

# MEMORANDUM

**DATE:** AUGUST 31, 2020

**TO:** MIKE GIAMPA, CITY OF OTTAWA

**FROM:** ROCHELLE FORTIER / JENNIFER LUONG

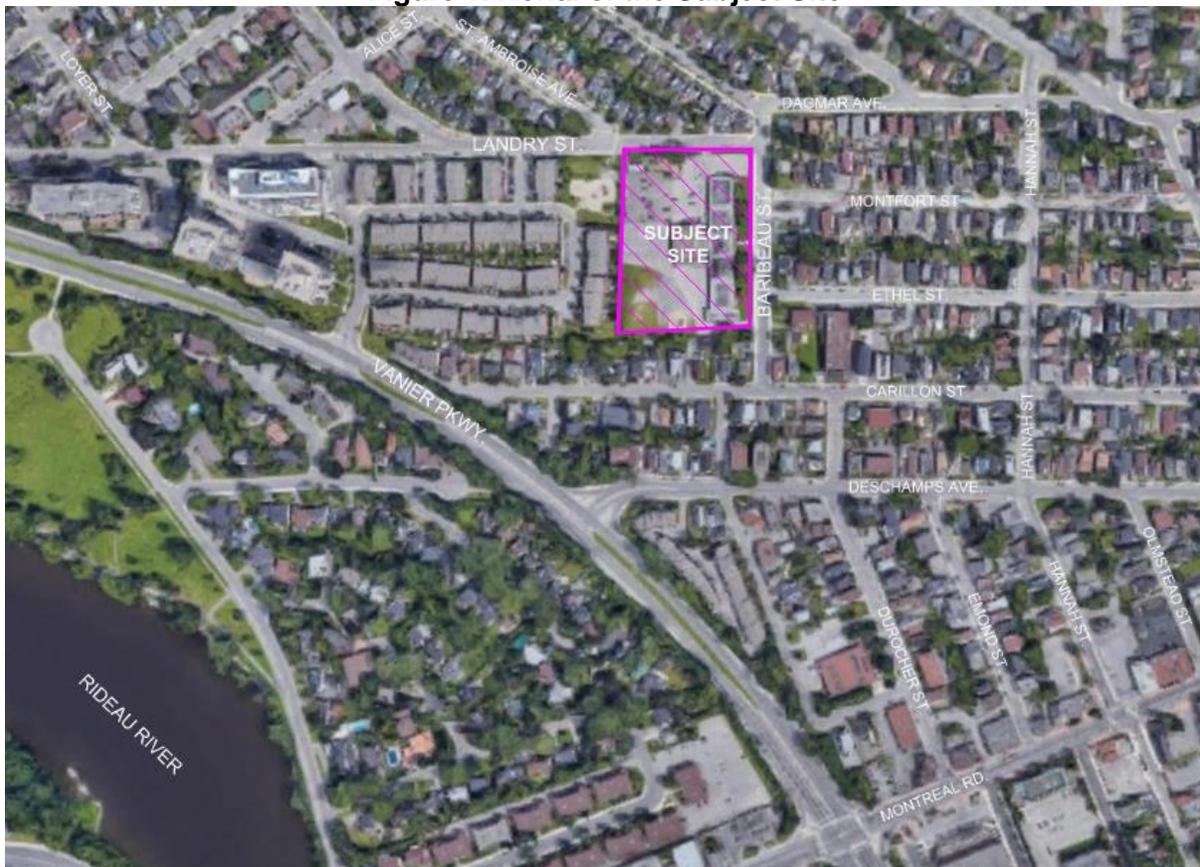
**RE:** 200 BARIBEAU STREET  
TRIP GENERATION

**CC:** MARK BISSETT, NOVATECH

## 1.0 Introduction

This trip generation memo has been prepared in support of a Site Plan Control Application for a redevelopment at 200 Baribeau Street. The subject site is located in the Vanier neighborhood, at the southwest corner of the Baribeau Street and Landry Street intersection. An aerial view of the subject site is provided as **Figure 1**.

**Figure 1: Aerial of the Subject Site**



Currently, the subject property is occupied by a one-storey building which was originally constructed as an elementary school and contains 18 classrooms, as well as a general purpose room (gym/stage, change rooms, etc.) and administrative offices. The property was acquired by Ahlul Bayt Center Ottawa (ABCO), and continues to function as an elementary school, serving kindergarten to grade six students. Additionally, the general purpose room is now also used as a mosque for worship services and classrooms, in addition to serving as such, also serve for community centre purposes during non-school hours, on weekends and during the summer periods. The growth in ABCO's student population and community is not adequately accommodated by the existing building. Rather than pursuing the enlargement of the existing building, ABCO is now in the process of moving to a new, larger premises that will better accommodate its growing needs for additional floor space.

The proposed redevelopment at 200 Baribeau will include the demolition of the existing building on-site and the construction of 92 townhouses. The development will be served by one access connection to Baribeau Street and one access connection to Landry Street. A copy of the proposed Site Plan is included in **Appendix A**.

Following discussions with City staff, a memo describing the trip generation for the existing and proposed uses on-site was requested in order to estimate the net site traffic generated by the redevelopment.

## **2.0 Trip Generation**

### **2.1 Existing Trip Generation**

The Ahlul Bayt Center Ottawa (ABCO) currently operates a private school, mosque, and community/recreational center out of the existing building. The ABCO is proposed to relocate to 3025 Albion Road, and a Transportation Impact Study (TIS) was prepared by Novatech in 2016 and revised in 2018 in support of this relocation. As such, peak hour trips for the proposed relocation were estimated using existing data at the ABCO. The trip generation section from the 2018 TIS is included as **Appendix B** for reference. The following summarizes the weekday peak hour trip generation for the existing uses on-site.

#### Elementary School

The elementary school serves approximately 170 students and employs 17 teachers and administrative staff. It is expected that all students and staff arrive within a single one-hour period during the AM peak hour, and that approximately 35% of staff/students remain on-site for after-school programs in the PM peak hour. It is expected that most students carpool and are dropped off/picked up from school. A vehicle occupancy of 3 students per vehicle was assumed. Peak hour person trips are estimated at 187 people per hour (pph) in the AM peak, and 122 pph in the PM peak hour. Peak hour vehicle trips are estimated at 119 vehicles per hour (vph) during the AM peak hour, and 78 vph during the PM peak hour.

#### Mosque

Currently, prayer services are not held during a school day. As such, no weekday peak hour vehicle trips are associated with the mosque use.

#### Community/Recreational Center

A variety of different programs (youth groups, scouts, religious education) are run out of the community/recreational center throughout the week. These programs are generally held outside of peak hours.

## 2.2 Proposed Trip Generation

In the absence of local data, the use of the *TRANS Trip Generation Manual* is preferred by the City of Ottawa to estimate the trip generation of residential development. As such, trips generated by the proposed residential use have been estimated using the relevant recommended rates outlined in the *TRANS Trip Generation Manual*. The vehicle trip generation rates, taken from Table 6.3 of the TRANS report, correspond to townhouses in the Urban Area (inside the greenbelt). The directional split between inbound and outbound trips are based on the blended splits presented in Table 3.17 of the report. Estimates of the trips generated by the proposed development are summarized in the following table.

**Table 1: Proposed Residential Vehicle Trip Generation**

Land Use	TRANS Rate	Units	AM Peak (VPH)			PM Peak (VPH)		
			IN	OUT	TOT	IN	OUT	TOT
Townhouse	AM: 0.51 PM: 0.51	92 units	17	30	47	25	22	47

The vehicle trips have been converted to person trips using auto modal shares for townhouses in the urban area presented in Table 3.13 of the TRANS report. Person trips generated by the proposed development are summarized in the following table.

**Table 2: Proposed Residential Person Trip Generation**

Land Use	TRANS Auto Share	AM Peak (PPH)			PM Peak (PPH)		
		IN	OUT	TOT	IN	OUT	TOT
Townhouse	AM: 45% PM: 53%	38	67	105	47	42	89

Based on the foregoing table, the proposed development will generate 105 person trips in the AM peak hour and 89 person trips in the PM peak hour.

The modal shares for the proposed development are anticipated to be consistent with the modal shares outlined in the *2011 TRANS O-D Survey Report*, specific to the Ottawa East region. The modal share values applied to the proposed dwellings are based on the typical commuter pattern, represented by all observed trips from/within Ottawa East in the AM peak hour, and all observed trips to/within Ottawa East in the PM peak hour. A full breakdown of the projected person trips generated by modal share is shown in the following table.

**Table 3: Person Trips by Modal Share**

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Person Trips		38	67	105	47	42	89
Auto Driver	45%	17	30	47	21	19	40
Auto Passenger	15%	6	10	16	7	6	13
Transit	25%	9	17	26	12	11	23
Non-Auto	15%	6	10	16	7	6	13

From the previous table, the proposed development is projected to generate 47 vehicle trips during the AM peak hour and 40 vehicle trips during the PM peak hour.

### 2.3 Net Site Trip Generation

The following table summarizes the net site trip generation due to the proposed redevelopment at 200 Baribeau Street. Note that negative numbers indicate an overall reduction in site trips.

**Table 4: Net Site Trip Generation**

Land Use	AM Peak			PM Peak		
	IN	OUT	TOT	IN	OUT	TOT
<i>Vehicle Trip Generation</i>						
Existing Vehicle Trips	65	54	119	35	43	78
Proposed Vehicle Trips	17	30	47	21	19	40
<b>Net Site Vehicle Trips</b>	<b>-48</b>	<b>-24</b>	<b>-72</b>	<b>-14</b>	<b>-24</b>	<b>-38</b>

Based on the foregoing, the proposed redevelopment will result in an overall net decrease in vehicle trips in the AM and PM peak hours.

### 3.0 Conclusions

Ahlul Bayt Center Ottawa (ABCO) currently operates a private school, mosque, and community/recreational center out of the existing building at 200 Baribeau Street. The proposed redevelopment, consisting of 92 townhouse units, will result in an overall net decrease in person and vehicle trips to/from the site.

## **Appendix A**

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### Proposed Site Plan



## **Appendix B**

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Excerpt from 3025 Albion Road TIS

Albion Road and Bank Street in the vicinity of the subject site, as shown in the TRANS model (2011 to 2031), identified either no growth or negative growth over the 20-year planning horizon. Based on this information, no background growth has been applied to the road network. As no growth is anticipated, the 2019 and 2024 background traffic volumes remain consistent with the existing condition.

### 3.3 Trip Generation

The ABCO is a Lebanese Muslim Canadian registered charitable organization which offers the community ongoing social, cultural, educational, and religious services. The ABCO is relocating from their existing site in Vanier to 3025 Albion Road. The site is currently occupied by Hydro Ottawa offices. The proposed development will use the existing building to include a mix of several uses including a school, community centre, recreational facility, mosque, banquet hall, as well as leased office and warehouse spaces. The uses and programs for day-to-day operations have been reviewed independently from the banquet hall which will be used for occasional events, as described further in Section 3.3.6.

The approximate time periods associated with each program or facility are identified in **Table 2**, which includes the existing office use. During the weekday time period, the school remains the major trip generator with occasional evening programming at the community centre. The exercise facilities and mosque will continue to generate trips throughout the day and evening time periods. The proposed leased office and warehouse spaces will generate trips during the AM, midday, and PM peak hours. On weekends, Saturday mornings reflect the worst-case scenario with overlapping heritage language school and the use of the mosque and exercise facilities.

For the existing development and the proposed office and warehouse, the vehicle trips have been estimated using trip generation rates from ITE's *Trip Generation Manual, 9<sup>th</sup> Edition*. For the proposed development, the vehicle trips associated with each program or facility have been identified based on the existing staff experience at the facility in Vanier. The estimated vehicle trips have been compared to ITE rates (where available) to validate the assumptions. Given the limited access to transit and the city-wide catchment area, it has been assumed that few people will travel by non-auto modes. Higher proportions of carpooling are anticipated and estimated vehicle occupancies are identified for each trip generator.

**Table 2: Typical Facility Programs by Day and Time Period**

Use/Program	Weekday				Saturday				Sunday		
	AM	Midday	PM	Evening	AM	Noon	Mid-PM	Evening	AM	Noon	Mid-PM
<i>Existing Development</i>											
Industrial	✓	✓	✓								
Warehouse	✓	✓	✓								
Offices	✓	✓	✓								
<i>Proposed Development</i>											
School	✓	✓	✓								
Heritage Language School					✓	✓	✓				
Religious Education				✓							
Girls' Youth Group				✓							
Boys' Youth Group								✓			
Scouts									✓	✓	✓
Exercise Facility	✓	✓	✓	✓	✓	✓	✓	✓			
Prayers	✓	✓	✓	✓	✓	✓	✓	✓			
Leased Office	✓	✓	✓								
Leased Warehouse	✓	✓	✓								

**3.3.1 Existing Development**

The existing building is occupied by Hydro Ottawa, and currently contains 42,510 ft<sup>2</sup> GFA of industrial space, 25,324 ft<sup>2</sup> GFA of warehousing spaces, and 80,125 ft<sup>2</sup> GFA of office space. A section of the first floor is also used as garage space, which has been assumed to generate no trips.

Trips generated by the existing development during the weekday AM and PM peak periods have been estimated using relevant land uses in the ITE *Trip Generation Manual, 9<sup>th</sup> Edition*. Trips generated during the midday peak period has been estimated as half of the average between the AM and PM peaks. These trips represent employees or clients who arrive and/or depart the subject site for lunch, meetings, etc. A split of 50% entering/50% exiting during this period has also been assumed.

Trips generated using the ITE trip generation rates were converted to person trips using a factor of 1.28, consistent with the City's 2017 TIA Guidelines. The person trip generation by the existing site is summarized in **Table 3**.

**Table 3: Existing Person Trips**

Land Use	ITE Code	GFA	AM Peak (pph)			Mid Peak (pph)			PM Peak (pph)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Gen. Light Industrial	110	42,510 ft <sup>2</sup>	44	6	50	13	13	26	6	46	52
Warehousing	150	15,324 ft <sup>2</sup>	5	1	6	2	2	4	1	5	6
Single Tenant Office	715	80,125 ft <sup>2</sup>	164	20	184	45	45	90	27	151	178
<b>Total</b>			<b>213</b>	<b>27</b>	<b>240</b>	<b>60</b>	<b>60</b>	<b>120</b>	<b>34</b>	<b>202</b>	<b>236</b>

The modal shares for the existing development are anticipated to be consistent with the modal shares outlined in the 2011 *TRANS O-D Survey Report*, specific to the Alta Vista district. A full breakdown of the person trips by modal share are shown in **Table 4**.

**Table 4: Existing Person Trips by Modal Share**

Travel Mode	Modal Share	AM Peak			Midday Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Total Person Trips		213	27	240	60	60	120	34	202	236
Auto Driver	65%	138	18	156	39	39	78	22	132	154
Auto Pass	15%	32	4	36	9	9	18	5	30	35
Transit	15%	32	4	36	9	9	18	5	30	35
Non-Auto	5%	11	1	12	3	3	6	2	10	12

### 3.3.2 School

The elementary and middle school will include approximately 16 classrooms and serve approximately 170 students. The school will have 17 teachers and administrative staff and will be in session from Monday to Friday between 8:15am and 3:15pm.

Based on the 2011 OD Data for work trips to the Alta Vista area, it has been assumed that 65% of the teachers drive to the site; amounting to 11 vehicles. Based on current operations at the ABCO school in the Vanier area, it is expected that most students will carpool to/from school with an average of 3 students per vehicle; amounting to approximately 54 vehicles. It has been conservatively assumed that all students and teachers arrive within a single one-hour period during the AM peak hour, as summarized in **Table 5**. During the PM peak hour, 65% of teachers and students are expected to depart during the peak hour while the remaining 35% remain on-site for after-school programs. By comparison, the ITE rates for a private school (LU534) identify approximately 30% more vehicle trips in both the morning and afternoon peak periods; likely reflective of lower carpooling rates amongst students.

**Table 5: School Trips**

	Teachers	Students
Persons	17	170
Non-Auto Modes (35% / 5%)	5	9
Vehicle Occupancy	1.1	3
Vehicles	11	54
Peak Hour Vehicle Trips (In/Out)		
-AM Peak Hour	11/0	54/54*
-PM Peak Hour	0/8	35/35*

Note: \* All drivers assumed to drop-off/pick-up only. Some linked vehicle trips may exist which is not accounted for.

**3.3.3 Recreation/Community Centre**

The recreation and community centre will include sports facilities and community programs. The centre will employ 9 full-time or part-time staff and up to 30 occasional volunteers to lead youth programs and serve on the Executive and Trustee boards. A total of ten vehicle trips have been included to account for these staff and volunteers.

Exercise Facility

The exercise facility is proposed to be open from 7:00am to 10:00pm but access will be limited to some facilities during school hours. The facility may include a swimming pool, gymnasium, and squash court. Peak use of the facility is expected to be approximately 50 persons and occur in the evening period from 7:00pm to 10:00pm. If on average users stay on-site for 1.5 hours, two-way vehicle trip rates are anticipated to be approximately 58vph, as shown in **Table 6**. By comparison, the ITE Trip Generation Manual Recreational Community Centre rates suggest two-way peak hour trips of up to 45vph; suggesting the estimate of 58vph is likely conservative.

**Table 6: Exercise Facility Trips**

	Users
Persons	50
Non-Auto Modes (5%)	3
Vehicle Occupancy	1.1
Vehicles	43
Average Length of Stay	1.5 hours
Peak Hour Vehicle Trips (In/Out)	
-Evening and Weekends	29/29
-Weekday (33% reduction assumed during school hours)	19/19

Religious Education

A religious education session will be hosted every Thursday evening at approximately 7:00pm and will serve 200 persons including both children and adults. It has been assumed that 95% will arrive by vehicle with an average of 3 students per vehicle, or 64 vehicles, as shown in **Table 7**. As some students are adults, it has been assumed that only 25% of drivers will be exclusively

dropping-off/picking-up while the remainder of drivers will remain on site to either attend the education session or use on-site facilities.

**Table 7: Religious Education Trips**

	Leaders	Students
Persons	7	200
Non-Auto Modes (5%)	0	10
Vehicle Occupancy	1.1	3
Vehicles	6	64
Peak Hour Vehicle Trips (In/Out) 7:00PM Arrival	6/0	64/16

Youth Groups

The centre will host a girls’ youth group for ages 9 to 16 years on Friday evenings beginning at approximately 7:00pm. A boys’ youth group for ages 15 to 18 years will be hosted on Saturday evenings beginning at approximately 7:00pm. The youth groups will be run by a team of 8 to 10 councillors. Most youth will carpool to the site with an average of 3 youths per vehicle, as summarized in **Table 8**. Half of the vehicles are expected to remain on-site while drivers attend the youth group or use the recreational facility while the other half return at the end of each session to pick-up the youth.

**Table 8: Youth Group Trips**

	Girls’ Youth Group		Boys’ Youth Group	
	Councilor	Youth	Councilor	Youth
Persons	10	120	8	100
Non-Auto Modes (5%)	1	6	0	5
Vehicle Occupancy	1.1	3	1.1	3
Vehicles	8	38	7	32
Peak Hour Vehicle Trips (In/Out)	8/0	38/19	7/0	32/16

Scouts

A Scouts program will be hosted at the site on Sunday mornings from approximately 10:00am to 12:00pm. The Scouts will include both boys and girls from ages 6 to 14 years and will be run by a team of 15 Scout Leaders. Consistent with the travel assumptions for the youth groups, it is expected that only 5% arrive by non-auto modes and on average 3 scouts arrive in each vehicle, as shown in **Table 9**. Half of the vehicle drivers are assumed to remain on-site to make use of the available facilities while the second half are assumed to return to pick-up Scouts at the end of the program.

**Table 9: Scouts Trips**

	Leaders	Scouts
Persons	15	150
Non-Auto Modes (5%)	1	8
Vehicle Occupancy	1.1	3
Vehicles	13	48
Peak Hour Vehicle Trips (In/Out)		
-Arrival (AM Peak)	13/0	48/24
-Departure (Midday)	0/13	24/48

Heritage Language Program

A Heritage Language Program will be hosted on Saturdays from approximately 10:00am to 2:00pm. This program will include approximately 160 students and 15 teachers. Consistent with previous assumptions, students are expected to carpool with an average of 3 students per vehicle, as shown in **Table 10**. Half of the drivers are assumed to remain on-site to make use of the available facilities.

**Table 10: Heritage Language Program Trips**

	Teachers	Students
Persons	15	160
Non-Auto Modes (5%)	1	8
Vehicle Occupancy	1.1	3
Vehicles	13	51
Peak Hour Vehicle Trips (In/Out)		
-Arrival (AM Peak)	13/0	51/26
-Departure (Mid-Afternoon)	0/13	26/51

**3.3.4 Mosque**

Prayer services will occur approximately 5 times per day with the exact times shifting throughout the year. Peak attendance for weekly prayers will occur on Friday afternoon (approximately 1:00pm). Attendance at the mosque for prayers is not highly prioritized within the community and therefore attendance is expected to be less than what is observed at other mosques in Ottawa. At the existing site in Vanier, prayers are not held during the school day and therefore none of the community members currently attend Friday afternoon. It has been conservatively assumed that as many as 200 persons would be in attendance at midday on Friday (not including school children and staff already on-site).

In addition to the Friday afternoon service, typical weekday attendance at prayers has been estimated at approximately 70 persons (not including school children and staff). On weekends, typical attendance at prayers is expected to increase to approximately 90 persons to account for some school-aged children attending with their parents.

The time periods have been conservatively assumed to align with the peak travel demand for other on-site programs. The estimated people and vehicle trips are summarized in **Table 11**. It has been conservatively assumed that all persons attending prayers arrive and depart within a single hour as most prayer sessions are limited to approximately 30 minutes. By comparison, the ITE Trip Generation Manual land use for mosques (which is limited to a single observation) identifies 67% or 96% of trips occurring during the peak hour of generator as inbound trips; suggesting most remain on-site for more than a 1-hour period.

**Table 11: Mosque – Vehicle Trips**

	Typical Weekday	Friday Midday Peak Hour	Saturday
Persons	70	200	90
Non-Auto Modes (5%)	4	10	5
Vehicle Occupancy	1.65	1.65	2.1
Vehicles	40	115	40
Peak Hour Vehicle Trips (In/Out)	40/40	115/115	40 /40

**3.3.5 Leased Office and Warehouse Space**

The proposed redevelopment includes office and warehouse space that operates independently of the previous programs, with the office occupying approximately 3,000 ft<sup>2</sup> of the gross floor area and the warehouse occupying approximately 70,000 ft<sup>2</sup> of the gross floor area.

Trips generated by the proposed office and warehouse developments during the weekday AM and PM peak periods have been estimated using relevant land uses in the ITE *Trip Generation Manual, 9<sup>th</sup> Edition*. Consistent with the existing development, the trip generation for the midday peak period has been estimated as half of the average between the AM and PM peaks.

Trips generated using the ITE trip generation rates were converted to person trips using a factor of 1.28, consistent with the City’s 2017 TIA Guidelines. The person trip generation by the existing site is summarized in **Table 12**.

**Table 12: Leased Office and Warehouse – Person Trips**

Land Use	ITE Code	GFA	AM Peak (pph)			Mid Peak (pph)			PM Peak (pph)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Warehousing	150	69,943 ft <sup>2</sup>	22	5	27	7	7	14	8	21	29
Single Tenant Office	715	2,940 ft <sup>2</sup>	5	1	6	1	1	2	1	5	6
<b>Total</b>			<b>27</b>	<b>6</b>	<b>33</b>	<b>8</b>	<b>8</b>	<b>16</b>	<b>9</b>	<b>26</b>	<b>35</b>

As with the existing development, the modal shares are anticipated to be consistent with the modal shares outlined in the 2011 *TRANS O-D Survey Report*, specific to the Alta Vista district. A full breakdown of the person trips by modal share are shown in **Table 13**.

**Table 13: Leased Office and Warehouse – Person Trips by Modal Share**

Travel Mode	Modal Share	AM Peak			Midday Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Total Person Trips		27	6	33	8	8	16	9	26	35
Auto Driver	65%	17	4	21	6	6	12	6	17	23
Auto Pass	15%	4	1	5	1	1	2	1	4	5
Transit	15%	4	1	5	1	1	2	1	4	5
Non-Auto	5%	2	0	2	0	0	0	1	1	2

The net increase in trip generation, as identified in **Table 3** through **Table 13** above, is summarized in **Table 14** and identifies additional midday and PM peak hour trips of 87vph to 213vph for typical day-to-day scenarios. There are approximately eight annual events identified separately in Section 3.3.6, for which a detailed traffic assessment has not been carried out. As previously identified in Section 1.1, the weekday midday (Friday) and PM peak hours were selected for further analysis to reflect the worst-case combination of background and site generated traffic.

**Table 14: Summary of Peak Hour Vehicle Trips (Inbound and Outbound)**

<b>WEEKDAYS</b>				
Use or Program	AM	Midday (Fri)	PM	Evening
<i>Existing Development</i>				
Industrial	29/4	8/8	4/30	-
Warehouse	3/1	1/1	1/3	-
Office	106/13	30/30	17/99	-
<b>Sub-Total</b>	<b>138/18</b>	<b>39/39</b>	<b>22/132</b>	<b>-</b>
	<b>156</b>	<b>78</b>	<b>154</b>	<b>-</b>
<i>Proposed Development</i>				
School	65/54	-	35/43	-
Recreational Centre Staff	10/0	5 /5	3/7	0/10
Religious Education (Thurs)	-	-	-	70/16
Girls' Youth Group (Fri)	-	-	-	46/19*
Exercise Facility	19/19	19/19	29/19	29/29
Prayers	40/40	115/115	40/40	40/40
Leased Warehouse	14/3	5/5	5/14	-
Leased Office	3/1	1/1	1/3	-
<b>Sub-Total</b>	<b>151/117</b>	<b>145/145</b>	<b>113/126</b>	<b>185/114*</b>
	<b>268</b>	<b>290</b>	<b>239</b>	<b>299*</b>
<b>Net Difference</b>	<b>13/99</b>	<b>106/106</b>	<b>91/-6</b>	<b>185/114*</b>
	<b>112</b>	<b>212</b>	<b>85</b>	<b>299</b>
<b>SATURDAY**</b>				
Use/Program	AM	Noon	Midday	Evening
Recreational Centre Staff	10/0	5 /5	3/7	0/10
Heritage Language School	64/26	-	26/64	-
Boys' Youth Group	-	-	-	39/16
Exercise Facility	29/29	29/29	29/29	29/29
Prayers	40/40	40/40	40/40	40/40
<b>Sub-Total/Net Difference</b>	<b>143/95</b>	<b>74/74</b>	<b>98/140</b>	<b>108/95</b>
	<b>238</b>	<b>148</b>	<b>238</b>	<b>203</b>
<b>SUNDAY**</b>				
Use/Program	AM	Noon	Midday	Evening
Scouts	61/24	24/61	-	-
<b>Sub-Total/Net Difference</b>	<b>61/24</b>	<b>24/61</b>	<b>-</b>	<b>-</b>
	<b>85</b>	<b>85</b>	<b>-</b>	<b>-</b>

Note: \* Weekday evening sub-total reflective of Thursday evening as the worst-case scenario.  
 \*\*Existing development is assumed to generate no trips on weekends.

### 3.3.6 Banquet Hall and Annual Events

Up to eight annual events are anticipated at the ABCO facility with attendance as high as 600 persons. Five (5) of the events are typically held on a Saturday evening while the remaining three (3) events may occur during the AM peak period. During these events, families typically travel