	0	333	**636**	0	0	0	0	3	0	0	3	**3**	**639**
07:15	07:30	0	282	26	308	15	306	0	321	**629**	0	0	0	0	7	0	4	11	**11**	**640**
07:30	07:45	0	305	30	335	20	330	0	350	**685**	0	0	0	0	9	0	4	13	**13**	**698**
07:45	08:00	0	332	40	372	19	320	0	339	**711**	0	0	0	0	11	0	4	15	**15**	**726**
08:00	08:15	0	275	34	309	14	330	0	344	**653**	0	0	0	0	18	0	4	22	**22**	**675**
08:15	08:30	0	305	25	330	12	348	0	360	**690**	0	0	0	0	10	0	4	14	**14**	**704**
08:30	08:45	0	338	15	353	19	347	0	366	**719**	0	0	0	0	20	0	4	24	**24**	**743**
08:45	09:00	0	358	18	376	12	378	0	390	**766**	0	0	0	0	21	0	7	28	**28**	**794**
09:00	09:15	0	288	15	303	20	341	0	361	**664**	0	0	0	0	19	0	5	24	**24**	**688**
09:15	09:30	0	318	26	344	17	280	0	297	**641**	0	0	0	0	19	0	6	25	**25**	**666**
09:30	09:45	0	285	19	304	17	252	0	269	**573**	0	0	0	0	23	0	4	27	**27**	**600**
09:45	10:00	0	361	25	386	18	334	0	352	**738**	0	0	0	0	28	0	18	46	**46**	**784**
11:30	11:45	0	252	9	261	9	284	0	293	**554**	0	0	0	0	33	0	10	43	**43**	**597**
11:45	12:00	0	313	10	323	10	277	0	287	**610**	0	0	0	0	22	0	7	29	**29**	**639**
12:00	12:15	0	291	10	301	17	332	0	349	**650**	0	0	0	0	42	0	10	52	**52**	**702**
12:15	12:30	0	268	12	280	22	329	0	351	**631**	0	0	0	0	23	0	2	25	**25**	**656**
12:30	12:45	0	265	18	283	21	266	0	287	**570**	0	0	0	0	24	0	4	28	**28**	**598**
12:45	13:00	0	312	14	326	12	357	0	369	**695**	0	0	0	0	17	0	2	19	**19**	**714**
13:00	13:15	0	264	10	274	16	301	0	317	**591**	0	0	0	0	26	0	1	27	**27**	**618**
13:15	13:30	0	236	18	254	13	281	0	294	**548**	0	0	0	0	30	0	3	33	**33**	**581**
15:00	15:15	0	288	9	297	12	409	0	421	**718**	0	0	0	0	45	0	12	57	**57**	**775**
15:15	15:30	0	296	18	314	26	402	0	428	**742**	0	0	0	0	42	0	8	50	**50**	**792**
15:30	15:45	0	333	18	351	2	459	0	461	**812**	0	0	0	0	49	0	13	62	**62**	**874**
15:45	16:00	0	268	10	278	8	440	0	448	**726**	0	0	0	0	30	0	8	38	**38**	**764**
16:00	16:15	0	282	9	291	1	456	0	457	**748**	0	0	0	0	48	0	4	52	**52**	**800**
16:15	16:30	0	270	8	278	2	529	0	531	**809**	0	0	0	0	36	0	2	38	**38**	**847**
16:30	16:45	0	292	4	296	2	485	0	487	**783**	0	0	0	0	30	0	9	39	**39**	**822**
16:45	17:00	0	409	2	411	3	523	0	526	**937**	0	0	0	0	29	0	3	32	**32**	**969**
17:00	17:15	0	449	4	453	2	400	0	402	**855**	0	0	0	0	20	0	3	23	**23**	**878**
17:15	17:30	0	434	1	435	1	439	0	440	**875**	0	0	0	0	10	0	2	12	**12**	**887**
17:30	17:45	0	340	2	342	4	365	0	369	**711**	0	0	0	0	11	0	4	15	**15**	**726**
17:45	18:00	0	276	0	276	2	402	0	404	**680**	0	0	0	0	15	0	3	18	**18**	**698**
Total:		0	9868	479	1034	369	11634	0	12003	**22350**	0	0	0	0	770	0	174	944	**22350**	**23,294**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study Cyclist Volume

Time Period		RIVERSIDE DR			RIVERSIDE HOSPITAL			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	1	**1**	**1**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	1	**1**	0	0	**0**	**1**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	1	0	**1**	0	0	**0**	**1**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	1	0	**1**	0	0	**0**	**1**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	1	**1**	**1**
15:30	15:45	1	0	**1**	0	0	**0**	**1**
15:45	16:00	0	0	**0**	0	1	**1**	**1**
16:00	16:15	0	0	**0**	0	1	**1**	**1**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	2	**2**	**2**
16:45	17:00	0	0	**0**	0	2	**2**	**2**
17:00	17:15	0	0	**0**	0	2	**2**	**2**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	1	**1**	**1**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		3	1	**4**	0	11	**11**	**15**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study Pedestrian Volume

Time Period	RIVERSIDE DR			RIVERSIDE HOSPITAL			
	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	2	0	**2**	0	0	**0**	**2**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	0	0	**0**	**0**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	0	1	**1**	**1**
11:30 11:45	0	0	**0**	0	1	**1**	**1**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	0	**0**	0	1	**1**	**1**
12:15 12:30	0	0	**0**	0	2	**2**	**2**
12:30 12:45	0	0	**0**	0	4	**4**	**4**
12:45 13:00	0	0	**0**	0	2	**2**	**2**
13:00 13:15	0	0	**0**	0	6	**6**	**6**
13:15 13:30	1	0	**1**	0	0	**0**	**1**
15:00 15:15	0	0	**0**	0	0	**0**	**0**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	0	**0**	0	3	**3**	**3**
15:45 16:00	0	0	**0**	0	2	**2**	**2**
16:00 16:15	0	0	**0**	0	1	**1**	**1**
16:15 16:30	0	0	**0**	0	0	**0**	**0**
16:30 16:45	0	0	**0**	0	1	**1**	**1**
16:45 17:00	0	0	**0**	0	1	**1**	**1**
17:00 17:15	0	0	**0**	0	1	**1**	**1**
17:15 17:30	0	0	**0**	0	1	**1**	**1**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	3	0	**3**	0	27	**27**	**30**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study Heavy Vehicles

		RIVERSIDE DR									RIVERSIDE HOSPITAL									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	3	0	**3**	0	10	0	**10**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
07:15	07:30	0	7	1	**8**	0	6	0	**6**	**14**	0	0	0	**0**	1	0	0	**1**	**1**	**15**
07:30	07:45	0	5	0	**5**	0	10	0	**10**	**15**	0	0	0	**0**	1	0	0	**1**	**1**	**16**
07:45	08:00	0	8	1	**9**	0	12	0	**12**	**21**	0	0	0	**0**	2	0	0	**2**	**2**	**23**
08:00	08:15	0	12	0	**12**	0	9	0	**9**	**21**	0	0	0	**0**	1	0	0	**1**	**1**	**22**
08:15	08:30	0	9	1	**10**	0	12	0	**12**	**22**	0	0	0	**0**	0	0	1	**1**	**1**	**23**
08:30	08:45	0	6	1	**7**	0	13	0	**13**	**20**	0	0	0	**0**	3	0	0	**3**	**3**	**23**
08:45	09:00	0	16	0	**16**	0	11	0	**11**	**27**	0	0	0	**0**	1	0	2	**3**	**3**	**30**
09:00	09:15	0	12	1	**13**	0	9	0	**9**	**22**	0	0	0	**0**	1	0	0	**1**	**1**	**23**
09:15	09:30	0	9	2	**11**	0	21	0	**21**	**32**	0	0	0	**0**	0	0	0	**0**	**0**	**32**
09:30	09:45	0	6	0	**6**	0	11	0	**11**	**17**	0	0	0	**0**	2	0	0	**2**	**2**	**19**
09:45	10:00	0	8	1	**9**	0	15	0	**15**	**24**	0	0	0	**0**	2	0	0	**2**	**2**	**26**
11:30	11:45	0	3	0	**3**	0	11	0	**11**	**14**	0	0	0	**0**	1	0	0	**1**	**1**	**15**
11:45	12:00	0	15	1	**16**	0	9	0	**9**	**25**	0	0	0	**0**	0	0	0	**0**	**0**	**25**
12:00	12:15	0	7	0	**7**	0	6	0	**6**	**13**	0	0	0	**0**	1	0	0	**1**	**1**	**14**
12:15	12:30	0	9	0	**9**	0	4	0	**4**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
12:30	12:45	0	7	0	**7**	0	5	0	**5**	**12**	0	0	0	**0**	1	0	0	**1**	**1**	**13**
12:45	13:00	0	13	1	**14**	0	9	0	**9**	**23**	0	0	0	**0**	1	0	0	**1**	**1**	**24**
13:00	13:15	0	4	0	**4**	0	8	0	**8**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
13:15	13:30	0	5	1	**6**	0	11	0	**11**	**17**	0	0	0	**0**	1	0	0	**1**	**1**	**18**
15:00	15:15	0	3	0	**3**	0	7	0	**7**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
15:15	15:30	0	13	1	**14**	2	9	0	**11**	**25**	0	0	0	**0**	0	0	0	**0**	**0**	**25**
15:30	15:45	0	8	0	**8**	0	5	0	**5**	**13**	0	0	0	**0**	1	0	0	**1**	**1**	**14**
15:45	16:00	0	9	1	**10**	0	3	0	**3**	**13**	0	0	0	**0**	0	0	1	**1**	**1**	**14**
16:00	16:15	0	9	0	**9**	0	6	0	**6**	**15**	0	0	0	**0**	1	0	1	**2**	**2**	**17**
16:15	16:30	0	6	1	**7**	0	15	0	**15**	**22**	0	0	0	**0**	0	0	0	**0**	**0**	**22**
16:30	16:45	0	6	0	**6**	0	12	0	**12**	**18**	0	0	0	**0**	1	0	0	**1**	**1**	**19**
16:45	17:00	0	6	0	**6**	0	13	0	**13**	**19**	0	0	0	**0**	0	0	0	**0**	**0**	**19**
17:00	17:15	0	5	0	**5**	0	3	0	**3**	**8**	0	0	0	**0**	1	0	1	**2**	**2**	**10**
17:15	17:30	0	4	0	**4**	0	8	0	**8**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
17:30	17:45	0	5	0	**5**	0	5	0	**5**	**10**	0	0	0	**0**	1	0	0	**1**	**1**	**11**
17:45	18:00	0	5	0	**5**	1	2	0	**3**	**8**	0	0	0	**0**	0	0	1	**1**	**1**	**9**
Total:	None	0	243	14	**257**	3	290	0	**293**	**550**	0	0	0	**0**	24	0	7	**31**	**31**	**581**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ RIVERSIDE HOSPITAL

Survey Date: Thursday, August 20, 2015 **WO No:** 35269

Start Time: 07:00 **Device:** Jamar Technologies, Inc

Full Study 15 Minute U-Turn Total

		RIVERSIDE DR		RIVERSIDE HOSPITAL		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		0	0	0	0	**0**

Transportation Services - Traffic Services

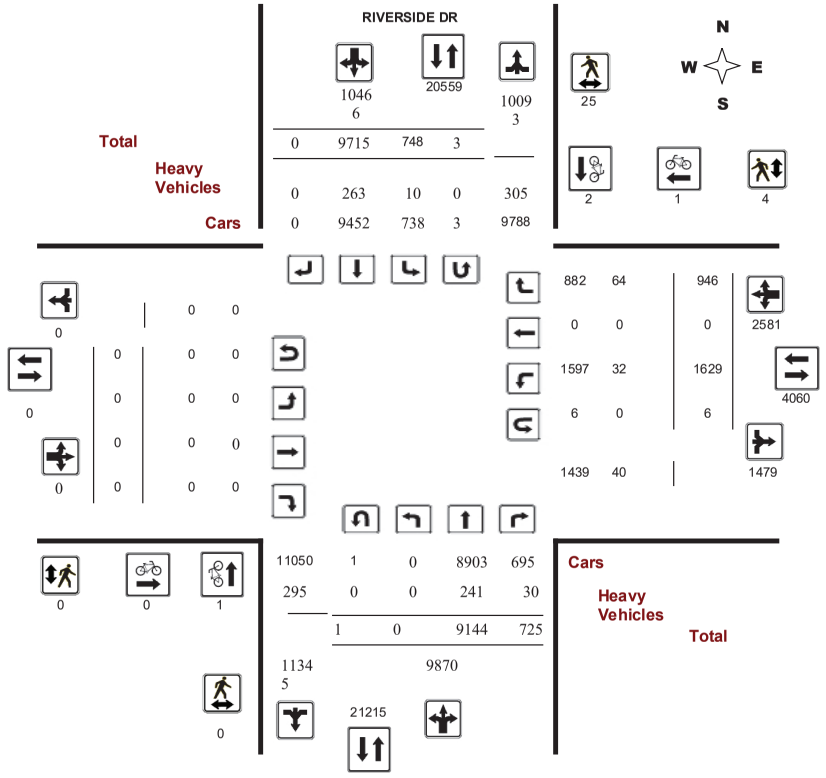
Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

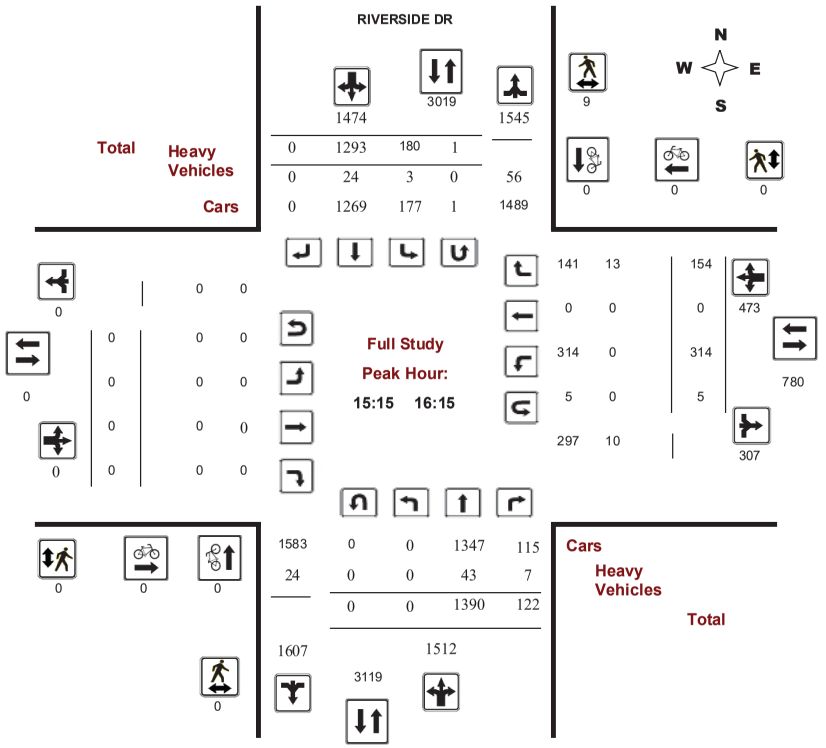
Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



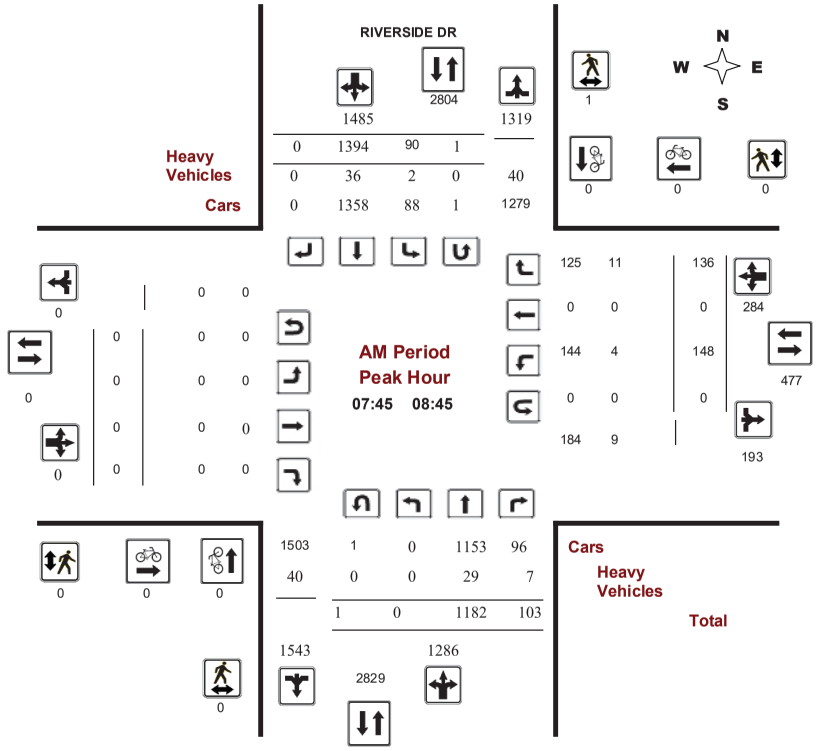
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision



Comments

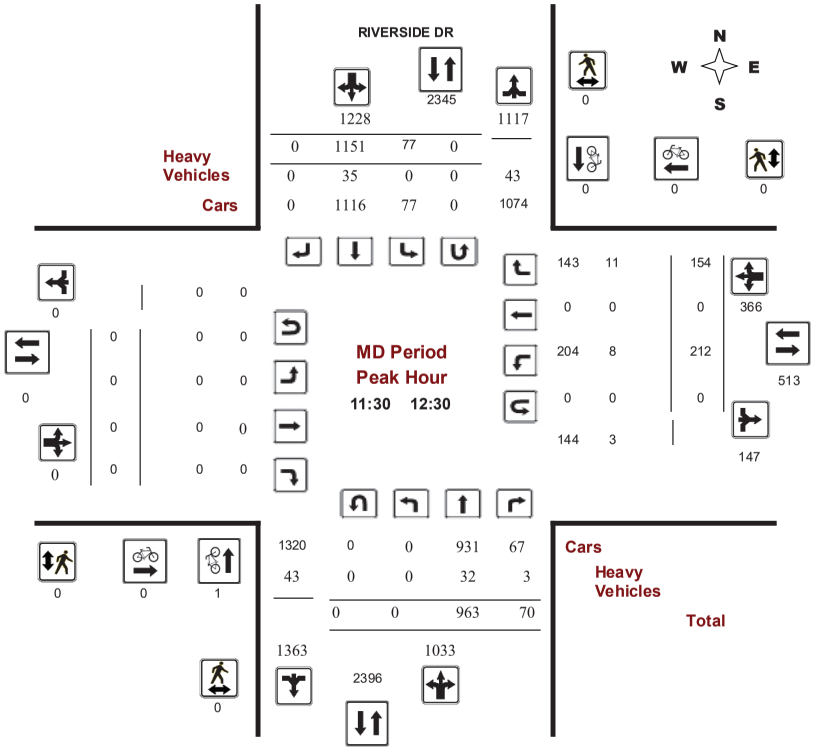
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision



Comments

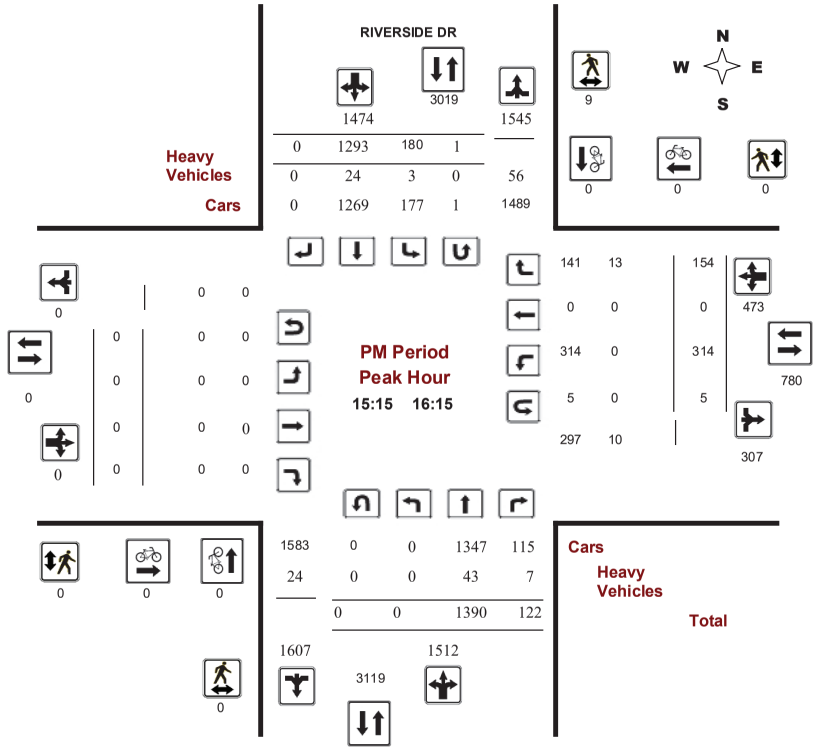
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 29, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 3

Eastbound: 0 Westbound: 6

AADT Factor

.90

RIVERSIDE DR

	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	1008	64	**1072**	45	1179	0	**1224**	**2296**	0	0	0	**0**	130	0	70	**200**	**200**	**2496**
08:00 09:00	0	1154	104	**1258**	91	1398	0	**1489**	**2747**	0	0	0	**0**	143	0	138	**281**	**281**	**3028**
09:00 10:00	0	937	103	**1040**	46	1071	0	**1117**	**2157**	0	0	0	**0**	155	0	93	**248**	**248**	**2405**
11:30 12:30	0	963	70	**1033**	77	1151	0	**1228**	**2261**	0	0	0	**0**	212	0	154	**366**	**366**	**2627**
12:30 13:30	0	904	89	**993**	70	986	0	**1056**	**2049**	0	0	0	**0**	184	0	115	**299**	**299**	**2348**
15:00 16:00	0	1374	109	**1483**	139	1300	0	**1439**	**2922**	0	0	0	**0**	324	0	150	**474**	**474**	**3396**
16:00 17:00	0	1421	81	**1502**	179	1286	0	**1465**	**2967**	0	0	0	**0**	269	0	139	**408**	**408**	**3375**
17:00 18:00	0	1383	105	**1488**	101	1344	0	**1445**	**2933**	0	0	0	**0**	212	0	87	**299**	**299**	**3232**
Sub Total	0	9144	725	**9869**	748	9715	0	**10463**	**20332**	0	0	0	**0**	1629	0	946	**2575**	**2575**	**22907**
U Turns	1			**1**	3			**3**	**4**	**0**			**0**	6			**6**	**6**	**10**
Total	1	9144	725	**9870**	751	9715	0	**10466**	**20336**	0	0	0	**0**	1635	0	946	**2581**	**2581**	**22917**
EQ 12Hr	1	12710	1008	**13719**	1044	13504	0	**14548**	**28267**	0	0	0	**0**	2273	0	1315	**3588**	**3588**	**31855**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1	11439	907	**12347**	940	12154	0	**13094**	**25441**	0	0	0	**0**	2046	0	1184	**3230**	**3230**	**28671**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	1	14985	1188	**16174**	1231	15922	0	**17153**	**33327**	0	0	0	**0**	2680	0	1551	**4231**	**4231**	**37558**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

RIVERSIDE DR

Time Period		Northbound				Southbound					Eastbound				Westbound					Grand Total
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	
07:00	07:15	0	205	15	220	8	252	0	260	**480**	0	0	0	0	26	0	14	40	**40**	**520**
07:15	07:30	0	219	11	230	10	271	0	281	**511**	0	0	0	0	25	0	11	36	**36**	**547**
07:30	07:45	0	288	16	304	10	307	0	317	**621**	0	0	0	0	42	0	20	62	**62**	**683**
07:45	08:00	0	296	22	318	17	349	0	366	**684**	0	0	0	0	37	0	25	62	**62**	**746**
08:00	08:15	1	295	25	321	24	313	0	337	**658**	0	0	0	0	31	0	42	73	**73**	**731**
08:15	08:30	0	322	31	353	23	362	0	385	**738**	0	0	0	0	36	0	35	71	**71**	**809**
08:30	08:45	0	269	25	294	27	370	0	397	**691**	0	0	0	0	44	0	34	78	**78**	**769**
08:45	09:00	0	268	23	291	18	353	0	371	**662**	0	0	0	0	32	0	27	59	**59**	**721**
09:00	09:15	0	249	35	284	15	304	0	319	**603**	0	0	0	0	45	0	22	67	**67**	**670**
09:15	09:30	0	226	22	248	11	251	0	262	**510**	0	0	0	0	35	0	26	61	**61**	**571**
09:30	09:45	0	258	25	283	6	260	0	266	**549**	0	0	0	0	37	0	22	59	**59**	**608**
09:45	10:00	0	204	21	225	14	256	0	270	**495**	0	0	0	0	38	0	23	61	**61**	**556**
11:30	11:45	0	224	15	239	23	296	0	319	**558**	0	0	0	0	48	0	38	86	**86**	**644**
11:45	12:00	0	250	18	268	22	331	0	353	**621**	0	0	0	0	44	0	35	79	**79**	**700**
12:00	12:15	0	227	17	244	15	232	0	247	**491**	0	0	0	0	57	0	51	108	**108**	**599**
12:15	12:30	0	262	20	282	17	292	0	309	**591**	0	0	0	0	63	0	30	93	**93**	**684**
12:30	12:45	0	232	25	257	18	238	0	256	**513**	0	0	0	0	51	0	31	82	**82**	**595**
12:45	13:00	0	224	25	249	23	267	0	290	**539**	0	0	0	0	44	0	30	74	**74**	**613**
13:00	13:15	0	220	25	245	13	241	0	254	**499**	0	0	0	0	46	0	30	76	**76**	**575**
13:15	13:30	0	228	14	242	17	240	0	257	**499**	0	0	0	0	43	0	24	67	**67**	**566**
15:00	15:15	0	330	13	343	14	312	0	326	**669**	0	0	0	0	100	0	35	135	**135**	**804**
15:15	15:30	0	342	28	370	27	356	0	383	**753**	0	0	0	0	88	0	32	120	**120**	**873**
15:30	15:45	0	343	33	376	42	341	0	383	**759**	0	0	0	0	67	0	43	110	**110**	**869**
15:45	16:00	0	359	35	394	57	291	0	348	**742**	0	0	0	0	74	0	40	114	**114**	**856**
16:00	16:15	0	346	26	372	55	305	0	360	**732**	0	0	0	0	90	0	39	129	**129**	**861**
16:15	16:30	0	370	12	382	47	317	0	364	**746**	0	0	0	0	69	0	34	103	**103**	**849**
16:30	16:45	0	361	25	386	34	320	0	354	**740**	0	0	0	0	58	0	39	97	**97**	**837**
16:45	17:00	0	344	18	362	43	344	0	387	**749**	0	0	0	0	53	0	27	80	**80**	**829**
17:00	17:15	0	331	25	356	27	337	0	364	**720**	0	0	0	0	66	0	23	89	**89**	**809**
17:15	17:30	0	368	31	399	28	355	0	383	**782**	0	0	0	0	49	0	28	77	**77**	**859**
17:30	17:45	0	368	21	389	22	340	0	362	**751**	0	0	0	0	53	0	19	72	**72**	**823**
17:45	18:00	0	316	28	344	24	312	0	336	**680**	0	0	0	0	44	0	17	61	**61**	**741**
Total:		1	9144	725	9870	751	9715	0	10466	**20336**	0	0	0	0	1635	0	946	2581	**20336**	**22,917**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

RIVERSIDE DR

Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	1	**1**	**1**
07:15	07:30	0	1	**1**	0	0	**0**	**1**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	0	0	**0**	**0**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	1	0	**1**	0	0	**0**	**1**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	1	**1**	0	0	**0**	**1**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		1	2	**3**	0	1	**1**	**4**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

RIVERSIDE DR

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	1	**1**	0	0	**0**	**1**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	1	**1**	0	0	**0**	**1**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
09:00 09:15	0	0	**0**	0	1	**1**	**1**
09:15 09:30	0	0	**0**	0	0	**0**	**0**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	0	0	**0**	**0**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
12:30 12:45	0	2	**2**	0	0	**0**	**2**
12:45 13:00	0	0	**0**	0	0	**0**	**0**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	0	1	**1**	0	0	**0**	**1**
15:00 15:15	0	1	**1**	0	0	**0**	**1**
15:15 15:30	0	3	**3**	0	0	**0**	**3**
15:30 15:45	0	2	**2**	0	0	**0**	**2**
15:45 16:00	0	3	**3**	0	0	**0**	**3**
16:00 16:15	0	1	**1**	0	0	**0**	**1**
16:15 16:30	0	5	**5**	0	0	**0**	**5**
16:30 16:45	0	0	**0**	0	1	**1**	**1**
16:45 17:00	0	3	**3**	0	0	**0**	**3**
17:00 17:15	0	1	**1**	0	0	**0**	**1**
17:15 17:30	0	1	**1**	0	1	**1**	**2**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	1	**1**	**1**
Total	0	25	**25**	0	4	**4**	**29**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

RIVERSIDE DR

		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	3	6	**9**	0	14	0	**14**	**23**	0	0	0	**0**	1	0	3	**4**	**4**	**27**
07:15	07:30	0	4	1	**5**	0	13	0	**13**	**18**	0	0	0	**0**	0	0	1	**1**	**1**	**19**
07:30	07:45	0	8	1	**9**	1	5	0	**6**	**15**	0	0	0	**0**	2	0	2	**4**	**4**	**19**
07:45	08:00	0	9	0	**9**	0	12	0	**12**	**21**	0	0	0	**0**	2	0	2	**4**	**4**	**25**
08:00	08:15	0	7	4	**11**	1	6	0	**7**	**18**	0	0	0	**0**	1	0	4	**5**	**5**	**23**
08:15	08:30	0	8	2	**10**	1	13	0	**14**	**24**	0	0	0	**0**	0	0	3	**3**	**3**	**27**
08:30	08:45	0	5	1	**6**	0	5	0	**5**	**11**	0	0	0	**0**	1	0	2	**3**	**3**	**14**
08:45	09:00	0	8	0	**8**	0	15	0	**15**	**23**	0	0	0	**0**	0	0	1	**1**	**1**	**24**
09:00	09:15	0	9	1	**10**	1	11	0	**12**	**22**	0	0	0	**0**	3	0	4	**7**	**7**	**29**
09:15	09:30	0	15	2	**17**	0	6	0	**6**	**23**	0	0	0	**0**	0	0	2	**2**	**2**	**25**
09:30	09:45	0	11	2	**13**	0	8	0	**8**	**21**	0	0	0	**0**	2	0	2	**4**	**4**	**25**
09:45	10:00	0	8	0	**8**	1	6	0	**7**	**15**	0	0	0	**0**	1	0	3	**4**	**4**	**19**
11:30	11:45	0	11	1	**12**	0	11	0	**11**	**23**	0	0	0	**0**	2	0	3	**5**	**5**	**28**
11:45	12:00	0	10	1	**11**	0	6	0	**6**	**17**	0	0	0	**0**	3	0	2	**5**	**5**	**22**
12:00	12:15	0	5	0	**5**	0	9	0	**9**	**14**	0	0	0	**0**	2	0	2	**4**	**4**	**18**
12:15	12:30	0	6	1	**7**	0	9	0	**9**	**16**	0	0	0	**0**	1	0	4	**5**	**5**	**21**
12:30	12:45	0	7	0	**7**	0	9	0	**9**	**16**	0	0	0	**0**	1	0	0	**1**	**1**	**17**
12:45	13:00	0	7	0	**7**	0	14	0	**14**	**21**	0	0	0	**0**	2	0	0	**2**	**2**	**23**
13:00	13:15	0	6	0	**6**	0	15	0	**15**	**21**	0	0	0	**0**	1	0	0	**1**	**1**	**22**
13:15	13:30	0	7	0	**7**	0	8	0	**8**	**15**	0	0	0	**0**	1	0	0	**1**	**1**	**16**
15:00	15:15	0	5	0	**5**	0	11	0	**11**	**16**	0	0	0	**0**	3	0	2	**5**	**5**	**21**
15:15	15:30	0	8	0	**8**	2	8	0	**10**	**18**	0	0	0	**0**	0	0	2	**2**	**2**	**20**
15:30	15:45	0	10	3	**13**	1	5	0	**6**	**19**	0	0	0	**0**	0	0	6	**6**	**6**	**25**
15:45	16:00	0	15	3	**18**	0	7	0	**7**	**25**	0	0	0	**0**	0	0	3	**3**	**3**	**28**
16:00	16:15	0	10	1	**11**	0	4	0	**4**	**15**	0	0	0	**0**	0	0	2	**2**	**2**	**17**
16:15	16:30	0	9	0	**9**	0	9	0	**9**	**18**	0	0	0	**0**	0	0	2	**2**	**2**	**20**
16:30	16:45	0	7	0	**7**	1	2	0	**3**	**10**	0	0	0	**0**	1	0	3	**4**	**4**	**14**
16:45	17:00	0	3	0	**3**	0	1	0	**1**	**4**	0	0	0	**0**	0	0	2	**2**	**2**	**6**
17:00	17:15	0	9	0	**9**	1	5	0	**6**	**15**	0	0	0	**0**	0	0	0	**0**	**0**	**15**
17:15	17:30	0	5	0	**5**	0	7	0	**7**	**12**	0	0	0	**0**	0	0	1	**1**	**1**	**13**
17:30	17:45	0	4	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	2	0	1	**3**	**3**	**11**
17:45	18:00	0	2	0	**2**	0	5	0	**5**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
Total:	None	0	241	30	**271**	10	263	0	**273**	**544**	0	0	0	**0**	32	0	64	**96**	**96**	**640**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD NORTH SIDE RAMP

Survey Date: Wednesday, November 29, 2017 **WO No:** 37348

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

RIVERSIDE DR

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	1	0	0	0	**1**
08:15	08:30	0	1	0	0	**1**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	1	0	0	**1**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	1	**1**
15:45	16:00	0	1	0	4	**5**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	1	**1**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		1	3	0	6	**10**

Transportation Services - Traffic Services

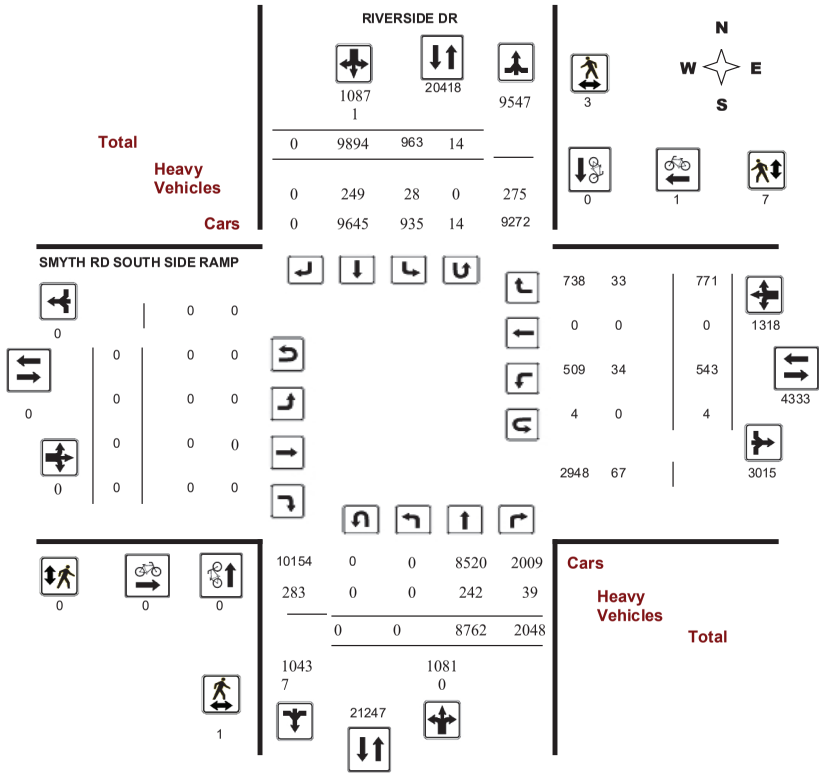
Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

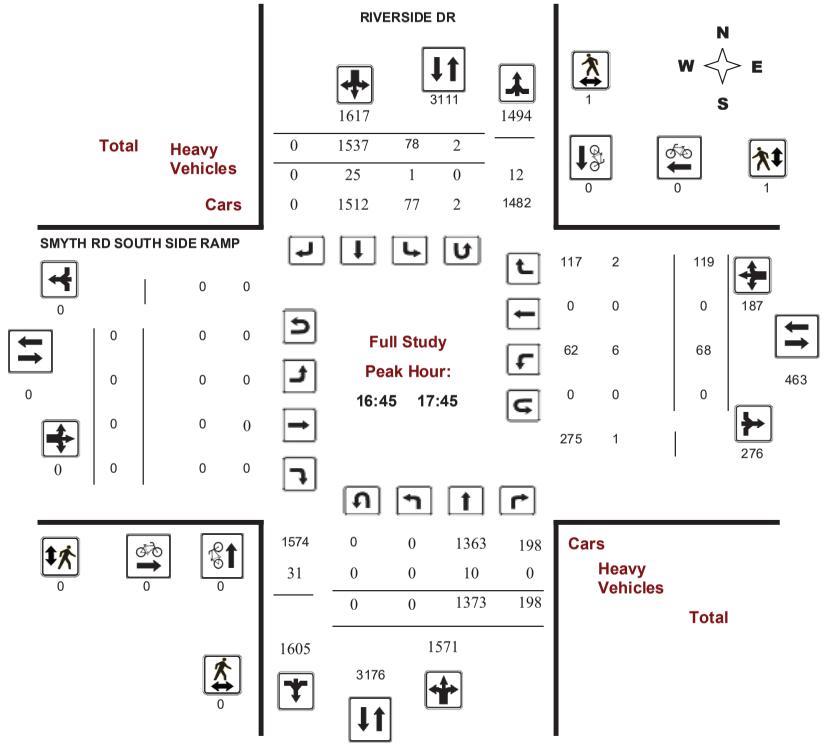
Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



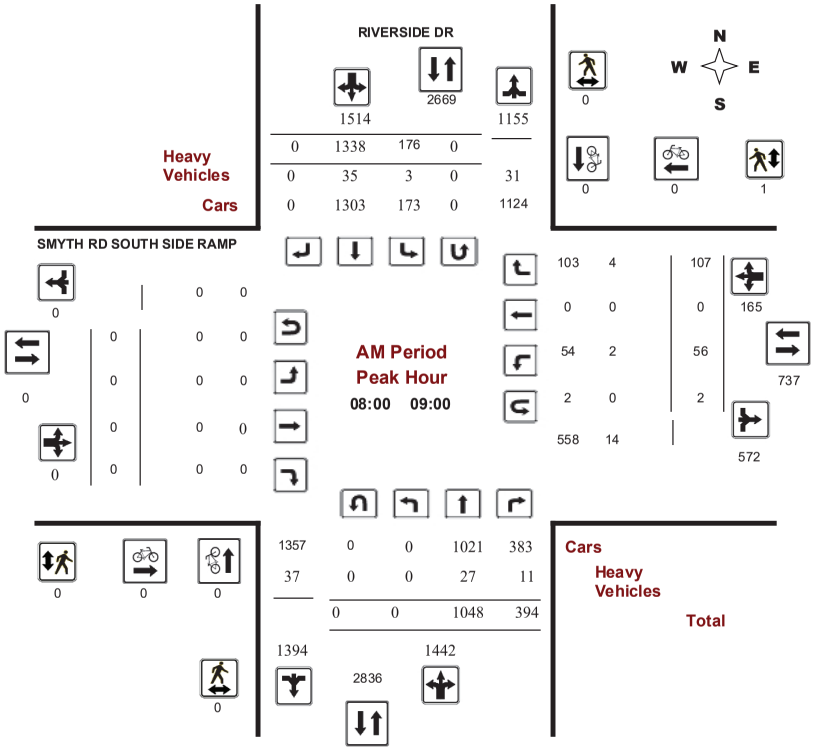
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision



Comments

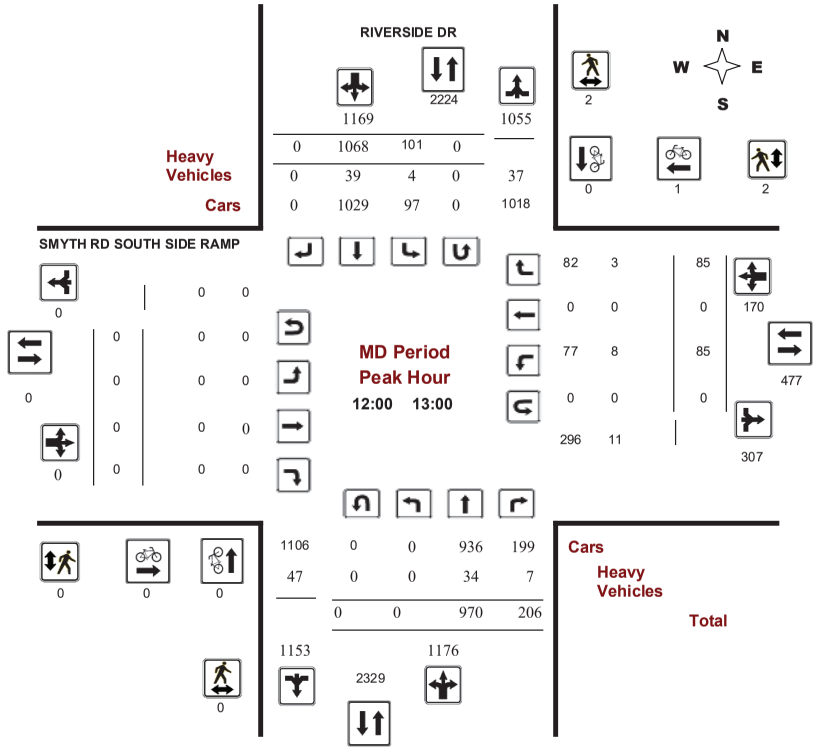
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision



Comments

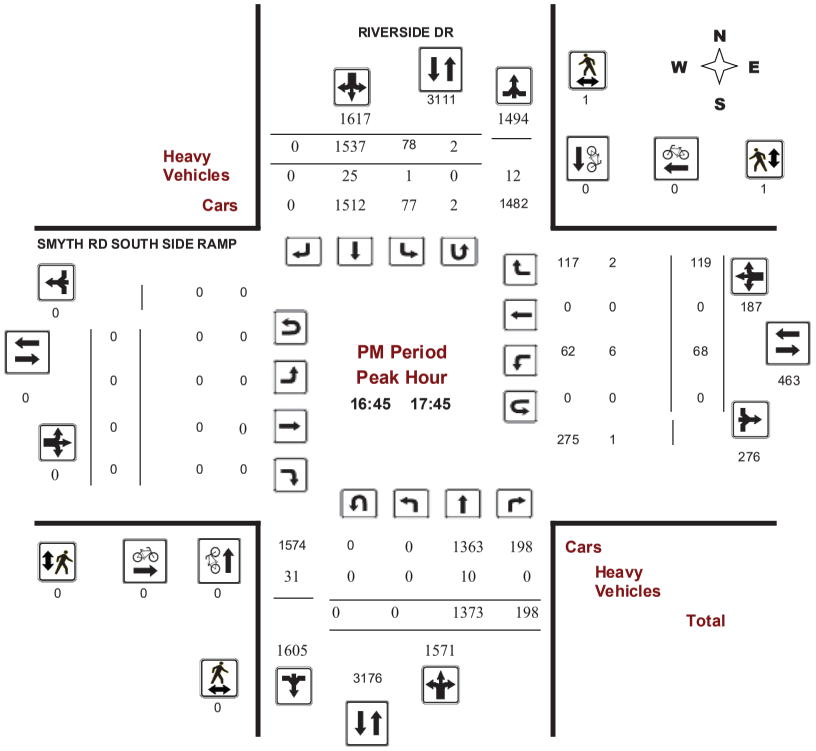
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, November 21, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 14

Eastbound: 0 Westbound: 4

AADT Factor 1.00

	RIVERSIDE DR								SMYTH RD SOUTH SIDE RAMP									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	967	380	**1347**	132	1091	0	**1223**	**2570**	0	0	0	**0**	46	0	58	**104**	**104**	**2674**
08:00 09:00	0	1048	394	**1442**	176	1338	0	**1514**	**2956**	0	0	0	**0**	56	0	107	**163**	**163**	**3119**
09:00 10:00	0	945	332	**1277**	112	1012	0	**1124**	**2401**	0	0	0	**0**	87	0	72	**159**	**159**	**2560**
11:30 12:30	0	968	185	**1153**	91	1007	0	**1098**	**2251**	0	0	0	**0**	75	0	107	**182**	**182**	**2433**
12:30 13:30	0	980	205	**1185**	113	1031	0	**1144**	**2329**	0	0	0	**0**	88	0	81	**169**	**169**	**2498**
15:00 16:00	0	1219	194	**1413**	135	1460	0	**1595**	**3008**	0	0	0	**0**	67	0	112	**179**	**179**	**3187**
16:00 17:00	0	1280	173	**1453**	123	1489	0	**1612**	**3065**	0	0	0	**0**	62	0	115	**177**	**177**	**3242**
17:00 18:00	0	1355	185	**1540**	81	1466	0	**1547**	**3087**	0	0	0	**0**	62	0	119	**181**	**181**	**3268**
Sub Total	0	8762	2048	**10810**	963	9894	0	**10857**	**21667**	0	0	0	**0**	543	0	771	**1314**	**1314**	**22981**
U Turns	0			**0**	14			**14**	**14**	**0**			**0**	4			**4**	**4**	**18**
Total	0	8762	2048	**10810**	977	9894	0	**10871**	**21681**	0	0	0	**0**	547	0	771	**1318**	**1318**	**22999**
EQ 12Hr	0	12179	2847	**15026**	1358	13753	0	**15111**	**30137**	0	0	0	**0**	760	0	1072	**1832**	**1832**	**31969**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	12179	2847	**15026**	1358	13753	0	**15111**	**30137**	0	0	0	**0**	760	0	1072	**1832**	**1832**	**31969**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	0	15954	3730	**19684**	1779	18016	0	**19795**	**39479**	0	0	0	**0**	996	0	1404	**2400**	**2400**	**41879**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		RIVERSIDE DR									SMYTH RD SOUTH SIDE RAMP									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	203	94	297	19	224	0	243	**540**	0	0	0	0	4	0	5	9	**9**	**549**
07:15	07:30	0	231	91	322	38	274	0	312	**634**	0	0	0	0	15	0	9	24	**24**	**658**
07:30	07:45	0	245	110	355	34	301	0	335	**690**	0	0	0	0	12	0	20	32	**32**	**722**
07:45	08:00	0	288	85	373	41	292	0	333	**706**	0	0	0	0	16	0	24	40	**40**	**746**
08:00	08:15	0	242	77	319	46	324	0	370	**689**	0	0	0	0	9	0	25	34	**34**	**723**
08:15	08:30	0	269	80	349	42	353	0	395	**744**	0	0	0	0	18	0	35	53	**53**	**797**
08:30	08:45	0	258	118	376	40	349	0	389	**765**	0	0	0	0	14	0	30	44	**44**	**809**
08:45	09:00	0	279	119	398	48	312	0	360	**758**	0	0	0	0	17	0	17	34	**34**	**792**
09:00	09:15	0	233	94	327	40	285	0	325	**652**	0	0	0	0	23	0	25	48	**48**	**700**
09:15	09:30	0	245	81	326	35	283	0	318	**644**	0	0	0	0	19	0	11	30	**30**	**674**
09:30	09:45	0	241	71	312	22	242	0	264	**576**	0	0	0	0	25	0	23	48	**48**	**624**
09:45	10:00	0	226	86	312	15	202	0	217	**529**	0	0	0	0	20	0	13	33	**33**	**562**
11:30	11:45	0	234	45	279	27	235	0	262	**541**	0	0	0	0	14	0	26	40	**40**	**581**
11:45	12:00	0	238	40	278	24	243	0	267	**545**	0	0	0	0	20	0	29	49	**49**	**594**
12:00	12:15	0	237	40	277	24	263	0	287	**564**	0	0	0	0	19	0	29	48	**48**	**612**
12:15	12:30	0	259	60	319	17	266	0	283	**602**	0	0	0	0	22	0	23	45	**45**	**647**
12:30	12:45	0	239	53	292	24	256	0	280	**572**	0	0	0	0	23	0	23	46	**46**	**618**
12:45	13:00	0	235	53	288	36	283	0	319	**607**	0	0	0	0	21	0	10	31	**31**	**638**
13:00	13:15	0	247	52	299	26	244	0	270	**569**	0	0	0	0	16	0	24	40	**40**	**609**
13:15	13:30	0	259	47	306	28	248	0	276	**582**	0	0	0	0	28	0	24	52	**52**	**634**
15:00	15:15	0	336	50	386	26	388	0	414	**800**	0	0	0	0	22	0	28	50	**50**	**850**
15:15	15:30	0	293	47	340	21	387	0	408	**748**	0	0	0	0	16	0	25	41	**41**	**789**
15:30	15:45	0	306	49	355	42	333	0	375	**730**	0	0	0	0	17	0	36	53	**53**	**783**
15:45	16:00	0	284	48	332	50	352	0	402	**734**	0	0	0	0	12	0	23	35	**35**	**769**
16:00	16:15	0	309	46	355	41	378	0	419	**774**	0	0	0	0	13	0	34	47	**47**	**821**
16:15	16:30	0	352	35	387	42	360	0	402	**789**	0	0	0	0	11	0	30	41	**41**	**830**
16:30	16:45	0	313	43	356	27	351	0	378	**734**	0	0	0	0	16	0	33	49	**49**	**783**
16:45	17:00	0	306	49	355	21	400	0	421	**776**	0	0	0	0	23	0	18	41	**41**	**817**
17:00	17:15	0	376	50	426	20	356	0	376	**802**	0	0	0	0	14	0	40	54	**54**	**856**
17:15	17:30	0	369	46	415	22	406	0	428	**843**	0	0	0	0	16	0	34	50	**50**	**893**
17:30	17:45	0	322	53	375	17	375	0	392	**767**	0	0	0	0	15	0	27	42	**42**	**809**
17:45	18:00	0	288	36	324	22	329	0	351	**675**	0	0	0	0	17	0	18	35	**35**	**710**
Total:		0	8762	2048	1081	977	9894	0	10871	**21681**	0	0	0	0	547	0	771	1318	**21681**	**22,999**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		RIVERSIDE DR			SMYTH RD SOUTH SIDE RAMP			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	0	0	**0**	**0**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	0	**0**	**0**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	1	**1**	**1**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	0	**0**	**0**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	0	**0**	0	0	**0**	**0**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		0	0	**0**	0	1	**1**	**1**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		RIVERSIDE DR			SMYTH RD SOUTH SIDE RAMP			
		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	0	0	**0**	**0**
07:30	07:45	0	0	**0**	0	1	**1**	**1**
07:45	08:00	0	0	**0**	0	0	**0**	**0**
08:00	08:15	0	0	**0**	0	0	**0**	**0**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	0	0	**0**	**0**
08:45	09:00	0	0	**0**	0	1	**1**	**1**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	1	0	**1**	0	0	**0**	**1**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	0	0	**0**	**0**
12:45	13:00	0	2	**2**	0	2	**2**	**4**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	0	0	**0**	**0**
15:15	15:30	0	0	**0**	0	0	**0**	**0**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	0	1	**1**	**1**
16:00	16:15	0	0	**0**	0	0	**0**	**0**
16:15	16:30	0	0	**0**	0	0	**0**	**0**
16:30	16:45	0	0	**0**	0	0	**0**	**0**
16:45	17:00	0	0	**0**	0	0	**0**	**0**
17:00	17:15	0	0	**0**	0	0	**0**	**0**
17:15	17:30	0	1	**1**	0	0	**0**	**1**
17:30	17:45	0	0	**0**	0	1	**1**	**1**
17:45	18:00	0	0	**0**	0	1	**1**	**1**
Total	.....	1	3	**4**	0	7	**7**	**11**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		RIVERSIDE DR									SMYTH RD SOUTH SIDE RAMP									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	10	1	**11**	1	10	0	**11**	**22**	0	0	0	**0**	0	0	0	**0**	**0**	**22**
07:15	07:30	0	5	0	**5**	0	8	0	**8**	**13**	0	0	0	**0**	1	0	0	**1**	**1**	**14**
07:30	07:45	0	9	1	**10**	2	13	0	**15**	**25**	0	0	0	**0**	0	0	2	**2**	**2**	**27**
07:45	08:00	0	9	0	**9**	0	8	0	**8**	**17**	0	0	0	**0**	2	0	0	**2**	**2**	**19**
08:00	08:15	0	2	3	**5**	1	6	0	**7**	**12**	0	0	0	**0**	1	0	1	**2**	**2**	**14**
08:15	08:30	0	4	0	**4**	0	10	0	**10**	**14**	0	0	0	**0**	0	0	1	**1**	**1**	**15**
08:30	08:45	0	6	3	**9**	0	8	0	**8**	**17**	0	0	0	**0**	1	0	1	**2**	**2**	**19**
08:45	09:00	0	15	5	**20**	2	11	0	**13**	**33**	0	0	0	**0**	0	0	1	**1**	**1**	**34**
09:00	09:15	0	12	1	**13**	1	13	0	**14**	**27**	0	0	0	**0**	2	0	2	**4**	**4**	**31**
09:15	09:30	0	14	1	**15**	1	13	0	**14**	**29**	0	0	0	**0**	2	0	2	**4**	**4**	**33**
09:30	09:45	0	14	0	**14**	1	4	0	**5**	**19**	0	0	0	**0**	3	0	3	**6**	**6**	**25**
09:45	10:00	0	10	2	**12**	3	6	0	**9**	**21**	0	0	0	**0**	2	0	0	**2**	**2**	**23**
11:30	11:45	0	5	3	**8**	0	4	0	**4**	**12**	0	0	0	**0**	0	0	2	**2**	**2**	**14**
11:45	12:00	0	6	2	**8**	0	8	0	**8**	**16**	0	0	0	**0**	1	0	1	**2**	**2**	**18**
12:00	12:15	0	9	0	**9**	1	8	0	**9**	**18**	0	0	0	**0**	1	0	0	**1**	**1**	**19**
12:15	12:30	0	9	3	**12**	0	5	0	**5**	**17**	0	0	0	**0**	4	0	0	**4**	**4**	**21**
12:30	12:45	0	7	3	**10**	1	17	0	**18**	**28**	0	0	0	**0**	2	0	2	**4**	**4**	**32**
12:45	13:00	0	9	1	**10**	2	9	0	**11**	**21**	0	0	0	**0**	1	0	1	**2**	**2**	**23**
13:00	13:15	0	10	1	**11**	2	15	0	**17**	**28**	0	0	0	**0**	0	0	3	**3**	**3**	**31**
13:15	13:30	0	12	1	**13**	1	11	0	**12**	**25**	0	0	0	**0**	2	0	0	**2**	**2**	**27**
15:00	15:15	0	8	1	**9**	0	4	0	**4**	**13**	0	0	0	**0**	1	0	0	**1**	**1**	**14**
15:15	15:30	0	8	0	**8**	1	2	0	**3**	**11**	0	0	0	**0**	0	0	2	**2**	**2**	**13**
15:30	15:45	0	4	1	**5**	4	4	0	**8**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
15:45	16:00	0	7	2	**9**	2	7	0	**9**	**18**	0	0	0	**0**	1	0	1	**2**	**2**	**20**
16:00	16:15	0	5	3	**8**	0	3	0	**3**	**11**	0	0	0	**0**	0	0	5	**5**	**5**	**16**
16:15	16:30	0	10	0	**10**	1	9	0	**10**	**20**	0	0	0	**0**	1	0	0	**1**	**1**	**21**
16:30	16:45	0	5	1	**6**	0	6	0	**6**	**12**	0	0	0	**0**	0	0	1	**1**	**1**	**13**
16:45	17:00	0	3	0	**3**	0	6	0	**6**	**9**	0	0	0	**0**	3	0	1	**4**	**4**	**13**
17:00	17:15	0	4	0	**4**	1	9	0	**10**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
17:15	17:30	0	3	0	**3**	0	5	0	**5**	**8**	0	0	0	**0**	2	0	0	**2**	**2**	**10**
17:30	17:45	0	0	0	**0**	0	5	0	**5**	**5**	0	0	0	**0**	1	0	1	**2**	**2**	**7**
17:45	18:00	0	8	0	**8**	0	2	0	**2**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
Total:	None	0	242	39	**281**	28	249	0	**277**	**558**	0	0	0	**0**	34	0	33	**67**	**67**	**625**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RIVERSIDE DR @ SMYTH RD SOUTH SIDE RAMP

Survey Date: Tuesday, November 21, 2017 **WO No:** 37306

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		RIVERSIDE DR		SMYTH RD SOUTH SIDE RAMP		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	1	**1**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	1	**1**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	1	**1**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	1	0	0	**1**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	0	**0**
13:15	13:30	0	1	0	0	**1**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	1	0	0	**1**
15:30	15:45	0	2	0	0	**2**
15:45	16:00	0	1	0	0	**1**
16:00	16:15	0	2	0	0	**2**
16:15	16:30	0	2	0	1	**3**
16:30	16:45	0	2	0	0	**2**
16:45	17:00	0	2	0	0	**2**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		0	14	0	4	**18**

Transportation Services - Traffic Services

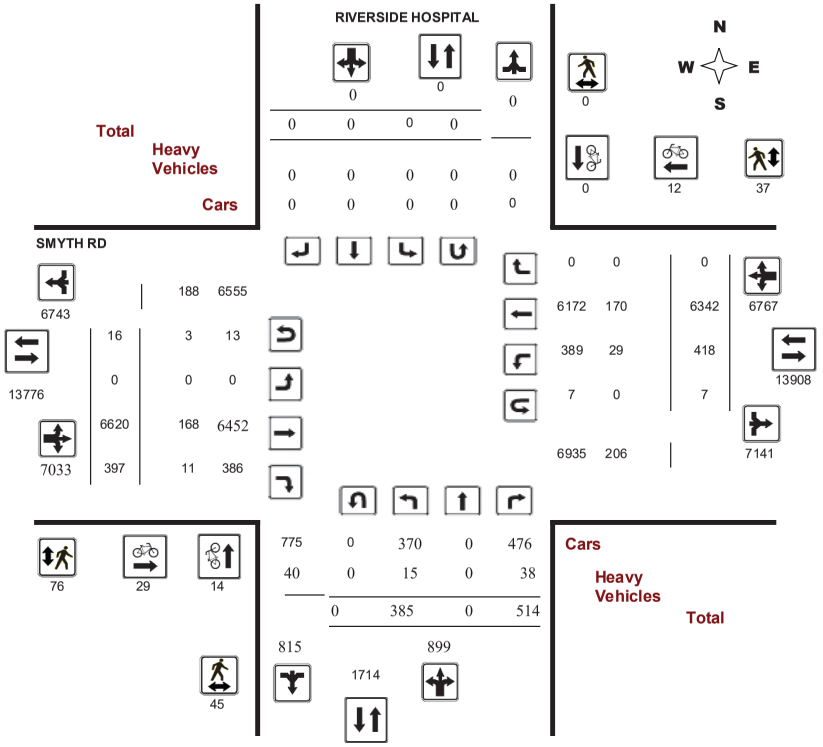
Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

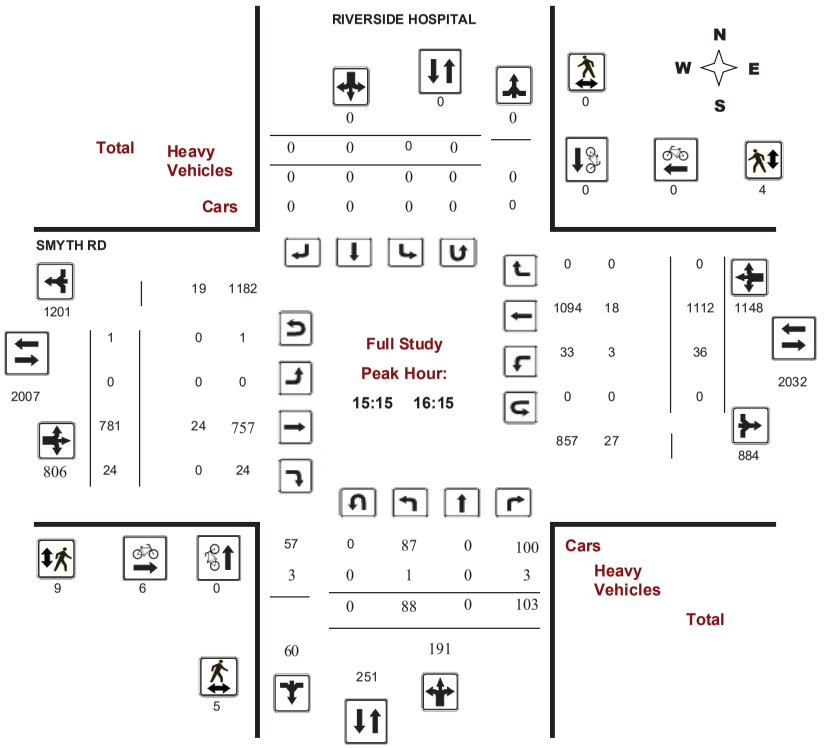
Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



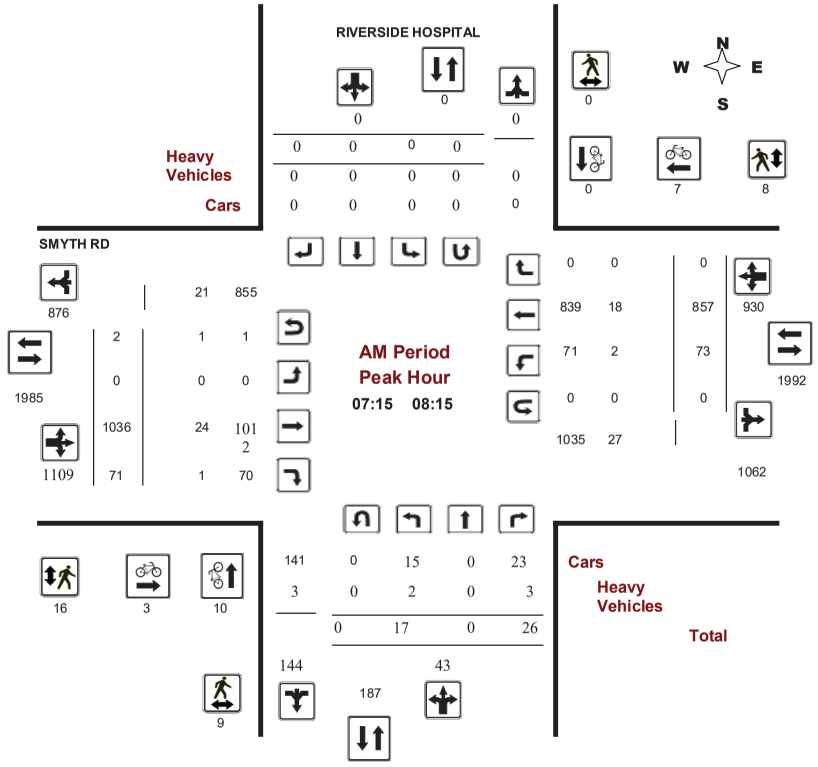
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision



Comments

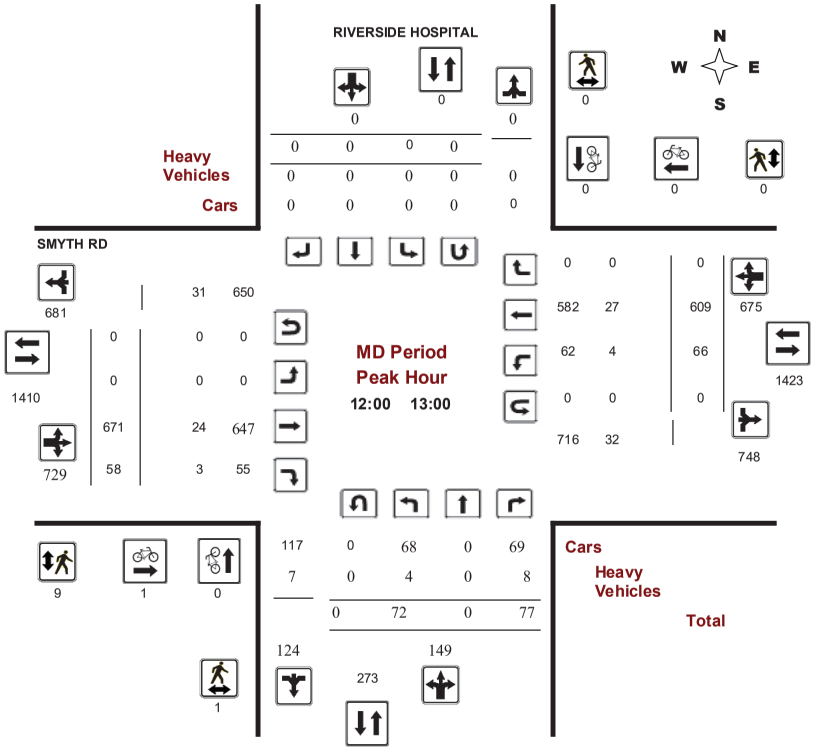
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision



Comments

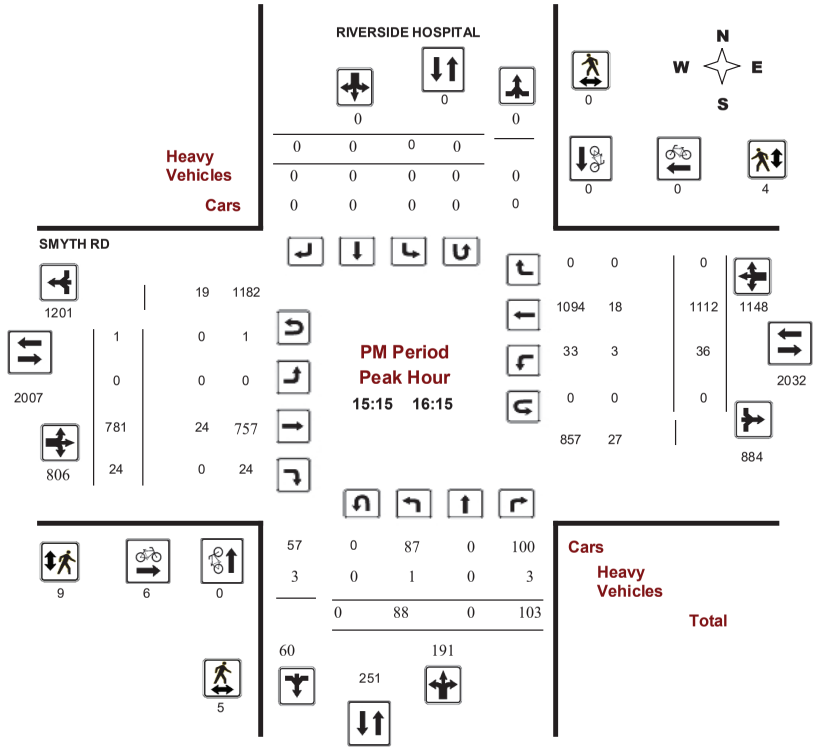
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, November 20, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 16 Westbound: 7

AADT Factor 1.00

	RIVERSIDE HOSPITAL								SMYTH RD									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	20	0	33	**53**	0	0	0	**0**	**53**	0	1037	79	**1116**	76	743	0	**819**	**1935**	**1988**
08:00 09:00	15	0	37	**52**	0	0	0	**0**	**52**	0	984	64	**1048**	76	846	0	**922**	**1970**	**2022**
09:00 10:00	45	0	64	**109**	0	0	0	**0**	**109**	0	880	74	**954**	64	700	0	**764**	**1718**	**1827**
11:30 12:30	73	0	83	**156**	0	0	0	**0**	**156**	0	626	51	**677**	52	587	0	**639**	**1316**	**1472**
12:30 13:30	52	0	69	**121**	0	0	0	**0**	**121**	0	642	63	**705**	72	578	0	**650**	**1355**	**1476**
15:00 16:00	86	0	97	**183**	0	0	0	**0**	**183**	0	773	27	**800**	32	1096	0	**1128**	**1928**	**2111**
16:00 17:00	53	0	91	**144**	0	0	0	**0**	**144**	0	903	21	**924**	31	934	0	**965**	**1889**	**2033**
17:00 18:00	41	0	40	**81**	0	0	0	**0**	**81**	0	775	18	**793**	15	858	0	**873**	**1666**	**1747**
Sub Total	385	0	514	**899**	0	0	0	**0**	**899**	0	6620	397	**7017**	418	6342	0	**6760**	**13777**	**14676**
U Turns	0			**0**	0			**0**	**0**	**16**			**16**	7			**7**	**23**	**23**
Total	385	0	514	**899**	0	0	0	**0**	**899**	16	6620	397	**7033**	425	6342	0	**6767**	**13800**	**14699**
EQ 12Hr	535	0	714	**1249**	0	0	0	**0**	**1249**	22	9202	552	**9776**	591	8815	0	**9406**	**19182**	**20431**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	535	0	714	**1249**	0	0	0	**0**	**1249**	22	9202	552	**9776**	591	8815	0	**9406**	**19182**	**20431**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	701	0	935	**1636**	0	0	0	**0**	**1636**	29	12055	723	**12807**	774	11548	0	**12322**	**25129**	**26765**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		RIVERSIDE HOSPITAL									SMYTH RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	5	0	11	16	0	0	0	0	**16**	0	242	21	263	24	123	0	147	**410**	**426**
07:15	07:30	5	0	7	12	0	0	0	0	**12**	0	243	20	263	17	189	0	206	**469**	**481**
07:30	07:45	7	0	8	15	0	0	0	0	**15**	1	279	21	301	21	222	0	243	**544**	**559**
07:45	08:00	3	0	7	10	0	0	0	0	**10**	1	273	17	291	14	209	0	223	**514**	**524**
08:00	08:15	2	0	4	6	0	0	0	0	**6**	0	241	13	254	21	237	0	258	**512**	**518**
08:15	08:30	3	0	9	12	0	0	0	0	**12**	0	229	16	245	13	191	0	204	**449**	**461**
08:30	08:45	4	0	14	18	0	0	0	0	**18**	0	251	20	271	23	229	0	252	**523**	**541**
08:45	09:00	6	0	10	16	0	0	0	0	**16**	2	263	15	280	20	189	0	209	**489**	**505**
09:00	09:15	9	0	17	26	0	0	0	0	**26**	0	266	18	284	18	180	0	198	**482**	**508**
09:15	09:30	8	0	19	27	0	0	0	0	**27**	1	216	17	234	13	199	0	212	**446**	**473**
09:30	09:45	17	0	20	37	0	0	0	0	**37**	1	212	22	235	19	172	0	191	**426**	**463**
09:45	10:00	11	0	8	19	0	0	0	0	**19**	0	186	17	203	16	149	0	165	**368**	**387**
11:30	11:45	12	0	22	34	0	0	0	0	**34**	1	145	9	155	9	140	0	149	**304**	**338**
11:45	12:00	23	0	22	45	0	0	0	0	**45**	0	163	16	179	15	136	0	151	**330**	**375**
12:00	12:15	21	0	19	40	0	0	0	0	**40**	0	146	13	159	14	154	0	168	**327**	**367**
12:15	12:30	17	0	20	37	0	0	0	0	**37**	0	172	13	185	16	157	0	173	**358**	**395**
12:30	12:45	16	0	19	35	0	0	0	0	**35**	0	192	15	207	18	155	0	173	**380**	**415**
12:45	13:00	18	0	19	37	0	0	0	0	**37**	0	161	17	178	18	143	0	161	**339**	**376**
13:00	13:15	6	0	18	24	0	0	0	0	**24**	0	151	14	165	15	156	0	171	**336**	**360**
13:15	13:30	12	0	13	25	0	0	0	0	**25**	1	138	17	156	22	124	0	146	**302**	**327**
15:00	15:15	17	0	28	45	0	0	0	0	**45**	0	172	7	179	9	250	0	259	**438**	**483**
15:15	15:30	23	0	24	47	0	0	0	0	**47**	0	181	6	187	8	293	0	301	**488**	**535**
15:30	15:45	29	0	21	50	0	0	0	0	**50**	0	194	8	202	10	293	0	303	**505**	**555**
15:45	16:00	17	0	24	41	0	0	0	0	**41**	1	226	6	233	5	260	0	265	**498**	**539**
16:00	16:15	19	0	34	53	0	0	0	0	**53**	0	180	4	184	13	266	0	279	**463**	**516**
16:15	16:30	7	0	22	29	0	0	0	0	**29**	3	234	7	244	8	224	0	232	**476**	**505**
16:30	16:45	18	0	20	38	0	0	0	0	**38**	0	243	7	250	5	213	0	218	**468**	**506**
16:45	17:00	9	0	15	24	0	0	0	0	**24**	1	246	3	250	5	231	0	236	**486**	**510**
17:00	17:15	12	0	14	26	0	0	0	0	**26**	0	224	7	231	4	264	0	268	**499**	**525**
17:15	17:30	15	0	13	28	0	0	0	0	**28**	3	166	4	173	2	203	0	205	**378**	**406**
17:30	17:45	3	0	5	8	0	0	0	0	**8**	0	216	2	218	5	221	0	226	**444**	**452**
17:45	18:00	11	0	8	19	0	0	0	0	**19**	0	169	5	174	5	170	0	175	**349**	**368**
Total:		385	0	514	899	0	0	0	0	**899**	16	6620	397	7033	425	6342	0	6767	**899**	**14,699**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		RIVERSIDE HOSPITAL			SMYTH RD			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	1	0	**1**	0	1	**1**	**2**
07:15	07:30	0	0	**0**	1	1	**2**	**2**
07:30	07:45	1	0	**1**	0	1	**1**	**2**
07:45	08:00	3	0	**3**	2	1	**3**	**6**
08:00	08:15	6	0	**6**	0	4	**4**	**10**
08:15	08:30	1	0	**1**	0	0	**0**	**1**
08:30	08:45	2	0	**2**	0	0	**0**	**2**
08:45	09:00	0	0	**0**	1	1	**2**	**2**
09:00	09:15	0	0	**0**	0	0	**0**	**0**
09:15	09:30	0	0	**0**	0	0	**0**	**0**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	0	0	**0**	0	0	**0**	**0**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	1	0	**1**	**1**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	0	0	**0**	**0**
12:30	12:45	0	0	**0**	1	0	**1**	**1**
12:45	13:00	0	0	**0**	0	0	**0**	**0**
13:00	13:15	0	0	**0**	0	0	**0**	**0**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	1	0	**1**	**1**
15:15	15:30	0	0	**0**	2	0	**2**	**2**
15:30	15:45	0	0	**0**	0	0	**0**	**0**
15:45	16:00	0	0	**0**	1	0	**1**	**1**
16:00	16:15	0	0	**0**	3	0	**3**	**3**
16:15	16:30	0	0	**0**	2	1	**3**	**3**
16:30	16:45	0	0	**0**	2	0	**2**	**2**
16:45	17:00	0	0	**0**	1	1	**2**	**2**
17:00	17:15	0	0	**0**	3	1	**4**	**4**
17:15	17:30	0	0	**0**	4	0	**4**	**4**
17:30	17:45	0	0	**0**	2	0	**2**	**2**
17:45	18:00	0	0	**0**	2	0	**2**	**2**
Total		14	0	**14**	29	12	**41**	**55**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

		RIVERSIDE HOSPITAL			SMYTH RD			
Time Period		NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00	07:15	0	0	**0**	0	2	**2**	**2**
07:15	07:30	2	0	**2**	5	0	**5**	**7**
07:30	07:45	3	0	**3**	4	3	**7**	**10**
07:45	08:00	1	0	**1**	1	2	**3**	**4**
08:00	08:15	3	0	**3**	6	3	**9**	**12**
08:15	08:30	1	0	**1**	2	3	**5**	**6**
08:30	08:45	4	0	**4**	6	4	**10**	**14**
08:45	09:00	2	0	**2**	3	3	**6**	**8**
09:00	09:15	1	0	**1**	2	4	**6**	**7**
09:15	09:30	2	0	**2**	2	0	**2**	**4**
09:30	09:45	0	0	**0**	0	0	**0**	**0**
09:45	10:00	3	0	**3**	4	1	**5**	**8**
11:30	11:45	2	0	**2**	2	0	**2**	**4**
11:45	12:00	0	0	**0**	2	0	**2**	**2**
12:00	12:15	1	0	**1**	3	0	**3**	**4**
12:15	12:30	0	0	**0**	4	0	**4**	**4**
12:30	12:45	0	0	**0**	1	0	**1**	**1**
12:45	13:00	0	0	**0**	1	0	**1**	**1**
13:00	13:15	2	0	**2**	0	1	**1**	**3**
13:15	13:30	1	0	**1**	2	2	**4**	**5**
15:00	15:15	1	0	**1**	5	0	**5**	**6**
15:15	15:30	0	0	**0**	2	0	**2**	**2**
15:30	15:45	1	0	**1**	3	1	**4**	**5**
15:45	16:00	4	0	**4**	3	1	**4**	**8**
16:00	16:15	0	0	**0**	1	2	**3**	**3**
16:15	16:30	0	0	**0**	6	0	**6**	**6**
16:30	16:45	0	0	**0**	0	1	**1**	**1**
16:45	17:00	0	0	**0**	4	2	**6**	**6**
17:00	17:15	5	0	**5**	0	0	**0**	**5**
17:15	17:30	1	0	**1**	2	1	**3**	**4**
17:30	17:45	2	0	**2**	0	0	**0**	**2**
17:45	18:00	3	0	**3**	0	1	**1**	**4**
Total	.....	45	0	**45**	76	37	**113**	**158**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		RIVERSIDE HOSPITAL									SMYTH RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	4	**4**	0	0	0	**0**	**4**	0	3	0	**3**	3	5	0	**8**	**11**	**15**
07:15	07:30	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	0	3	0	**3**	**10**	**11**
07:30	07:45	1	0	1	**2**	0	0	0	**0**	**2**	0	4	0	**4**	1	4	0	**5**	**9**	**12**
07:45	08:00	1	0	0	**1**	0	0	0	**0**	**1**	0	10	0	**10**	1	5	0	**6**	**16**	**17**
08:00	08:15	0	0	1	**1**	0	0	0	**0**	**1**	0	3	1	**4**	0	6	0	**6**	**10**	**11**
08:15	08:30	1	0	1	**2**	0	0	0	**0**	**2**	0	1	0	**1**	2	6	0	**8**	**9**	**11**
08:30	08:45	1	0	1	**2**	0	0	0	**0**	**2**	0	5	1	**6**	0	2	0	**2**	**8**	**10**
08:45	09:00	1	0	0	**1**	0	0	0	**0**	**1**	0	5	0	**5**	2	9	0	**11**	**16**	**18**
09:00	09:15	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	0	7	0	**7**	**14**	**15**
09:15	09:30	0	0	2	**2**	0	0	0	**0**	**2**	0	4	0	**4**	2	6	0	**8**	**12**	**14**
09:30	09:45	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	1	10	0	**11**	**18**	**19**
09:45	10:00	0	0	1	**1**	0	0	0	**0**	**1**	0	4	1	**5**	1	10	0	**11**	**16**	**17**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**2**	2	5	0	**7**	**9**	**9**
11:45	12:00	1	0	2	**3**	0	0	0	**0**	**3**	0	3	1	**4**	0	6	0	**6**	**10**	**13**
12:00	12:15	1	0	2	**3**	0	0	0	**0**	**3**	0	2	0	**2**	1	4	0	**5**	**7**	**10**
12:15	12:30	1	0	1	**2**	0	0	0	**0**	**2**	0	6	1	**7**	2	13	0	**15**	**22**	**24**
12:30	12:45	1	0	3	**4**	0	0	0	**0**	**4**	0	9	1	**10**	0	3	0	**3**	**13**	**17**
12:45	13:00	1	0	2	**3**	0	0	0	**0**	**3**	0	7	1	**8**	1	7	0	**8**	**16**	**19**
13:00	13:15	0	0	2	**2**	0	0	0	**0**	**2**	0	12	1	**13**	0	8	0	**8**	**21**	**23**
13:15	13:30	1	0	2	**3**	0	0	0	**0**	**3**	0	5	1	**6**	1	12	0	**13**	**19**	**22**
15:00	15:15	0	0	1	**1**	0	0	0	**0**	**1**	0	6	0	**6**	1	5	0	**6**	**12**	**13**
15:15	15:30	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	0	4	0	**4**	**11**	**12**
15:30	15:45	1	0	0	**1**	0	0	0	**0**	**1**	0	7	0	**7**	1	4	0	**5**	**12**	**13**
15:45	16:00	0	0	1	**1**	0	0	0	**0**	**1**	0	7	0	**7**	0	5	0	**5**	**12**	**13**
16:00	16:15	0	0	1	**1**	0	0	0	**0**	**1**	0	3	0	**3**	2	5	0	**7**	**10**	**11**
16:15	16:30	0	0	2	**2**	0	0	0	**0**	**2**	0	13	0	**13**	2	3	0	**5**	**18**	**21**
16:30	16:45	0	0	1	**1**	0	0	0	**0**	**1**	0	6	0	**6**	0	3	0	**3**	**9**	**10**
16:45	17:00	2	0	0	**2**	0	0	0	**0**	**2**	0	7	2	**9**	1	2	0	**3**	**12**	**14**
17:00	17:15	0	0	1	**1**	0	0	0	**0**	**1**	0	3	0	**3**	0	2	0	**2**	**5**	**6**
17:15	17:30	0	0	1	**1**	0	0	0	**0**	**1**	0	1	0	**1**	1	2	0	**3**	**4**	**5**
17:30	17:45	1	0	0	**1**	0	0	0	**0**	**1**	0	1	0	**1**	1	1	0	**2**	**3**	**4**
17:45	18:00	0	0	1	**1**	0	0	0	**0**	**1**	0	1	0	**1**	0	3	0	**3**	**4**	**5**
Total:	None	15	0	38	**53**	0	0	0	**0**	**53**	0	168	11	**179**	29	170	0	**199**	**378**	**434**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

SMYTH RD @ RIVERSIDE HOSPITAL

Survey Date: Tuesday, November 20, 2018 **WO No:** 38129

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

RIVERSIDE HOSPITAL SMYTH RD

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	1	0	**1**
07:45	08:00	0	0	1	0	**1**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	1	**1**
08:45	09:00	0	0	2	0	**2**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	1	1	**2**
09:30	09:45	0	0	1	1	**2**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	1	0	**1**
11:45	12:00	0	0	0	2	**2**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	1	**1**
13:15	13:30	0	0	1	0	**1**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	1	0	**1**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	3	0	**3**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	1	0	**1**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	3	0	**3**
17:30	17:45	0	0	0	1	**1**
17:45	18:00	0	0	0	0	**0**
Total		0	0	16	7	**23**

Appendix C

Synchro Intersection Worksheets – Existing Conditions

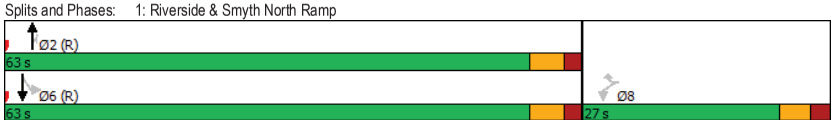
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	136	1052	103	91	1394
Future Volume (vph)	148	136	1052	103	91	1394
Lane Group Flow (vph)	164	151	1169	114	101	1549
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	21.4	21.4	57.2	57.2	57.2	57.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	1	1	0	0		
Act Effct Green (s)	14.5	14.5	64.1	64.1	64.1	64.1
Actuated g/C Ratio	0.16	0.16	0.71	0.71	0.71	0.71
v/c Ratio	0.62	0.50	0.49	0.11	0.38	0.66
Control Delay	45.2	19.6	1.6	0.2	11.3	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	19.6	1.6	0.2	11.3	9.4
LOS	D	B	A	A	B	A
Approach Delay	32.9		1.4			9.5
Approach LOS	C		A			A
Queue Length 50th (m)	26.8	8.6	2.4	0.0	5.8	63.9
Queue Length 95th (m)	43.3	24.4	7.6	m0.2	19.5	106.2
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	390	401	2363	1040	265	2339
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.38	0.49	0.11	0.38	0.66

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 8.6 — Intersection LOS: A
Intersection Capacity Utilization 62.3% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp

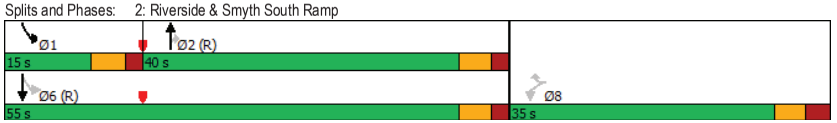


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	107	1048	394	176	1358
Future Volume (vph)	56	107	1048	394	176	1358
Lane Group Flow (vph)	62	119	1164	438	196	1509
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	10.5	10.5	54.0	54.0	71.0	72.1
Actuated g/C Ratio	0.12	0.12	0.60	0.60	0.79	0.80
v/c Ratio	0.33	0.43	0.59	0.42	0.49	0.57
Control Delay	41.3	12.4	9.9	2.0	10.6	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	12.4	9.9	2.0	10.6	9.2
LOS	D	B	A	A	B	A
Approach Delay	22.3		7.8			9.3
Approach LOS	C		A			A
Queue Length 50th (m)	10.1	0.0	30.6	0.0	13.8	66.3
Queue Length 95th (m)	21.4	14.5	41.9	16.4	m29.8	129.8
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	522	548	1971	1037	407	2631
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.22	0.59	0.42	0.48	0.57

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 9.3 — Intersection LOS: A
Intersection Capacity Utilization 63.6% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Riverside & Smyth South Ramp

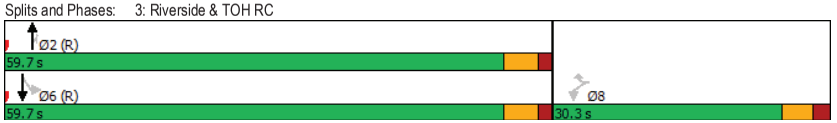


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	20	1419	73	63	1359
Future Volume (vph)	70	20	1419	73	63	1359
Lane Group Flow (vph)	78	22	1577	81	70	1510
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	2	2	0	0		
Act Effct Green (s)	13.3	13.3	70.2	70.2	70.2	70.2
Actuated g/C Ratio	0.15	0.15	0.78	0.78	0.78	0.78
v/c Ratio	0.34	0.10	0.62	0.07	0.40	0.59
Control Delay	36.6	12.7	8.0	3.0	11.8	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	12.7	8.0	3.0	11.8	4.8
LOS	D	B	A	A	B	A
Approach Delay	31.3		7.8			5.1
Approach LOS	C		A			A
Queue Length 50th (m)	12.8	0.0	49.3	1.2	1.1	12.3
Queue Length 95th (m)	21.1	5.4	129.8	7.9	m8.5	61.9
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	438	381	2562	1121	175	2562
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.06	0.62	0.07	0.40	0.59

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 71.3%	ICU Level of Service C
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Riverside & TOH RC



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	607	163	670	284	570	194
Future Volume (vph)	607	163	670	284	570	194
Lane Group Flow (vph)	674	181	744	316	633	216
Sign Control	Free		Free			

Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

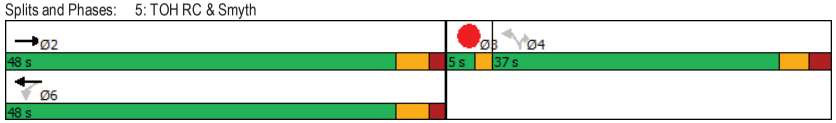
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	1106	73	937	17	26	
Future Volume (vph)	1106	73	937	17	26	
Lane Group Flow (vph)	1308	81	1041	19	29	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	9	0	0	16	16	24
Act Effct Green (s)	61.5	61.5	61.5	17.2	17.2	
Actuated g/C Ratio	0.76	0.76	0.76	0.21	0.21	
v/c Ratio	0.37	0.34	0.29	0.06	0.10	
Control Delay	8.7	17.9	8.1	25.8	9.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.7	17.9	8.1	25.8	9.8	
LOS	A	B	A	C	A	
Approach Delay	8.7		8.8	16.1		
Approach LOS	A		A	B		
Queue Length 50th (m)	21.2	3.5	15.8	2.6	0.0	
Queue Length 95th (m)	70.0	26.1	53.0	7.4	6.0	
Internal Link Dist (m)	59.2		422.8	186.5		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3567	241	3606	597	545	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.37	0.34	0.29	0.03	0.05	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 81.2
Natural Cycle: 80
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: TOH RC & Smyth

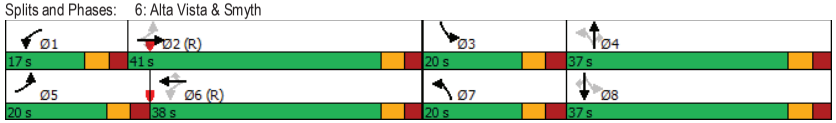


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Future Volume (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Lane Group Flow (vph)	163	992	111	112	659	220	350	401	200	283	213	122
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	20.0	41.0	41.0	17.0	38.0	38.0	20.0	37.0	37.0	20.0	37.0	37.0
Total Split (%)	17.4%	35.7%	35.7%	14.8%	33.0%	33.0%	17.4%	32.2%	32.2%	17.4%	32.2%	32.2%
Maximum Green (s)	14.0	35.2	35.2	11.0	32.2	32.2	13.9	30.9	30.9	13.9	30.9	30.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		24	24		31	31		11	11		17	17
Act Effct Green (s)	48.3	36.6	36.6	43.7	34.4	34.4	44.8	30.9	30.9	44.8	30.9	30.9
Actuated g/C Ratio	0.42	0.32	0.32	0.38	0.30	0.30	0.39	0.27	0.27	0.39	0.27	0.27
v/c Ratio	0.55	0.95	0.21	0.58	0.67	0.45	0.80	0.87	0.41	0.94	0.47	0.25
Control Delay	26.9	57.1	3.1	34.2	39.9	15.3	40.0	60.8	13.9	63.6	39.2	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	57.1	3.1	34.2	39.9	15.3	40.0	60.8	13.9	63.6	39.2	5.1
LOS	C	E	A	C	D	B	D	E	B	E	D	A
Approach Delay		48.5			33.8			43.3			43.7	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	21.8	115.3	0.0	14.5	68.7	12.8	54.4	86.4	10.2	41.9	40.2	0.0
Queue Length 95th (m)	35.9	#160.7	6.9	28.7	91.2	35.7	#89.7	#139.3	30.2	#89.8	63.1	10.5
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	325	1045	522	212	980	491	440	460	488	302	455	486
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.95	0.21	0.53	0.67	0.45	0.80	0.87	0.41	0.94	0.47	0.25

Intersection Summary
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 89.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth

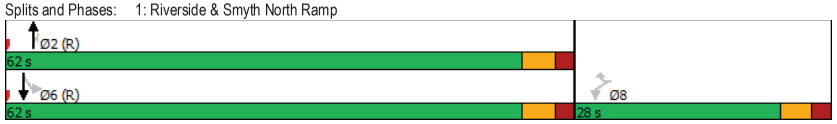


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	154	1390	122	181	1293
Future Volume (vph)	319	154	1390	122	181	1293
Lane Group Flow (vph)	354	171	1544	136	201	1437
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	28.0	28.0	62.0	62.0	62.0	62.0
Total Split (%)	31.1%	31.1%	68.9%	68.9%	68.9%	68.9%
Maximum Green (s)	22.4	22.4	56.2	56.2	56.2	56.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	21.5	21.5	57.1	57.1	57.1	57.1
Actuated g/C Ratio	0.24	0.24	0.63	0.63	0.63	0.63
v/c Ratio	0.90	0.48	0.74	0.14	1.75	0.68
Control Delay	59.7	27.2	4.7	0.5	391.9	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	27.2	4.7	0.5	391.9	13.0
LOS	E	C	A	A	F	B
Approach Delay	49.1		4.3			59.5
Approach LOS	D		A			E
Queue Length 50th (m)	58.6	19.1	11.6	0.1	~33.3	78.4
Queue Length 95th (m)	#104.9	38.0	24.0	m0.0	#75.3	101.3
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	412	369	2083	950	115	2103
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.46	0.74	0.14	1.75	0.68

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 150

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.75
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	119	1398	198	80	1537
Future Volume (vph)	68	119	1398	198	80	1537
Lane Group Flow (vph)	76	132	1553	220	89	1708
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	11.1	11.1	56.9	56.9	67.2	67.2
Actuated g/C Ratio	0.12	0.12	0.63	0.63	0.75	0.75
v/c Ratio	0.40	0.44	0.74	0.22	0.39	0.69
Control Delay	42.5	11.6	11.8	2.8	10.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	11.6	11.8	2.8	10.5	10.6
LOS	D	B	B	A	B	B
Approach Delay	22.9		10.7			10.6
Approach LOS	C		B			B
Queue Length 50th (m)	12.5	0.0	51.8	1.5	5.4	85.0
Queue Length 95th (m)	24.6	15.0	70.9	m12.0	m10.0	115.6
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	498	565	2097	988	271	2477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.23	0.74	0.22	0.33	0.69

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 68.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

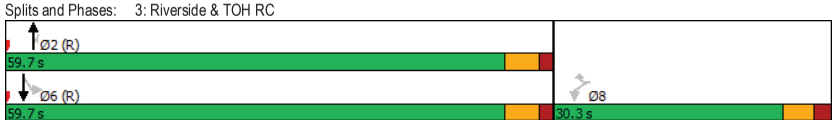
Splits and Phases: 2: Riverside & Smyth South Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	89	17	1584	11	8	1607
Future Volume (vph)	89	17	1584	11	8	1607
Lane Group Flow (vph)	99	19	1760	12	9	1786
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	0	0	4	4		
Act Effct Green (s)	11.7	11.7	71.9	71.9	71.9	71.9
Actuated g/C Ratio	0.13	0.13	0.80	0.80	0.80	0.80
v/c Ratio	0.46	0.09	0.66	0.01	0.06	0.67
Control Delay	43.1	15.2	7.1	2.6	3.6	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	15.2	7.1	2.6	3.6	4.6
LOS	D	B	A	A	A	A
Approach Delay	38.6		7.1			4.6
Approach LOS	D		A			A
Queue Length 50th (m)	16.3	0.0	63.8	0.3	0.3	51.0
Queue Length 95th (m)	30.0	5.9	107.2	1.6	m0.6	53.7
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	459	410	2647	1161	142	2647
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.05	0.66	0.01	0.06	0.67

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 64.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Riverside & TOH RC



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	577	187	727	473	278	303
Future Volume (vph)	577	187	727	473	278	303
Lane Group Flow (vph)	641	208	808	526	309	337
Sign Control	Free		Free			

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 47.7% ICU Level of Service A
Analysis Period (min) 15

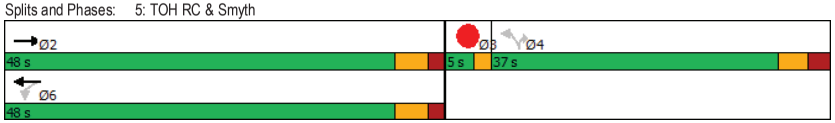
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	831	36	1112	88	103	
Future Volume (vph)	831	36	1112	88	103	
Lane Group Flow (vph)	950	40	1236	98	114	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	5	0	0	9	9	13
Act Effct Green (s)	46.8	46.8	46.8	13.7	13.7	
Actuated g/C Ratio	0.64	0.64	0.64	0.19	0.19	
v/c Ratio	0.31	0.13	0.40	0.32	0.31	
Control Delay	7.7	9.9	8.4	26.4	7.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.7	9.9	8.4	26.4	7.2	
LOS	A	A	A	C	A	
Approach Delay	7.7		8.4	16.0		
Approach LOS	A		A	B		
Queue Length 50th (m)	14.0	1.4	19.9	10.5	0.0	
Queue Length 95th (m)	48.1	10.5	66.1	22.7	10.6	
Internal Link Dist (m)	59.2		422.8	186.5		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3018	298	3060	716	694	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.31	0.13	0.40	0.14	0.16	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 72.9
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 50.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: TOH RC & Smyth



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Future Volume (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Lane Group Flow (vph)	187	639	220	264	960	293	109	304	96	166	436	220
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	17.0	44.0	44.0	22.0	49.0	49.0	15.0	31.0	31.0	18.0	34.0	34.0
Total Split (%)	14.8%	38.3%	38.3%	19.1%	42.6%	42.6%	13.0%	27.0%	27.0%	15.7%	29.6%	29.6%
Maximum Green (s)	11.0	38.2	38.2	16.0	43.2	43.2	8.9	24.9	24.9	11.9	27.9	27.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		9	9		56	56		8	8		10	10
Act Effct Green (s)	50.2	39.7	39.7	57.8	43.6	43.6	34.1	25.6	25.6	39.5	28.3	28.3
Actuated g/C Ratio	0.44	0.35	0.35	0.50	0.38	0.38	0.30	0.22	0.22	0.34	0.25	0.25
v/c Ratio	0.75	0.57	0.37	0.69	0.76	0.54	0.60	0.79	0.22	0.60	1.03	0.48
Control Delay	39.2	33.6	11.6	25.9	36.2	17.8	39.1	58.6	3.1	35.3	94.0	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	33.6	11.6	25.9	36.2	17.8	39.1	58.6	3.1	35.3	94.0	17.7
LOS	D	C	B	C	D	B	D	E	A	D	F	B
Approach Delay		30.0			30.9			44.0			61.7	
Approach LOS		C			C			D			E	
Queue Length 50th (m)	21.8	62.5	10.7	32.5	98.8	25.0	16.3	65.5	0.0	25.8	~106.2	14.3
Queue Length 95th (m)	#51.8	81.6	30.2	49.8	123.8	52.3	29.1	#108.3	4.7	42.6	#166.6	37.3
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	253	1112	587	403	1255	544	188	384	428	286	425	460
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.57	0.37	0.66	0.76	0.54	0.58	0.79	0.22	0.58	1.03	0.48

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 82.9% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 6: Alta Vista & Smyth

Appendix D

Collision Data

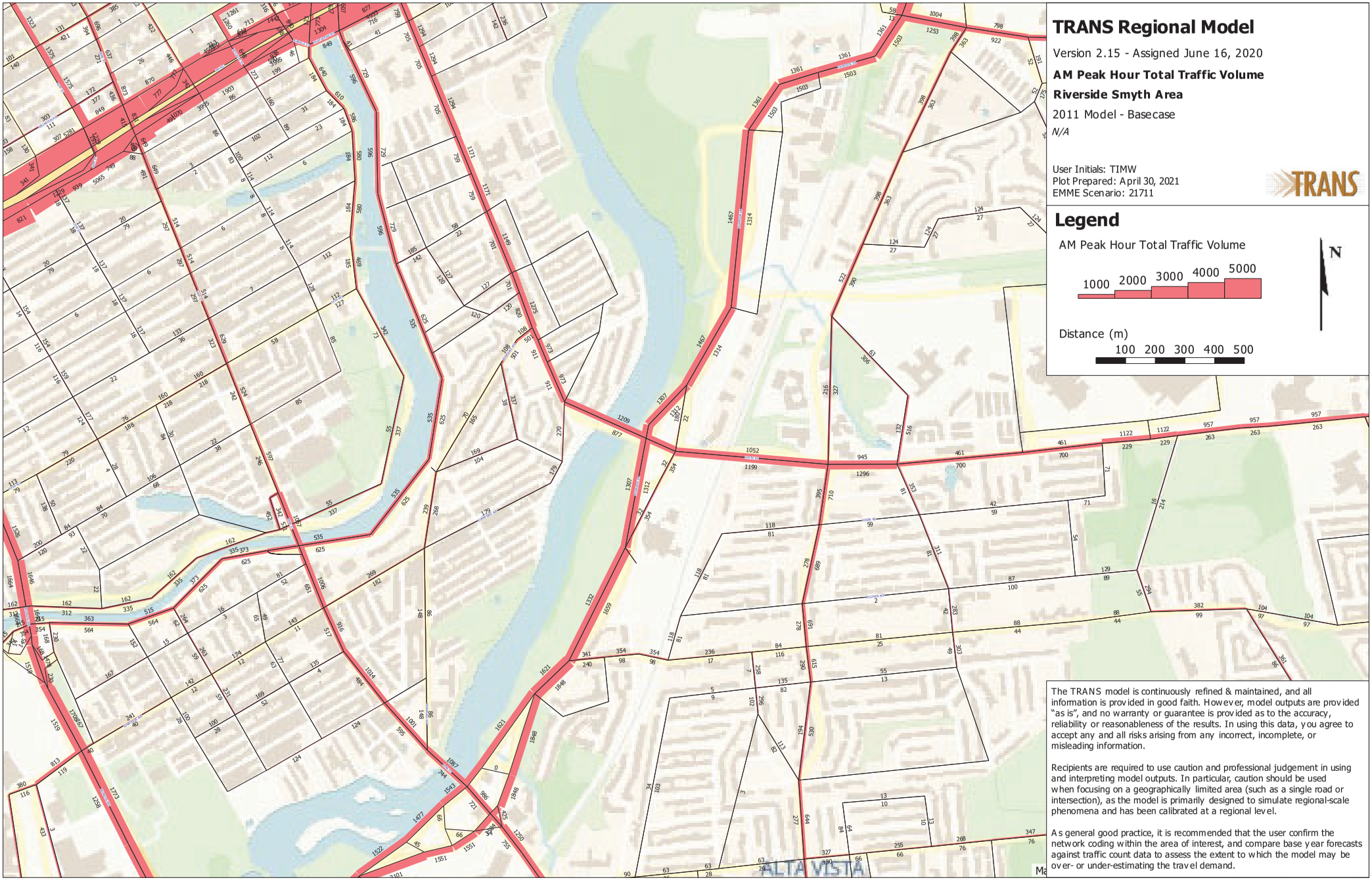
CGH TRANSPORTATION

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition
2015-01-28	2015	18:42	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-10-21	2015	11:44	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-01-22	2015	12:13	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-03-03	2015	9:02	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-10-21	2015	12:19	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	02 - Angle	01 - Dry
2015-03-10	2015	12:15	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	99 - Other	01 - Dry
2015-11-11	2015	21:11	ALTA VISTA DR @ SMYTH RD	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2015-02-13	2015	12:59	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-06-30	2015	18:16	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-02-05	2015	10:12	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2015-07-31	2015	10:08	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-05-29	2015	16:58	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-02-23	2015	7:55	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	05 - Packed snow
2015-03-03	2015	18:50	ALTA VISTA DR @ SMYTH RD	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	03 - Loose snow
2015-04-16	2015	15:10	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2015-08-14	2015	15:10	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-09-12	2015	23:01	ALTA VISTA DR @ SMYTH RD	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2015-06-10	2015	10:10	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-05-15	2015	14:23	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-04-16	2015	16:18	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-08-11	2015	8:50	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-09-22	2015	20:30	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-12-11	2015	7:06	ALTA VISTA DR @ SMYTH RD	01 - Clear	03 - Dawn	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-12-15	2015	12:50	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-10-01	2015	15:50	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2015-11-22	2015	23:11	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2015-10-21	2015	12:34	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	99 - Other	01 - Dry
2015-11-19	2015	19:09	ALTA VISTA DR @ SMYTH RD	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2015-11-18	2015	12:48	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	99 - Other	01 - Dry
2016-01-11	2016	19:52	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-05-06	2016	16:03	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	07 - SMV other	01 - Dry
2016-09-24	2016	11:57	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2016-03-11	2016	7:40	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2016-08-31	2016	20:54	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-02-04	2016	13:01	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2016-03-17	2016	8:14	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-01-14	2016	19:52	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	03 - Rear end	02 - Wet
2016-03-22	2016	19:27	ALTA VISTA DR @ SMYTH RD	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2016-07-27	2016	11:05	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-06-10	2016	12:25	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-06-09	2016	17:30	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-06-01	2016	15:09	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2016-10-20	2016	13:29	ALTA VISTA DR @ SMYTH RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2016-09-29	2016	10:36	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2016-12-15	2016	17:53	ALTA VISTA DR @ SMYTH RD	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	05 - Packed snow
2017-05-19	2017	14:58	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	01 - Dry
2017-06-14	2017	16:46	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-08-16	2017	9:53	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-08-29	2017	12:07	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2017-07-28	2017	22:10	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-09-10	2017	18:25	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-09-26	2017	10:05	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-10-30	2017	8:20	ALTA VISTA DR @ SMYTH RD	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	99 - Other	02 - Wet
2017-12-12	2017	6:55	ALTA VISTA DR @ SMYTH RD	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	03 - Loose snow
2017-11-12	2017	20:14	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-01-13	2017	17:45	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2017-02-10	2017	17:58	ALTA VISTA DR @ SMYTH RD	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-02-09	2017	17:43	ALTA VISTA DR @ SMYTH RD	01 - Clear	05 - Dusk	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-04-06	2017	6:16	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2017-03-08	2017	14:43	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	02 - Angle	01 - Dry
2017-02-22	2017	8:55	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2017-12-29	2017	12:58	ALTA VISTA DR @ SMYTH RD	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-01-16	2018	14:00	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2018-02-10	2018	22:38	ALTA VISTA DR @ SMYTH RD (0011353)	03 - Snow	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	04 - Slush
2018-02-25	2018	9:45	ALTA VISTA DR @ SMYTH RD (0011353)	04 - Freezing Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	03 - Rear end	06 - Ice
2018-03-08	2018	18:53	ALTA VISTA DR @ SMYTH RD (0011353)	03 - Snow	05 - Dusk	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2018-03-29	2018	14:33	ALTA VISTA DR @ SMYTH RD (0011353)	02 - Rain	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
2018-05-26	2018	11:13	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2018-05-30	2018	13:00	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-06-26	2018	8:50	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-07-12	2018	22:16	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-07-17	2018	12:11	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	01 - Dry
2018-09-03	2018	21:01	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-09-17	2018	17:30	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2018-09-19	2018	12:30	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2018-11-17	2018	17:13	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	05 - Dusk	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2018-11-26	2018	17:20	ALTA VISTA DR @ SMYTH RD (0011353)	02 - Rain	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	02 - Wet
2018-12-06	2018	10:15	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	04 - Sideswipe	02 - Wet
2019-04-09	2019	6:48	ALTA VISTA DR @ SMYTH RD (0011353)	03 - Snow	03 - Dawn	01 - Traffic signal		03 - P.D. only	03 - Rear end	06 - Ice
2019-04-24	2019	19:05	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-04-16	2019	7:43	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-05-07	2019	19:25	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-05-04	2019	23:06	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	07 - Dark	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-07-17	2019	17:10	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-07-09	2019	9:30	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-07-11	2019	19:50	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-08-13	2019	19:33	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-08-05	2019	16:25	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-08-01	2019	16:58	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-08-28	2019	16:30	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	03 - Rear end	01 - Dry
2019-09-30	2019	23:09	ALTA VISTA DR @ SMYTH RD (0011353)	02 - Rain	07 - Dark	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	02 - Wet
2019-09-27	2019	7:38	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		03 - P.D. only	05 - Turning movement	01 - Dry
2019-10-09	2019	19:03	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	05 - Dusk	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2019-10-25	2019	13:40	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	01 - Dry
2019-10-22	2019	17:00	ALTA VISTA DR @ SMYTH RD (0011353)	02 - Rain	01 - Daylight	01 - Traffic signal		02 - Non-fatal injury	05 - Turning movement	02 - Wet

2019-11-29	2019	8:38	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2019-11-25	2019	17:03	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2019-11-30	2019	12:00	ALTA VISTA DR @ SMYTH RD (0011353)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2015-05-08	2015	15:03	RIVERSIDE DR @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-09-22	2015	11:03	RIVERSIDE DR @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2016-02-08	2016	7:50	RIVERSIDE DR @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2016-02-23	2016	10:41	RIVERSIDE DR @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-01-10	2018	11:03	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2018-04-16	2018	19:25	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	04 - Freezing Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2018-07-17	2018	4:25	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2018-09-13	2018	13:35	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-11-29	2018	18:34	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	01 - Clear	07 - Dark	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-02-19	2019	10:53	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2019-11-11	2019	23:56	RIVERSIDE DR @ RIVERSIDE HOSPITAL (0011960)	03 - Snow	07 - Dark	01 - Traffic signal	03 - P.D. only	02 - Angle	03 - Loose snow
2015-05-15	2015	11:29	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2015-06-30	2015	15:26	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2015-07-02	2015	14:00	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2016-10-19	2016	12:30	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2016-09-12	2016	15:03	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2016-03-01	2016	14:19	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-03-10	2016	14:55	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2016-07-18	2016	14:24	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-06-24	2016	16:23	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2016-07-13	2016	11:46	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-12-04	2017	6:52	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	03 - Dawn	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2017-11-27	2017	18:14	SMYTH RD @ RIVERSIDE HOSPITAL	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-01-22	2018	14:19	SMYTH RD @ RIVERSIDE HOSPITAL (0009069)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	02 - Wet
2018-07-08	2018	15:25	SMYTH RD @ RIVERSIDE HOSPITAL (0009069)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2018-12-14	2018	8:12	SMYTH RD @ RIVERSIDE HOSPITAL (0009069)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-12-18	2018	16:25	SMYTH RD @ RIVERSIDE HOSPITAL (0009069)	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2019-07-11	2019	7:44	SMYTH RD @ RIVERSIDE HOSPITAL (0009069)	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2019-08-19	2019	15:55	SMYTH RD @ RIVERSIDE HOSPITAL (0009069)	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-06-04	2015	8:40	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2016-09-25	2016	23:15	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S	01 - Clear	07 - Dark	03 - Yield sign	03 - P.D. only	02 - Angle	01 - Dry
2016-10-05	2016	15:40	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2017-05-30	2017	16:54	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2017-06-29	2017	16:37	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S	02 - Rain	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	02 - Wet
2017-10-28	2017	23:56	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S	02 - Rain	07 - Dark	03 - Yield sign	03 - P.D. only	07 - SMV other	02 - Wet
2018-01-02	2018	12:40	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	03 - Snow	01 - Daylight	03 - Yield sign	03 - P.D. only	07 - SMV other	04 - Slush
2018-02-14	2018	8:24	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-02-14	2018	14:24	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2018-03-21	2018	9:10	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2018-04-26	2018	20:45	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	07 - Dark	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2018-06-06	2018	11:01	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	02 - Wet
2018-07-13	2018	20:54	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	05 - Dusk	03 - Yield sign	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-07-26	2018	12:00	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	02 - Angle	01 - Dry
2018-10-18	2018	8:01	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	02 - Non-fatal injury	03 - Rear end	01 - Dry
2019-03-27	2019	15:29	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	02 - Wet
2019-08-08	2019	17:30	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2019-07-26	2019	12:02	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	03 - P.D. only	03 - Rear end	01 - Dry
2019-08-30	2019	12:08	SMYTH RD @ SMYTH RD NORTH SIDE RAMP/SMYTH RD S (0006582)	01 - Clear	01 - Daylight	03 - Yield sign	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-07-12	2015	7:19	SMYTH RD btwn RIVERSIDE HOSPITAL & ALTA VISTA DR	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	07 - SMV other	01 - Dry
2016-02-25	2016	17:50	SMYTH RD btwn RIVERSIDE HOSPITAL & ALTA VISTA DR	04 - Freezing Rain	07 - Dark	10 - No control	03 - P.D. only	04 - Sideswipe	06 - Ice
2017-04-20	2017	7:42	SMYTH RD btwn RIVERSIDE HOSPITAL & ALTA VISTA DR	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	99 - Other	01 - Dry
2017-12-29	2017	18:49	SMYTH RD btwn RIVERSIDE HOSPITAL & ALTA VISTA DR	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	07 - SMV other	01 - Dry
2018-02-07	2018	14:50	SMYTH RD btwn RIVERSIDE HOSPITAL & ALTA VISTA DR (__3ZA1M4B)	03 - Snow	01 - Daylight	10 - No control	03 - P.D. only	03 - Rear end	05 - Packed snow
2018-07-06	2018	1:04	SMYTH RD btwn RIVERSIDE HOSPITAL & ALTA VISTA DR (__3ZA1M4B)	01 - Clear	07 - Dark	10 - No control	03 - P.D. only	07 - SMV other	01 - Dry
2015-06-17	2015	6:51	SMYTH RD btwn RIVERSIDE HOSPITAL & SMYTH RD SOUTH SIDE RAMP	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	04 - Sideswipe	01 - Dry
2016-08-04	2016	7:17	SMYTH RD btwn RIVERSIDE HOSPITAL & SMYTH RD SOUTH SIDE RAMP	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	04 - Sideswipe	01 - Dry
2016-09-23	2016	9:54	SMYTH RD btwn RIVERSIDE HOSPITAL & SMYTH RD SOUTH SIDE RAMP	01 - Clear	01 - Daylight	10 - No control	03 - P.D. only	04 - Sideswipe	01 - Dry
2018-06-06	2018	19:42	SMYTH RD btwn RIVERSIDE HOSPITAL & SMYTH RD SOUTH SIDE RAMP (__3ZA1M4A)	01 - Clear	01 - Daylight	10 - No control	02 - Non-fatal injury	03 - Rear end	01 - Dry
2018-11-07	2018	17:39	SMYTH RD btwn RIVERSIDE HOSPITAL & SMYTH RD SOUTH SIDE RAMP (__3ZA1M4A)	01 - Clear	07 - Dark	10 - No control	02 - Non-fatal injury	04 - Sideswipe	01 - Dry

Appendix E

TRANS Model Plots



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Riverside Smyth Area

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: April 30, 2021
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

100 200 300 400 500

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Riverside Smyth Area

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: April 30, 2021
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

Distance (m)

100 200 300 400 500

N

Appendix F

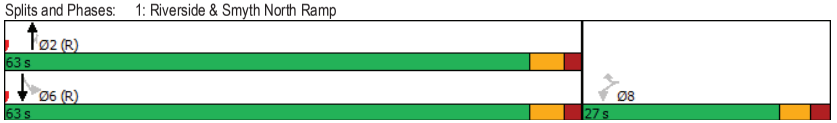
Synchro Intersection Worksheets – 2026 Future Background Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	136	1185	103	91	1394
Future Volume (vph)	148	136	1185	103	91	1394
Lane Group Flow (vph)	148	136	1185	103	91	1394
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	21.4	21.4	57.2	57.2	57.2	57.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	1	1	0	0		
Act Effct Green (s)	13.8	13.8	64.8	64.8	64.8	64.8
Actuated g/C Ratio	0.15	0.15	0.72	0.72	0.72	0.72
v/c Ratio	0.59	0.47	0.50	0.10	0.35	0.59
Control Delay	44.5	18.2	1.5	0.2	10.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	18.2	1.5	0.2	10.1	7.9
LOS	D	B	A	A	B	A
Approach Delay	31.9		1.4			8.1
Approach LOS	C		A			A
Queue Length 50th (m)	24.2	6.8	2.1	0.0	4.8	50.7
Queue Length 95th (m)	40.1	21.5	6.9	m0.1	16.6	85.1
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	390	398	2386	1046	263	2363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.34	0.50	0.10	0.35	0.59

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 66.1%	ICU Level of Service C
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Riverside & Smyth North Ramp

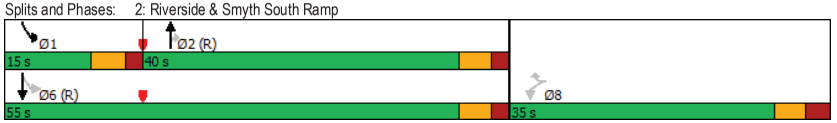


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	107	1181	394	176	1358
Future Volume (vph)	56	107	1181	394	176	1358
Lane Group Flow (vph)	56	107	1181	394	176	1358
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	10.4	10.4	55.4	55.4	71.2	72.3
Actuated g/C Ratio	0.12	0.12	0.62	0.62	0.79	0.80
v/c Ratio	0.30	0.41	0.58	0.38	0.46	0.52
Control Delay	40.9	12.7	9.2	1.9	10.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	12.7	9.2	1.9	10.4	7.5
LOS	D	B	A	A	B	A
Approach Delay	22.4		7.4			7.8
Approach LOS	C		A			A
Queue Length 50th (m)	9.1	0.0	23.8	0.0	10.8	44.7
Queue Length 95th (m)	19.9	14.1	43.4	16.2	29.9	108.8
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	522	539	2019	1034	394	2636
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.20	0.58	0.38	0.45	0.52

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 8.3 — Intersection LOS: A
Intersection Capacity Utilization 67.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Riverside & Smyth South Ramp

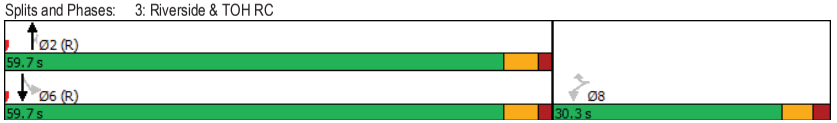


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	20	1598	73	63	1359
Future Volume (vph)	70	20	1598	73	63	1359
Lane Group Flow (vph)	70	20	1598	73	63	1359
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	2	2	0	0		
Act Effct Green (s)	13.2	13.2	70.3	70.3	70.3	70.3
Actuated g/C Ratio	0.15	0.15	0.78	0.78	0.78	0.78
v/c Ratio	0.30	0.10	0.62	0.07	0.37	0.53
Control Delay	35.9	12.9	8.1	3.0	10.8	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	12.9	8.1	3.0	10.8	3.9
LOS	D	B	A	A	B	A
Approach Delay	30.8		7.9			4.2
Approach LOS	C		A			A
Queue Length 50th (m)	11.5	0.0	50.5	1.1	1.0	10.9
Queue Length 95th (m)	19.3	5.2	133.2	7.3	m7.9	43.6
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	438	380	2565	1122	170	2565
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.05	0.62	0.07	0.37	0.53

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 6.9	Intersection LOS: A
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Riverside & TOH RC



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	607	163	670	284	570	194
Future Volume (vph)	607	163	670	284	570	194
Lane Group Flow (vph)	607	163	670	284	570	194
Sign Control	Free		Free			

Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

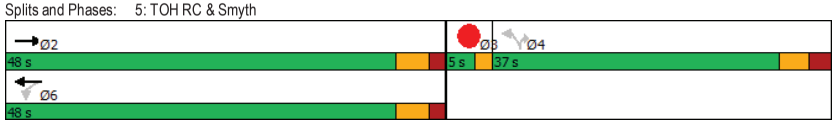
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	1106	73	937	17	26	
Future Volume (vph)	1106	73	937	17	26	
Lane Group Flow (vph)	1177	73	937	17	26	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	9	0	0	16	16	24
Act Effct Green (s)	61.8	61.8	61.8	17.2	17.2	
Actuated g/C Ratio	0.76	0.76	0.76	0.21	0.21	
v/c Ratio	0.33	0.26	0.26	0.05	0.09	
Control Delay	8.3	14.2	7.9	26.1	10.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.3	14.2	7.9	26.1	10.3	
LOS	A	B	A	C	B	
Approach Delay	8.3		8.3	16.6		
Approach LOS	A		A	B		
Queue Length 50th (m)	18.3	3.0	13.9	2.3	0.0	
Queue Length 95th (m)	60.9	20.0	46.8	7.0	5.7	
Internal Link Dist (m)	59.2		422.8	186.5		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3575	285	3614	596	543	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.26	0.26	0.03	0.05	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 81.5
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: TOH RC & Smyth

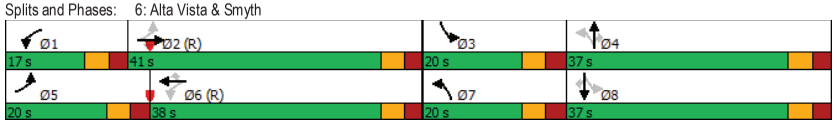


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Future Volume (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Lane Group Flow (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	20.0	41.0	41.0	17.0	38.0	38.0	20.0	37.0	37.0	20.0	37.0	37.0
Total Split (%)	17.4%	35.7%	35.7%	14.8%	33.0%	33.0%	17.4%	32.2%	32.2%	17.4%	32.2%	32.2%
Maximum Green (s)	14.0	35.2	35.2	11.0	32.2	32.2	13.9	30.9	30.9	13.9	30.9	30.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		24	24		31	31		11	11		17	17
Act Effct Green (s)	48.0	36.9	36.9	44.0	34.9	34.9	45.1	31.3	31.3	44.5	31.0	31.0
Actuated g/C Ratio	0.42	0.32	0.32	0.38	0.30	0.30	0.39	0.27	0.27	0.39	0.27	0.27
v/c Ratio	0.47	0.85	0.19	0.50	0.60	0.40	0.69	0.78	0.37	0.77	0.42	0.23
Control Delay	24.3	45.9	2.4	28.2	37.6	12.8	32.7	51.6	11.5	39.4	38.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	45.9	2.4	28.2	37.6	12.8	32.7	51.6	11.5	39.4	38.1	3.6
LOS	C	D	A	C	D	B	C	D	B	D	D	A
Approach Delay		39.3			31.0			36.2			31.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	19.4	98.8	0.0	13.0	59.8	8.9	47.7	75.4	6.6	37.0	35.7	0.0
Queue Length 95th (m)	32.7	#135.3	4.6	23.5	80.7	29.3	71.2	#118.2	24.7	#58.6	57.3	7.7
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	350	1052	524	224	995	496	457	465	492	335	456	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.85	0.19	0.45	0.60	0.40	0.69	0.78	0.37	0.76	0.42	0.23

Intersection Summary
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 89.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth

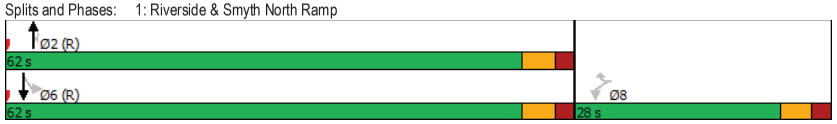


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	154	1390	122	181	1457
Future Volume (vph)	319	154	1390	122	181	1457
Lane Group Flow (vph)	319	154	1390	122	181	1457
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	28.0	28.0	62.0	62.0	62.0	62.0
Total Split (%)	31.1%	31.1%	68.9%	68.9%	68.9%	68.9%
Maximum Green (s)	22.4	22.4	56.2	56.2	56.2	56.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	20.5	20.5	58.1	58.1	58.1	58.1
Actuated g/C Ratio	0.23	0.23	0.65	0.65	0.65	0.65
v/c Ratio	0.85	0.44	0.66	0.13	1.15	0.68
Control Delay	54.1	22.5	3.8	0.3	141.5	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	22.5	3.8	0.3	141.5	12.6
LOS	D	C	A	A	F	B
Approach Delay	43.8		3.5			26.8
Approach LOS	D		A			C
Queue Length 50th (m)	51.4	13.9	10.4	0.0	~38.1	80.3
Queue Length 95th (m)	#90.4	31.2	19.4	m0.0	#51.6	103.9
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	412	381	2119	964	157	2140
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.40	0.66	0.13	1.15	0.68

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	119	1398	198	80	1731
Future Volume (vph)	68	119	1398	198	80	1731
Lane Group Flow (vph)	68	119	1398	198	80	1731
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	10.8	10.8	57.4	57.4	67.5	67.5
Actuated g/C Ratio	0.12	0.12	0.64	0.64	0.75	0.75
v/c Ratio	0.37	0.42	0.66	0.20	0.30	0.70
Control Delay	42.0	11.9	9.6	1.6	7.7	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	11.9	9.6	1.6	7.7	10.6
LOS	D	B	A	A	A	B
Approach Delay	22.9		8.6			10.5
Approach LOS	C		A			B
Queue Length 50th (m)	11.1	0.0	46.6	0.3	4.8	91.0
Queue Length 95th (m)	22.8	14.4	54.3	6.4	m7.9	121.0
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	498	556	2115	995	307	2487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.21	0.66	0.20	0.26	0.70

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

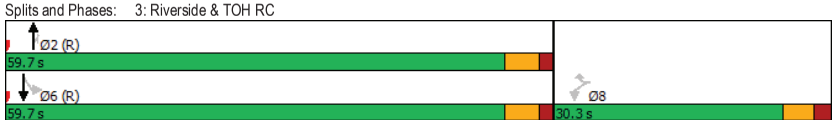
Splits and Phases: 2: Riverside & Smyth South Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	89	17	1584	11	8	1810
Future Volume (vph)	89	17	1584	11	8	1810
Lane Group Flow (vph)	89	17	1584	11	8	1810
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	0	0	4	4		
Act Effct Green (s)	11.2	11.2	72.3	72.3	72.3	72.3
Actuated g/C Ratio	0.12	0.12	0.80	0.80	0.80	0.80
v/c Ratio	0.43	0.09	0.59	0.01	0.04	0.68
Control Delay	42.8	16.3	5.9	2.4	3.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	16.3	5.9	2.4	3.0	4.7
LOS	D	B	A	A	A	A
Approach Delay	38.6		5.8			4.7
Approach LOS	D		A			A
Queue Length 50th (m)	14.7	0.0	49.7	0.2	0.2	51.1
Queue Length 95th (m)	27.5	5.6	82.6	1.4	m0.5	53.6
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	459	408	2663	1168	184	2663
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.04	0.59	0.01	0.04	0.68

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 6.2 Intersection LOS: A
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Riverside & TOH RC



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	577	187	727	473	278	303
Future Volume (vph)	577	187	727	473	278	303
Lane Group Flow (vph)	577	187	727	473	278	303
Sign Control	Free		Free			

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 47.7% ICU Level of Service A
Analysis Period (min) 15

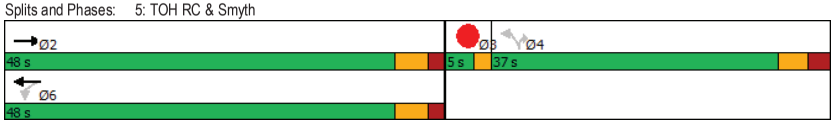
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	831	36	1112	88	103	
Future Volume (vph)	831	36	1112	88	103	
Lane Group Flow (vph)	855	36	1112	88	103	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	5	0	0	9	9	13
Act Effct Green (s)	49.1	49.1	49.1	13.5	13.5	
Actuated g/C Ratio	0.70	0.70	0.70	0.19	0.19	
v/c Ratio	0.26	0.10	0.33	0.28	0.29	
Control Delay	6.9	9.2	7.4	25.7	7.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.9	9.2	7.4	25.7	7.2	
LOS	A	A	A	C	A	
Approach Delay	6.9		7.5	15.7		
Approach LOS	A		A	B		
Queue Length 50th (m)	12.3	1.3	17.3	9.4	0.0	
Queue Length 95th (m)	42.7	9.3	58.0	20.7	10.1	
Internal Link Dist (m)	59.2		422.8	186.5		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3287	366	3333	744	710	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.10	0.33	0.12	0.15	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 70.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 50.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: TOH RC & Smyth



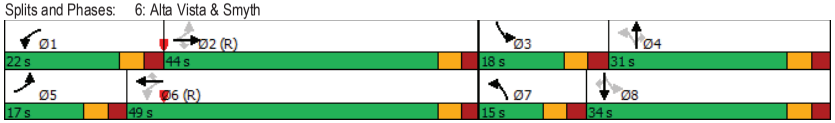
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Future Volume (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Lane Group Flow (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	17.0	44.0	44.0	22.0	49.0	49.0	15.0	31.0	31.0	18.0	34.0	34.0
Total Split (%)	14.8%	38.3%	38.3%	19.1%	42.6%	42.6%	13.0%	27.0%	27.0%	15.7%	29.6%	29.6%
Maximum Green (s)	11.0	38.2	38.2	16.0	43.2	43.2	8.9	24.9	24.9	11.9	27.9	27.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		9	9		56	56		8	8		10	10
Act Effct Green (s)	50.4	40.3	40.3	57.6	44.0	44.0	34.2	25.9	25.9	39.4	28.4	28.4
Actuated g/C Ratio	0.44	0.35	0.35	0.50	0.38	0.38	0.30	0.23	0.23	0.34	0.25	0.25
v/c Ratio	0.62	0.51	0.33	0.59	0.68	0.48	0.48	0.71	0.20	0.50	0.92	0.43
Control Delay	26.4	31.9	9.6	22.0	33.2	15.2	32.9	52.6	2.0	31.3	70.5	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	31.9	9.6	22.0	33.2	15.2	32.9	52.6	2.0	31.3	70.5	14.9
LOS	C	C	A	C	C	B	C	D	A	C	E	B
Approach Delay		26.2			27.8			38.9			47.7	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	19.4	54.1	7.0	28.8	85.4	19.0	14.5	57.8	0.0	22.9	86.9	10.2
Queue Length 95th (m)	31.6	72.4	24.6	44.6	108.0	43.5	26.4	#91.9	2.3	38.3	#144.1	31.0
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	282	1129	593	431	1267	548	211	388	431	311	427	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.51	0.33	0.55	0.68	0.48	0.46	0.71	0.20	0.48	0.92	0.43

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.0 — Intersection LOS: C
Intersection Capacity Utilization 82.9% — ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	154	1390	122	181	1457
Future Volume (vph)	319	154	1390	122	181	1457
Lane Group Flow (vph)	319	154	1390	122	181	1457
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	10.8	15.8
Total Split (s)	26.0	26.0	50.0	50.0	14.0	64.0
Total Split (%)	28.9%	28.9%	55.6%	55.6%	15.6%	71.1%
Maximum Green (s)	20.4	20.4	44.2	44.2	8.2	58.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	19.6	19.6	45.1	45.1	59.0	59.0
Actuated g/C Ratio	0.22	0.22	0.50	0.50	0.66	0.66
v/c Ratio	0.89	0.37	0.84	0.16	0.80	0.67
Control Delay	61.2	7.8	16.6	3.5	43.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	7.8	16.6	3.5	43.0	11.6
LOS	E	A	B	A	D	B
Approach Delay	43.8		15.5			15.1
Approach LOS	D		B			B
Queue Length 50th (m)	53.0	0.0	29.6	0.8	16.2	74.7
Queue Length 95th (m)	#97.0	14.7	55.1	m5.7	#49.6	96.5
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	375	428	1645	760	228	2174
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.36	0.84	0.16	0.79	0.67

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 19.0 Intersection LOS: B
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp

Appendix G

Synchro Intersection Worksheets – 2031 Future Background Conditions

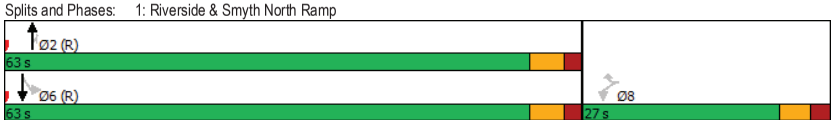
CGH TRANSPORTATION

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	136	1277	103	91	1394
Future Volume (vph)	148	136	1277	103	91	1394
Lane Group Flow (vph)	148	136	1277	103	91	1394
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	21.4	21.4	57.2	57.2	57.2	57.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	1	1	0	0		
Act Effct Green (s)	13.8	13.8	64.8	64.8	64.8	64.8
Actuated g/C Ratio	0.15	0.15	0.72	0.72	0.72	0.72
v/c Ratio	0.59	0.49	0.54	0.10	0.39	0.59
Control Delay	44.5	22.6	1.5	0.2	12.0	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	22.6	1.5	0.2	12.0	7.9
LOS	D	C	A	A	B	A
Approach Delay	34.0		1.4			8.2
Approach LOS	C		A			A
Queue Length 50th (m)	24.2	9.5	2.1	0.0	5.0	50.7
Queue Length 95th (m)	40.1	24.6	6.9	m0.0	18.7	85.1
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	390	385	2386	1046	233	2363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.35	0.54	0.10	0.39	0.59

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 7.6 — Intersection LOS: A
Intersection Capacity Utilization 68.8% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	107	1272	394	176	1358
Future Volume (vph)	56	107	1272	394	176	1358
Lane Group Flow (vph)	56	107	1272	394	176	1358
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	10.4	10.4	55.4	55.4	71.2	72.3
Actuated g/C Ratio	0.12	0.12	0.62	0.62	0.79	0.80
v/c Ratio	0.30	0.41	0.63	0.38	0.50	0.52
Control Delay	40.9	12.7	9.8	2.0	12.0	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	12.7	9.8	2.0	12.0	7.5
LOS	D	B	A	A	B	A
Approach Delay	22.4		8.0			8.0
Approach LOS	C		A			A
Queue Length 50th (m)	9.1	0.0	25.6	0.0	12.1	44.7
Queue Length 95th (m)	19.9	14.1	49.4	18.6	30.8	108.8
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	522	539	2019	1034	369	2636
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.20	0.63	0.38	0.48	0.52

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 8.7 — Intersection LOS: A
Intersection Capacity Utilization 70.2% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Riverside & Smyth South Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	20	1722	73	63	1359
Future Volume (vph)	70	20	1722	73	63	1359
Lane Group Flow (vph)	70	20	1722	73	63	1359
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	2	2	0	0		
Act Effct Green (s)	13.2	13.2	70.3	70.3	70.3	70.3
Actuated g/C Ratio	0.15	0.15	0.78	0.78	0.78	0.78
v/c Ratio	0.30	0.10	0.67	0.07	0.45	0.53
Control Delay	35.9	12.9	9.1	3.2	17.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	12.9	9.1	3.2	17.9	3.9
LOS	D	B	A	A	B	A
Approach Delay	30.8		8.9			4.5
Approach LOS	C		A			A
Queue Length 50th (m)	11.5	0.0	58.8	1.2	1.0	10.9
Queue Length 95th (m)	19.3	5.2	155.8	7.5	m#24.5	43.6
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	438	380	2565	1121	141	2565
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.05	0.67	0.07	0.45	0.53

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 7.6 — Intersection LOS: A
Intersection Capacity Utilization 72.4% — ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Riverside & TOH RC

Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	607	163	670	284	570	194
Future Volume (vph)	607	163	670	284	570	194
Lane Group Flow (vph)	607	163	670	284	570	194
Sign Control	Free		Free			

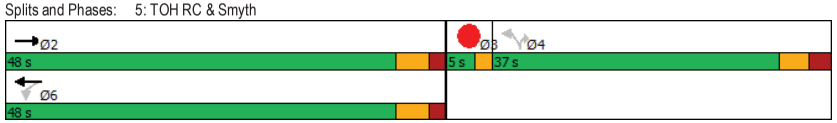
Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	1106	73	937	17	26	
Future Volume (vph)	1106	73	937	17	26	
Lane Group Flow (vph)	1177	73	937	17	26	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	9	0	0	16	16	24
Act Effct Green (s)	61.8	61.8	61.8	17.2	17.2	
Actuated g/C Ratio	0.76	0.76	0.76	0.21	0.21	
v/c Ratio	0.33	0.26	0.26	0.05	0.09	
Control Delay	8.3	14.2	7.9	26.1	10.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.3	14.2	7.9	26.1	10.3	
LOS	A	B	A	C	B	
Approach Delay	8.3		8.3	16.6		
Approach LOS	A		A	B		
Queue Length 50th (m)	18.3	3.0	13.9	2.3	0.0	
Queue Length 95th (m)	60.9	20.0	46.8	7.0	5.7	
Internal Link Dist (m)	59.2		422.8	186.5		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3575	285	3614	596	543	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.26	0.26	0.03	0.05	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 81.5
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.33	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: TOH RC & Smyth

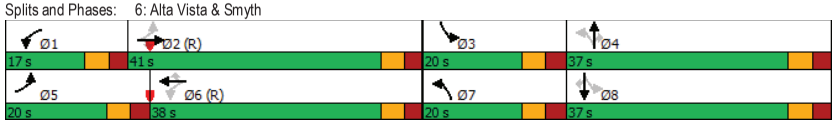


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Future Volume (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Lane Group Flow (vph)	147	893	100	101	593	198	315	361	180	255	192	110
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	20.0	41.0	41.0	17.0	38.0	38.0	20.0	37.0	37.0	20.0	37.0	37.0
Total Split (%)	17.4%	35.7%	35.7%	14.8%	33.0%	33.0%	17.4%	32.2%	32.2%	17.4%	32.2%	32.2%
Maximum Green (s)	14.0	35.2	35.2	11.0	32.2	32.2	13.9	30.9	30.9	13.9	30.9	30.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		24	24		31	31		11	11		17	17
Act Effct Green (s)	48.0	36.9	36.9	44.0	34.9	34.9	45.1	31.3	31.3	44.5	31.0	31.0
Actuated g/C Ratio	0.42	0.32	0.32	0.38	0.30	0.30	0.39	0.27	0.27	0.39	0.27	0.27
v/c Ratio	0.47	0.85	0.19	0.50	0.60	0.40	0.69	0.78	0.37	0.77	0.42	0.23
Control Delay	24.3	45.9	2.4	28.2	37.6	12.8	32.7	51.6	11.5	39.4	38.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	45.9	2.4	28.2	37.6	12.8	32.7	51.6	11.5	39.4	38.1	3.6
LOS	C	D	A	C	D	B	C	D	B	D	D	A
Approach Delay		39.3			31.0			36.2			31.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	19.4	98.8	0.0	13.0	59.8	8.9	47.7	75.4	6.6	37.0	35.7	0.0
Queue Length 95th (m)	32.7	#135.3	4.6	23.5	80.7	29.3	71.2	#118.2	24.7	#58.6	57.3	7.7
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	350	1052	524	224	995	496	457	465	492	335	456	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.85	0.19	0.45	0.60	0.40	0.69	0.78	0.37	0.76	0.42	0.23

Intersection Summary
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 89.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth

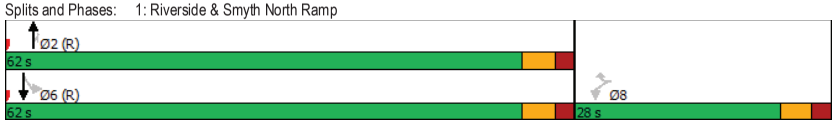


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	154	1390	122	181	1569
Future Volume (vph)	319	154	1390	122	181	1569
Lane Group Flow (vph)	319	154	1390	122	181	1569
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	28.0	28.0	62.0	62.0	62.0	62.0
Total Split (%)	31.1%	31.1%	68.9%	68.9%	68.9%	68.9%
Maximum Green (s)	22.4	22.4	56.2	56.2	56.2	56.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	20.5	20.5	58.1	58.1	58.1	58.1
Actuated g/C Ratio	0.23	0.23	0.65	0.65	0.65	0.65
v/c Ratio	0.85	0.44	0.66	0.13	1.15	0.73
Control Delay	54.1	22.5	3.8	0.3	141.5	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	22.5	3.8	0.3	141.5	13.8
LOS	D	C	A	A	F	B
Approach Delay	43.8		3.5			27.0
Approach LOS	D		A			C
Queue Length 50th (m)	51.4	13.9	10.4	0.0	~38.1	91.9
Queue Length 95th (m)	#90.4	31.2	19.4	m0.0	#51.6	119.3
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	412	381	2119	964	157	2140
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.40	0.66	0.13	1.15	0.73

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	119	1398	198	80	1865
Future Volume (vph)	68	119	1398	198	80	1865
Lane Group Flow (vph)	68	119	1398	198	80	1865
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	10.8	10.8	57.4	57.4	67.5	67.5
Actuated g/C Ratio	0.12	0.12	0.64	0.64	0.75	0.75
v/c Ratio	0.37	0.42	0.66	0.20	0.30	0.75
Control Delay	42.0	11.9	9.6	1.6	7.3	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	11.9	9.6	1.6	7.3	12.1
LOS	D	B	A	A	A	B
Approach Delay	22.9		8.6			11.9
Approach LOS	C		A			B
Queue Length 50th (m)	11.1	0.0	46.6	0.3	5.0	108.0
Queue Length 95th (m)	22.8	14.4	54.3	6.4	m7.0	143.0
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	498	556	2115	995	307	2487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.21	0.66	0.20	0.26	0.75

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 72.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

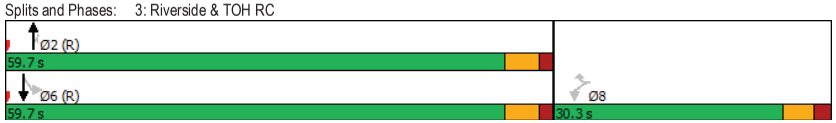
Splits and Phases: 2: Riverside & Smyth South Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	89	17	1584	11	8	1950
Future Volume (vph)	89	17	1584	11	8	1950
Lane Group Flow (vph)	89	17	1584	11	8	1950
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	0	0	4	4		
Act Effct Green (s)	11.2	11.2	72.3	72.3	72.3	72.3
Actuated g/C Ratio	0.12	0.12	0.80	0.80	0.80	0.80
v/c Ratio	0.43	0.09	0.59	0.01	0.04	0.73
Control Delay	42.8	16.3	5.9	2.4	3.2	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	16.3	5.9	2.4	3.2	5.1
LOS	D	B	A	A	A	A
Approach Delay	38.6		5.8			5.1
Approach LOS	D		A			A
Queue Length 50th (m)	14.7	0.0	49.7	0.2	0.2	52.9
Queue Length 95th (m)	27.5	5.6	82.6	1.4	m0.5	62.2
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	459	408	2663	1168	184	2663
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.04	0.59	0.01	0.04	0.73

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 6.4	Intersection LOS: A
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 3: Riverside & TOH RC



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	577	187	727	473	278	303
Future Volume (vph)	577	187	727	473	278	303
Lane Group Flow (vph)	577	187	727	473	278	303
Sign Control	Free		Free			

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 47.7%		ICU Level of Service A
Analysis Period (min) 15		

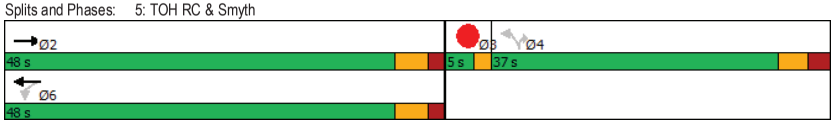
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	831	36	1112	88	103	
Future Volume (vph)	831	36	1112	88	103	
Lane Group Flow (vph)	855	36	1112	88	103	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	5	0	0	9	9	13
Act Effct Green (s)	49.1	49.1	49.1	13.5	13.5	
Actuated g/C Ratio	0.70	0.70	0.70	0.19	0.19	
v/c Ratio	0.26	0.10	0.33	0.28	0.29	
Control Delay	6.9	9.2	7.4	25.7	7.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.9	9.2	7.4	25.7	7.2	
LOS	A	A	A	C	A	
Approach Delay	6.9		7.5	15.7		
Approach LOS	A		A	B		
Queue Length 50th (m)	12.3	1.3	17.3	9.4	0.0	
Queue Length 95th (m)	42.7	9.3	58.0	20.7	10.1	
Internal Link Dist (m)	59.2		422.8	186.5		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3287	366	3333	744	710	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.10	0.33	0.12	0.15	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 70.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 50.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: TOH RC & Smyth



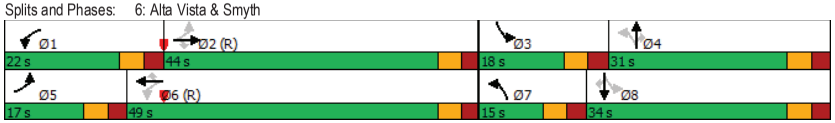
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Future Volume (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Lane Group Flow (vph)	168	575	198	238	864	264	98	274	86	149	392	198
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	17.0	44.0	44.0	22.0	49.0	49.0	15.0	31.0	31.0	18.0	34.0	34.0
Total Split (%)	14.8%	38.3%	38.3%	19.1%	42.6%	42.6%	13.0%	27.0%	27.0%	15.7%	29.6%	29.6%
Maximum Green (s)	11.0	38.2	38.2	16.0	43.2	43.2	8.9	24.9	24.9	11.9	27.9	27.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		9	9		56	56		8	8		10	10
Act Effct Green (s)	50.4	40.3	40.3	57.6	44.0	44.0	34.2	25.9	25.9	39.4	28.4	28.4
Actuated g/C Ratio	0.44	0.35	0.35	0.50	0.38	0.38	0.30	0.23	0.23	0.34	0.25	0.25
v/c Ratio	0.62	0.51	0.33	0.59	0.68	0.48	0.48	0.71	0.20	0.50	0.92	0.43
Control Delay	26.4	31.9	9.6	22.0	33.2	15.2	32.9	52.6	2.0	31.3	70.5	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	31.9	9.6	22.0	33.2	15.2	32.9	52.6	2.0	31.3	70.5	14.9
LOS	C	C	A	C	C	B	C	D	A	C	E	B
Approach Delay		26.2			27.8			38.9			47.7	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	19.4	54.1	7.0	28.8	85.4	19.0	14.5	57.8	0.0	22.9	86.9	10.2
Queue Length 95th (m)	31.6	72.4	24.6	44.6	108.0	43.5	26.4	#91.9	2.3	38.3	#144.1	31.0
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	282	1129	593	431	1267	548	211	388	431	311	427	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.51	0.33	0.55	0.68	0.48	0.46	0.71	0.20	0.48	0.92	0.43

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.0 — Intersection LOS: C
Intersection Capacity Utilization 82.9% — ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	154	1390	122	181	1569
Future Volume (vph)	319	154	1390	122	181	1569
Lane Group Flow (vph)	319	154	1390	122	181	1569
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	10.8	15.8
Total Split (s)	26.0	26.0	50.0	50.0	14.0	64.0
Total Split (%)	28.9%	28.9%	55.6%	55.6%	15.6%	71.1%
Maximum Green (s)	20.4	20.4	44.2	44.2	8.2	58.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	19.6	19.6	45.1	45.1	59.0	59.0
Actuated g/C Ratio	0.22	0.22	0.50	0.50	0.66	0.66
v/c Ratio	0.89	0.37	0.84	0.16	0.80	0.72
Control Delay	61.2	7.8	16.6	3.5	43.0	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	7.8	16.6	3.5	43.0	12.8
LOS	E	A	B	A	D	B
Approach Delay	43.8		15.5			15.9
Approach LOS	D		B			B
Queue Length 50th (m)	53.0	0.0	29.6	0.8	16.2	85.3
Queue Length 95th (m)	#97.0	14.7	55.1	m5.7	#49.6	110.6
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	375	428	1645	760	228	2174
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.36	0.84	0.16	0.79	0.72

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp

Appendix H

MMLOS Analysis

CGH TRANSPORTATION

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation Inc.**	**Project**	**2021-045 – 1919 Riverside**
Scenario	**Existing/Future**	**Date**	**2021-10-22**
Comments			

SEGMENTS			Smyth Road Ex./Fut.		
Pedestrian	Sidewalk Width Boulevard Width	-	1.8 m < 0.5 m		
	Avg Daily Curb Lane Traffic Volume		≤ 3000		
	Operating Speed On-Street Parking		> 60 km/h no		
	Exposure to Traffic PLoS		**D**		
	Effective Sidewalk Width				
	Pedestrian Volume				
	Crowding PLoS		**-**		
	Level of Service		**-**		
Bicycle	Type of Cycling Facility	-	Mixed Traffic		
	Number of Travel Lanes		≥ 6 lanes total		
	Operating Speed		≥ 60 km/h		
	# of Lanes & Operating Speed LoS		**F**		
	Bike Lane (+ Parking Lane) Width				
	Bike Lane Width LoS		**-**		
	Bike Lane Blockages				
	Blockage LoS		**-**		
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge		
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes		
	Sidestreet Operating Speed		>50 to 60 km/h		
	Unsignalized Crossing - Lowest LoS		**C**		
	Level of Service		**F**		
Transit	Facility Type	-	Mixed Traffic		
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8		
	Level of Service		**D**		
Truck	Truck Lane Width	-	≤ 3.5 m		
	Travel Lanes per Direction		> 1		
	Level of Service		**A**		

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation Inc.**	**Project**	**2021-045 – 1919 Riverside**
Scenario	**Existing/Future**	**Date**	**2022-01-18**
Comments			

INTERSECTIONS		Smyth Road North Ramp at Riverside Drive				Smyth Road South Ramp at Riverside Drive			
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	6	6	5		7	8	5	
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	
	Conflicting Left Turns	No left turn / Prohib.	Permissive	Permissive		No left turn / Prohib.	Permissive	Protected/ Permissive	
	Conflicting Right Turns	Permissive or yield control	No right turn	Permissive or yield control		Permissive or yield control	No right turn	Permissive or yield control	
	Right Turns on Red (RToR) ?	RTOR prohibited	RTOR prohibited	RTOR prohibited		RTOR prohibited	RTOR allowed	RTOR prohibited	
	Ped Signal Leading Interval?	No	No	No		No	No	No	
	Right Turn Channel	Conventional with Receiving Lane	No Right Turn	Conv'tl without Receiving Lane		Conventional with Receiving Lane	No Right Turn	No Channel	
	Corner Radius	>25m	No Right Turn	15-25m		15-25m	No Right Turn	15-25m	
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings		Std transverse markings	Std transverse markings	Std transverse markings	
	PETSI Score	**29**	**38**	**42**		**14**	**3**	**38**	
	Ped. Exposure to Traffic LoS	**F**	**E**	**E**	**-**	**F**	**F**	**E**	**-**
	Cycle Length								
	Effective Walk Time								
	Average Pedestrian Delay								
	Pedestrian Delay LoS	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Level of Service	**F**	**E**	**E**	**-**	**F**	**F**	**E**	**-**
		F				**F**			
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	
	Right Turn Lane Configuration						> 50 m		
	Right Turning Speed						>25 km/h		
	Cyclist relative to RT motorists	**-**	**-**	**-**	**-**	**-**	**F**	**-**	**-**
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**
	Left Turn Approach	One lane crossed		No lane crossed		One lane crossed		No lane crossed	
	Operating Speed	≥ 60 km/h		≥ 60 km/h		≥ 60 km/h		≥ 60 km/h	
	Left Turning Cyclist	**F**	**-**	**C**	**-**	**F**	**-**	**C**	**-**
	Level of Service	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-				**-**			
Transit	Average Signal Delay								
	Level of Service	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-				**-**			
Truck	Effective Corner Radius		> 15 m	> 15 m			> 15 m	> 15 m	
	Number of Receiving Lanes on Departure from Intersection		1	≥ 2			1	≥ 2	
	Level of Service	**-**	**C**	**A**	**-**	**-**	**C**	**A**	**-**
		C				**C**			
Auto	Volume to Capacity Ratio	0.91 - 1.00				0.71 - 0.80			
	Level of Service	**E**				**C**			

Smyth Road at Alta Vista Drive				The Ottawa Hospital RC at Riverside Drive				Smyth Road at The Ottawa Hospital RC			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
5	5	6	6	6	7	3			5	8	8
No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m			No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	No left turn / Prohib.	Permissive	Permissive			Permissive	No left turn / Prohib.	Permissive
Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control			Permissive or yield control	Permissive or yield control	No right turn
RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR prohibited			RTOR allowed	RTOR prohibited	RTOR allowed
No	No	No	No	No	No	No			No	Yes	Yes
Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conventional with Receiving Lane	No Right Turn	No Channel			No Channel	No Channel	No Right Turn
10-15m	15-25m	10-15m	15-25m	15-25m	No Right Turn	5-10m			5-10m	10-15m	No Right Turn
Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Std transverse markings	Std transverse markings	Std transverse markings			Std transverse markings	Std transverse markings	Std transverse markings
47	**45**	**30**	**28**	**30**	**19**	**74**			**38**	**1**	**5**
D	**D**	**E**	**F**	**E**	**F**	**C**	**-**	**-**	**E**	**F**	**F**
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
D	**D**	**E**	**F**	**E**	**F**	**C**	**-**	**-**	**E**	**F**	**F**
F				**F**				**F**			
NORTH	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic			Mixed Traffic		Mixed Traffic
≤ 50 m Introduced right turn lane	≤ 50 m Introduced right turn lane	≤ 50 m	≤ 50 m			≤ 50 m					
>25 to 30 km/h	>25 to 30 km/h	>25 km/h	>25 km/h			≤ 25 km/h					
C	**C**	**E**	**E**	**-**	**#N/A**	**D**	**-**	**-**	**-**	**-**	**-**
Separated	**Separated**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**	**-**	**Mixed Traffic**	**-**	**Mixed Traffic**
1 lane crossed	1 lane crossed	One lane crossed	One lane crossed	One lane crossed		No lane crossed			No lane crossed	One lane crossed	
≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h		> 50 to < 60 km/h			> 40 to ≤ 50 km/h	≥ 60 km/h	
E	**E**	**F**	**F**	**F**	**-**	**C**	**-**	**-**	**B**	**F**	**-**
E	**E**	**F**	**F**	**-**	**#N/A**	**D**	**-**	**-**	**-**	**-**	**-**
F				**F**				**F**			
> 40 sec	> 40 sec	≤ 40 sec	> 40 sec							≤ 10 sec	≤ 10 sec
F	**F**	**E**	**F**	**-**	**-**	**-**	**-**	**-**	**-**	**B**	**B**
F				**-**				**B**			
				< 10 m							10 - 15 m
				1							1
-	**-**	**-**	**-**	**-**	**F**	**-**	**-**	**-**	**-**	**-**	**E**
-				**F**				**E**			
0.71 - 0.80				0.81 - 0.90				0.0 - 0.60			
C				**D**				**A**			

Appendix I

Synchro Intersection Worksheets – 2026 Future Total Conditions

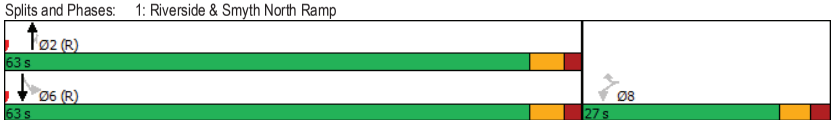
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	224	138	1191	122	91	1408
Future Volume (vph)	224	138	1191	122	91	1408
Lane Group Flow (vph)	224	138	1191	122	91	1408
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	21.4	21.4	57.2	57.2	57.2	57.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	1	1	0	0		
Act Effct Green (s)	16.9	16.9	61.7	61.7	61.7	61.7
Actuated g/C Ratio	0.19	0.19	0.69	0.69	0.69	0.69
v/c Ratio	0.73	0.41	0.52	0.12	0.38	0.63
Control Delay	47.8	15.9	1.4	0.2	12.9	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	15.9	1.4	0.2	12.9	10.0
LOS	D	B	A	A	B	B
Approach Delay	35.6		1.3			10.2
Approach LOS	D		A			B
Queue Length 50th (m)	36.5	6.8	2.9	0.0	5.9	62.6
Queue Length 95th (m)	57.2	21.4	7.6	m0.0	18.9	95.0
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	390	397	2272	1007	240	2249
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.35	0.52	0.12	0.38	0.63

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 9.4 — Intersection LOS: A
Intersection Capacity Utilization 70.6% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp

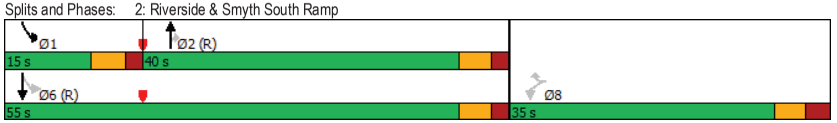


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	130	107	1189	423	179	1445
Future Volume (vph)	130	107	1189	423	179	1445
Lane Group Flow (vph)	130	107	1189	423	179	1445
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	13.0	13.0	49.1	49.1	65.3	65.3
Actuated g/C Ratio	0.14	0.14	0.55	0.55	0.73	0.73
v/c Ratio	0.56	0.36	0.66	0.43	0.52	0.61
Control Delay	44.4	10.2	13.9	2.2	13.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	10.2	13.9	2.2	13.9	12.1
LOS	D	B	B	A	B	B
Approach Delay	29.0		10.8			12.3
Approach LOS	C		B			B
Queue Length 50th (m)	21.4	0.0	51.8	0.0	14.5	72.7
Queue Length 95th (m)	36.4	13.0	77.0	16.1	34.3	123.3
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	522	539	1791	975	358	2381
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.20	0.66	0.43	0.50	0.61

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 12.8 — Intersection LOS: B
Intersection Capacity Utilization 67.9% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Riverside & Smyth South Ramp

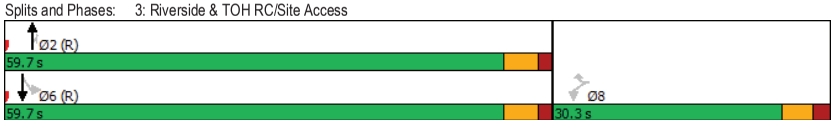


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	72	1600	79	223	1360
Future Volume (vph)	73	72	1600	79	223	1360
Lane Group Flow (vph)	73	72	1600	79	223	1360
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	2	2	0	0		
Act Effct Green (s)	13.2	13.2	70.3	70.3	70.3	70.3
Actuated g/C Ratio	0.15	0.15	0.78	0.78	0.78	0.78
v/c Ratio	0.32	0.33	0.62	0.07	1.31	0.53
Control Delay	36.1	24.7	8.1	3.0	192.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	24.7	8.1	3.0	192.1	5.2
LOS	D	C	A	A	F	A
Approach Delay	30.5		7.9			31.5
Approach LOS	C		A			C
Queue Length 50th (m)	12.0	6.8	50.5	1.2	~52.3	15.7
Queue Length 95th (m)	20.1	15.6	133.3	7.7	#99.5	71.7
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	438	387	2564	1122	170	2564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.19	0.62	0.07	1.31	0.53

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 150

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 81.3% ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Riverside & TOH RC/Site Access



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	538	237	671	362	602	213
Future Volume (vph)	538	237	671	362	602	213
Lane Group Flow (vph)	538	237	671	362	602	213
Sign Control	Free		Free			

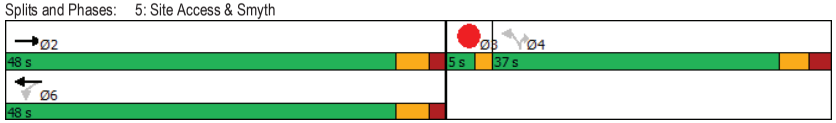
Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	1062	3	1012	3	2	
Future Volume (vph)	1062	3	1012	3	2	
Lane Group Flow (vph)	1068	3	1012	3	2	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	9	0	0	16	16	24
Act Effct Green (s)	65.3	65.3	65.3	17.0	17.0	
Actuated g/C Ratio	0.82	0.82	0.82	0.21	0.21	
v/c Ratio	0.27	0.01	0.26	0.01	0.01	
Control Delay	7.0	10.0	6.9	25.7	18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.0	10.0	6.9	25.7	18.5	
LOS	A	A	A	C	B	
Approach Delay	7.0		7.0	22.8		
Approach LOS	A		A	C		
Queue Length 50th (m)	0.0	0.0	0.0	0.3	0.0	
Queue Length 95th (m)	53.9	1.6	50.6	2.6	1.7	
Internal Link Dist (m)	59.2		422.8	177.3		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3897	354	3902	619	549	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.27	0.01	0.26	0.00	0.00	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 79.7
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.27	
Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 43.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Site Access & Smyth

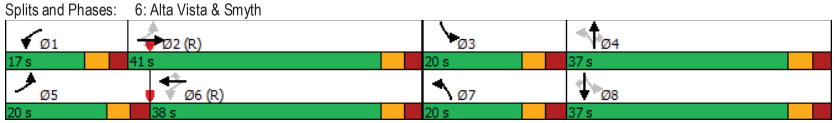


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	894	101	101	595	198	317	361	180	255	192	112
Future Volume (vph)	148	894	101	101	595	198	317	361	180	255	192	112
Lane Group Flow (vph)	148	894	101	101	595	198	317	361	180	255	192	112
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	20.0	41.0	41.0	17.0	38.0	38.0	20.0	37.0	37.0	20.0	37.0	37.0
Total Split (%)	17.4%	35.7%	35.7%	14.8%	33.0%	33.0%	17.4%	32.2%	32.2%	17.4%	32.2%	32.2%
Maximum Green (s)	14.0	35.2	35.2	11.0	32.2	32.2	13.9	30.9	30.9	13.9	30.9	30.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		24	24		31	31		11	11		17	17
Act Effct Green (s)	48.0	36.9	36.9	44.0	34.8	34.8	45.1	31.3	31.3	44.5	30.9	30.9
Actuated g/C Ratio	0.42	0.32	0.32	0.38	0.30	0.30	0.39	0.27	0.27	0.39	0.27	0.27
v/c Ratio	0.47	0.85	0.19	0.50	0.60	0.40	0.70	0.78	0.37	0.77	0.42	0.23
Control Delay	24.5	45.9	2.4	28.3	37.6	12.8	33.1	51.6	11.5	39.4	38.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	45.9	2.4	28.3	37.6	12.8	33.1	51.6	11.5	39.4	38.1	3.9
LOS	C	D	A	C	D	B	C	D	B	D	D	A
Approach Delay		39.3			31.1			36.4			31.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	19.6	99.0	0.0	13.0	60.0	8.9	48.2	75.4	6.6	37.0	35.7	0.0
Queue Length 95th (m)	32.8	#135.6	4.8	23.5	81.3	29.3	72.0	#118.2	24.7	#58.4	57.3	8.0
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	349	1052	524	224	994	495	455	465	492	335	456	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.85	0.19	0.45	0.60	0.40	0.70	0.78	0.37	0.76	0.42	0.23

Intersection Summary
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 89.7% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	358	158	1405	214	181	1469
Future Volume (vph)	358	158	1405	214	181	1469
Lane Group Flow (vph)	358	158	1405	214	181	1469
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	10.8	15.8
Total Split (s)	26.0	26.0	50.0	50.0	14.0	64.0
Total Split (%)	28.9%	28.9%	55.6%	55.6%	15.6%	71.1%
Maximum Green (s)	20.4	20.4	44.2	44.2	8.2	58.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	20.4	20.4	44.2	44.2	58.2	58.2
Actuated g/C Ratio	0.23	0.23	0.49	0.49	0.65	0.65
v/c Ratio	0.95	0.38	0.87	0.27	0.80	0.69
Control Delay	72.8	9.5	20.6	4.6	42.7	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	9.5	20.6	4.6	42.7	12.2
LOS	E	A	C	A	D	B
Approach Delay	53.4		18.4			15.5
Approach LOS	D		B			B
Queue Length 50th (m)	61.3	2.0	83.5	5.2	15.9	75.6
Queue Length 95th (m)	#113.4	17.2	#59.3	m10.3	#49.2	97.7
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	375	420	1613	782	228	2144
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.38	0.87	0.27	0.79	0.69

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 21.9 Intersection LOS: C
Intersection Capacity Utilization 86.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	95	119	1417	304	83	1780
Future Volume (vph)	95	119	1417	304	83	1780
Lane Group Flow (vph)	95	119	1417	304	83	1780
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	11.8	11.8	56.3	56.3	66.5	66.5
Actuated g/C Ratio	0.13	0.13	0.63	0.63	0.74	0.74
v/c Ratio	0.47	0.40	0.68	0.30	0.33	0.73
Control Delay	43.5	10.9	12.5	3.2	7.3	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	10.9	12.5	3.2	7.3	6.8
LOS	D	B	B	A	A	A
Approach Delay	25.4		10.9			6.8
Approach LOS	C		B			A
Queue Length 50th (m)	15.6	0.0	51.5	0.0	2.5	46.6
Queue Length 95th (m)	28.8	13.9	94.9	m20.1	m6.2	m83.3
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	498	556	2075	1016	296	2450
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.21	0.68	0.30	0.28	0.73

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Riverside & Smyth South Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	229	1585	16	82	1812
Future Volume (vph)	97	229	1585	16	82	1812
Lane Group Flow (vph)	97	229	1585	16	82	1812
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	0	0	4	4		
Act Effct Green (s)	17.8	17.8	61.6	61.6	61.6	61.6
Actuated g/C Ratio	0.20	0.20	0.68	0.68	0.68	0.68
v/c Ratio	0.30	0.75	0.70	0.02	0.63	0.80
Control Delay	31.2	43.6	11.8	4.7	33.5	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	43.6	11.8	4.7	33.5	15.8
LOS	C	D	B	A	C	B
Approach Delay	39.9		11.8			16.6
Approach LOS	D		B			B
Queue Length 50th (m)	14.4	32.4	76.3	0.4	6.7	125.8
Queue Length 95th (m)	25.0	51.5	129.4	2.9	m#18.8	#186.1
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	459	418	2269	997	130	2269
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.55	0.70	0.02	0.63	0.80

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Riverside & TOH RC/Site Access

Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	554	214	729	516	387	395
Future Volume (vph)	554	214	729	516	387	395
Lane Group Flow (vph)	554	214	729	516	387	395
Sign Control	Free		Free			

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 53.8%		ICU Level of Service A
Analysis Period (min) 15		

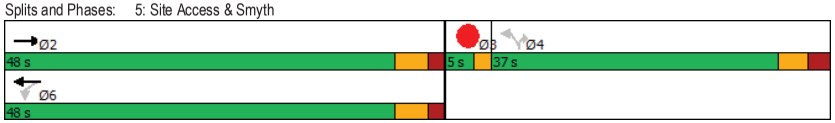
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	912	3	1149	8	4	
Future Volume (vph)	912	3	1149	8	4	
Lane Group Flow (vph)	917	3	1149	8	4	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	5	0	0	9	9	13
Act Effct Green (s)	63.7	63.7	63.7	13.4	13.4	
Actuated g/C Ratio	0.86	0.86	0.86	0.18	0.18	
v/c Ratio	0.23	0.01	0.28	0.03	0.02	
Control Delay	4.6	7.3	4.8	27.2	17.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.6	7.3	4.8	27.2	17.8	
LOS	A	A	A	C	B	
Approach Delay	4.6		4.8	24.1		
Approach LOS	A		A	C		
Queue Length 50th (m)	0.0	0.0	0.0	0.8	0.0	
Queue Length 95th (m)	45.2	1.6	59.0	4.7	2.5	
Internal Link Dist (m)	59.2		422.8	177.3		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	4030	420	4074	716	632	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.01	0.28	0.01	0.01	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 74.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 4.8	Intersection LOS: A
Intersection Capacity Utilization 43.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Site Access & Smyth



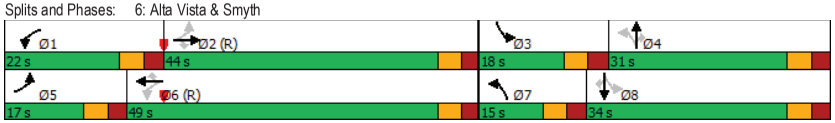
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	577	200	238	865	264	99	274	86	149	392	199
Future Volume (vph)	170	577	200	238	865	264	99	274	86	149	392	199
Lane Group Flow (vph)	170	577	200	238	865	264	99	274	86	149	392	199
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	17.0	44.0	44.0	22.0	49.0	49.0	15.0	31.0	31.0	18.0	34.0	34.0
Total Split (%)	14.8%	38.3%	38.3%	19.1%	42.6%	42.6%	13.0%	27.0%	27.0%	15.7%	29.6%	29.6%
Maximum Green (s)	11.0	38.2	38.2	16.0	43.2	43.2	8.9	24.9	24.9	11.9	27.9	27.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		9	9		56	56		8	8		10	10
Act Effct Green (s)	50.4	40.3	40.3	57.6	43.9	43.9	34.3	25.9	25.9	39.3	28.4	28.4
Actuated g/C Ratio	0.44	0.35	0.35	0.50	0.38	0.38	0.30	0.23	0.23	0.34	0.25	0.25
v/c Ratio	0.63	0.51	0.34	0.59	0.68	0.48	0.49	0.71	0.20	0.50	0.92	0.43
Control Delay	26.8	31.9	9.6	22.0	33.3	15.2	33.0	52.6	2.0	31.3	70.6	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	31.9	9.6	22.0	33.3	15.2	33.0	52.6	2.0	31.3	70.6	15.1
LOS	C	C	A	C	C	B	C	D	A	C	E	B
Approach Delay		26.3			27.8			38.9			47.8	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	19.6	54.2	7.2	28.8	85.5	19.0	14.7	57.8	0.0	22.9	86.9	10.4
Queue Length 95th (m)	32.0	72.7	24.8	44.6	108.0	43.5	26.8	#91.9	2.3	38.3	#144.1	31.2
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	280	1129	594	430	1266	548	211	388	431	311	426	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.51	0.34	0.55	0.68	0.48	0.47	0.71	0.20	0.48	0.92	0.43

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.1 — Intersection LOS: C
Intersection Capacity Utilization 83.1% — ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth



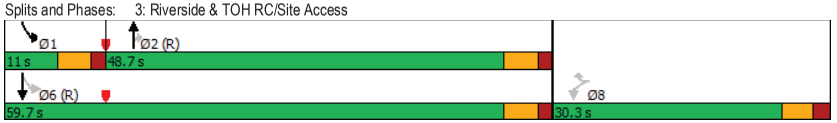
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	72	1600	79	223	1360
Future Volume (vph)	73	72	1600	79	223	1360
Lane Group Flow (vph)	73	72	1600	79	223	1360
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	10.3	15.3
Total Split (s)	30.3	30.3	48.7	48.7	11.0	59.7
Total Split (%)	33.7%	33.7%	54.1%	54.1%	12.2%	66.3%
Maximum Green (s)	25.0	25.0	43.4	43.4	5.7	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	2	2	0	0		
Act Effct Green (s)	13.2	13.2	48.0	48.0	69.2	70.3
Actuated g/C Ratio	0.15	0.15	0.53	0.53	0.77	0.78
v/c Ratio	0.32	0.28	0.91	0.10	0.60	0.53
Control Delay	36.1	10.3	30.3	8.3	28.8	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	10.3	30.3	8.3	28.8	7.5
LOS	D	B	C	A	C	A
Approach Delay	23.3		29.2			10.5
Approach LOS	C		C			B
Queue Length 50th (m)	12.0	0.0	127.5	3.9	23.1	23.5
Queue Length 95th (m)	20.1	9.5	#195.5	11.6	#77.6	101.6
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	438	417	1749	774	373	2564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.91	0.10	0.60	0.53

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 100

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 3: Riverside & TOH RC/Site Access



Appendix J

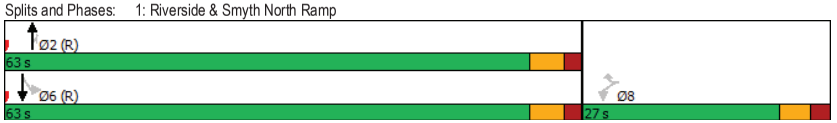
Synchro Intersection Worksheets – 2031 Future Total Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	224	138	1283	122	91	1408
Future Volume (vph)	224	138	1283	122	91	1408
Lane Group Flow (vph)	224	138	1283	122	91	1408
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	15.8	15.8
Total Split (s)	27.0	27.0	63.0	63.0	63.0	63.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	21.4	21.4	57.2	57.2	57.2	57.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	1	1	0	0		
Act Effct Green (s)	16.9	16.9	61.7	61.7	61.7	61.7
Actuated g/C Ratio	0.19	0.19	0.69	0.69	0.69	0.69
v/c Ratio	0.73	0.43	0.56	0.12	0.43	0.63
Control Delay	47.8	19.5	1.5	0.2	15.6	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	19.5	1.5	0.2	15.6	10.0
LOS	D	B	A	A	B	B
Approach Delay	37.0		1.4			10.3
Approach LOS	D		A			B
Queue Length 50th (m)	36.5	9.4	3.0	0.0	6.2	62.6
Queue Length 95th (m)	57.2	24.3	7.6	m0.0	21.7	95.0
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	390	385	2272	1007	212	2249
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.36	0.56	0.12	0.43	0.63

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 73.3%	ICU Level of Service D
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Riverside & Smyth North Ramp



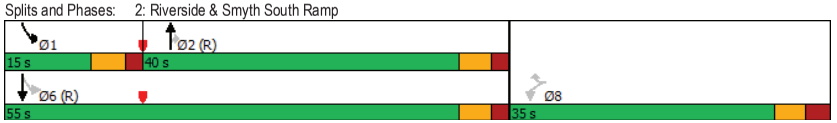
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	130	107	1280	423	179	1445
Future Volume (vph)	130	107	1280	423	179	1445
Lane Group Flow (vph)	130	107	1280	423	179	1445
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	13.0	13.0	49.1	49.1	65.3	65.3
Actuated g/C Ratio	0.14	0.14	0.55	0.55	0.73	0.73
v/c Ratio	0.56	0.36	0.71	0.43	0.56	0.61
Control Delay	44.4	10.2	8.1	1.0	15.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	10.2	8.1	1.0	15.7	12.1
LOS	D	B	A	A	B	B
Approach Delay	29.0		6.3			12.5
Approach LOS	C		A			B
Queue Length 50th (m)	21.4	0.0	20.2	1.0	15.5	72.7
Queue Length 95th (m)	36.4	13.0	m23.8	m1.3	35.0	123.3
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	522	539	1791	975	334	2381
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.20	0.71	0.43	0.54	0.61

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 76 (84%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 10.6 — Intersection LOS: B
Intersection Capacity Utilization 70.6% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Riverside & Smyth South Ramp



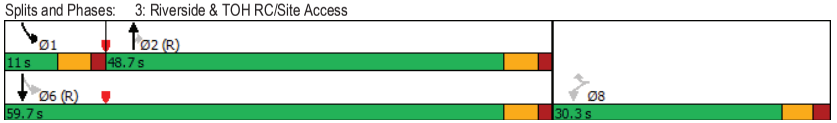
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	72	1724	79	223	1360
Future Volume (vph)	73	72	1724	79	223	1360
Lane Group Flow (vph)	73	72	1724	79	223	1360
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	10.3	15.3
Total Split (s)	30.3	30.3	48.7	48.7	11.0	59.7
Total Split (%)	33.7%	33.7%	54.1%	54.1%	12.2%	66.3%
Maximum Green (s)	25.0	25.0	43.4	43.4	5.7	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	2	2	0	0		
Act Effct Green (s)	13.2	13.2	48.0	48.0	69.2	70.3
Actuated g/C Ratio	0.15	0.15	0.53	0.53	0.77	0.78
v/c Ratio	0.32	0.28	0.99	0.10	0.60	0.53
Control Delay	36.1	10.3	41.4	8.5	28.8	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	10.3	41.4	8.5	28.8	7.5
LOS	D	B	D	A	C	A
Approach Delay	23.3		39.9			10.5
Approach LOS	C		D			B
Queue Length 50th (m)	12.0	0.0	~149.1	4.0	23.1	23.5
Queue Length 95th (m)	20.1	9.5	#219.6	11.7	#77.6	101.6
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	438	417	1749	773	373	2564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.99	0.10	0.60	0.53

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 49 (54%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 26.1 Intersection LOS: C
Intersection Capacity Utilization 84.9% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Riverside & TOH RC/Site Access



Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	538	237	671	362	602	213
Future Volume (vph)	538	237	671	362	602	213
Lane Group Flow (vph)	538	237	671	362	602	213
Sign Control	Free		Free			

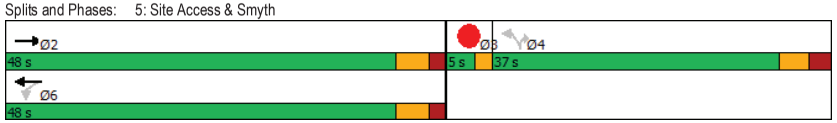
Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	1062	3	1012	3	2	
Future Volume (vph)	1062	3	1012	3	2	
Lane Group Flow (vph)	1068	3	1012	3	2	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	9	0	0	16	16	24
Act Effct Green (s)	65.3	65.3	65.3	17.0	17.0	
Actuated g/C Ratio	0.82	0.82	0.82	0.21	0.21	
v/c Ratio	0.27	0.01	0.26	0.01	0.01	
Control Delay	7.0	10.0	6.9	25.7	18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.0	10.0	6.9	25.7	18.5	
LOS	A	A	A	C	B	
Approach Delay	7.0		7.0	22.8		
Approach LOS	A		A	C		
Queue Length 50th (m)	0.0	0.0	0.0	0.3	0.0	
Queue Length 95th (m)	53.9	1.6	50.6	2.6	1.7	
Internal Link Dist (m)	59.2		422.8	177.3		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	3897	354	3902	619	549	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.27	0.01	0.26	0.00	0.00	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 79.7
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.27	
Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 43.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Site Access & Smyth

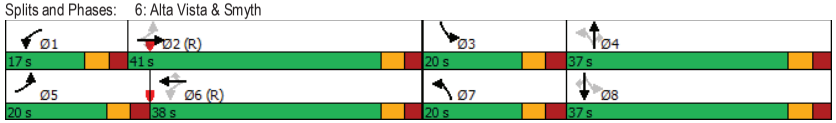


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	894	101	101	595	198	317	361	180	255	192	112
Future Volume (vph)	148	894	101	101	595	198	317	361	180	255	192	112
Lane Group Flow (vph)	148	894	101	101	595	198	317	361	180	255	192	112
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	20.0	41.0	41.0	17.0	38.0	38.0	20.0	37.0	37.0	20.0	37.0	37.0
Total Split (%)	17.4%	35.7%	35.7%	14.8%	33.0%	33.0%	17.4%	32.2%	32.2%	17.4%	32.2%	32.2%
Maximum Green (s)	14.0	35.2	35.2	11.0	32.2	32.2	13.9	30.9	30.9	13.9	30.9	30.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		24	24		31	31		11	11		17	17
Act Effct Green (s)	48.0	36.9	36.9	44.0	34.8	34.8	45.1	31.3	31.3	44.5	30.9	30.9
Actuated g/C Ratio	0.42	0.32	0.32	0.38	0.30	0.30	0.39	0.27	0.27	0.39	0.27	0.27
v/c Ratio	0.47	0.85	0.19	0.50	0.60	0.40	0.70	0.78	0.37	0.77	0.42	0.23
Control Delay	24.5	45.9	2.4	28.3	37.6	12.8	33.1	51.6	11.5	39.4	38.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	45.9	2.4	28.3	37.6	12.8	33.1	51.6	11.5	39.4	38.1	3.9
LOS	C	D	A	C	D	B	C	D	B	D	D	A
Approach Delay		39.3			31.1			36.4			31.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	19.6	99.0	0.0	13.0	60.0	8.9	48.2	75.4	6.6	37.0	35.7	0.0
Queue Length 95th (m)	32.8	#135.6	4.8	23.5	81.3	29.3	72.0	#118.2	24.7	#58.4	57.3	8.0
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	349	1052	524	224	994	495	455	465	492	335	456	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.85	0.19	0.45	0.60	0.40	0.70	0.78	0.37	0.76	0.42	0.23

Intersection Summary
Cycle Length: 115
Actuated Cycle Length: 115
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 89.7% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	358	158	1405	214	181	1581
Future Volume (vph)	358	158	1405	214	181	1581
Lane Group Flow (vph)	358	158	1405	214	181	1581
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.6	24.6	37.8	37.8	10.8	15.8
Total Split (s)	26.0	26.0	50.0	50.0	14.0	64.0
Total Split (%)	28.9%	28.9%	55.6%	55.6%	15.6%	71.1%
Maximum Green (s)	20.4	20.4	44.2	44.2	8.2	58.2
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.3	2.3	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.6	5.8	5.8	5.8	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	26.0	26.0		
Flash Dont Walk (s)	12.0	12.0	6.0	6.0		
Pedestrian Calls (#/hr)	9	9	0	0		
Act Effct Green (s)	20.4	20.4	44.2	44.2	58.2	58.2
Actuated g/C Ratio	0.23	0.23	0.49	0.49	0.65	0.65
v/c Ratio	0.95	0.38	0.87	0.27	0.80	0.74
Control Delay	72.8	9.5	20.6	4.6	42.7	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	9.5	20.6	4.6	42.7	13.4
LOS	E	A	C	A	D	B
Approach Delay	53.4		18.4			16.4
Approach LOS	D		B			B
Queue Length 50th (m)	61.3	2.0	83.5	5.2	15.9	86.6
Queue Length 95th (m)	#113.4	17.2	#59.3	m10.3	#49.2	112.2
Internal Link Dist (m)	185.3		236.3			303.1
Turn Bay Length (m)		40.0		45.0	125.0	
Base Capacity (vph)	375	420	1613	782	228	2144
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.38	0.87	0.27	0.79	0.74

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 86.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Riverside & Smyth North Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	95	119	1417	304	83	1914
Future Volume (vph)	95	119	1417	304	83	1914
Lane Group Flow (vph)	95	119	1417	304	83	1914
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	34.1	34.1	26.6	26.6	10.6	15.6
Total Split (s)	35.0	35.0	40.0	40.0	15.0	55.0
Total Split (%)	38.9%	38.9%	44.4%	44.4%	16.7%	61.1%
Maximum Green (s)	28.9	28.9	34.4	34.4	9.4	49.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.8	2.8	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.6	5.6	5.6	5.6
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0	14.0	14.0		
Pedestrian Calls (#/hr)	0	0	1	1		
Act Effct Green (s)	11.8	11.8	56.3	56.3	66.5	66.5
Actuated g/C Ratio	0.13	0.13	0.63	0.63	0.74	0.74
v/c Ratio	0.47	0.40	0.68	0.30	0.33	0.78
Control Delay	43.5	10.9	12.5	3.2	7.3	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	10.9	12.5	3.2	7.3	8.3
LOS	D	B	B	A	A	A
Approach Delay	25.4		10.9			8.2
Approach LOS	C		B			A
Queue Length 50th (m)	15.6	0.0	51.5	0.0	2.8	58.8
Queue Length 95th (m)	28.8	13.9	94.9	m20.1	m6.6	m108.7
Internal Link Dist (m)	167.2		164.4			91.2
Turn Bay Length (m)		45.0			50.0	
Base Capacity (vph)	498	556	2075	1016	296	2450
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.21	0.68	0.30	0.28	0.78

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 73.9% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Riverside & Smyth South Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	229	1585	16	82	1952
Future Volume (vph)	97	229	1585	16	82	1952
Lane Group Flow (vph)	97	229	1585	16	82	1952
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	30.3	30.3	23.3	23.3	15.3	15.3
Total Split (s)	30.3	30.3	59.7	59.7	59.7	59.7
Total Split (%)	33.7%	33.7%	66.3%	66.3%	66.3%	66.3%
Maximum Green (s)	25.0	25.0	54.4	54.4	54.4	54.4
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	13.0	13.0		
Flash Dont Walk (s)	18.0	18.0	5.0	5.0		
Pedestrian Calls (#/hr)	0	0	4	4		
Act Effct Green (s)	17.8	17.8	61.6	61.6	61.6	61.6
Actuated g/C Ratio	0.20	0.20	0.68	0.68	0.68	0.68
v/c Ratio	0.30	0.75	0.70	0.02	0.63	0.86
Control Delay	31.2	43.6	11.8	4.7	31.3	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	43.6	11.8	4.7	31.3	17.4
LOS	C	D	B	A	C	B
Approach Delay	39.9		11.8			17.9
Approach LOS	D		B			B
Queue Length 50th (m)	14.4	32.4	76.3	0.4	6.5	147.2
Queue Length 95th (m)	25.0	51.5	129.4	2.9	m7.4	#221.3
Internal Link Dist (m)	151.9		223.4			100.0
Turn Bay Length (m)		35.0		25.0	80.0	
Base Capacity (vph)	459	418	2269	997	130	2269
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.55	0.70	0.02	0.63	0.86

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 17.2	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Riverside & TOH RC/Site Access

Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations						
Traffic Volume (vph)	554	214	729	516	387	395
Future Volume (vph)	554	214	729	516	387	395
Lane Group Flow (vph)	554	214	729	516	387	395
Sign Control	Free		Free			

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 53.8%		ICU Level of Service A
Analysis Period (min) 15		

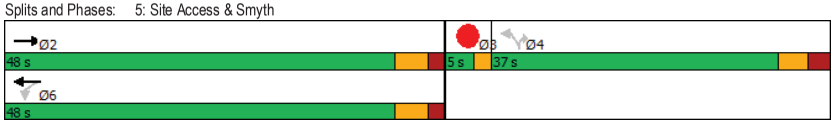
Lane Group	EBT	WBL	WBT	NBL	NBR	Ø3
Lane Configurations						
Traffic Volume (vph)	912	3	1149	8	4	
Future Volume (vph)	912	3	1149	8	4	
Lane Group Flow (vph)	917	3	1149	8	4	
Turn Type	NA	Perm	NA	Perm	Perm	
Protected Phases	2		6			3
Permitted Phases		6		4	4	
Detector Phase	2	6	6	4	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	24.6	24.6	24.6	36.8	36.8	5.0
Total Split (s)	48.0	48.0	48.0	37.0	37.0	5.0
Total Split (%)	53.3%	53.3%	53.3%	41.1%	41.1%	6%
Maximum Green (s)	42.4	42.4	42.4	31.2	31.2	3.0
Yellow Time (s)	3.7	3.7	3.7	3.3	3.3	2.0
All-Red Time (s)	1.9	1.9	1.9	2.5	2.5	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.6	5.6	5.6	5.8	5.8	
Lead/Lag				Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	3.0
Flash Dont Walk (s)	12.0	12.0	12.0	24.0	24.0	0.0
Pedestrian Calls (#/hr)	5	0	0	9	9	13
Act Effct Green (s)	63.7	63.7	63.7	13.4	13.4	
Actuated g/C Ratio	0.86	0.86	0.86	0.18	0.18	
v/c Ratio	0.23	0.01	0.28	0.03	0.02	
Control Delay	4.6	7.3	4.8	27.2	17.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.6	7.3	4.8	27.2	17.8	
LOS	A	A	A	C	B	
Approach Delay	4.6		4.8	24.1		
Approach LOS	A		A	C		
Queue Length 50th (m)	0.0	0.0	0.0	0.8	0.0	
Queue Length 95th (m)	45.2	1.6	59.0	4.7	2.5	
Internal Link Dist (m)	59.2		422.8	177.3		
Turn Bay Length (m)		35.0		35.0		
Base Capacity (vph)	4030	420	4074	716	632	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.01	0.28	0.01	0.01	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 74.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 4.8	Intersection LOS: A
Intersection Capacity Utilization 43.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Site Access & Smyth



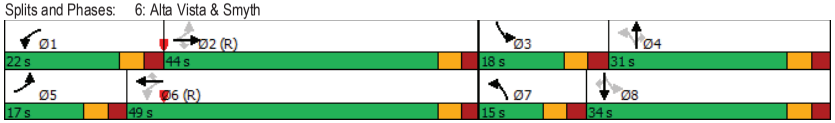
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	577	200	238	865	264	99	274	86	149	392	199
Future Volume (vph)	170	577	200	238	865	264	99	274	86	149	392	199
Lane Group Flow (vph)	170	577	200	238	865	264	99	274	86	149	392	199
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.0	24.8	24.8	11.0	24.8	24.8	11.1	29.1	29.1	11.1	29.1	29.1
Total Split (s)	17.0	44.0	44.0	22.0	49.0	49.0	15.0	31.0	31.0	18.0	34.0	34.0
Total Split (%)	14.8%	38.3%	38.3%	19.1%	42.6%	42.6%	13.0%	27.0%	27.0%	15.7%	29.6%	29.6%
Maximum Green (s)	11.0	38.2	38.2	16.0	43.2	43.2	8.9	24.9	24.9	11.9	27.9	27.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.5	2.5	2.7	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.8	5.8	6.0	5.8	5.8	6.1	6.1	6.1	6.1	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		12.0	12.0		12.0	12.0		16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)		9	9		56	56		8	8		10	10
Act Effct Green (s)	50.4	40.3	40.3	57.6	43.9	43.9	34.3	25.9	25.9	39.3	28.4	28.4
Actuated g/C Ratio	0.44	0.35	0.35	0.50	0.38	0.38	0.30	0.23	0.23	0.34	0.25	0.25
v/c Ratio	0.63	0.51	0.34	0.59	0.68	0.48	0.49	0.71	0.20	0.50	0.92	0.43
Control Delay	26.8	31.9	9.6	22.0	33.3	15.2	33.0	52.6	2.0	31.3	70.6	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	31.9	9.6	22.0	33.3	15.2	33.0	52.6	2.0	31.3	70.6	15.1
LOS	C	C	A	C	C	B	C	D	A	C	E	B
Approach Delay		26.3			27.8			38.9			47.8	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	19.6	54.2	7.2	28.8	85.5	19.0	14.7	57.8	0.0	22.9	86.9	10.4
Queue Length 95th (m)	32.0	72.7	24.8	44.6	108.0	43.5	26.8	#91.9	2.3	38.3	#144.1	31.2
Internal Link Dist (m)		422.8			216.7			602.2			553.9	
Turn Bay Length (m)	40.0		30.0	60.0		30.0	70.0		30.0	50.0		25.0
Base Capacity (vph)	280	1129	594	430	1266	548	211	388	431	311	426	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.51	0.34	0.55	0.68	0.48	0.47	0.71	0.20	0.48	0.92	0.43

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.1 — Intersection LOS: C
Intersection Capacity Utilization 83.1% — ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Alta Vista & Smyth



Appendix K

TDM Checklist

CGH TRANSPORTATION

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
		1.2 Travel surveys	
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances	☑
		2.2 Bicycle skills training	
		Commuter travel	
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	☐
		2.3 Valet bike parking	
		Visitor travel	
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances	☑
BASIC		3.1.2 Provide online links to OC Transpo and STO information	☑
BETTER		3.1.3 Provide real-time arrival information display at entrances	☐
		3.2 Transit fare incentives	
		Commuter travel	
BETTER		3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	☐
		Visitor travel	
BETTER		3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER		3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4 Private transit service	
		Commuter travel	
BETTER		3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER		3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4.	**RIDESHARING**	
		4.1	**Ridematching service**	
			Commuter travel	
BASIC	★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☐
		4.2	**Carpool parking price incentives**	
			Commuter travel	
BETTER		4.2.1	Provide discounts on parking costs for registered carpools	☐
		4.3	**Vanpool service**	
			Commuter travel	
BETTER		4.3.1	Provide a vanpooling service for long-distance commuters	☐
		5.	**CARSHARING & BIKESHARING**	
		5.1	**Bikeshare stations & memberships**	
BETTER		5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐
			Commuter travel	
BETTER		5.1.2	Provide employees with bikeshare memberships for local business travel	☐
		5.2	**Carshare vehicles & memberships**	
			Commuter travel	
BETTER		5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐
BETTER		5.2.2	Provide employees with carshare memberships for local business travel	☐
		6.	**PARKING**	
		6.1	**Priced parking**	
			Commuter travel	
BASIC	★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☐
BASIC		6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☐
			Visitor travel	
BETTER		6.1.3	Charge for short-term parking (hourly)	☐

TDM Measures Checklist
Version 1.0 (30 June 2017)
City of Ottawa

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7.	**TDM MARKETING & COMMUNICATIONS**	
		7.1	**Multimodal travel information**	
			Commuter travel	
BASIC	★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	☑
			Visitor travel	
BETTER	★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2	**Personalized trip planning**	
			Commuter travel	
BETTER	★	7.2.1	Offer personalized trip planning to new/relocating employees	☐
		7.3	**Promotions**	
			Commuter travel	
BETTER		7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8.	**OTHER INCENTIVES & AMENITIES**	
		8.1	**Emergency ride home**	
			Commuter travel	
BETTER	★	8.1.1	Provide emergency ride home service to non-driving commuters	☐
		8.2	**Alternative work arrangements**	
			Commuter travel	
BASIC	★	8.2.1	Encourage flexible work hours	☐
BETTER		8.2.2	Encourage compressed workweeks	☐
BETTER	★	8.2.3	Encourage telework	☐
		8.3	**Local business travel options**	
			Commuter travel	
BASIC	★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4	**Commuter incentives**	
			Commuter travel	
BETTER		8.4.1	Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5	**On-site amenities**	
			Commuter travel	
BETTER		8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
		1.2 Travel surveys	
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑
		2.2 Bicycle skills training	
BETTER		2.2.1 Offer on-site cycling courses for residents, or subsidize off-site courses	☐

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER		3.1.2 Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2 Transit fare incentives	
BASIC	★	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☑
BETTER		3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3 Enhanced public transit service	
BETTER	★	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4 Private transit service	
BETTER		3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☑
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER		4.1.1 Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2 Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER		4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	☐
BETTER		4.2.2 Provide residents with carshare memberships, either free or subsidized	☐
		5. PARKING	
		5.1 Priced parking	
BASIC	★	5.1.1 Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	★	5.1.2 Unbundle parking cost from monthly rent *(multi-family)*	☐

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☑

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☐
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐
	2.4	**Bicycle repair station**	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	6. PARKING		
	6.1 Number of parking spaces		
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2 Separate long-term & short-term parking areas		
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐
	7. OTHER		
	7.1 On-site amenities to minimize off-site trips		
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☑

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

	TDM-supportive design & infrastructure measures: *Residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	1. WALKING & CYCLING: ROUTES		
	1.1 Building location & access points		
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2 Facilities for walking & cycling		
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐