July 2018

ASHCROFT

Ashcroft Oakridge Gate

Transportation Impact Assessment Strategy Report

PARSONS

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Transportation Impact Assessment Strategy Report

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TIA Strategy Report

1. TIA SCREENING FORM

The screening form was prepared for the subject development and included as part of the subsequent report. The screening form confirmed the need for a Transportation Impact Assessment (TIA) based on the Trip Generation trigger, given that 117 units are proposed.

The screening form is provided in Appendix A.

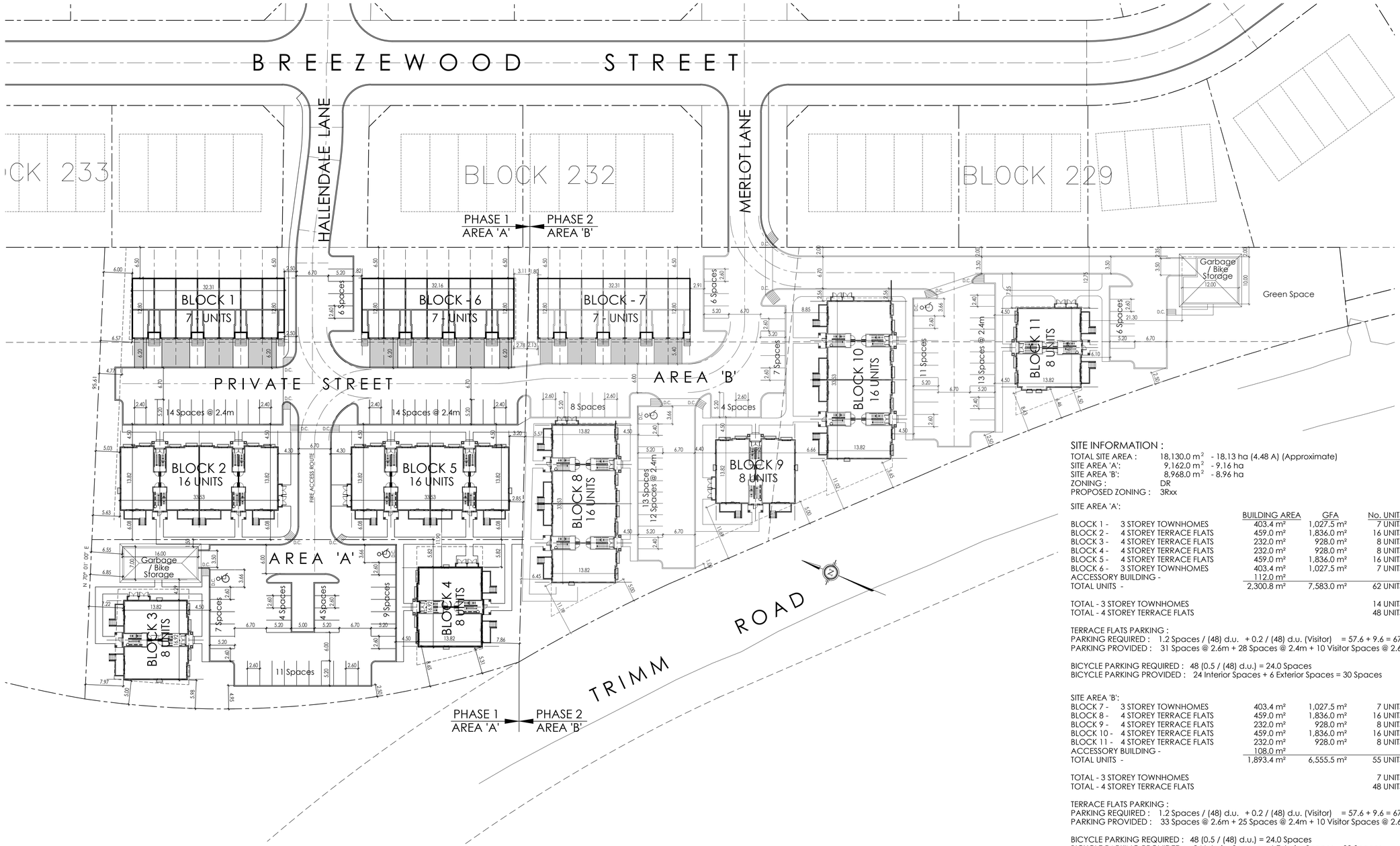
2. DESCRIPTION OF PROPOSED DEVELOPMENT

2.1. PROPOSED DEVELOPMENT

The proposed Oakridge Gate is a planned unit development located in east Orleans. The subdivision is in Ward 1 at 1869 Trim Road and is designated as DR (Development Reserve). Currently the site consists of a single-family home. The site's local context is illustrated in Figure 1.

Figure 1: Local Context

For descriptive purposes, Trim Road will be considered a north-south roadway and Valin Street east-west. The development will include 117 units, consisting of 21 row townhomes and 96 stacked townhomes. The subdivision will connect to Breezewood Street via Merlot Lane to the south and Hallendale Lane to the north. The site plan is illustrated in Figure 2. The estimated date of occupancy is 2020 for the entire site.



SITE INFORMATION :

TOTAL SITE AREA : 18,130.0 m² - 18.13 ha (4.48 A) (Approximate)
SITE AREA 'A': 9,162.0 m² - 9.16 ha
SITE AREA 'B': 8,968.0 m² - 8.96 ha
ZONING : DR
PROPOSED ZONING : 3Rxx

SITE AREA 'A':

		BUILDING AREA	GFA	No. UNITS
BLOCK 1 -	3 STOREY TOWNHOMES	403.4 m²	1,027.5 m²	7 UNITS
BLOCK 2 -	4 STOREY TERRACE FLATS	459.0 m²	1,836.0 m²	16 UNITS
BLOCK 3 -	4 STOREY TERRACE FLATS	232.0 m²	928.0 m²	8 UNITS
BLOCK 4 -	4 STOREY TERRACE FLATS	232.0 m²	928.0 m²	8 UNITS
BLOCK 5 -	4 STOREY TERRACE FLATS	459.0 m²	1,836.0 m²	16 UNITS
BLOCK 6 -	3 STOREY TOWNHOMES	403.4 m²	1,027.5 m²	7 UNITS
ACCESSORY BUILDING -		112.0 m²		
TOTAL UNITS -		2,300.8 m²	7,583.0 m²	62 UNITS

TOTAL - 3 STOREY TOWNHOMES 14 UNITS
TOTAL - 4 STOREY TERRACE FLATS 48 UNITS

TERRACE FLATS PARKING :
PARKING REQUIRED : 1.2 Spaces / (48) d.u. + 0.2 / (48) d.u. (Visitor) = 57.6 + 9.6 = 67.2 Spaces
PARKING PROVIDED : 31 Spaces @ 2.6m + 28 Spaces @ 2.4m + 10 Visitor Spaces @ 2.6m = 69 Spaces

BICYCLE PARKING REQUIRED : 48 (0.5 / (48) d.u.) = 24.0 Spaces
BICYCLE PARKING PROVIDED : 24 Interior Spaces + 6 Exterior Spaces = 30 Spaces

SITE AREA 'B':

BLOCK 7 -	3 STOREY TOWNHOMES	403.4 m²	1,027.5 m²	7 UNITS
BLOCK 8 -	4 STOREY TERRACE FLATS	459.0 m²	1,836.0 m²	16 UNITS
BLOCK 9 -	4 STOREY TERRACE FLATS	232.0 m²	928.0 m²	8 UNITS
BLOCK 10 -	4 STOREY TERRACE FLATS	459.0 m²	1,836.0 m²	16 UNITS
BLOCK 11 -	4 STOREY TERRACE FLATS	232.0 m²	928.0 m²	8 UNITS
ACCESSORY BUILDING -		108.0 m²		
TOTAL UNITS -		1,893.4 m²	6,555.5 m²	55 UNITS

TOTAL - 3 STOREY TOWNHOMES 7 UNITS
TOTAL - 4 STOREY TERRACE FLATS 48 UNITS

TERRACE FLATS PARKING :
PARKING REQUIRED : 1.2 Spaces / (48) d.u. + 0.2 / (48) d.u. (Visitor) = 57.6 + 9.6 = 67.2 Spaces
PARKING PROVIDED : 33 Spaces @ 2.6m + 25 Spaces @ 2.4m + 10 Visitor Spaces @ 2.6m = 68 Spaces

BICYCLE PARKING REQUIRED : 48 (0.5 / (48) d.u.) = 24.0 Spaces
BICYCLE PARKING PROVIDED : 24 Interior Spaces + 6 Exterior Spaces = 30 Spaces

NOTE:
SITE PLAN TO BE READ IN CONJUNCTION WITH :
- SITE SERVICING PLAN PREPARED BY _____.
- LANDSCAPING PLAN PREPARED BY _____.
BOUNDARIES DERIVED FROM: PLAN _M -____.
PLAN PREPARED BY _____.
DATED ___. __, 20__.
SITE BOUNDARIES TO BE CONFIRMED BY SURVEYOR.

M. David Blakely Architect Inc.
2200 Prince of Wales Dr. - Suite 101
Ottawa, Ontario K2E 6Z9
Phone (613) 226-8811 Fax (613) 226-7942

GENERAL NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS, ANY DISCREPANCY MUST BE REPORTED TO M. DAVID BLAKELY ARCHITECT INC.
2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS AND BY-LAWS.
3. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST THE PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED IN THE CONTRACT DOCUMENTS.
4. DO NOT SCALE DRAWINGS.
5. THIS DRAWING SHALL NOT BE USED FOR PERMIT OR CONSTRUCTION UNLESS THE DRAWING BEARS THE ARCHITECT'S SEAL AND SIGNATURE.
6. THIS REPRODUCTION SHALL NOT BE ALTERED.

CONSTRUCTION NORTH

No.	DATE	DESCRIPTION	INIT.
10.			
9.			
8.			
7.			
6.			
5.			
4.	14/12/17	BUILDING AREAS ADDED TO PLAN	SM
3.	13/10/17	REVISED MODEL TYPES	SM
2.	21/08/17	FOR REVIEW - PHASE TWO ADDED	SM
1.	12/07/17	FOR REVIEW	SM

REVISIONS

No.	DATE	DESCRIPTION	INIT.
20.			
19.			
18.			
17.			
16.			
15.			
14.			
13.			
12.			
11.			

REVISIONS

A - DETAIL NUMBER
B - SHEET NUMBER (DETAIL REQUIRED)
C - SHEET NUMBER (DETAIL LOCATION)

SEAL

PROJECT
PLANNED UNIT DEVELOPMENT
OAKRIDGE GATE
BREEZEWOOD STREET
OTTAWA, ONTARIO

DRAWING TITLE
PRELIMINARY SITE PLAN

CLIENT ASHCROFT HOMES

DATE JULY, 2017.
SCALE 1:400
DRAWN BY: SBM
CHECKED MDB
SHEET No. SP-1

\\Jon-pc\f\2017 PROJECTS\Ashcroft Homes\Oakridge\Site Plans\Oakridge Site Plan 171214-Rev04.dwg, 14/12/2017 10:07:12 AM

3. EXISTING CONDITIONS

3.1. AREA ROAD NETWORK

The following City owned roads are within the study area network:

Innes Road is an east-west arterial roadway, which extends west from Dunning Road to the Blackburn Hamlet Bypass. Within the study area the cross-section consists of two travel lanes and one bike lane in each direction. Sidewalks exist on the both sides of the roadway, with the south side transitioning to an asphalt pathway on the south side, east of Tim Road. The posted speed is 60km/h and the roadway is designated as a truck route.

Trim Road is a north-south arterial roadway, which extends north from Colonial Road to the Ottawa River. Within the study area, the road has a two-lane cross-section with a bike lane in each direction. A sidewalk is provided on the west side and an asphalt pathway on the east side. The posted speed is 60km/h and the roadway is designated as a truck route.

Valin Street is an east-west collector roadway that extends west from Innes Road to Charlemagne Boulevard. Within the study area, the road has a two-lane cross-section and parking is permitted on the east/north side. Sidewalks are provided on both sides of the road. The unposted speed limit is assumed to be 50km/h.

Breezewood Street is a north-south local roadway that extends south from Mondavi Street to Valin Street. Within the study area the road has a two-lane cross-section and no sidewalks are provided. The unposted speed limit is assumed to be 50km/h.

3.2. PEDESTRIAN/CYCLING NETWORK

The existing cycling network is comprised of one bike lane per direction on Trim Road and one bike lane per direction on Innes Road. There is also a bike path on the eastern side of Trim Road that is a designated scenic entry route. According to the City's Cycling Plan, Valin Street between Trail Side Circle and Charlemagne Boulevard is a suggested cycling route.

The existing pedestrian network consists of sidewalks provided on Valin Street, Trim Road and Innes Road. No sidewalks are present on Breezewood Street. Off-road facilities include connections to Glandriel Park on Valin Street, the recreational trail in the hydro corridor, and Cardinal Creek Community Park.

3.3. TRANSIT NETWORK

OC Transpo service is currently located along Valin Street and Innes Road. The Routes in the area are #22, #94 and #122. Figure 3 illustrates the current system map and stop locations located within 400m of the centroid of the site include:

- Valin/Breezewood (0443)
- Valin/Trim (0444)
- Valin/Trim (0476)
- Valin/Scully (2057)

According to information obtained from the City, Route 22 was planned to operate with primarily articulated buses and Route 122 was planned to operate with 40-foot buses. Table 1 summarizes passenger loading and unloading at the study area bus stops. OC Transpo ridership data is provided in Appendix B.

Figure 3: Area Transit Network and Bus Stops

Retrieved on Mar. 20, 2018, http://www.octranspo.com

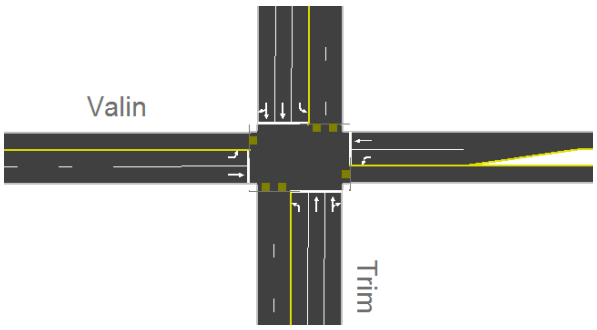
Table 1: Transit Passenger Loading and Unloading at Area of Study Transit Stops

Peak Period	Stop	Route	Total Ons	Total Offs	Average Load at Departure
AM Peak (6:00 to 9:00)	Valin / Breezewood (0443)	22	41	0	13
		122	4	0	3
	Valin / Trim (0444)	122	0	0	10
PM Peak (15:00 to 18:00)	Valin / Breezewood (0443)	122	1	0	10
	Valin / Trim (0444)	22	0	19	6
		122	0	4	3

3.4. EXISTING STUDY AREA INTERSECTIONS

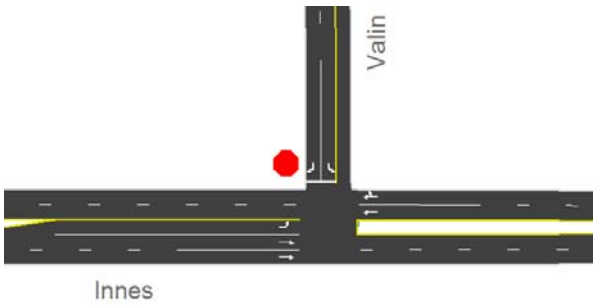
Trim Road / Valin Street

Trim Road / Valin Street is a four-legged signalized intersection. The northbound and southbound approaches consist of a bike lane, one shared through/right-turn lane, one through lane and one left turn lane. The eastbound and westbound approaches consist of one shared through/right-turn lane and one left turn lane.



Valin Street / Innes Road

Valin Street at Innes Road is a stop-controlled t-intersection on the minor leg. The southbound approach is a right-turn lane and a left-turn lane. The westbound approach consists of two lanes and a bike lane to the side of the curb and the eastbound approach consists of a bike lane to the side of the curb, two through lanes and one left-turn lane.



3.5. EXISTING INTERSECTION OPERATIONS

The existing peak hour traffic volumes are illustrated in Figure 4 and were collected from City of Ottawa turning movement counts and from counts performed by Parsons. The resulting peak hour and full traffic volume counts are included as Appendix C. The SYNCHRO model output of the existing conditions is provided within Appendix D.

Figure 4: Existing Peak Hour Traffic Volumes

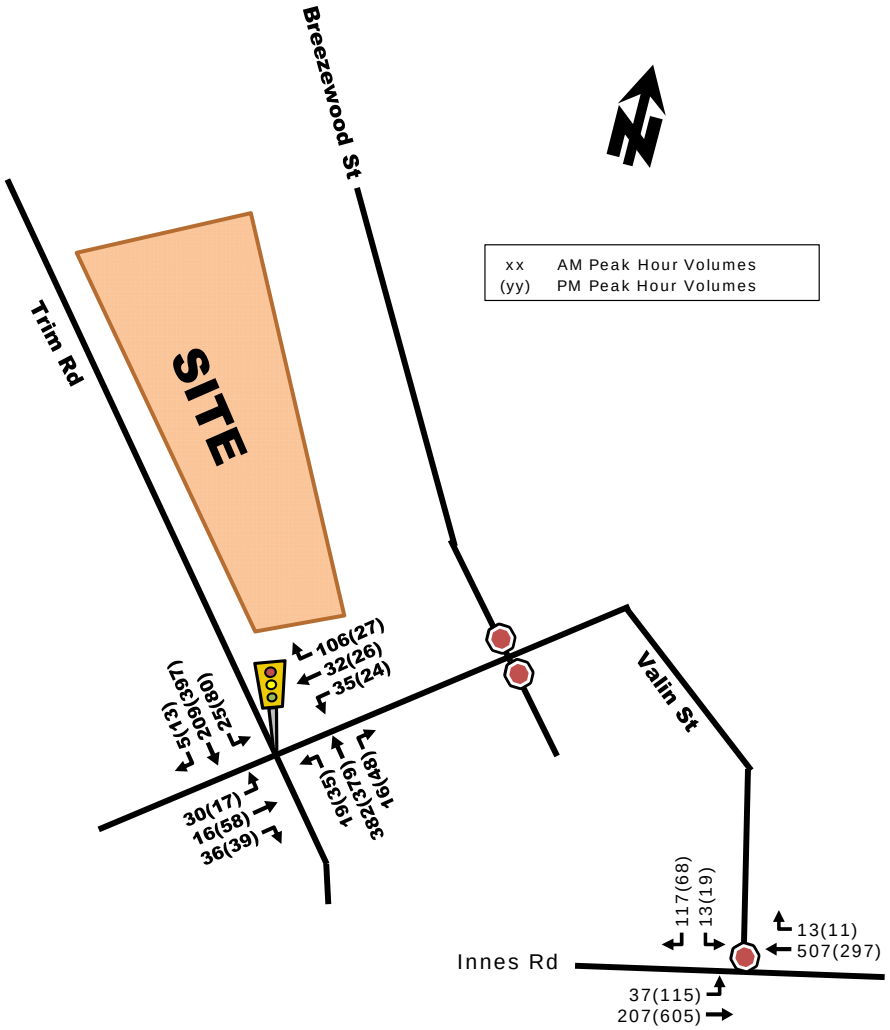


Table 2: Existing Intersection Operations

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c / delay (s)	Movement	Delay (s)	LoS	v/c
Trim Road / Valin Street (S)	A(A)	0.52(0.46)	WBT(EBT)	10.5(8.7)	A(A)	0.24(0.21)
Valin Street / Innes Road (U)	C(B)	15.9(11.9)	SB(SB)	2.0(1.8)	A(A)	-

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- (U) - Unsignalized Intersection
- (S) - Signalized Intersection

As shown in Table 2, the study area intersections 'as a whole' are currently operate at an excellent LoS 'A' during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are operating at an acceptable LoS 'C' or better during peak hours with regard to City of Ottawa operating standards.

3.6. EXISTING ROAD SAFETY CONDITIONS

Collision history for study area roads (2012 to 2016, inclusive) was obtained from the City of Ottawa. The majority (86%, or 37) of collisions involved property damage, and the remaining (14%) collisions involved non-fatal injuries indicating low impact speeds. Rear ends accounted for 26% (or 11) of collisions, Angle accounted for 23% (or 10) and Turning Movements accounted for 19% (or 8).

Over the five-year period, collisions observed at the following locations include:

- **Trim Road at Valin Street** - A total of 16 collisions were registered. The types of collisions cited by police included: rear end (38% or 6), turning movement (19% or 3), angle (19% or 3), single vehicle other (13% or 2), single vehicle unattended (6% or 1) or other (6% or 1). All rear end collisions happened during daytime on the north and southbound approaches. Distances to the nearest intersections (approximately 270 m and 500 m from the south and north, respectively) as well as the low traffic volumes might be encouraging high vehicle speeds.
- **Trim Road between Innes Rd and Valin St -** A total of 5 collisions were registered. The types of collisions cited by police included: angle (60% or 3), turning movement (20% or 1), single vehicle (other) (20% or 1) and sideswipe (10% or 1). All angle impacts happened during dark conditions, which suggests either poor lighting conditions or misjudgment from drivers at night.
- **Innes Road at Valin Street** - A total of 2 collisions were registered. The types of collisions cited by police included: one turning movement and one angle.
- **Valin Road, between Trim Road and Innes Road** -1 collision was registered. The type of collision cited by police was single vehicle (unattended).
- **Breezewood Street, between Merlot Way and Rustic Hills Crescent** - A total of 1 collision is recorded. The collision is classified by the police was Approaching type collision.
- **Breezewood Street, between Mondavi Street and Mondavi Street -** A total of 2 collisions are recorded. The collision types cited by police included: Single vehicle (unattended vehicle) (100% or 2)

A standard unit of measure for assessing collisions at an intersection is based on the number collisions per million entering vehicles (MEV). The reported collision rate for the study area intersections are as follows:

- Trim Road at Valin Street – 0.85 MEV
- Innes Road at Valin Street – 0.12 MEV

Based on the available data, there does not appear to be any prevailing safety issues within the study area. The source of the collision data is provided by the City of Ottawa and related analysis is provided within Appendix E.

4. PLANNED CONDITIONS

4.1. PLANNED STUDY AREA TRANSPORTATION NETWORK CHANGES

As outlined within the Official Plan, the TMP, the Cycling Plan, and the ward construction map the following projects are identified for Southeast Orleans:

- Frank Kenny Road will be extended north from Innes Road to Trim Road, making it a four-legged intersection (Schedule E of the Official Plan)
- Innes Road is identified to have isolated transit priority measures west of Trim Road (Map 5 of the TMP)

4.2. OTHER AREA DEVELOPMENTS

4.2.1. CARDINAL TRAIL-TRIM ROAD

Cardinal Trail is located at 1880 Trim Road (north-west corner of Trim Road and Valin Street), west of the subject site. It is a Planned Unit Development consisting of 28 townhouse dwelling units distributed with six buildings. Vehicular access to the site will be provided by means of a private street extending off from Valin Street. The units will be two storeys in height and given the unit count, no significant impacts are expected to the area of study transportation network.

4.2.2. 1980 TRIM ROAD

Claridge Homes is proposing to develop a six-storey retirement home and residential care facility at the intersection of Innes Road and Trim Road. The proposed development contains 146 units, with a mix of independent and assisted living units and 39 vehicular spaces of underground parking. The building will also include a small-scale retail amenity primarily intended for use by residents but will be accessible to the public. A total of three private approaches are proposed: two along the Trim Road frontage, and one along the Innes Road frontage. The proposed development is expected to generate approximately 30 to 40 two-way trips during the peak hour.

5. STUDY AREA

5.1. TRANSIT

As mentioned previously, transit is served within the area with bus stops for Route #22, #94 and #122 within a 400m walking distance from the site.

5.2. NETWORK CONCEPT

Screenline SL-47 is located along Innes Road and the nearest screenline for east-west travel is SL-45 over 2.0km to the west. Therefore, as these screenlines are not in the immediate vicinity of the proposed site, they do not provide any intrinsic value to the area capacity and the impact of the development is anticipated to be minimal. As such, no screenline analysis will be considered.

5.3. INTERSECTION DESIGN

The proposed site will access the adjacent road network through MMLOS analysis. Extensive facilities are provided, as identified in Section 3.2 and it is not anticipated any gaps existing in the network.

6. TIME PERIODS

Given the land use, the weekday morning and afternoon peak hours are considered the critical time periods for operational analysis for this residential development.

7. HORIZON YEARS

For the purposes of the operational analysis it is assumed that the subject development will be completed in subsequent years. As such, the following horizons are recommended for analysis:

- Existing
- Full Buildout – 2020

- +5 Year Horizon - 2025

8. EXEMPTIONS REVIEW

Based on the foregoing analysis and review of the existing conditions, it is recommended that the TIA exclude the following modules and elements summarized in Table 3.

Table 3: Exemptions Review Summary

Module	Element	Exemption Consideration
4.2 Parking	4.2.2 Spillover Parking-	The subject development is proposing to provide 117 parking spaces for residents, 20 visitor parking spaces and 60 bike parking spaces (48 interior, 12 exterior). The parking is noted to meet the City's residential parking requirements for the zone (116 resident parking spaces, 20 visitors and 48 bike parking spaces). As such, parking is not expected to spill out of the site.
4.5 Transportation Demand Management	All elements-	Residential development with less than 60 students/employees
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Development relies on local street for access. The peak hour traffic generated by the development will be approximately 70 vehicles. Although traffic on local road might reach close to 120 vehicles on the peak hour, a change in the function of the road is not expected. Therefore, NTM measures are not anticipated to be required.
4.8 Network Concept	-	The proposed development is not expected to generate more than 200 person-trips during peak hour in excess of the equivalent volume permitted by established zoning

In addition to the above recommendations of the Exemptions Review, the following exemptions are also proposed for both Step 3 – Forecasting and Step 4 – Analysis and are summarized in Table 4.

Table 4: Additional Recommended Exemptions Summary

Module	Element	Exemption Consideration
4.3 Boundary Street Design	All Elements	Trim Road is the only boundary street and it is currently a divided 4-lane arterial with a MUP on the east side. Limited scope/opportunity for improvements to this corridor.

9. DEVELOPMENT GENERATED TRAVEL DEMAND

9.1. TRIP GENERATION

9.1.1. RESIDENTIAL TRIP GENERATION RATES

The trip generation rates for the proposed development were obtained from the City's 2009 TRANS Trip Generation for the residential units. Table 5 summarizes the trip generation rates.

Table 5: Vehicle Trip Generation Rates

Land Use	Data Source	Trip Rates	
		AM Peak	PM Peak
Multi-Family Mid-Rise	TRANS	T = 0.54(x)	T = 0.71(x)

Notes: *T = Average Vehicle Trip Ends*
X = Residential units

The TRANS vehicle trip generation rates were generated and are summarized in Table 6.

Table 6: Projected Vehicle Trip Generation – TRANS Model

Land Use	Source	Units	AM Peak (veh/h)			PM Peak (veh/h)		
			In	Out	Total	In	Out	Total
Multi-Family Mid-Rise	TRANS	117 du	23	40	63	42	40	83
Total Vehicle Trips			**23**	**40**	**63**	**42**	**40**	**83**

As shown in Table 6, a total of 63 and 83 vehicles are projected to travel to/from the proposed development during the weekday morning and afternoon peak hours, respectively.

9.1.2. MODE SHARES

Using the TRANS Auto Trips projected in Table 6 and the modal share percentages from the 2011 NCR Household Origin – Destination Survey and Table 3.13 of the TRANS Trip Generation Study, the modal share for the proposed development are summarized in Table 7.

Table 7: Study Area Mode Share Percentages – TRANS

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Mode Share	PM Peak (persons/h)		
		In	Out	Total		In	Out	Total
Auto Driver	55%	23	40	63	61%	43	40	83
Auto Passenger	10%	5	7	12	11%	8	7	15
Transit	27%	11	20	31	22%	15	15	30
Non-motorized	8%	3	6	9	6%	4	4	8
Total People Trips	100%	42	73	115	100%	70	66	136
Total 'New' Auto Trips		**23**	**40**	**63**		**43**	**40**	**83**

As shown in Table 7, based on the TRANS Trip Generation method, the proposed site is projected to generate approximately 115 to 135 two-way person-trips per hour during the weekday morning and afternoon peak hours, respectively. The increase in two-way transit trips is estimated to be approximately 30 passengers per peak hour, and the increase in non-auto trips is approximately 9 persons per hour.

9.2. TRIP DISTRIBUTION

Traffic distribution was based on the 2011 NCR Household Origin – Destination Survey, existing volume splits at study area intersections and our knowledge of the surrounding area. The resultant distribution is outlined as follows:

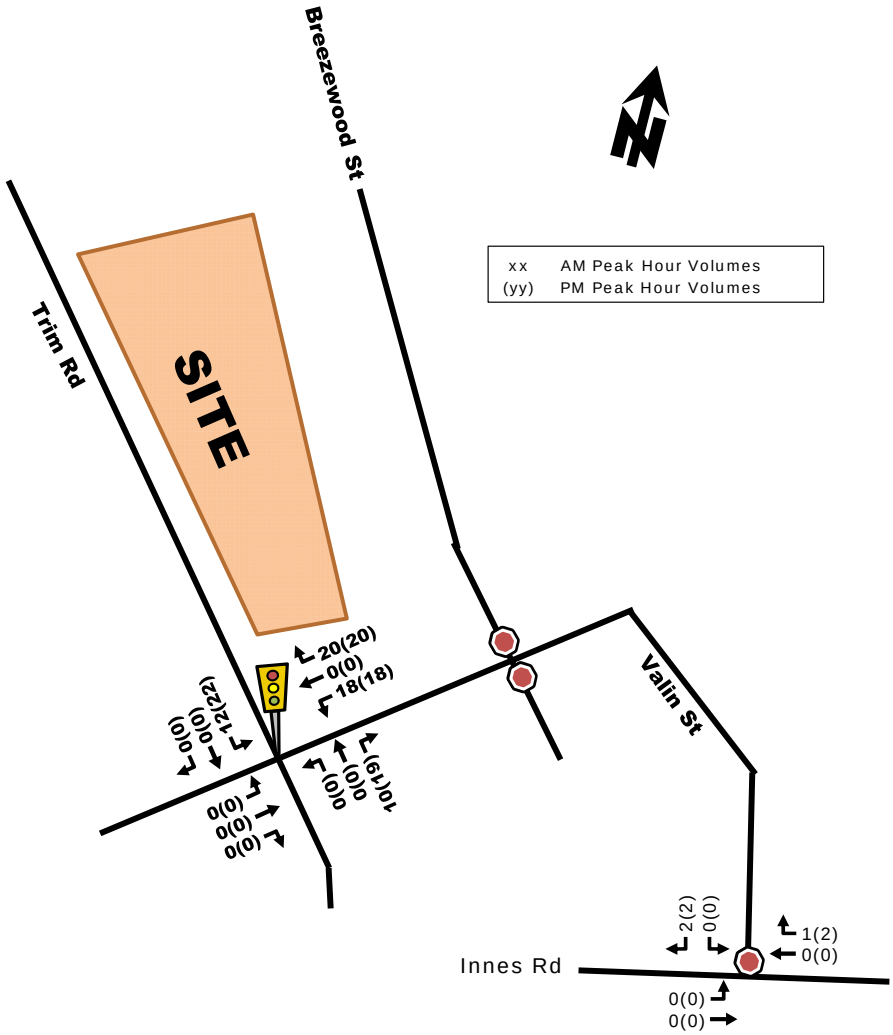
- 50% to/from the north
- 45% to/from the south; and
- 5% to/from the west

100%

9.3. TRIP ASSIGNMENT

New site generated trips were assigned to the study area intersections using the above distribution. Figure 5 shows the resulting volume assignment of the new site generated trip used in this analysis.

Figure 5: 'New' Total Site-Generated Traffic Volumes



10. BACKGROUND NETWORK TRAVEL DEMANDS

10.1. TRANSPORTATION NETWORK PLANS

The transportation network changes have been discussed within Section 4.1.

10.2. BACKGROUND GROWTH

The background traffic volumes along Trim Road and Innes Road have been assumed at a constant rate of 2% in the area, and 0% on Valin Street.

The resulting future background traffic for the horizon years 2020 and 2025 are illustrated in Figure 6 and Figure 7 respectively.

10.2.1. PROJECTED BACKGROUND 2020 OPERATIONS

The projected background 2020 traffic volumes were derived by superimposing the background growth rate on the existing traffic volumes. The resulting projected background 2020 traffic volumes are illustrated in Figure 6. Table 8 provides a summary of the projected background 2020 operations at the study area intersections. The SYNCHRO model output of projected background 2020 conditions is provided within Appendix F.

Figure 6: 2020 Background Traffic Volumes

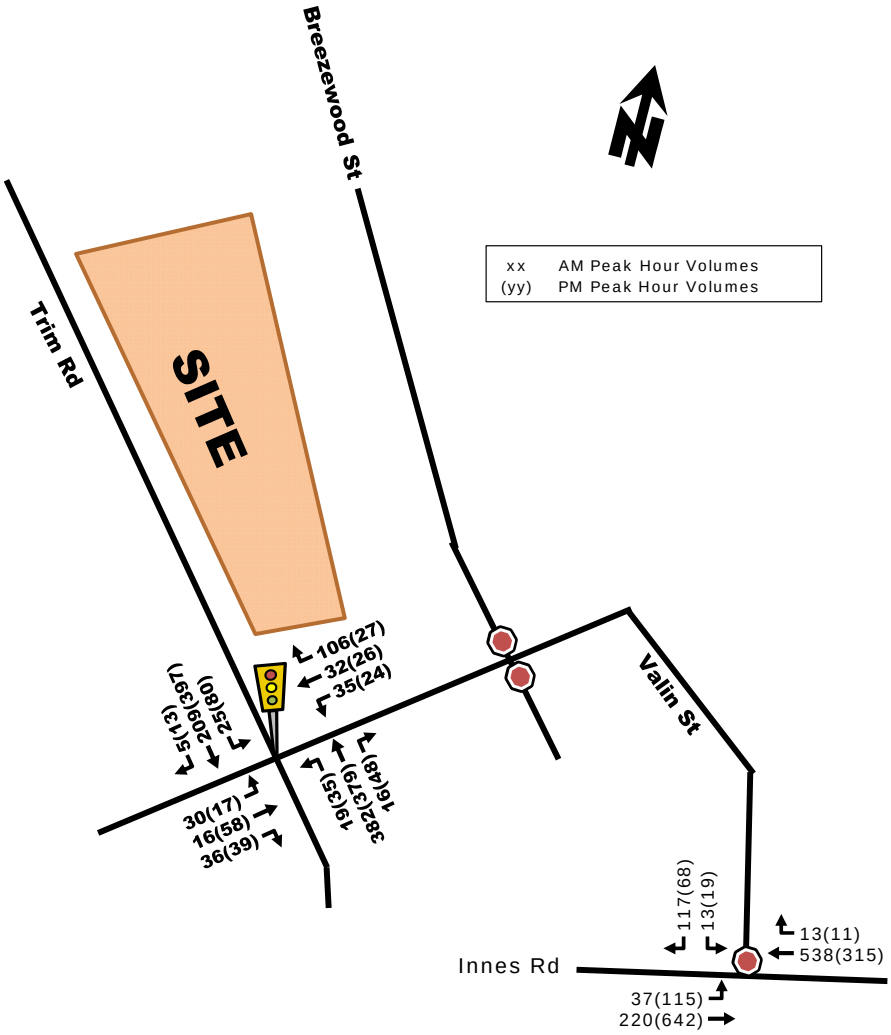


Table 8: Projected 2020 Background Intersection Operations

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c / delay (s)	Movement	Delay (s)	LoS	v/c
Trim Road / Valin Street (S)	A(A)	0.52(0.46)	WBT(EBT)	10.5(8.7)	A(A)	0.24(0.21)
Valin Street / Innes Road (U)	C(C)	16.6(21.1)	SBL(SBL)	2.0(1.7)	A(A)	-

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- (U) - Unsignalized Intersection
- (S) - Signalized Intersection

As shown in Table 8, the study area intersections 'as a whole' are currently operate at an LoS 'A' during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are operating at an acceptable LoS 'C' or better during peak hours with regard to City of Ottawa operating standards.

10.2.2. PROJECTED BACKGROUND 2025 OPERATIONS

The projected background 2025 traffic volumes were derived by superimposing the background growth rate on the existing traffic volumes. The resulting projected background 2025 traffic volumes are illustrated in Figure 7. Table 9 provides a summary of the projected background 2025 operations at the study area intersections. The SYNCHRO model output of projected background 2025 conditions is provided within Appendix F.

Figure 7: 2020 Background Traffic Volumes

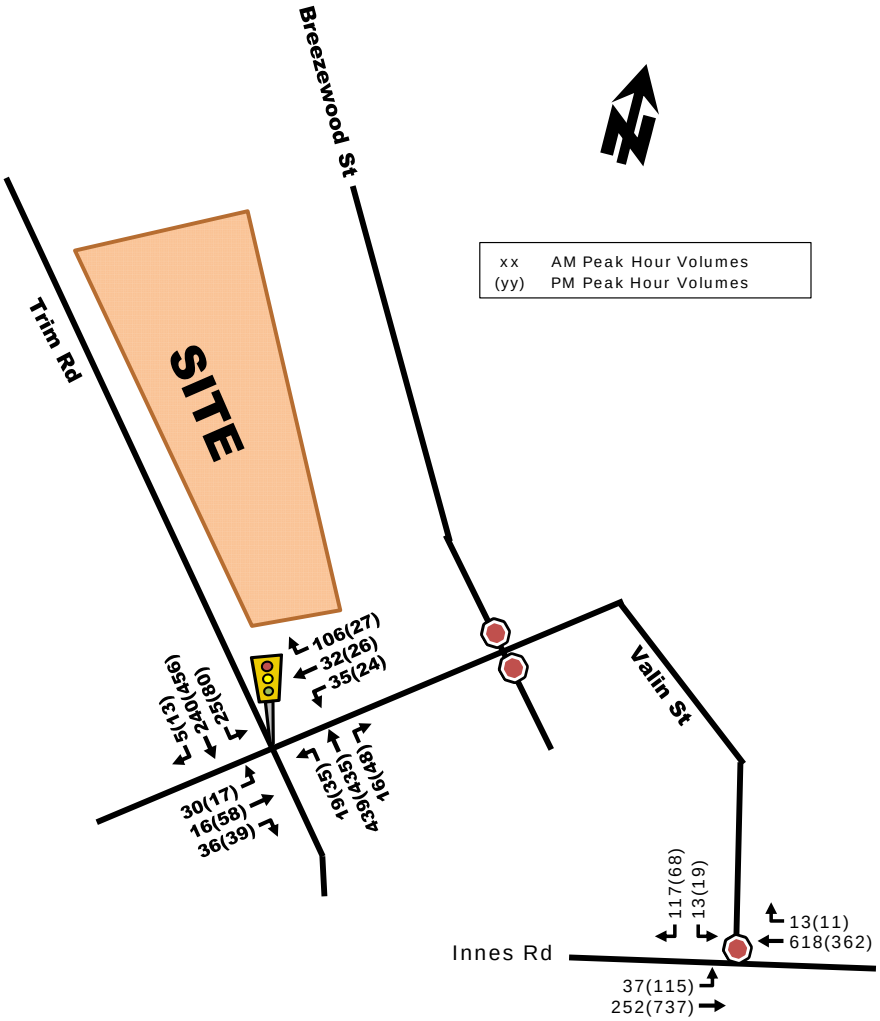


Table 9: Projected 2025 Background Intersection Operations

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c / delay (s)	Movement	Delay (s)	LoS	v/c
Trim Road / Valin Street (S)	A(A)	0.52(0.46)	WBT(EBT)	9.8(8.3)	A(A)	0.25(0.22)
Valin Street / Innes Road (U)	C(C)	18.6(24.0)	SBL(SBL)	1.9(1.6)	A(A)	-

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- (U) - Unsignalized Intersection
- (S) - Signalized Intersection

As shown in Table 9Table 8, the study area intersections 'as a whole' are currently operate at an LoS 'A' during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are operating at an acceptable LoS 'C' or better during peak hours with regard to City of Ottawa operating standards.

10.3. OTHER AREA DEVELOPMENTS

The City of Ottawa's Development Applications webtool has been used to determine if there are proposed developments within the area of influence of the proposed development. These developments have been discussed in greater detail in Section 4.2 and neither will have a significant impact on the study area intersections.

11. DEMAND RATIONALIZATION

The forecasted background volumes do not identify any lane constraints due to capacity and no changes to the trip generation or distribution analysis is required.

12. DEVELOPMENT DESIGN

12.1. DESIGN FOR SUSTAINABLE MODES

Within the proposed site, bicycle parking is provided at the north and south ends and walkway connections are provided form the pedestrian network within the site. Cycling will be permitted within the site plan streets as a mixed facility.

Transit stops are located beyond the boundary of the site on Valin Street.

12.2. CIRCULATION AND ACCESS

The proposed access to the site is located on the extensions of both Hallendale Street and Merlot Way to the site boundary. It is understood that these local roads will form minor stop-controlled intersections along Breezehill Street.

Within the site, 6.7m lanes are provided for access to the parking areas. It is noted that the southern garbage/bike storage building only provides a 3.5m lane (near Block 11) and this may restrict garbage truck access and will not be permitted as a fire route.

13. PARKING

13.1. PARKING SUPPLY

The proposed site provides a total of 137 parking spaces, which meets the City's By-Law requirements of a minimum of 1.2 spaces per unit and 0.2 visitor spaces per unit. The parking space dimensions are noted as 5.2m in length and 2.6m in width, as required by the City's minimum By-Law.

The bicycle parking space requirements are also met for 0.5 spaces per unit, for a total of 60 spaces on site (48 interior, 12 exterior).

13.2. SPILLOVER PARKING

No spill over parking is anticipated.

14. BOUNDARY STREET DESIGN

The MMLOS analysis for the Trim Road is summarized in Table 10. The detailed MMLoS analysis is provided as Appendix G.

Table 10: MMLOS – Boundary Roadways

Intersection	Level of Service							
	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TrLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TrLoS	Target
Trim Road	F	C	C	C	F	-	A	D

The MMLOS analysis shows that the existing Trim Road is currently below the developing community targets for pedestrian LoS and meets the targets for the remaining modes. The drivers of the PLoS 'F' are the travel speed of Trim Road (>60km/h) and the separation of the MUP from the curb edge. The proximity to the property line limits any improvement available through the shifting of the MUP away from the curb or a PLoS 'E' and the operating speed of Trim Road would need to be reduced to between 30 and 50 km/h to reach a PLoS 'C'.

Therefore, no changes are proposed for the east side of Trim Road along the frontage of the site.

15. ACCESS INTERSECTIONS DESIGN

15.1. LOCATION AND DESIGN OF ACCESS

The site access will be located on the extensions of Hallendale Street and Merlot Way. No access design is required from the local roads.

15.2. INTERSECTION CONTROL

The extensions of both Hallendale Street and Merlot Way to the west of Breezehill Street will form 4-leg intersections with stop-control on the minor approaches.

16. TRANSIT

The total "new" transit trips anticipated for the proposed site are 11 inbound trips and 20 outbound trips during the AM road peak, and 15 inbound trips and 15 outbound trips during the PM roadway peak. The existing transit routes have sufficient capacity to accommodate this increase in travel.

17. INTERSECTION DESIGN

17.1. INTERSECTION CONTROL

Currently, Trim Road is signalized at Valin Street and Valin Street is minor stop-controlled at Innes Road. Therefore, no modifications to the existing or planned study area intersections.

17.2. INTERSECTION DESIGN

17.2.1. PROJECTED TOTAL 2020 OPERATIONS

The projected total 2020 traffic volumes were derived by superimposing the background growth rate on the existing traffic volumes, and the projected site generated trips. The resulting projected total 2020 traffic volumes are illustrated in Figure 8. Table 11 provides a summary of the projected total 2020 operations at the study area intersections. The SYNCHRO model output of projected total 2020 conditions is provided within Appendix H.

Figure 8: Projected Total 2020 Traffic Volumes

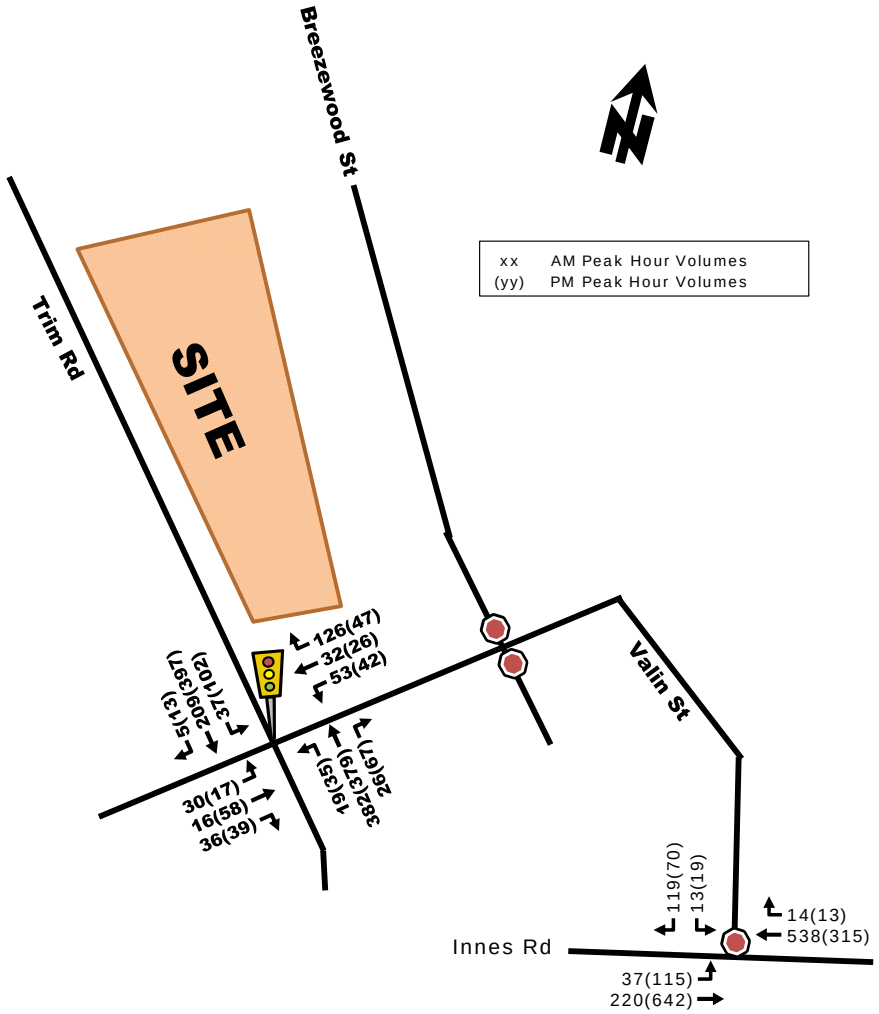


Table 11: Projected Total 2020 Performance at Study Area Intersection

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c / delay (s)	Movement	Delay (s)	LoS	v/c
Trim Road / Valin Street (S)	A(A)	0.56(0.46)	WBT(EBT)	11.7(9.4)	A(A)	0.27(0.22)
Valin Street / Innes Road (U)	C(C)	16.6(21.1)	SBL(SBL)	2.0(1.7)	A(A)	-

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- (U) - Unsignalized Intersection
- (S) - Signalized Intersection

As shown in Table 11, the study area intersections 'as a whole' are currently operate at an LoS 'A' during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are operating at an acceptable LoS 'C' or better during peak hours with regard to City of Ottawa operating standards.

Overall, these operations are similar to the background conditions forecast in Section 10.2.1. No interim improvements are recommended to support the development during the 2020 horizon.

17.2.2. PROJECTED TOTAL 2025 OPERATIONS

The projected total 2025 traffic volumes were derived by superimposing the background growth rate on the existing traffic volumes, and the projected site generated trips. The resulting projected total 2025 traffic volumes are illustrated in Figure 9. Table 12 provides a summary of the projected total 2025 operations at the study area intersections. The SYNCHRO model output of projected total 2025 conditions is provided within Appendix H.

Figure 9: Projected Total 2025 Traffic Volumes

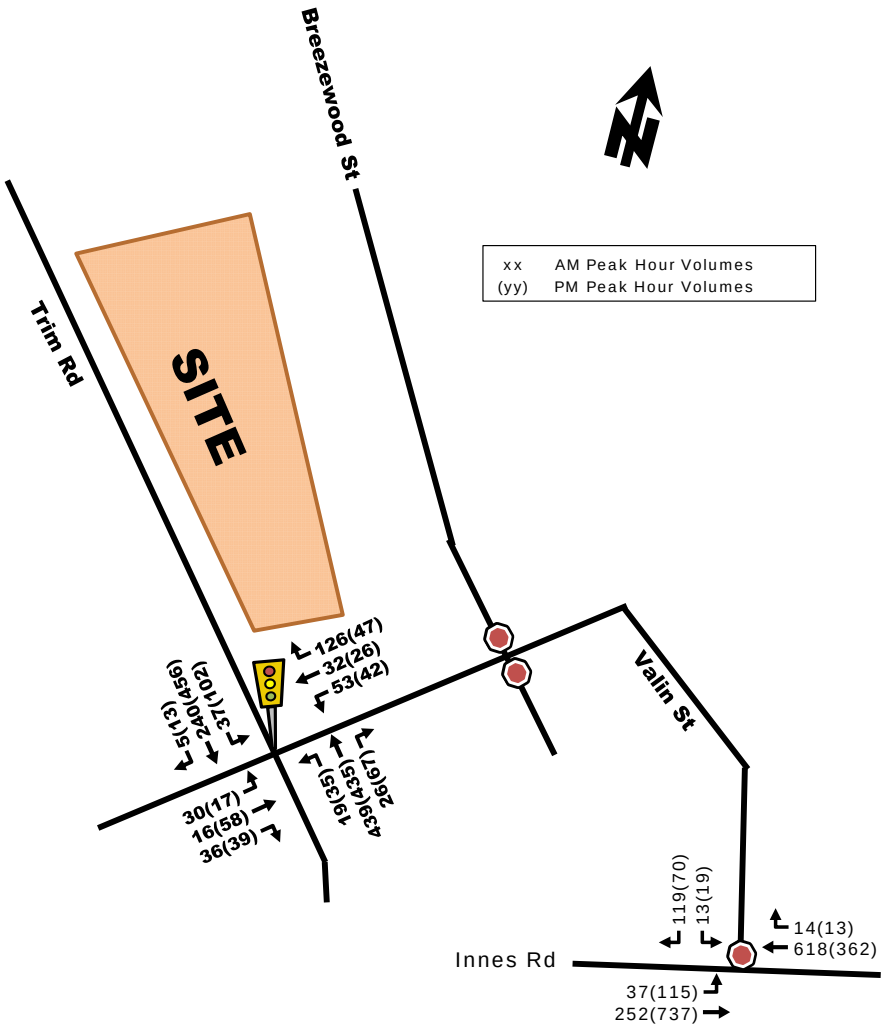


Table 12: Projected Total 2025 Performance at Study Area Intersection

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'as a whole'		
	LoS	max. v/c / delay (s)	Movement	Delay (s)	LoS	v/c
Trim Road / Valin Street (S)	A(A)	0.56(0.46)	WBT(EBT)	11.0(8.9)	A(A)	0.247(0.24)
Valin Street / Innes Road (U)	C(C)	18.6(24.0)	SBL(SBL)	1.9(1.6)	A(A)	-

Notes:
- Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
- (U) - Unsignalized Intersection
- (S) - Signalized Intersection

As shown in Table 12, the study area intersections 'as a whole' are currently operate at an LoS 'A' during the morning and afternoon peak hours. With regard to 'critical movements' at study area intersections, they are operating at an acceptable LoS 'C' or better during peak hours with regard to City of Ottawa operating standards.

Overall, these operations are similar to the background conditions forecast in Section 10.2.2. No interim improvements are recommended for the 2025 horizon.

17.2.3. MMLOS ANALYSIS

The MMLOS analysis for the study area is summarized in Table 13. The detailed MMLoS analysis is provided as Appendix F.

Table 13: MMLOS Analysis

Intersection	Level of Service							
	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TrLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TrLoS	Target
Intersections								
Trim Road / Valin Street	E	C	F	C	C	-	E	D
Segments								
Breezehill Street	C	C	B	B	F	-	B	D
Valin Street	B	C	D	B	F	-	B	-

The MMLOS analysis for the network intersections and roads will predominantly meet the targets for a developing community, with the exception of pedestrian, bicycle and truck LoS at the Trim Road and Valin Street intersection and the bicycle LoS along Valin Street.

At the intersection, the pedestrian delay limits the PLoS to a 'D' for the north and south side crossings which make the intersection unable to achieve the pedestrian targets. From the PETSI score perspective, a combination of all of protected left-turns, protected right-turns, no right-turns on red, a pedestrian leading interval, and a raised-crosswalk would be required to achieve the LoS 'C'. However, these features would severely impact the operation of the intersection, and in the case of the raised crosswalk, is not applicable for an arterial road intersection.

The bicycle LoS is governed by the crossing of 2 or more lanes on Trim Road to make the left-turn movement and the mixed traffic operations on Valin Street. A reduction of operating speeds on Trim Road to <40km/h would only achieve a BLoS 'D' and not meet the targets. On Valin Street, the operating speed would need to be reduced below 40km/h or the bikes removed from mixed traffic. Neither of these alternatives are feasible in the area and as such, there no improvements are recommended.

Truck LoS is limited by the northbound right-turn onto Valin Street as there is only a single receiving lane and the corner radius is between 10-15m. Valin Road will not be widened for truck movements and impacts to the corner radius would negatively impact the pedestrian LoS. Therefore, no mitigation is proposed for the TrLoS.

18. CONCLUSIONS

Based on the results summarized herein the following conclusions are offered:

Proposed Site

- The proposed development will include 117 units, consisting of 21 row townhomes and 96 stacked townhomes and the estimated date of occupancy is 2020 for the entire site.

- The subdivision will connect to Breezewood Street via Merlot Lane to the south and Hallendale Lane to the north.

Background Conditions

- Overall, the study area intersections are projected to operating at an acceptable LoS during the peak hours for both the 2020 and 2025 background horizons.

Projected Conditions

- Overall, the study area intersections are projected to operating at an acceptable LoS during the peak hours for both the 2020 and 2025 projected total horizons.
- These operations are similar to the background conditions and no mitigation is noted.

Site Plan

- Within the site, 6.7m lanes are provided for access to the parking areas.
- It is noted that the southern garbage/bike storage building only provides a 3.5m lane (near Block 11) and this may restrict garbage truck access and will not be permitted as a fire route.
- Pedestrian facilities are provided within the site plan and connect the parking areas, vehicle and bike, to the building accesses.
- The site plan meets the By-Law minimum parking requirements for both vehicle and bicycle parking spaces.

Boundary Streets

- Trim Road has been noted to have a low pedestrian level of service on the east side of the roadway, due to the operating speeds of vehicles and the separation of the MUP from the curb.
- Limited right-of-way, and infeasibility of lowering the posted and operating speeds along Trim Road limit any potential improvements.
- Therefore, no improvements are recommended for the City or required by the development.

Transit

- Existing transit routes (#22, #122) have sufficient capacity to accommodate projected transit trips from the subject site.

Study Area Intersections

- The MMLOS analysis identified pedestrian, bicycle and truck LoS deficiencies at the Trim Road and Valin Street intersection, and along Valin Street for bicycle LoS.
- Due to geometric constraints, signal timing, and overall operations, not mitigation or changes to the intersection or Valin Street are recommended.
- No changes to the Valin Street and Innes Road intersection are noted.

19. NEXT STEPS

After discussion and review of the Strategy Report with City Staff, any outstanding comments will be addressed, and the study team will proceed to Step 5 of the TIA Study Process, if required.

Based on the foregoing conclusions, the proposed development is recommended to proceed form a transportation perspective.

Prepared By:

Andrés Pena, E.I.T.
Transportation Analyst

Reviewed By:

Andrew Harte, P.Eng.
Senior Transportation Engineer

Appendix A – Screening Form

PARSONS

1223 Michael Street, Suite 100, Ottawa, Ontario, K1J 7T2
P: +1 613.738.4160 l F: +1 613.739.7105 l www.parsons.com

City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date

Project

Project Number

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	Yes
Development Satisfies the Location Trigger	No
Development Satisfies the Safety Trigger	No

Module 1.1 - Description of Proposed Development	
Municipal Address	1765 & 1869 Trim Road
Description of location	Existing single detached home with covered garage. Adjacent with access to Trim Road via private driveway. No access to Breezewood Street. K4A 3P6.
Land Use	Property parcel under Development Reserve Zone (DR)
Development Size	117 stacked and row townhouses
Number of Accesses and Locations	Existing access to Trim Road
Development Phasing	Two phases. Phase 1: 62 units. Phase 2: 55 units.
Buildout Year	2020
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	177	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	No
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	No
Location Trigger Met?	No

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No	
A proposed driveway is 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) or within auxiliary lanes of an intersection;	No	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No	
The development includes a drive-thru facility	No	
Safety Trigger Met?	No	

Appendix B – OC Transpo Ridership Data

From: Stefanoff, Genya
To: Pena-cabra, Andres
Cc: Harte, Andrew
Subject: RE: Transit Demand Volumes - Valin / Breezewood & Valin / Trim
Date: Tuesday, April 10, 2018 2:50:04 PM

Hello Andres,

My apologies for the delay in getting back to you. Please find below the requested ridership data. It is for the AM and PM peak periods (06:00-09:00 and 15:00-18:00, respectively) and taken from the September 2017 booking.

Peak Period	Stop	Route	Total Ons	Total Offs	Average Load at Departure
AM PEAK (6:00 to 9:00)	Valin / Breezewood (0443)	22	41	0	13
		122	4	0	3
	Valin / Trim (0444)	122	0	0	10
PM PEAK (15:00 to 18:00)	Valin / Breezewood (0443)	122	1	0	10
	Valin / Trim (0444)	22	0	19	6
		122	0	4	3

During the Sept. 2017 booking period:
- Route 22 was planned to operate with primarily articulated buses, and
- Route 122 was planned to operate with 40-foot buses.

If you have questions regarding the above information, please don't hesitate to contact me.

Best regards,
Genya

Genya Stefanoff, MCIP, RPP
Senior Transit Planner, Service Strategy

City of Ottawa | OC Transpo | Transportation Services Department
1500 St. Laurent Blvd., Ottawa, ON K1G 0Z8

tel: 613-580-2424 ext. 52294
genya.stefanoff@ottawa.ca

From: Pena-cabra, Andres <Andres.Pena-cabra@parsons.com>
Sent: Tuesday, March 20, 2018 2:24 PM
To: Stefanoff, Genya <genya.stefanoff@ottawa.ca>
Cc: Harte, Andrew <Andrew.Harte@parsons.com>
Subject: Transit Demand Volumes - Valin / Breezewood & Valin / Trim

Hello Genya,

I am preparing a Transportation Impact Assessment at the moment and was looking to get some transit demand information for the AM/PM weekday peaks (on and offs, frequencies, bus occupation and bus type). The peaks would be approximately 6-9am and 3-6pm, or as close as reasonably possible. The locations and stops are listed below:

Valin / Breezewood

- ID 0443
  - Route #22 Albert Bay
  - Route #122 Place d'Orleans

Valin / Trim

- ID 0444
  - Route #22 Millennium
  - Route #122 Millennium

I was wondering if you would be able to provide such information? Let me know if you have any questions.

Thanks in advance,

Andres Pena-Cabra
Associate Engineer
1223 Michael St, Suite 100, Gloucester, ON K1J7T2
andres.pena-cabra@parsons.com +1 613.738.4160

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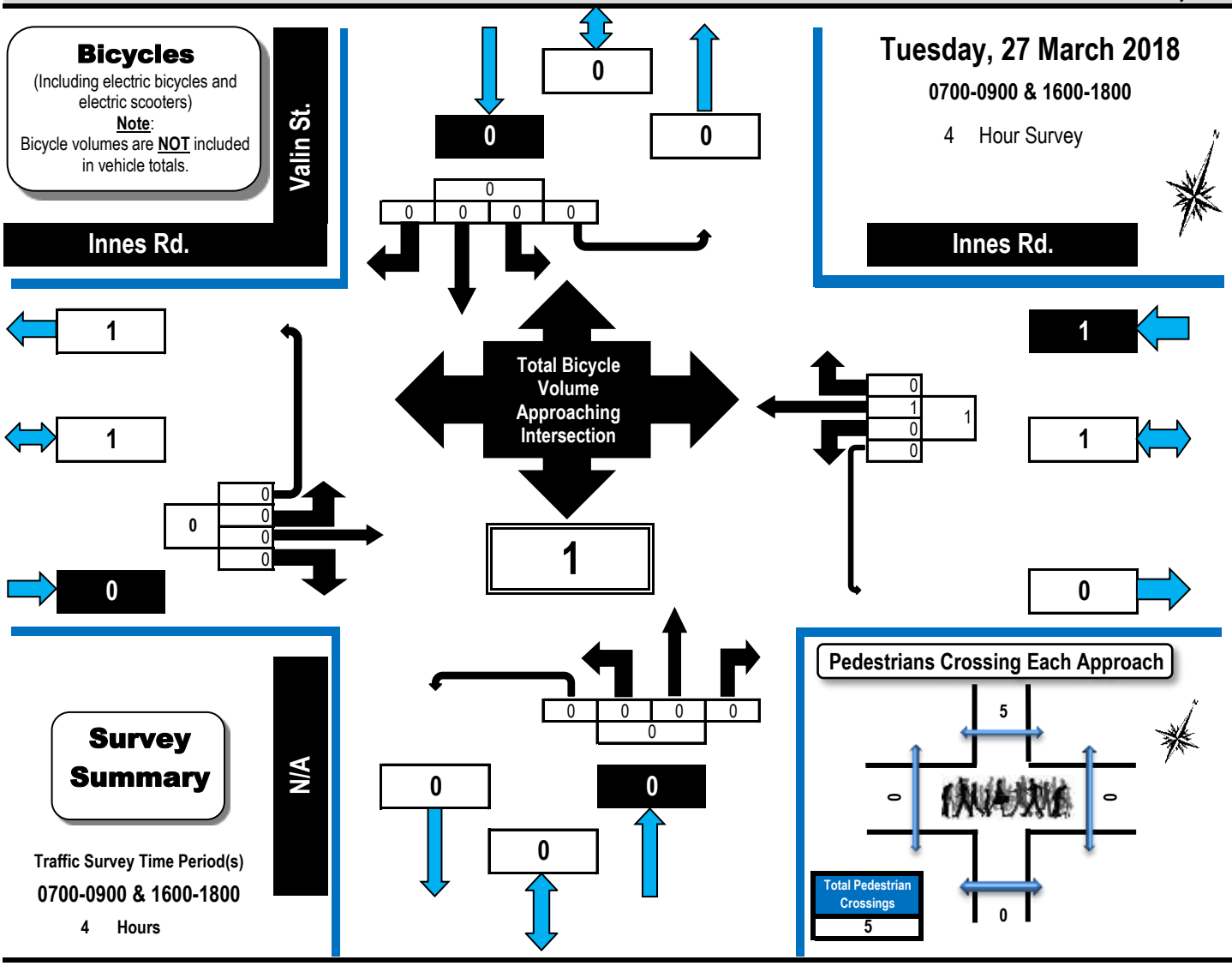
Appendix C – Traffic Data

Turning Movement Count
Bicycle Summary
Flow Diagram

Bicycles, Electric Bicycles, and Electric Scooters

Innes Road & Valin Street — Orléans, ON



Innes Road & Valin Street — Orléans, ON

Survey Date: Tuesday, 27 March 2018 **Start Time:** 0700
Weather: Overcast/Light Rain +6C **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800

	Innes Rd. Eastbound					Innes Rd. Westbound					N/A Northbound					Valin St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

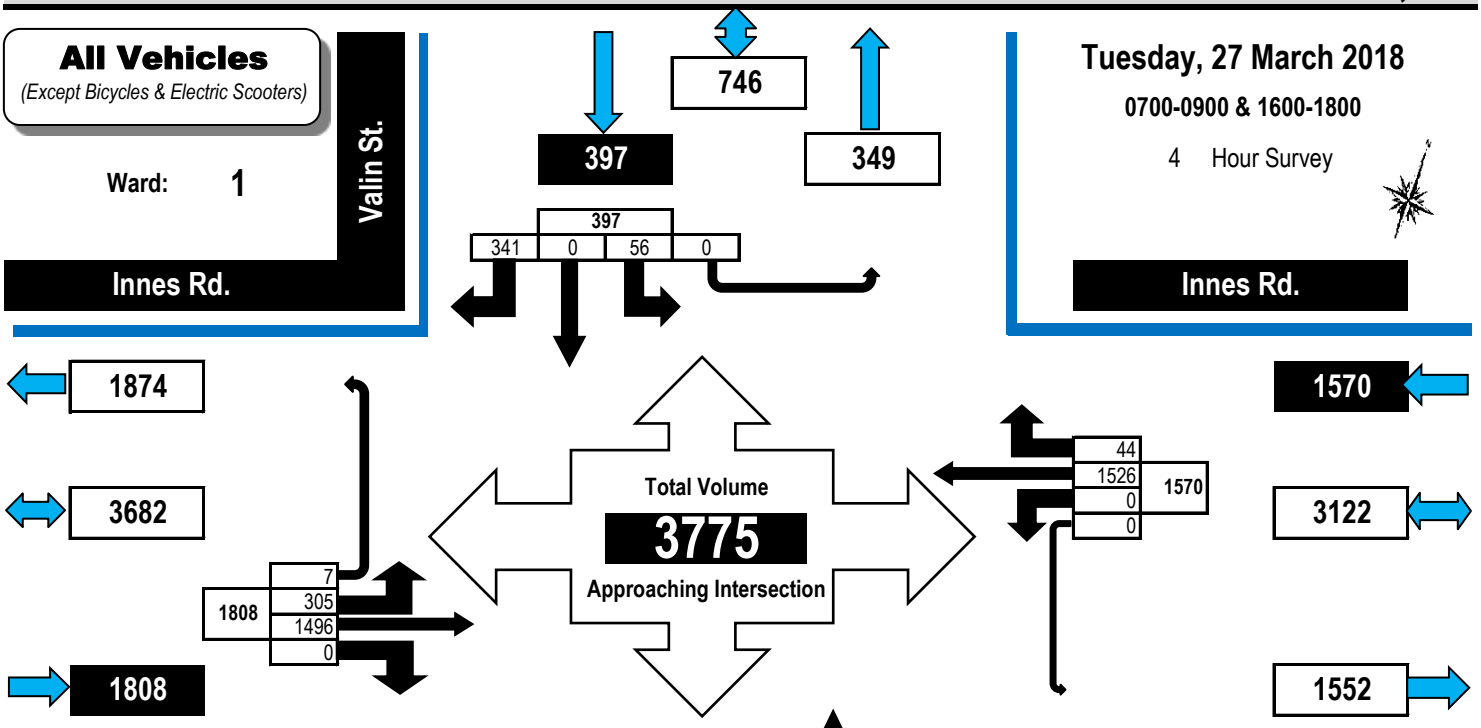
Innes Road & Valin Street — Orléans, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Ward: 1

Valin St.

Innes Rd.



Tuesday, 27 March 2018

0700-0900 & 1600-1800

4 Hour Survey

Innes Rd.

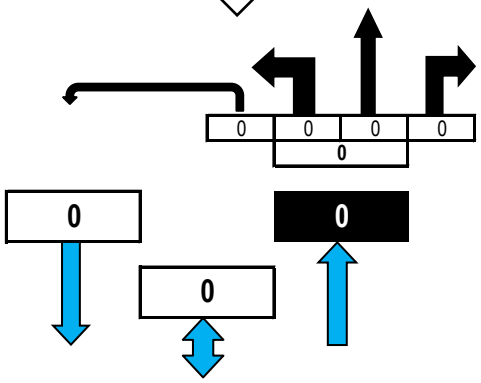
Survey Summary

Traffic Survey Time Period(s)

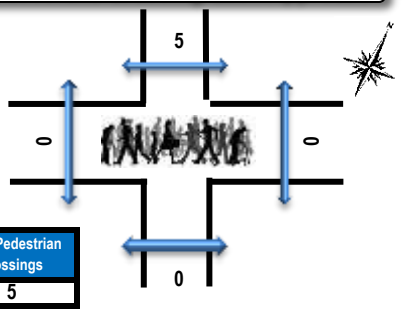
0700-0900 & 1600-1800

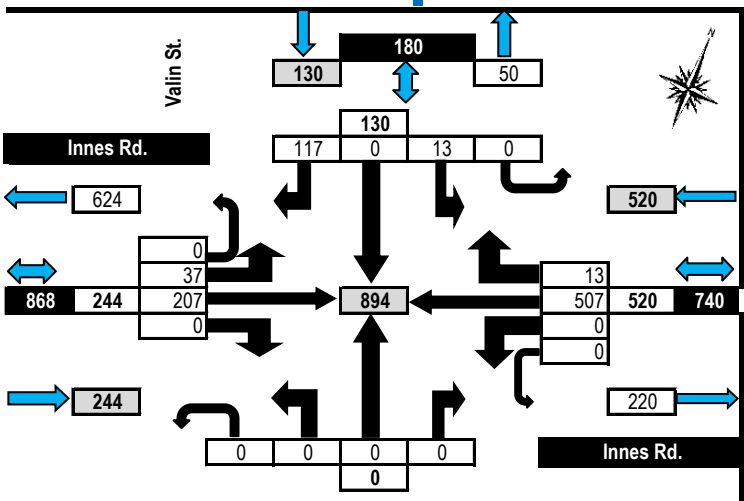
4 Hours

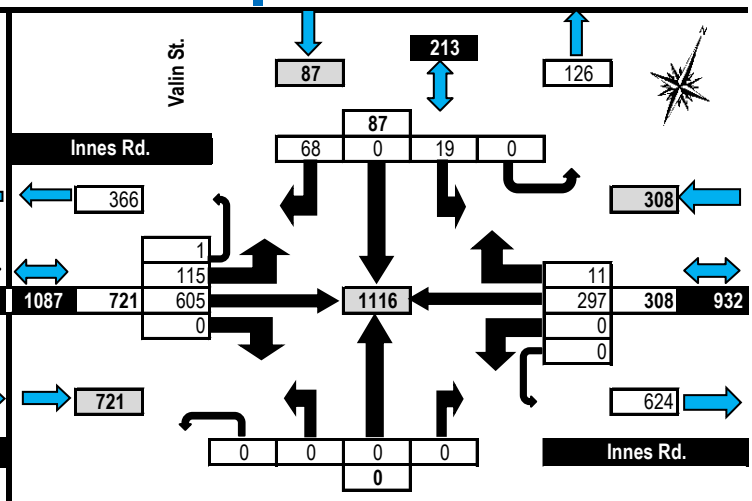
N/A



Pedestrians Crossing Each Approach







AM Peak Hour Summary

N/A

Summary - AM Peak Hr.	
Peak Hr.	0700-0800
Volume	894
% of Total	23.7%
PHF	0.94

PM Peak Hour Summary

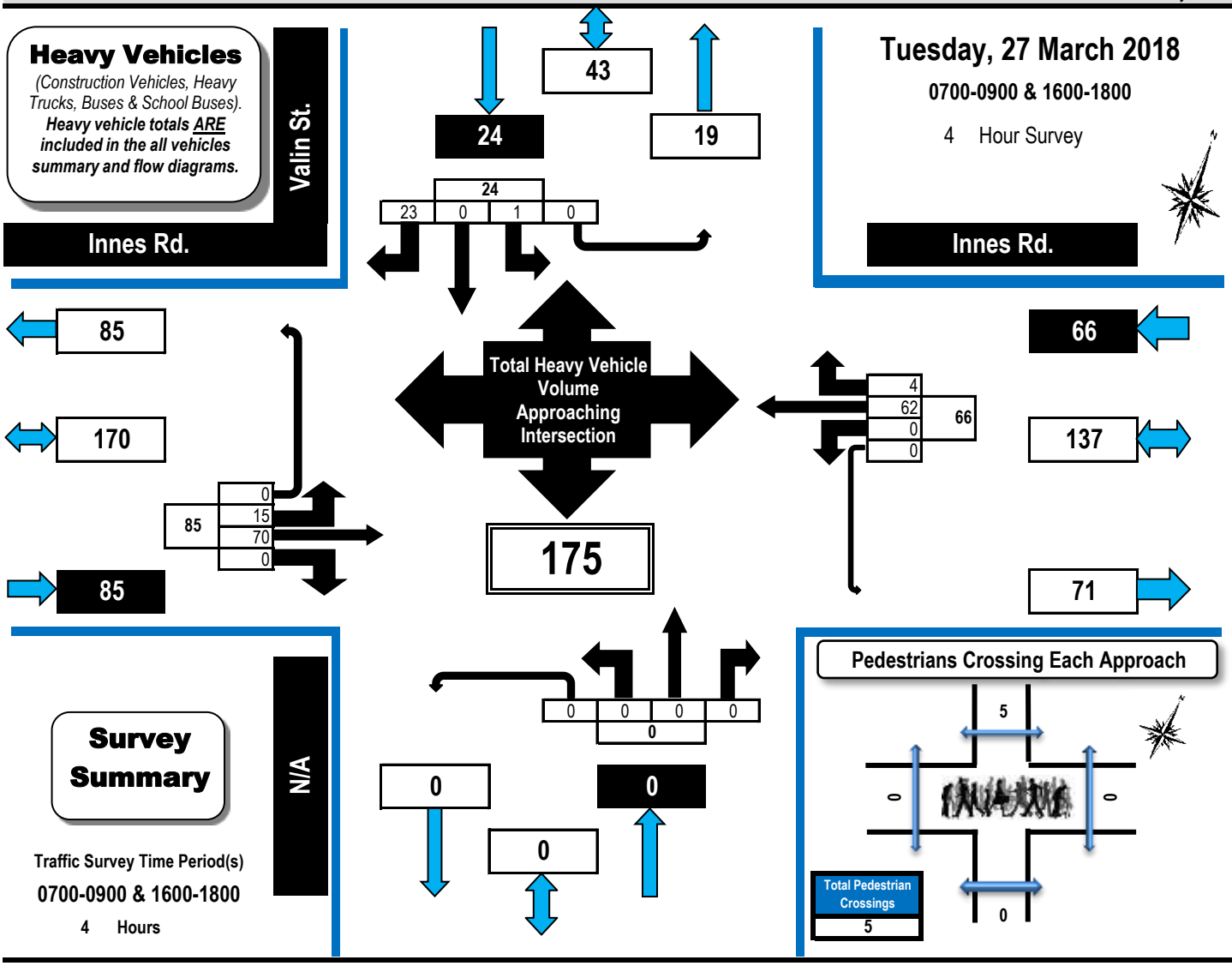
N/A

Summary - PM Peak Hr.	
Peak Hr.	1600-1700
Volume	1116
% of Total	29.6%
PHF	0.93

Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

Heavy Trucks, Buses, and School Buses

Innes Road & Valin Street — Orléans, ON



Innes Road & Valin Street — Orléans, ON

Survey Date: Tuesday, 27 March 2018 **Start Time:** 0700
Weather: Overcast/Light Rain +6C **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800

	Innes Rd. Eastbound					Innes Rd. Westbound					N/A Northbound					Valin St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0700-0800	6	15	0	0	21	0	36	4	0	40	0	0	0	0	0	0	0	4	0	4	65
0800-0900	4	22	0	0	26	0	22	0	0	22	0	0	0	0	0	0	0	5	0	5	53
1600-1700	2	33	0	0	35	0	3	0	0	3	0	0	0	0	0	1	0	7	0	8	46
1700-1800	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	7	0	7	11
Totals	15	70	0	0	85	0	62	4	0	66	0	0	0	0	0	1	0	23	0	24	175

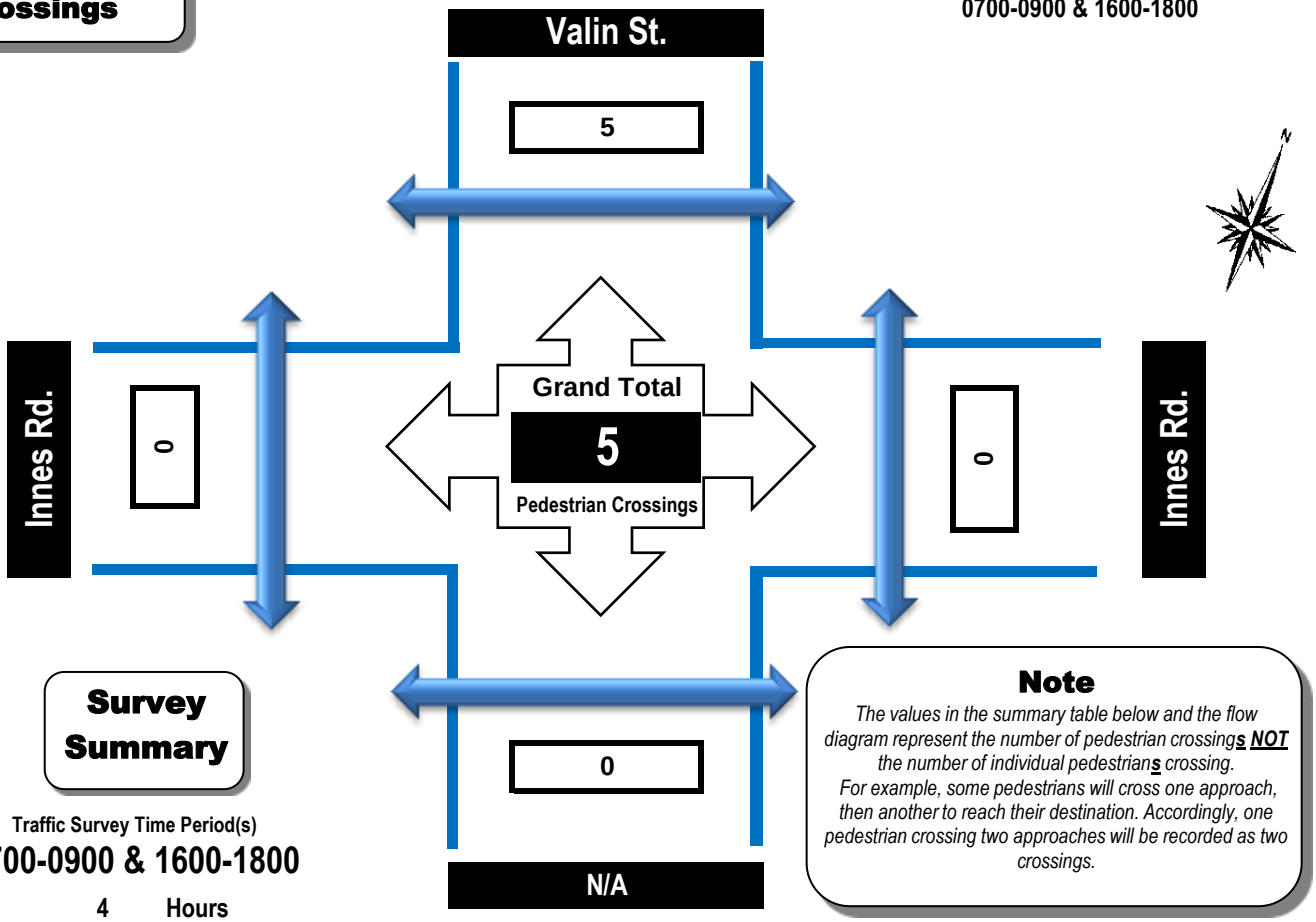
Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Innes Road & Valin Street — Orléans, ON

Pedestrian Crossings

Tuesday, 27 March 2018

0700-0900 & 1600-1800



Survey Summary

Traffic Survey Time Period(s)

0700-0900 & 1600-1800

4 Hours

Note

*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Innes Road & Valin Street — Orléans, ON

Survey Date: Tuesday, 27 March 2018 **Start Time:** 0700

Weather: Overcast/Light Rain +6C **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800

Time Period	West Side Crossing Innes Rd.	East Side Crossing Innes Rd.	Street Total	South Side Crossing N/A	North Side Crossing Valin St.	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	1	1	1
1600-1700	0	0	0	0	3	3	3
1700-1800	0	0	0	0	1	1	1
Totals	0	0	0	0	5	5	5

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count

Summary Report Including AM/PM Peak Hours, PHF, AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Innes Road & Valin Street — Orléans, ON

Survey Date: Tuesday, 27 March 2018 **Start Time:** 0700 **AADT Factor:** 1.0

Weather: Overcast/Light Rain +6C **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800

	Innes Rd. Eastbound					Innes Rd. Westbound						N/A Northbound					Valin St. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	37	207	0	0	**244**	0	507	13	0	**520**	**764**	0	0	0	0	**0**	13	0	117	0	**130**	**130**	**894**
0800-0900	35	209	0	0	**244**	0	443	8	0	**451**	**695**	0	0	0	0	**0**	12	0	91	0	**103**	**103**	**798**
1600-1700	115	605	0	1	**721**	0	297	11	0	**308**	**1029**	0	0	0	0	**0**	19	0	68	0	**87**	**87**	**1116**
1700-1800	118	475	0	6	**599**	0	279	12	0	**291**	**890**	0	0	0	0	**0**	12	0	65	0	**77**	**77**	**967**
Totals	**305**	**1496**	**0**	**7**	**1808**	**0**	**1526**	**44**	**0**	**1570**	**3378**	**0**	**0**	**0**	**0**	**0**	**56**	**0**	**341**	**0**	**397**	**397**	**3775**

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

➡ **Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts** ⬅

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0

AADT 12-hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

AM Peak Hour Factor ➡ 0.94														Highest Hourly Vehicle Volume between 0700h & 1000h									
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0700-0800	37	207	0	0	**244**	0	507	13	0	**520**	**764**	0	0	0	0	**0**	13	0	117	0	**130**	**130**	**894**
OFF Peak Hour Factor ➡ ###														Highest Hourly Vehicle Volume between 1130h & 1330h									
Off Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1230-1330	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**0**
PM Peak Hour Factor ➡ 0.93														Highest Hourly Vehicle Volume between 1500h & 1800h									
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	115	605	0	1	**721**	0	297	11	0	**308**	**1029**	0	0	0	0	**0**	19	0	68	0	**87**	**87**	**1116**

Comments

OC Transpo buses and school buses comprise the majority of the heavy vehicle traffic at this intersection.

Notes:

1. Includes all vehicle types except bicycles and electric scooters.
2. Expansion factors are not applied to turning movement counts if they are less than 8-hours in duration.
3. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Disclaimer:

Transportation Services - Traffic Services

W.O. 35262

Turning Movement Count - 15 Minute Summary Report

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		TRIM RD									VALIN ST									
		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	59	2	**61**	3	21	2	**26**	**87**	10	3	8	**21**	4	1	35	**40**	**61**	**148**
07:15	07:30	8	75	4	**87**	6	45	2	**53**	**140**	5	3	8	**16**	13	5	27	**45**	**61**	**201**
07:30	07:45	5	113	5	**123**	4	44	1	**49**	**172**	6	3	9	**18**	13	10	23	**46**	**64**	**236**
07:45	08:00	4	80	6	**90**	7	44	0	**51**	**141**	9	2	6	**17**	9	11	28	**48**	**65**	**206**
08:00	08:15	4	89	0	**93**	7	52	3	**62**	**155**	8	10	9	**27**	5	7	26	**38**	**65**	**220**
08:15	08:30	6	78	5	**89**	7	57	1	**65**	**154**	7	1	12	**20**	8	4	29	**41**	**61**	**215**
08:30	08:45	1	63	3	**67**	9	52	2	**63**	**130**	5	6	5	**16**	10	8	16	**34**	**50**	**180**
08:45	09:00	8	65	6	**79**	11	57	7	**75**	**154**	3	4	10	**17**	6	6	14	**26**	**43**	**197**
09:00	09:15	4	71	4	**79**	6	58	1	**65**	**144**	6	5	5	**16**	8	2	11	**21**	**37**	**181**
09:15	09:30	6	55	6	**67**	5	46	0	**51**	**118**	4	5	6	**15**	10	3	12	**25**	**40**	**158**
09:30	09:45	9	61	4	**74**	11	52	5	**68**	**142**	2	2	10	**14**	5	3	11	**19**	**33**	**175**
09:45	10:00	5	64	6	**75**	9	50	5	**64**	**139**	6	4	9	**19**	3	4	10	**17**	**36**	**175**
11:30	11:45	6	58	3	**67**	5	59	0	**64**	**131**	3	1	0	**4**	5	1	2	**8**	**12**	**143**
11:45	12:00	1	68	2	**71**	0	58	0	**58**	**129**	2	1	1	**4**	1	1	0	**2**	**6**	**135**
12:00	12:15	2	64	4	**70**	3	53	1	**57**	**127**	2	0	1	**3**	5	2	2	**9**	**12**	**139**
12:15	12:30	4	54	3	**61**	4	47	1	**52**	**113**	1	4	1	**6**	1	2	0	**3**	**9**	**122**
12:30	12:45	1	74	2	**77**	0	53	0	**53**	**130**	0	0	2	**2**	1	4	3	**8**	**10**	**140**
12:45	13:00	7	52	3	**62**	12	43	3	**58**	**120**	5	0	1	**6**	0	5	6	**11**	**17**	**137**
13:00	13:15	2	61	5	**68**	3	57	2	**62**	**130**	5	1	5	**11**	3	2	6	**11**	**22**	**152**
13:15	13:30	2	66	1	**69**	3	60	1	**64**	**133**	1	2	3	**6**	0	1	2	**3**	**9**	**142**
15:00	15:15	8	36	3	**47**	12	79	3	**94**	**141**	5	5	9	**19**	1	3	5	**9**	**28**	**169**
15:15	15:30	17	63	6	**86**	24	84	2	**110**	**196**	0	6	8	**14**	4	6	7	**17**	**31**	**227**
15:30	15:45	10	64	9	**83**	21	86	8	**115**	**198**	5	8	5	**18**	2	5	12	**19**	**37**	**235**
15:45	16:00	13	80	15	**108**	17	84	4	**105**	**213**	7	13	8	**28**	6	9	9	**24**	**52**	**265**
16:00	16:15	12	114	9	**135**	25	130	5	**160**	**295**	1	12	11	**24**	5	6	8	**19**	**43**	**338**
16:15	16:30	7	88	12	**107**	21	89	2	**112**	**219**	4	13	9	**26**	6	4	5	**15**	**41**	**260**
16:30	16:45	3	75	12	**90**	17	71	2	**90**	**180**	5	20	11	**36**	7	7	5	**19**	**55**	**235**
16:45	17:00	8	81	8	**97**	19	85	2	**106**	**203**	3	12	7	**22**	6	7	8	**21**	**43**	**246**
17:00	17:15	6	90	13	**109**	20	80	4	**104**	**213**	2	14	8	**24**	3	7	3	**13**	**37**	**250**
17:15	17:30	7	74	7	**88**	24	69	2	**95**	**183**	3	11	2	**16**	8	9	6	**23**	**39**	**222**
17:30	17:45	5	73	11	**89**	21	72	3	**96**	**185**	2	10	1	**13**	7	10	5	**22**	**35**	**220**
17:45	18:00	6	71	9	**86**	18	65	5	**88**	**174**	3	13	4	**20**	4	6	4	**14**	**34**	**208**
TOTAL:		187	2279	188	**2654**	354	2002	79	**2435**	**5089**	130	194	194	**518**	169	161	340	**670**	**1188**	**6277**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
35262

TRIM RD @ VALIN ST

Count Date: Wednesday, August 19, 2015 **Start Time:** 07:00

	TRIM RD			VALIN ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	3	1	**4**	**4**
08:00 09:00	1	3	**4**	0	0	**0**	**4**
09:00 10:00	1	0	**1**	0	0	**0**	**1**
11:30 12:30	2	1	**3**	1	0	**1**	**4**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	0	**0**	2	0	**2**	**2**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	4	4	**8**	6	1	**7**	**15**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

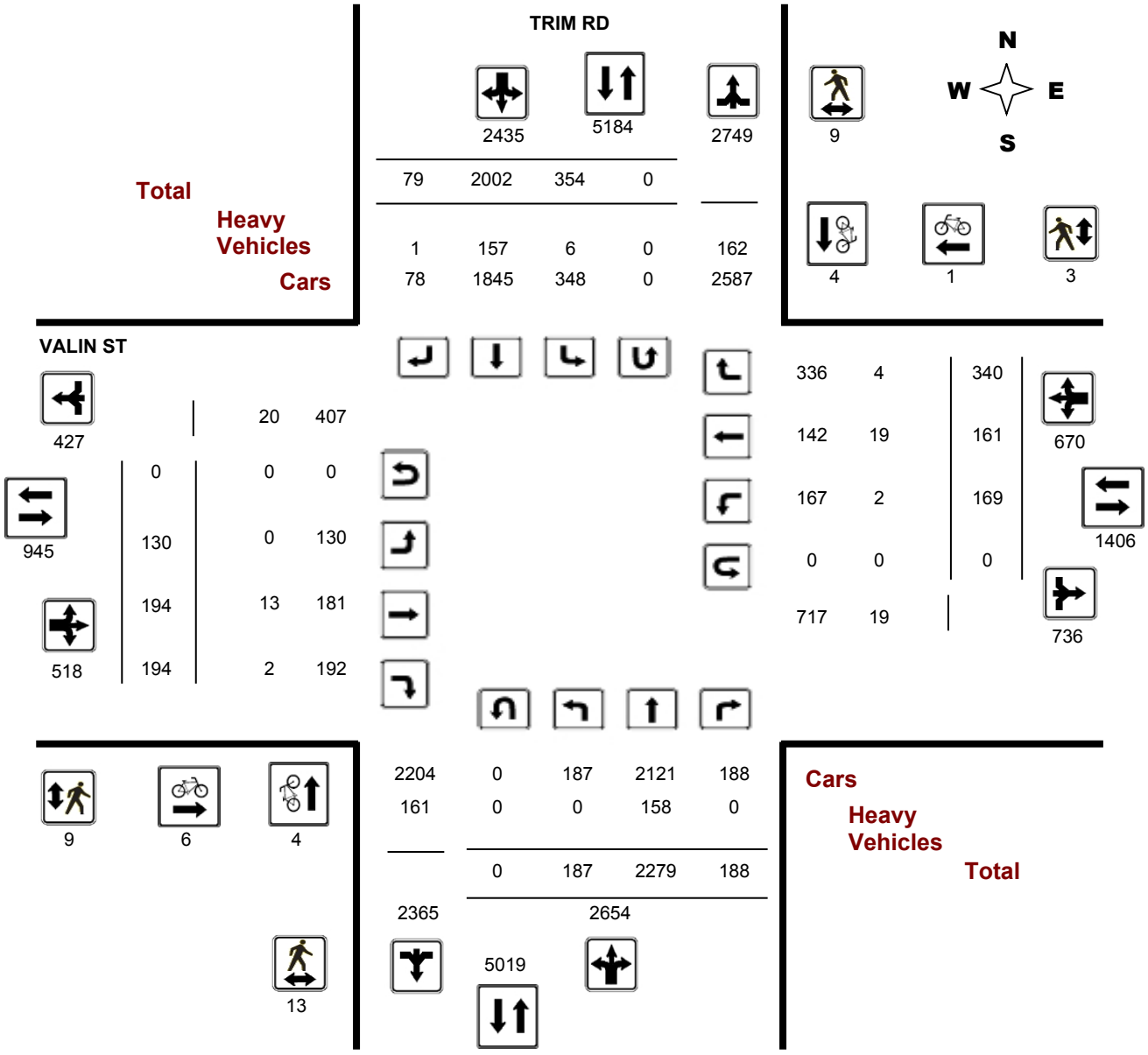
Turning Movement Count - Full Study Diagram

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015

WO#: 35262

Device: Jamar Technologies, Inc



Comments

Transportation Services - Traffic Services

W.O. 35262

Turning Movement Count - Heavy Vehicle Report

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015

Time Period		TRIM RD Northbound LT	ST	RT	N TOT	TRIM RD Southbound LT	ST	RT	S TOT	STR TOT	VALIN ST Eastbound LT	ST	RT	E TOT	VALIN ST Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	0	26	0	**26**	1	31	0	**32**	**58**	0	3	0	**3**	0	6	2	**8**	**11**	**69**
08:00	09:00	0	41	0	**41**	0	31	0	**31**	**72**	0	2	1	**3**	1	2	1	**4**	**7**	**79**
09:00	10:00	0	22	0	**22**	0	26	0	**26**	**48**	0	1	0	**1**	0	0	1	**1**	**2**	**50**
11:30	12:30	0	7	0	**7**	0	11	0	**11**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**18**
12:30	13:30	0	16	0	**16**	0	12	0	**12**	**28**	0	0	0	**0**	0	2	0	**2**	**2**	**30**
15:00	16:00	0	19	0	**19**	1	20	1	**22**	**41**	0	1	0	**1**	1	2	0	**3**	**4**	**45**
16:00	17:00	0	18	0	**18**	2	17	0	**19**	**37**	0	4	0	**4**	0	2	0	**2**	**6**	**43**
17:00	18:00	0	9	0	**9**	2	9	0	**11**	**20**	0	2	1	**3**	0	5	0	**5**	**8**	**28**
Sub Total		0	158	0	**158**	6	157	1	**164**	**322**	0	13	2	**15**	2	19	4	**25**	**40**	**362**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	158	0	**0**	6	157	1	**164**	**322**	0	13	2	**15**	2	19	4	**25**	**40**	**362**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
35262

Turning Movement Count - Pedestrian Volume Report

TRIM RD @ VALIN ST

Count Date: Wednesday, August 19, 2015 **Start Time:** 07:00

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	1	0	1	2
07:15 07:30	0	0	0	0	0	0	0
07:30 07:45	1	0	1	0	0	0	1
07:45 08:00	0	0	0	0	0	0	0
07:00 08:00	1	1	2	1	0	1	3
08:00 08:15	2	0	2	0	0	0	2
08:15 08:30	2	2	4	0	0	0	4
08:30 08:45	0	2	2	0	0	0	2
08:45 09:00	0	1	1	0	0	0	1
08:00 09:00	4	5	9	0	0	0	9
09:00 09:15	0	0	0	0	0	0	0
09:15 09:30	3	1	4	0	0	0	4
09:30 09:45	0	1	1	1	0	1	2
09:45 10:00	0	0	0	0	0	0	0
09:00 10:00	3	2	5	1	0	1	6
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	2	2	2
12:15 12:30	0	0	0	0	0	0	0
11:30 12:30	1	0	1	0	2	2	3
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
12:30 13:30	0	0	0	0	0	0	0
15:00 15:15	0	0	0	0	0	0	0
15:15 15:30	2	0	2	0	0	0	2
15:30 15:45	0	0	0	0	1	1	1
15:45 16:00	0	0	0	0	0	0	0
15:00 16:00	2	0	2	0	1	1	3
16:00 16:15	0	1	1	0	0	0	1
16:15 16:30	0	0	0	0	0	0	0
16:30 16:45	0	0	0	2	0	2	2
16:45 17:00	1	0	1	1	0	1	2
16:00 17:00	1	1	2	3	0	3	5
17:00 17:15	1	0	1	0	0	0	1
17:15 17:30	0	0	0	2	0	2	2
17:30 17:45	0	0	0	1	0	1	1
17:45 18:00	0	0	0	1	0	1	1
17:00 18:00	1	0	1	4	0	4	5
Total	13	9	22	9	3	12	34

Comment:

Transportation Services - Traffic Services

Work Order 35262

Turning Movement Count - Full Study Summary Report

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	TRIM RD									VALIN ST									
	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	17	327	17	**361**	20	154	5	**179**	**540**	30	11	31	**72**	39	27	113	**179**	**251**	**791**
08:00 09:00	19	295	14	**328**	34	218	13	**265**	**593**	23	21	36	**80**	29	25	85	**139**	**219**	**812**
09:00 10:00	24	251	20	**295**	31	206	11	**248**	**543**	18	16	30	**64**	26	12	44	**82**	**146**	**689**
11:30 12:30	13	244	12	**269**	12	217	2	**231**	**500**	8	6	3	**17**	12	6	4	**22**	**39**	**539**
12:30 13:30	12	253	11	**276**	18	213	6	**237**	**513**	11	3	11	**25**	4	12	17	**33**	**58**	**571**
15:00 16:00	48	243	33	**324**	74	333	17	**424**	**748**	17	32	30	**79**	13	23	33	**69**	**148**	**896**
16:00 17:00	30	358	41	**429**	82	375	11	**468**	**897**	13	57	38	**108**	24	24	26	**74**	**182**	**1079**
17:00 18:00	24	308	40	**372**	83	286	14	**383**	**755**	10	48	15	**73**	22	32	18	**72**	**145**	**900**
Sub Total	187	2279	188	**2654**	354	2002	79	**2435**	**5089**	130	194	194	**518**	169	161	340	**670**	**1188**	**6277**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	187	2279	188	**2654**	354	2002	79	**2435**	**5089**	130	194	194	**518**	169	161	340	**670**	**1188**	**6277**
EQ 12Hr	260	3168	261	**3689**	492	2783	110	**3385**	**7074**	181	270	270	**720**	235	224	473	**931**	**1651**	**8725**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	234	2851	235	**3320**	443	2505	99	**3046**	**6366**	163	243	243	**648**	211	201	425	**838**	**1486**	**7852**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	306	3735	308	**4349**	580	3281	129	**3991**	**8340**	213	318	318	**849**	277	264	557	**1098**	**1947**	**10287**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

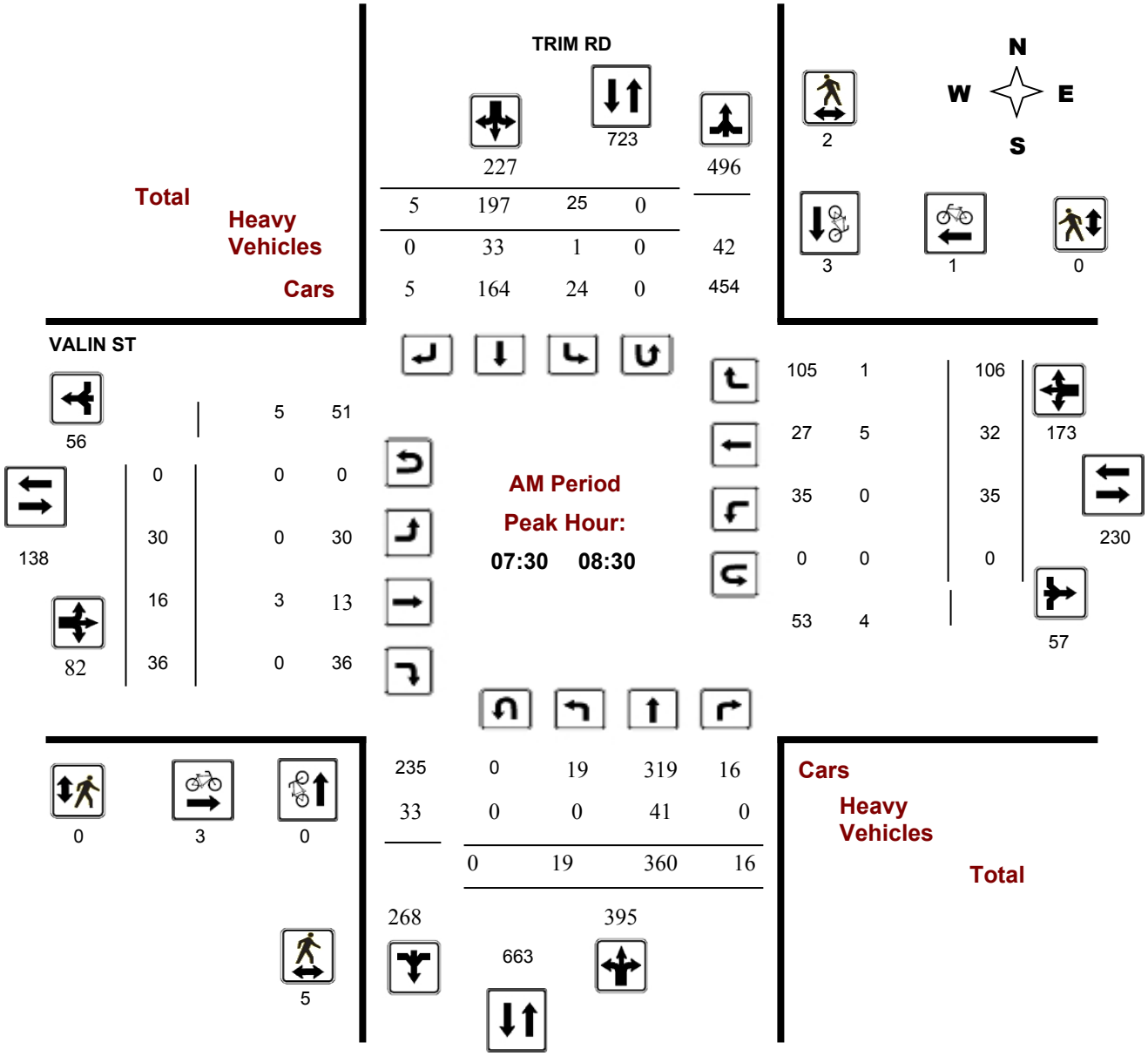
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015
Start Time: 07:00

WO No: 35262
Device: Jamar Technologies, Inc



Comments

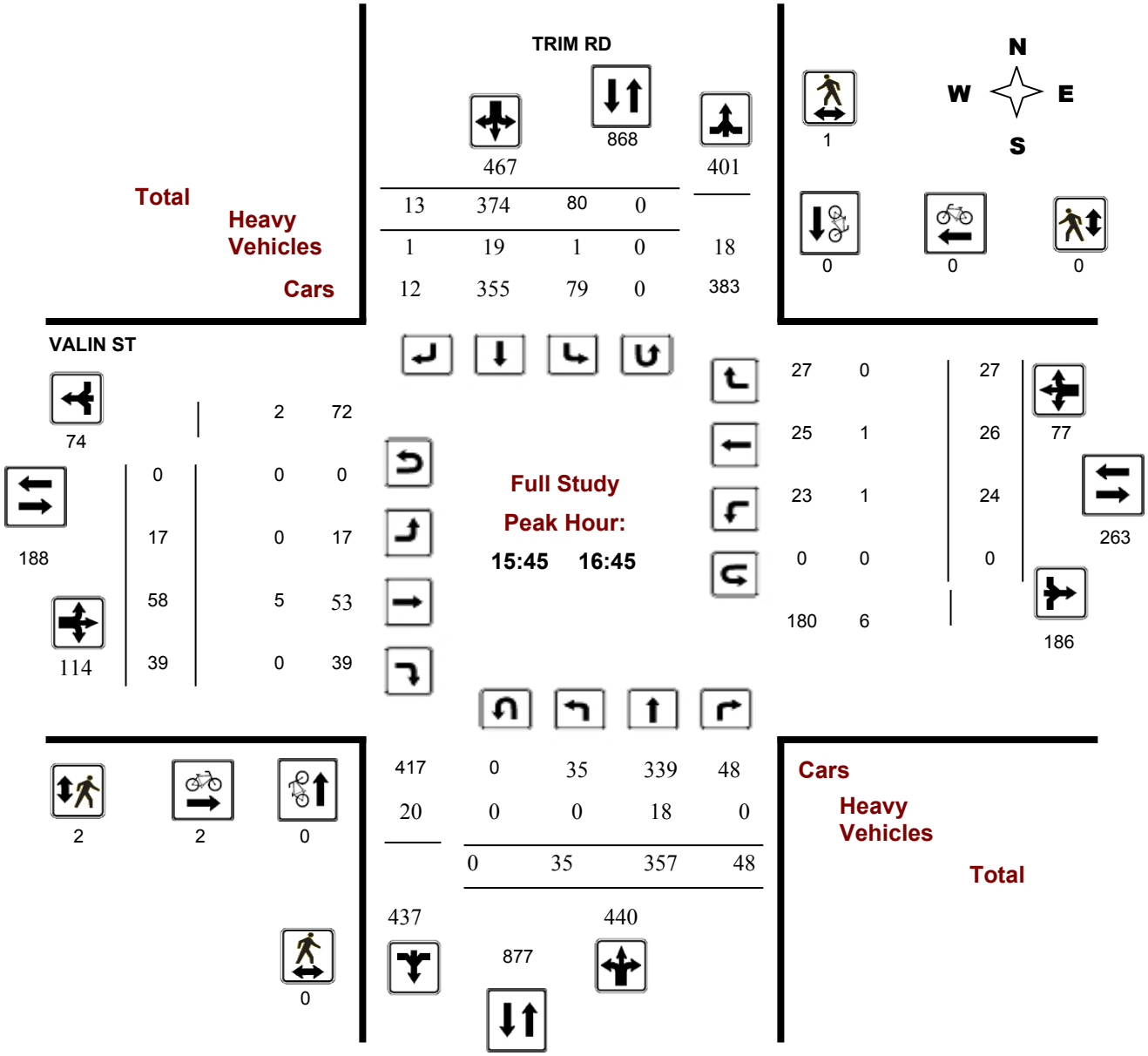
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015
Start Time: 07:00

WO No: 35262
Device: Jamar Technologies, Inc



Comments

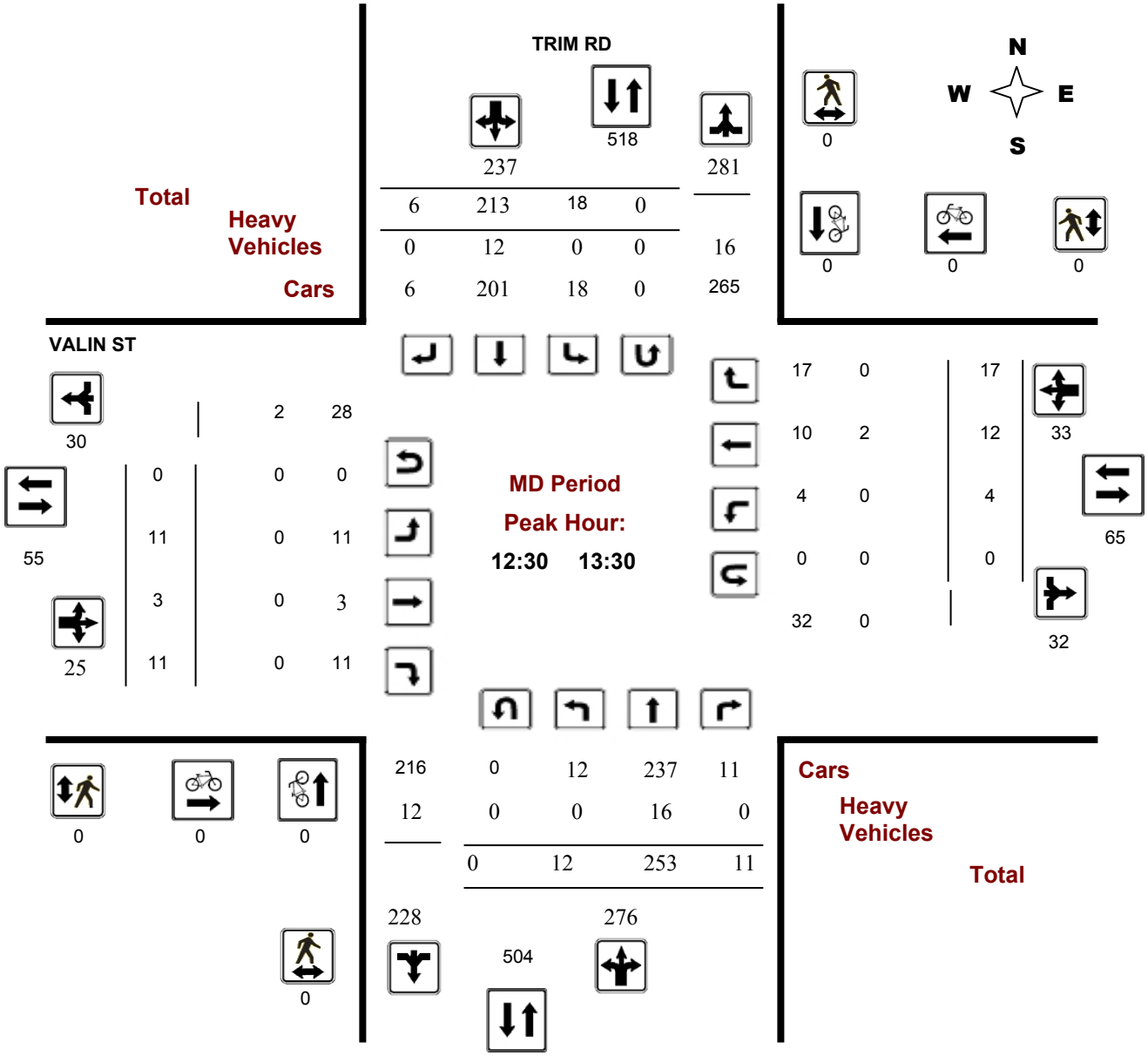
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015
Start Time: 07:00

WO No: 35262
Device: Jamar Technologies, Inc



Comments

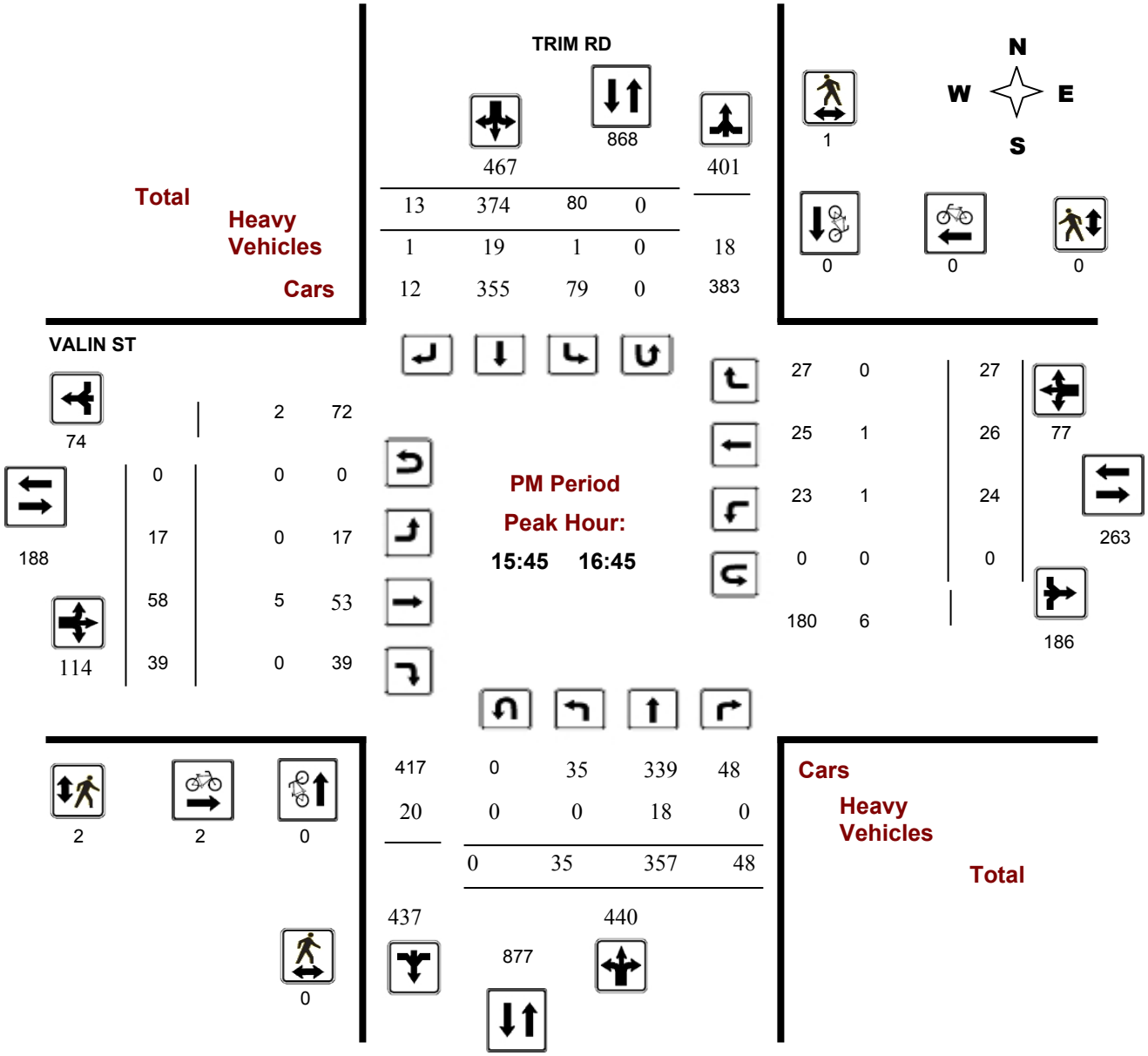
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015
Start Time: 07:00

WO No: 35262
Device: Jamar Technologies, Inc



Comments

Transportation Services - Traffic Services

Work Order
35262

Turning Movement Count - 15 Min U-Turn Total Report

TRIM RD @ VALIN ST

Survey Date: Wednesday, August 19, 2015

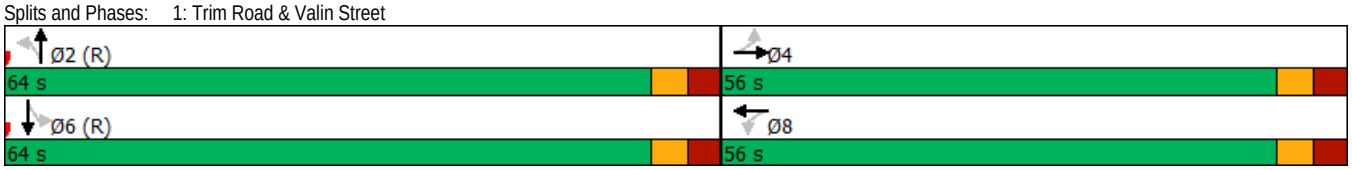
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	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

Appendix D – SYNCHRO Existing Traffic Analysis

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	16	35	32	19	382	25	209
Future Volume (vph)	30	16	35	32	19	382	25	209
Lane Group Flow (vph)	32	55	37	146	20	419	26	225
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	-2.3	-2.3	-2.3	-2.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.7	13.7	13.7	13.7	98.3	98.3	98.3	98.3
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.82	0.82	0.82	0.82
v/c Ratio	0.39	0.25	0.25	0.52	0.02	0.15	0.04	0.08
Control Delay	63.1	24.0	52.2	21.5	2.4	2.5	2.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	24.0	52.2	21.5	2.4	2.5	2.4	2.3
LOS	E	C	D	C	A	A	A	A
Approach Delay		38.3		27.8		2.5		2.3
Approach LOS		D		C		A		A
Queue Length 50th (m)	7.2	3.7	8.2	7.5	0.6	7.6	0.8	3.8
Queue Length 95th (m)	17.0	15.3	18.1	26.4	2.4	14.0	2.9	7.7
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	311	714	557	747	892	2760	741	2768
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.07	0.20	0.02	0.15	0.04	0.08

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.52		
Intersection Signal Delay: 10.5	Intersection LOS: B	
Intersection Capacity Utilization 48.9%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	207	507	13	13	117
Future Volume (Veh/h)	37	207	507	13	13	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	218	534	14	14	123
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	548				728	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	548				728	274
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				96	83
cM capacity (veh/h)	1018				345	724

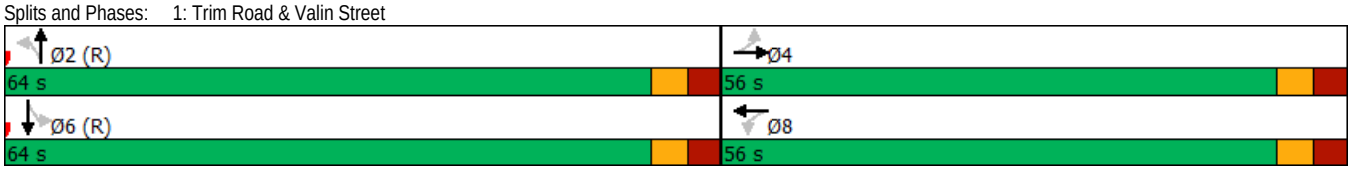
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	39	109	109	356	192	14	123
Volume Left	39	0	0	0	0	14	0
Volume Right	0	0	0	0	14	0	123
cSH	1018	1700	1700	1700	1700	345	724
Volume to Capacity	0.04	0.06	0.06	0.21	0.11	0.04	0.17
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	1.0	4.6
Control Delay (s)	8.7	0.0	0.0	0.0	0.0	15.9	11.0
Lane LOS	A					C	B
Approach Delay (s)	1.3			0.0		11.5	
Approach LOS						B	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	58	24	26	35	379	80	397
Future Volume (vph)	17	58	24	26	35	379	80	397
Lane Group Flow (vph)	18	102	25	55	37	450	84	432
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.6	13.6	13.6	13.6	97.6	97.6	97.6	97.6
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.81	0.81	0.81	0.81
v/c Ratio	0.12	0.46	0.21	0.26	0.05	0.17	0.12	0.16
Control Delay	48.6	39.3	51.6	30.4	2.7	2.6	3.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	39.3	51.6	30.4	2.7	2.6	3.0	2.7
LOS	D	D	D	C	A	A	A	A
Approach Delay		40.7		37.0		2.6		2.7
Approach LOS		D		D		A		A
Queue Length 50th (m)	3.9	15.0	5.5	5.9	1.2	8.3	3.0	8.2
Queue Length 95th (m)	10.6	31.1	13.6	17.6	4.0	15.3	7.8	14.9
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	551	739	455	723	727	2712	713	2743
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.14	0.05	0.08	0.05	0.17	0.12	0.16

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	605	297	11	19	68
Future Volume (Veh/h)	115	605	297	11	19	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	121	637	313	12	20	72
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	325				880	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	325				880	162
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				92	92
cM capacity (veh/h)	1231				259	854

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	121	318	318	209	116	20	72
Volume Left	121	0	0	0	0	20	0
Volume Right	0	0	0	0	12	0	72
cSH	1231	1700	1700	1700	1700	259	854
Volume to Capacity	0.10	0.19	0.19	0.12	0.07	0.08	0.08
Queue Length 95th (m)	2.5	0.0	0.0	0.0	0.0	1.9	2.1
Control Delay (s)	8.2	0.0	0.0	0.0	0.0	20.1	9.6
Lane LOS	A					C	A
Approach Delay (s)	1.3			0.0		11.9	
Approach LOS						B	

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	29.1%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix E – Collision Data

Collision Main Detail Summary

OnTRAC Reporting System

FROM: 2012-01-01 TO: 2014-01-01

BREEZEWOOD ST, MERLOT WAY to RUSTIC HILLS CRES

Former Municipality: **Cumberland** Traffic Control: **No control** Number of Collisions: **1**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
1	2012-03-01	Thu	17:53	Snow	Dusk	Approaching	P.D. only	V1 S	Loose snow	Going ahead	Automobile, station	Other motor vehicle	0
								V2 N	Loose snow	Going ahead	Automobile, station	Other motor vehicle	

INNES RD & TRIM RD

Former Municipality: **Cumberland** Traffic Control: **Traffic signal** Number of Collisions: **14**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
2	2012-01-15	Sun	15:00	Clear	Daylight	Rear end	P.D. only	V1 E	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2 E	Dry	Turning left	Passenger van	Other motor vehicle	
3	2012-06-03	Sun	22:27	Clear	Dark	Single vehicle	Non	V1 W	Wet	Going ahead	Automobile, station	Other Fixed Objects	0
4	2012-06-19	Tue	07:25	Clear	Daylight	Turning	Non-fatal	V1 W	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2 E	Dry	Turning left	Pick-up truck	Other motor vehicle	
								V3 S	Dry	Stopped	Pick-up truck	Other motor vehicle	
								V4 S	Dry	Stopped	Pick-up truck	Other motor vehicle	
5	2012-06-21	Thu	18:09	Rain	Daylight	Angle	P.D. only	V1 S	Wet	Going ahead	Automobile, station	Other motor vehicle	0
								V2 E	Wet	Going ahead	Automobile, station	Other motor vehicle	
6	2012-09-17	Mo	22:14	Clear	Dark	Turning	P.D. only	V1 N	Dry	Turning left	Pick-up truck	Other motor vehicle	0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle	
7	2012-10-08	Mo	21:00	Clear	Dark	Rear end	P.D. only	V1 W	Dry	Slowing or	Automobile, station	Other motor vehicle	0
								V2 W	Dry	Stopped	Pick-up truck	Other motor vehicle	
8	2012-11-15	Thu	20:30	Clear	Dark	Sideswipe	P.D. only	V1 N	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2 N	Dry	Going ahead	Pick-up truck	Other motor vehicle	
9	2012-11-29	Thu	07:30	Snow	Daylight	Rear end	P.D. only	V1 S	Wet	Slowing or	Pick-up truck	Other motor vehicle	0
								V2 S	Wet	Slowing or	Pick-up truck	Other motor vehicle	
10	2012-12-22	Sat	19:50	Clear	Dark	Turning	P.D. only	V1 S	Wet	Turning left	Pick-up truck	Other motor vehicle	0
								V2 N	Wet	Going ahead	Pick-up truck	Other motor vehicle	
11	2013-06-21	Fri	11:00	Clear	Daylight	Sideswipe	P.D. only	V1 E	Dry	Turning right	Automobile, station	Other motor vehicle	0
								V2 E	Dry	Turning left	Pick-up truck	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

12	2013-09-16	Mo	10:15	Clear	Daylight	Sideswipe	P.D. only	V1 S V2 S	Dry Dry	Turning left Stopped	Truck - tractor Automobile, station	Other motor vehicle Other motor vehicle	0
13	2013-11-14	Thu	17:12	Clear	Dark	Turning	Non-fatal	V1 E V2 W	Dry Dry	Making U-Turn Going ahead	Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle	0
14	2013-12-11	We	22:35	Clear	Dark	Turning	P.D. only	V1 N V2 S	Dry Dry	Turning left Going ahead	Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle	0
15	2013-12-26	Thu	23:20	Clear	Dark	Angle	Non-fatal	V1 E V2 S	Slush Slush	Going ahead Going ahead	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0

TRIM RD, DEMETER ST to VALIN ST

Former Municipality: **Cumberland** Traffic Control: **No control** Number of Collisions: **1**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
16	2013-10-05	Sat	11:15	Clear	Daylight	Rear end	P.D. only	V1 S V2 S	Dry Dry	Going ahead Stopped	Pick-up truck Pick-up truck	Other motor vehicle Other motor vehicle	0

TRIM RD, INNES RD to VALIN ST

Former Municipality: **Cumberland** Traffic Control: **No control** Number of Collisions: **5**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
17	2012-02-11	Sat	21:15	Clear	Dark	Angle	P.D. only	V1 W V2 S	Dry Dry	Turning left Turning left	Automobile, station Automobile, station	Other motor vehicle Other motor vehicle	0
18	2012-10-20	Sat	22:30	Clear	Dark	Angle	P.D. only	V1 W V2 N	Dry Dry	Going ahead Turning right	Pick-up truck Pick-up truck	Other motor vehicle Other motor vehicle	0
19	2012-12-09	Sun	20:14	Clear	Dark	Angle	P.D. only	V1 W V2 N	Dry Dry	Turning left Going ahead	Automobile, station Passenger van	Other motor vehicle Other motor vehicle	0
20	2013-06-05	We	15:24	Clear	Daylight	Sideswipe	P.D. only	V1 N V2 N	Dry Unknown	Going ahead Going ahead	Truck - dump Truck and trailer	Other motor vehicle Other motor vehicle	0
21	2013-11-29	Fri	13:51	Clear	Daylight	Turning	P.D. only	V1 S V2 S	Dry Dry	Overtaking Turning right	Automobile, station Pick-up truck	Other motor vehicle Other motor vehicle	0

(Note: Time of Day = "00:00" represents unknown collision time

TRIM RD & VALIN ST

Former Municipality: **Cumberland** Traffic Control: **Traffic signal** Number of Collisions: **6**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
22	2012-03-16	Fri	17:10	Clear	Daylight	Rear end	P.D. only	V1 N	Dry	Going ahead	Pick-up truck	Other motor vehicle	0
								V2 N	Dry	Slowing or	Automobile, station	Other motor vehicle	
23	2012-06-02	Sat	14:55	Rain	Daylight	Turning	Non-fatal	V1 S	Wet	Turning left	Automobile, station	Other motor vehicle	0
								V2 N	Wet	Going ahead	Car and trailer	Other motor vehicle	
								V3 N	Wet	Going ahead	Automobile, station	Other motor vehicle	
								V4 S	Wet	Stopped	Automobile, station	Other motor vehicle	
24	2012-07-04	We	12:04	Clear	Daylight	Single vehicle	P.D. only	V1 E	Dry	Turning left	Pick-up truck	Pole (utility, tower)	0
25	2012-12-29	Sat	17:05	Snow	Dark	Angle	P.D. only	V1 N	Ice	Going ahead	Automobile, station	Other motor vehicle	0
								V2 W	Ice	Going ahead	Pick-up truck	Other motor vehicle	
26	2013-02-25	Mo	11:45	Clear	Daylight	Angle	P.D. only	V1 N	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2 E	Dry	Going ahead	Automobile, station	Other motor vehicle	
27	2013-09-02	Mo	18:19	Clear	Daylight	Rear end	P.D. only	V1 S	Wet	Slowing or	Pick-up truck	Other motor vehicle	0
								V2 S	Wet	Stopped	Automobile, station	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: INNES RD @ TRIM RD

Traffic Control: Traffic signal

Total Collisions: 20

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-26, Wed,17:50	Clear	Angle	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2014-Mar-01, Sat,12:50	Snow	Turning movement	P.D. only	Loose snow	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-May-03, Sat,17:54	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-May-30, Fri,17:25	Clear	Rear end	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Motorcycle	Other motor vehicle	
2014-May-31, Sat,14:40	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2014-Jun-14, Sat,11:22	Clear	Rear end	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	

					East	Turning left	Passenger van	Other motor vehicle	
2014-Nov-07, Fri,17:26	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Pick-up truck	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Nov-29, Sat,10:10	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Jun-18, Thu,11:46	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Nov-27, Fri,17:20	Clear	SMV other	Non-fatal injury	Wet	East	Turning left	Pick-up truck	Pedestrian	1
2016-Jan-08, Fri,16:55	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Feb-27, Sat,09:29	Clear	Turning movement	P.D. only	Dry	South	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Apr-02, Sat,10:32	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

2016-Apr-25, Mon,22:08	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-May-17, Tue,11:58	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jul-01, Fri,14:02	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Aug-04, Thu,12:00	Clear	Rear end	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2016-Aug-09, Tue,16:29	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2016-Nov-13, Sun,18:46	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Dec-30, Fri,19:09	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: TRIM RD @ VALIN ST

Traffic Control: Traffic signal

Total Collisions: 10

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-May-11, Sun,12:24	Clear	Rear end	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	
					North	Stopped	Pick-up truck	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jul-02, Thu,17:58	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2015-Jan-30, Fri,19:20	Clear	Turning movement	P.D. only	Slush	South	Turning left	Passenger van	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Feb-12, Thu,06:40	Snow	SMV unattended vehicle	P.D. only	Packed snow	Unknown	Unknown	Unknown	Unattended vehicle	
2015-Aug-11, Tue,17:50	Rain	Turning movement	P.D. only	Wet	North	Turning left	Pick-up truck	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Feb-18, Wed,17:43	Clear	Angle	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	

					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jun-16, Thu,00:06	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Passenger van	Pole (utility, power)
2015-Nov-18, Wed,08:40	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle
					North	Stopped	Passenger van	Other motor vehicle
2016-Jun-05, Sun,14:00	Rain	Other	P.D. only	Wet	East	Reversing	Passenger van	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Dec-20, Tue,06:35	Clear	Rear end	P.D. only	Ice	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: TRIM RD btwn BRIARGATE PRIV & INNES RD

Traffic Control: No control **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-23, Sun,18:00	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2014-Jun-17, Tue,23:59	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Animal - wild	
2015-Jul-23, Thu,21:30	Clear	Angle	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2016-Jan-16, Sat,11:01	Snow	SMV other	P.D. only	Slush	North	Turning left	Automobile, station wagon	Skidding/sliding	
2016-Dec-21, Wed,07:07	Clear	Turning movement	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle	
					South	Turning right	Pick-up truck	Other motor vehicle	

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: TRIM RD btwn DEMETER ST & VALIN ST

Traffic Control: No control **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-03, Fri,08:30	Clear	SMV other	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Skidding/sliding	
2014-Jan-03, Fri,08:33	Clear	SMV other	P.D. only	Ice	North	Going ahead	Automobile, station wagon	Skidding/sliding	
2014-Feb-04, Tue,06:20	Clear	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2014-Sep-10, Wed,17:40	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: VALIN ST @ INNES RD

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Apr-05, Sat,20:15	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: TRAIL SIDE CIRC @ VALIN ST

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-14, Fri,09:10	Snow	Approaching	P.D. only	Ice	West	Slowing or stopping	Passenger van	Other motor vehicle	
					East	Slowing or stopping	Passenger van	Other motor vehicle	

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: VALIN ST btwn GLANDRIEL CRES & TIMBERTRAIL TER

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Feb-19, Fri,10:56	Snow	SMV unattended vehicle	P.D. only	Loose snow	Unknown	Unknown	Unknown	Unattended vehicle	

Collision Main Detail Summary

OnTRAC Reporting System

FROM: 2012-01-01 TO: 2014-01-01

INNES RD & VALIN ST

Former Municipality: **Cumberland** Traffic Control: **Stop sign** Number of Collisions: **1**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
1	2013-09-03	Tue	10:22	Clear	Daylight	Angle	Non-fatal	V1 E	Dry	Going ahead	Pick-up truck	Other motor vehicle	0
								V2 S	Dry	Going ahead	Passenger van	Other motor vehicle	

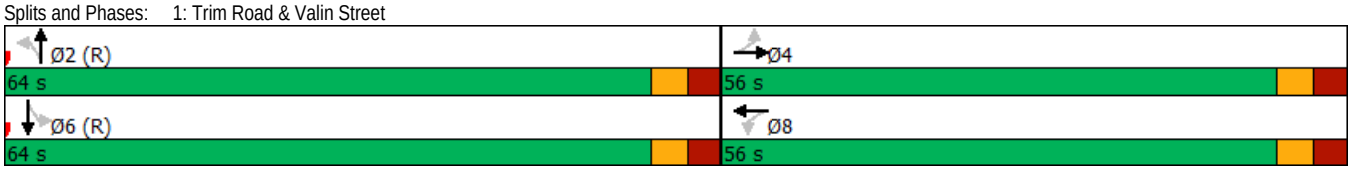
(Note: Time of Day = "00:00" represents unknown collision time

Appendix F – SYNCHRO 2020 and 2025 Background Traffic Analysis

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	16	35	32	19	382	25	209
Future Volume (vph)	30	16	35	32	19	382	25	209
Lane Group Flow (vph)	32	55	37	146	20	419	26	225
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	-2.3	-2.3	-2.3	-2.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.7	13.7	13.7	13.7	98.3	98.3	98.3	98.3
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.82	0.82	0.82	0.82
v/c Ratio	0.39	0.25	0.25	0.52	0.02	0.15	0.04	0.08
Control Delay	63.1	24.0	52.2	21.5	2.4	2.5	2.4	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	24.0	52.2	21.5	2.4	2.5	2.4	2.3
LOS	E	C	D	C	A	A	A	A
Approach Delay		38.3		27.8		2.5		2.3
Approach LOS		D		C		A		A
Queue Length 50th (m)	7.2	3.7	8.2	7.5	0.6	7.6	0.8	3.8
Queue Length 95th (m)	17.0	15.3	18.1	26.4	2.4	14.0	2.9	7.7
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	311	714	557	747	892	2760	741	2768
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.07	0.20	0.02	0.15	0.04	0.08

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.52		
Intersection Signal Delay: 10.5	Intersection LOS: B	
Intersection Capacity Utilization 48.9%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	220	538	13	13	117
Future Volume (Veh/h)	37	220	538	13	13	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	232	566	14	14	123
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	580				767	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	580				767	290
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				96	83
cM capacity (veh/h)	990				325	707

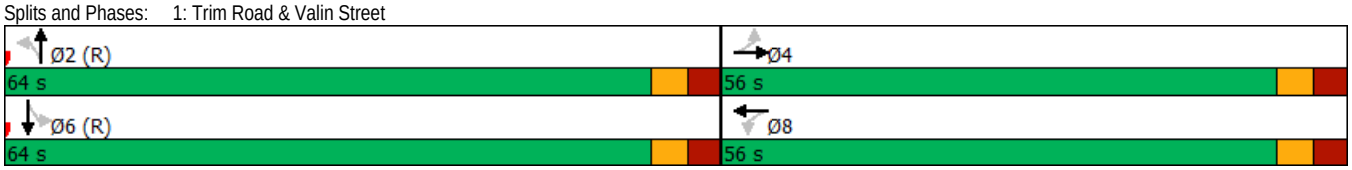
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	39	116	116	377	203	14	123
Volume Left	39	0	0	0	0	14	0
Volume Right	0	0	0	0	14	0	123
cSH	990	1700	1700	1700	1700	325	707
Volume to Capacity	0.04	0.07	0.07	0.22	0.12	0.04	0.17
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	1.0	4.8
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	16.6	11.2
Lane LOS	A					C	B
Approach Delay (s)	1.3			0.0		11.7	
Approach LOS						B	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	58	24	26	35	379	80	397
Future Volume (vph)	17	58	24	26	35	379	80	397
Lane Group Flow (vph)	18	102	25	55	37	450	84	432
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.6	13.6	13.6	13.6	97.6	97.6	97.6	97.6
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.81	0.81	0.81	0.81
v/c Ratio	0.12	0.46	0.21	0.26	0.05	0.17	0.12	0.16
Control Delay	48.6	39.3	51.6	30.4	2.7	2.6	3.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	39.3	51.6	30.4	2.7	2.6	3.0	2.7
LOS	D	D	D	C	A	A	A	A
Approach Delay		40.7		37.0		2.6		2.7
Approach LOS		D		D		A		A
Queue Length 50th (m)	3.9	15.0	5.5	5.9	1.2	8.3	3.0	8.2
Queue Length 95th (m)	10.6	31.1	13.6	17.6	4.0	15.3	7.8	14.9
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	551	739	455	723	727	2712	713	2743
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.14	0.05	0.08	0.05	0.17	0.12	0.16

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	642	315	11	19	68
Future Volume (Veh/h)	115	642	315	11	19	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	121	676	332	12	20	72
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	344				918	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344				918	172
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				92	91
cM capacity (veh/h)	1212				244	842

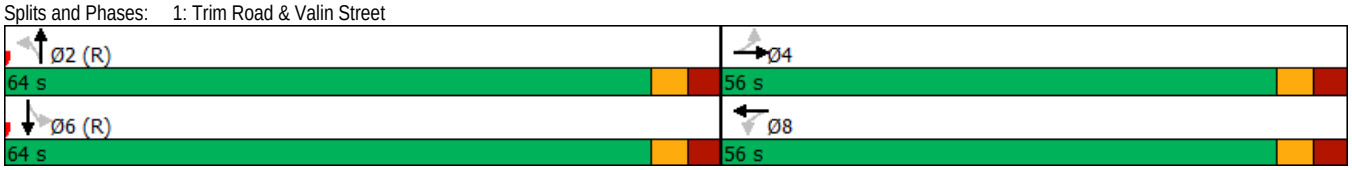
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	121	338	338	221	123	20	72
Volume Left	121	0	0	0	0	20	0
Volume Right	0	0	0	0	12	0	72
cSH	1212	1700	1700	1700	1700	244	842
Volume to Capacity	0.10	0.20	0.20	0.13	0.07	0.08	0.09
Queue Length 95th (m)	2.5	0.0	0.0	0.0	0.0	2.0	2.1
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	21.1	9.7
Lane LOS	A					C	A
Approach Delay (s)	1.3			0.0		12.2	
Approach LOS						B	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	16	35	32	19	439	25	240
Future Volume (vph)	30	16	35	32	19	439	25	240
Lane Group Flow (vph)	32	55	37	146	20	479	26	258
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	-2.3	-2.3	-2.3	-2.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.7	13.7	13.7	13.7	98.3	98.3	98.3	98.3
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.82	0.82	0.82	0.82
v/c Ratio	0.39	0.25	0.25	0.52	0.02	0.17	0.04	0.09
Control Delay	63.1	24.0	52.2	21.5	2.4	2.5	2.5	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	24.0	52.2	21.5	2.4	2.5	2.5	2.3
LOS	E	C	D	C	A	A	A	A
Approach Delay		38.3		27.8		2.5		2.3
Approach LOS		D		C		A		A
Queue Length 50th (m)	7.2	3.7	8.2	7.5	0.6	8.8	0.8	4.4
Queue Length 95th (m)	17.0	15.3	18.1	26.4	2.4	16.1	2.9	8.8
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	311	714	557	747	864	2762	698	2767
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.07	0.20	0.02	0.17	0.04	0.09

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 48.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	252	618	13	13	117
Future Volume (Veh/h)	37	252	618	13	13	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	265	651	14	14	123
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	665				868	332
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665				868	332
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				95	81
cM capacity (veh/h)	920				279	663

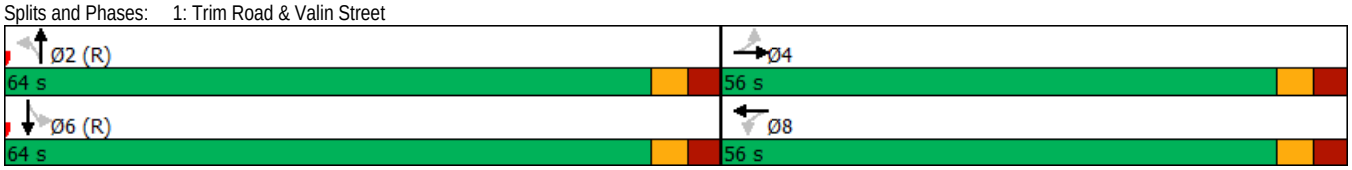
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	39	132	132	434	231	14	123
Volume Left	39	0	0	0	0	14	0
Volume Right	0	0	0	0	14	0	123
cSH	920	1700	1700	1700	1700	279	663
Volume to Capacity	0.04	0.08	0.08	0.26	0.14	0.05	0.19
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	1.2	5.1
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	18.6	11.7
Lane LOS	A					C	B
Approach Delay (s)	1.2			0.0		12.4	
Approach LOS						B	

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	35.1%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	58	24	26	35	435	80	456
Future Volume (vph)	17	58	24	26	35	435	80	456
Lane Group Flow (vph)	18	102	25	55	37	509	84	494
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.6	13.6	13.6	13.6	97.6	97.6	97.6	97.6
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.81	0.81	0.81	0.81
v/c Ratio	0.12	0.46	0.21	0.26	0.05	0.19	0.12	0.18
Control Delay	48.6	39.3	51.6	30.4	2.7	2.7	3.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	39.3	51.6	30.4	2.7	2.7	3.1	2.7
LOS	D	D	D	C	A	A	A	A
Approach Delay		40.7		37.0		2.7		2.8
Approach LOS		D		D		A		A
Queue Length 50th (m)	3.9	15.0	5.5	5.9	1.2	9.6	3.0	9.5
Queue Length 95th (m)	10.6	31.1	13.6	17.6	4.0	17.5	7.9	17.3
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	551	739	455	723	683	2717	674	2746
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.14	0.05	0.08	0.05	0.19	0.12	0.18

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	737	362	11	19	68
Future Volume (Veh/h)	115	737	362	11	19	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	121	776	381	12	20	72
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	393				1017	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393				1017	196
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				90	91
cM capacity (veh/h)	1162				209	812

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	121	388	388	254	139	20	72
Volume Left	121	0	0	0	0	20	0
Volume Right	0	0	0	0	12	0	72
cSH	1162	1700	1700	1700	1700	209	812
Volume to Capacity	0.10	0.23	0.23	0.15	0.08	0.10	0.09
Queue Length 95th (m)	2.6	0.0	0.0	0.0	0.0	2.4	2.2
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	24.0	9.9
Lane LOS	A					C	A
Approach Delay (s)	1.1			0.0		12.9	
Approach LOS						B	

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	31.5%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix G – MMLOS Analysis

Multi-Modal Level of Service - Intersections Form

Consultant	**Parsons**	**Project**	**1869 Trim Road**
Scenario		**Date**	**7/20/2018**
Comments	**2025 volumes**		

INTERSECTIONS		Trim / Valin			
	Crossing Side	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pedestrian	Lanes	5	5	3	3
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel
	Corner Radius	15-25m	10-15m	10-15m	15-25m
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
	PETSI Score	**35**	**37**	**70**	**68**
	Ped. Exposure to Traffic LoS	**E**	**E**	**C**	**C**
	Cycle Length	95	95	95	95
	Effective Walk Time	12	12	38	38
	Average Pedestrian Delay	**36**	**36**	**17**	**17**
	Pedestrian Delay LoS	**D**	**D**	**B**	**B**
	Level of Service	**E**	**E**	**C**	**C**
		E			
	Approach From	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Mixed Traffic
	Right Turn Lane Configuration	Not Applicable	Not Applicable	> 50 m	> 50 m
	Right Turning Speed	Not Applicable	Not Applicable	≤ 25 km/h	≤ 25 km/h
	Cyclist relative to RT motorists	**Not Applicable**	**Not Applicable**	**F**	**F**
	Separated or Mixed Traffic	**Separated**	**Separated**	**Mixed Traffic**	**Mixed Traffic**
	Left Turn Approach	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed	No lane crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h
	Left Turning Cyclist	**F**	**F**	**B**	**B**
	Level of Service	**F**	**F**	**F**	**F**
		F			
Transit	Average Signal Delay	≤ 20 sec	≤ 20 sec	≤ 20 sec	≤ 20 sec
	Level of Service	**C**	**C**	**C**	**C**
		C			
Truck	Effective Corner Radius	> 15 m	10 - 15 m	10 - 15 m	> 15 m
	Number of Receiving Lanes on Departure from Intersection	1	1	≥ 2	≥ 2
	Level of Service	**C**	**E**	**B**	**A**
		E			
Auto	Volume to Capacity Ratio	0.0 - 0.60			
	Level of Service	**A**			

Multi-Modal Level of Service - Segments Form

Consultant	**Parsons**	**Project**	**1869 Trim Road**
Scenario		**Date**	**7/20/2018**
Comments	**2025 volumes**		

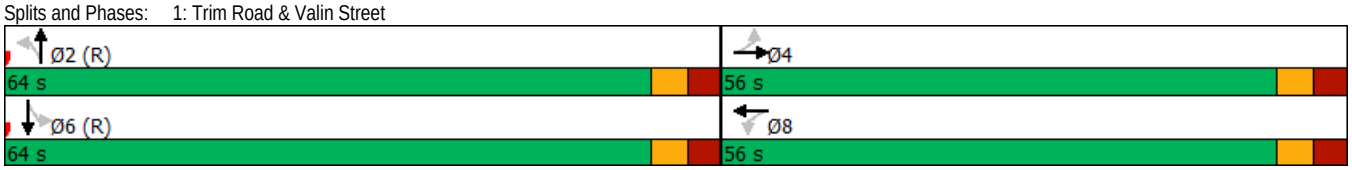
SEGMENTS		Street A	Section Breezehill	Section Valin	Section Trim
Pedestrian	Sidewalk Width Boulevard Width	F	no sidewalk n/a	1.8 m > 2 m	≥ 2 m < 0.5
	Avg Daily Curb Lane Traffic Volume		≤ 3000	> 3000	> 3000
	Operating Speed On-Street Parking		≤ 30 km/h yes	> 30 to 50 km/h yes	> 60 km/h no
	Exposure to Traffic PLoS		**C**	**B**	**F**
	Effective Sidewalk Width			1.5 m	3.0 m
	Pedestrian Volume			250 ped/hr	250 ped/hr
	Crowding PLoS		**-**	**B**	**A**
	Level of Service		**-**	**B**	**F**
Bicycle	Type of Cycling Facility	D	Mixed Traffic	Mixed Traffic	Curbside Bike Lane
	Number of Travel Lanes		≤ 2 (no centreline)	2-3 lanes total	2 ea. dir. (w median)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h	>50 to 70 km/h
	# of Lanes & Operating Speed LoS		**B**	**D**	**C**
	Bike Lane (+ Parking Lane) Width				≥ 1.8 m
	Bike Lane Width LoS		**-**	**-**	**A**
	Bike Lane Blockages				Rare
	Blockage LoS		**-**	**-**	**A**
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h
	Unsignalized Crossing - Lowest LoS		**B**	**A**	**A**
	Level of Service		**B**	**D**	**C**
Transit	Facility Type	F			Mixed Traffic
	Friction or Ratio Transit:Posted Speed				Vt/Vp ≤ 0.4
	Level of Service		**-**	**-**	**F**
Truck	Truck Lane Width	B	> 3.7 m	> 3.7 m	≤ 3.5 m
	Travel Lanes per Direction		1	1	> 1
	Level of Service		**B**	**B**	**A**
Auto	**Level of Service**	**Not Applicable**			

Appendix H – SYNCHRO 2020 and 2025 Total Traffic Analysis

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	16	53	32	19	382	37	209
Future Volume (vph)	30	16	53	32	19	382	37	209
Lane Group Flow (vph)	32	55	56	167	20	429	39	225
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.8	13.8	13.8	13.8	97.4	97.4	97.4	97.4
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.81	0.81	0.81	0.81
v/c Ratio	0.44	0.25	0.38	0.56	0.02	0.16	0.05	0.08
Control Delay	68.6	23.7	56.0	20.6	2.6	2.7	2.8	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	23.7	56.0	20.6	2.6	2.7	2.8	2.5
LOS	E	C	E	C	A	A	A	A
Approach Delay		40.2		29.5		2.7		2.5
Approach LOS		D		C		A		A
Queue Length 50th (m)	7.2	3.7	12.5	7.4	0.7	8.2	1.3	4.1
Queue Length 95th (m)	17.3	15.3	24.7	27.6	2.5	15.0	4.2	8.2
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	268	707	551	750	884	2727	726	2742
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.08	0.10	0.22	0.02	0.16	0.05	0.08

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.56		
Intersection Signal Delay: 11.7	Intersection LOS: B	
Intersection Capacity Utilization 53.3%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	220	538	14	13	119
Future Volume (Veh/h)	37	220	538	14	13	119
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	232	566	15	14	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	581				768	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	581				768	290
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				96	82
cM capacity (veh/h)	989				325	706

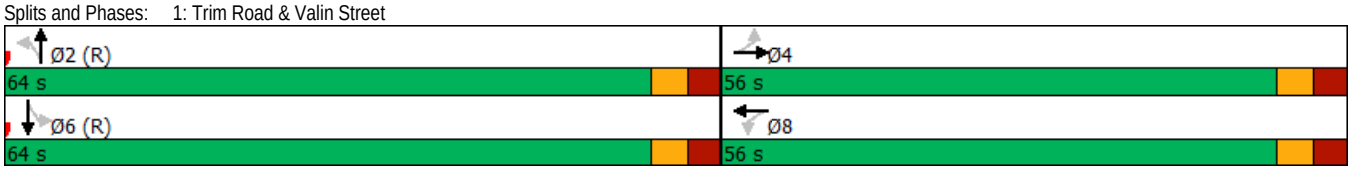
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	39	116	116	377	204	14	125
Volume Left	39	0	0	0	0	14	0
Volume Right	0	0	0	0	15	0	125
cSH	989	1700	1700	1700	1700	325	706
Volume to Capacity	0.04	0.07	0.07	0.22	0.12	0.04	0.18
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	1.0	4.9
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	16.6	11.2
Lane LOS	A					C	B
Approach Delay (s)	1.3			0.0		11.7	
Approach LOS						B	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	58	42	26	35	379	102	397
Future Volume (vph)	17	58	42	26	35	379	102	397
Lane Group Flow (vph)	18	102	44	76	37	470	107	432
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.6	13.6	13.6	13.6	97.6	97.6	97.6	97.6
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.81	0.81	0.81	0.81
v/c Ratio	0.13	0.46	0.37	0.34	0.05	0.17	0.15	0.16
Control Delay	48.8	39.3	57.4	25.0	2.7	2.6	3.2	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	39.3	57.4	25.0	2.7	2.6	3.2	2.7
LOS	D	D	E	C	A	A	A	A
Approach Delay		40.7		36.9		2.6		2.8
Approach LOS		D		D		A		A
Queue Length 50th (m)	3.9	15.0	9.9	5.9	1.2	8.5	3.9	8.2
Queue Length 95th (m)	10.6	31.1	21.0	19.6	4.0	15.7	9.8	14.9
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	534	739	455	719	727	2697	700	2743
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.14	0.10	0.11	0.05	0.17	0.15	0.16

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 41.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	642	315	13	19	70
Future Volume (Veh/h)	115	642	315	13	19	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	121	676	332	14	20	74
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	346				919	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	346				919	173
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				92	91
cM capacity (veh/h)	1210				243	840

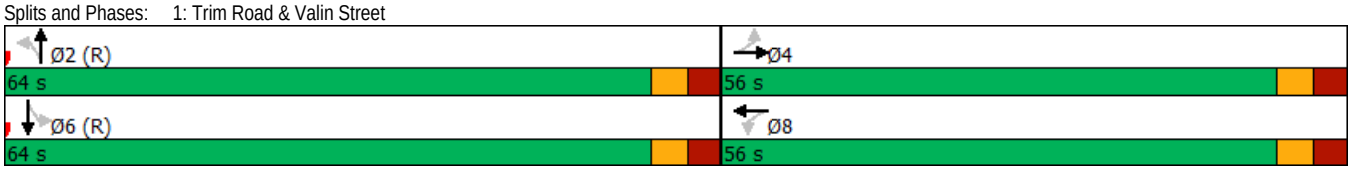
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	121	338	338	221	125	20	74
Volume Left	121	0	0	0	0	20	0
Volume Right	0	0	0	0	14	0	74
cSH	1210	1700	1700	1700	1700	243	840
Volume to Capacity	0.10	0.20	0.20	0.13	0.07	0.08	0.09
Queue Length 95th (m)	2.5	0.0	0.0	0.0	0.0	2.0	2.2
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	21.1	9.7
Lane LOS	A					C	A
Approach Delay (s)	1.3			0.0		12.1	
Approach LOS						B	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	16	53	32	19	439	37	240
Future Volume (vph)	30	16	53	32	19	439	37	240
Lane Group Flow (vph)	32	55	56	167	20	489	39	258
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.8	13.8	13.8	13.8	97.4	97.4	97.4	97.4
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.81	0.81	0.81	0.81
v/c Ratio	0.44	0.25	0.38	0.56	0.02	0.18	0.06	0.09
Control Delay	68.6	23.7	56.0	20.6	2.6	2.8	2.8	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	23.7	56.0	20.6	2.6	2.8	2.8	2.5
LOS	E	C	E	C	A	A	A	A
Approach Delay		40.2		29.5		2.8		2.6
Approach LOS		D		C		A		A
Queue Length 50th (m)	7.2	3.7	12.5	7.4	0.7	9.6	1.3	4.7
Queue Length 95th (m)	17.3	15.3	24.7	27.6	2.5	17.2	4.2	9.3
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	268	707	551	750	856	2729	686	2742
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.08	0.10	0.22	0.02	0.18	0.06	0.09

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 55.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	252	618	14	13	119
Future Volume (Veh/h)	37	252	618	14	13	119
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	265	651	15	14	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	666				869	333
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666				869	333
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				95	81
cM capacity (veh/h)	919				279	663

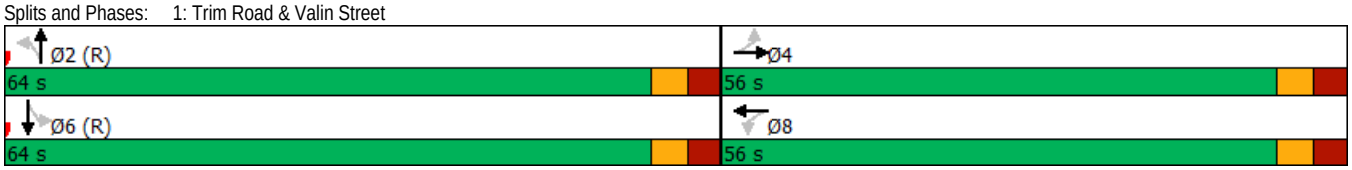
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	39	132	132	434	232	14	125
Volume Left	39	0	0	0	0	14	0
Volume Right	0	0	0	0	15	0	125
cSH	919	1700	1700	1700	1700	279	663
Volume to Capacity	0.04	0.08	0.08	0.26	0.14	0.05	0.19
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	1.2	5.2
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	18.6	11.7
Lane LOS	A					C	B
Approach Delay (s)	1.2			0.0		12.4	
Approach LOS						B	

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	35.2%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	58	42	26	35	435	102	456
Future Volume (vph)	17	58	42	26	35	435	102	456
Lane Group Flow (vph)	18	102	44	76	37	529	107	494
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	25.5	25.5	25.5	25.5	34.5	34.5	34.3	34.3
Total Split (s)	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.2	3.2	3.2	3.2	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.3	4.3	4.3	4.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	13.6	13.6	13.6	13.6	97.6	97.6	97.6	97.6
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.81	0.81	0.81	0.81
v/c Ratio	0.13	0.46	0.37	0.34	0.05	0.20	0.16	0.18
Control Delay	48.8	39.3	57.4	25.0	2.7	2.7	3.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	39.3	57.4	25.0	2.7	2.7	3.3	2.7
LOS	D	D	E	C	A	A	A	A
Approach Delay		40.7		36.9		2.7		2.8
Approach LOS		D		D		A		A
Queue Length 50th (m)	3.9	15.0	9.9	5.9	1.2	10.0	3.9	9.5
Queue Length 95th (m)	10.6	31.1	21.0	19.6	4.0	18.1	10.0	17.3
Internal Link Dist (m)		98.3		82.4		119.4		122.6
Turn Bay Length (m)	25.0		25.0		65.0		60.0	
Base Capacity (vph)	534	739	455	719	683	2704	661	2746
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.14	0.10	0.11	0.05	0.20	0.16	0.18

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 43.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Trim Road & Valin Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	737	362	13	19	70
Future Volume (Veh/h)	115	737	362	13	19	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	121	776	381	14	20	74
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	395				1018	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395				1018	198
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				90	91
cM capacity (veh/h)	1160				209	811

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	121	388	388	254	141	20	74
Volume Left	121	0	0	0	0	20	0
Volume Right	0	0	0	0	14	0	74
cSH	1160	1700	1700	1700	1700	209	811
Volume to Capacity	0.10	0.23	0.23	0.15	0.08	0.10	0.09
Queue Length 95th (m)	2.6	0.0	0.0	0.0	0.0	2.4	2.3
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	24.0	9.9
Lane LOS	A					C	A
Approach Delay (s)	1.1			0.0		12.9	
Approach LOS						B	

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	31.5%	ICU Level of Service		A
Analysis Period (min)	15			