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March 5, 2020 Reference No. 202003

Farhang Fotovat
Cresco
7 Peruz Court, PO Box 48089
Bedford, NS, B4A 3Z2

Re: Traffic Impact Statement, Mixed-Use Development, Hogan Court, Bedford, NS

Mr. Fotovat,

Harbourside Transportation Consultants has prepared a traffic impact statement to satisfy the Halifax Regional Municipality requirements for the development permit application for the mixed-use development on Hogan Court in Bedford, Nova Scotia. The site context is illustrated in Figure 1. There are two areas on the site: the area east of Hogan Court, owned by Cresco, and the area west of Hogan Court.

Figure 1: Site Context

1 Background

The vehicular impacts of the development were originally evaluated in the *Highway 102-Larry Uteck Interchange Traffic Impact Analysis (June 2008)*. In the original study, the development was included in the 38 acres of commercial land for the Bedford West Sub Area 9. Traffic volumes generated by the development, referred to as the "Cresco Lands", were subsequently reviewed in the *Ravines of Bedford South Driveway Analysis (December 2008)* after a concept plan was developed for the area. The concept plan included 238,000 square feet of commercial space (190,000 square feet east of Hogan Court and 48,000 square feet west of Hogan Court). The review of the traffic volumes is detailed in Table 1. The study concluded that there was little change in the amount of traffic expected to be generated by the development.

Table 1: Total and External Trips Generated by Area 9, South of the Roundabout (Table 15 extracted from the Ravines of Bedford South Driveway Analysis)

Area 9 - South of Roundabout		Total Trips (vph)		External Trips (vph)	
2028 PM Peak	Size	In	Out	In	Out
Original Study	38 acres	357	387	241	261
Actual Development	238 sq. ft.	428	464	229	249
			Difference	11	13

Since the completion of these studies, changes have been made to the land use mix at the site and more detailed information has been presented on the types of commercial land uses which has necessitated a review of the traffic volumes generated by the development. This traffic impact statement compares the impacts of the current development proposal in relation to the impacts identified in the original study which informed the development of transportation infrastructure in the area.

2 Proposed Development

The development plan for the commercial area east of Hogan Court is shown in Figure 2. The commercial development will include approximately 68,625ft^2 (6,375m^2) of commercial space. Land uses will include a grocery store, a gas station, a restaurant and general commercial. The residential area (not included in the development plan) will include 272 residential units.

The development plan for the property west of Hogan Court is shown in Figure 3. The commercial development will include approximately 148,565ft^2 (13,802m^2) of commercial space, land uses will include a hotel with a convention centre, a restaurant and a second hotel.

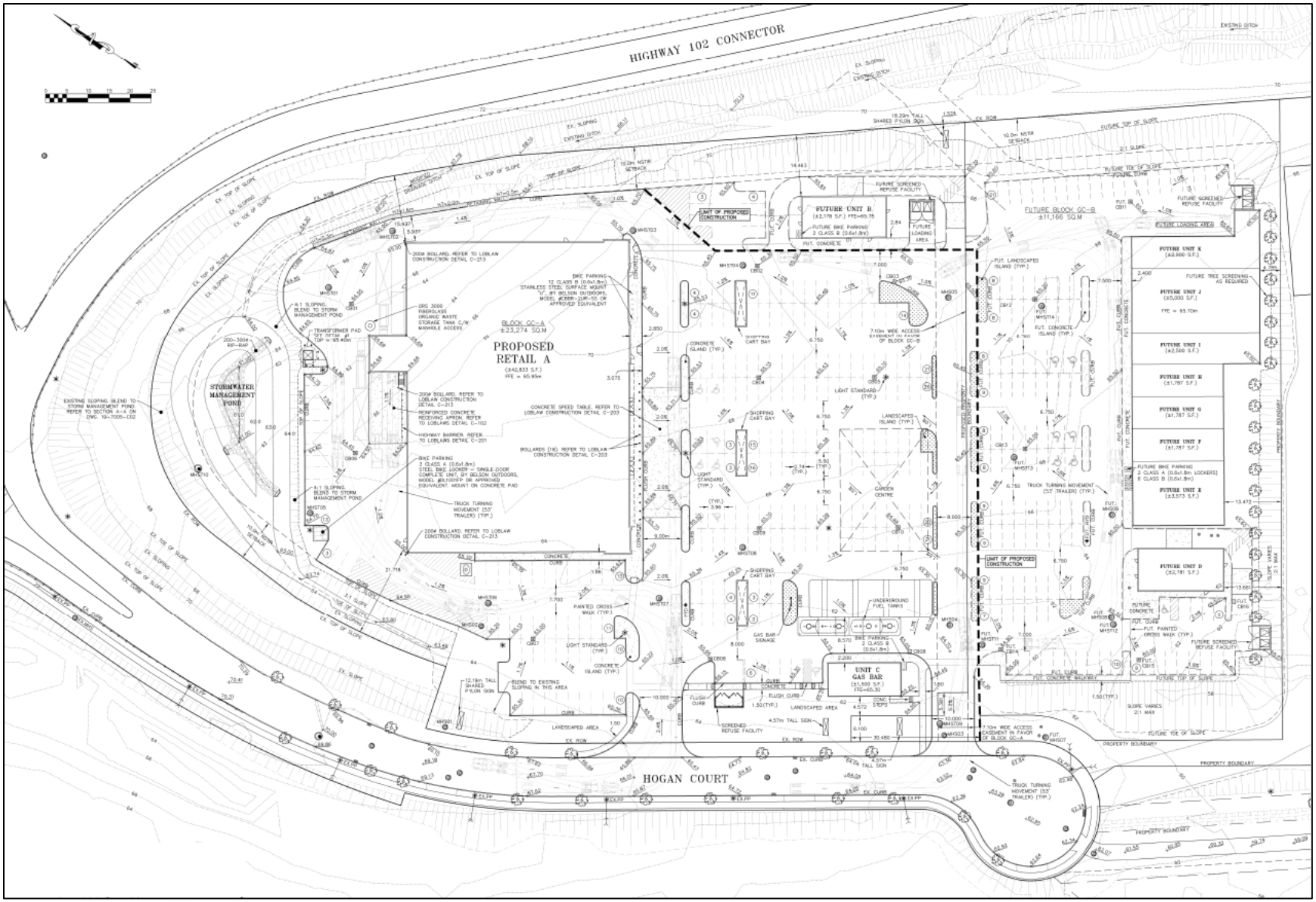


Figure 2: Updated Development Plan East of Hogan Court

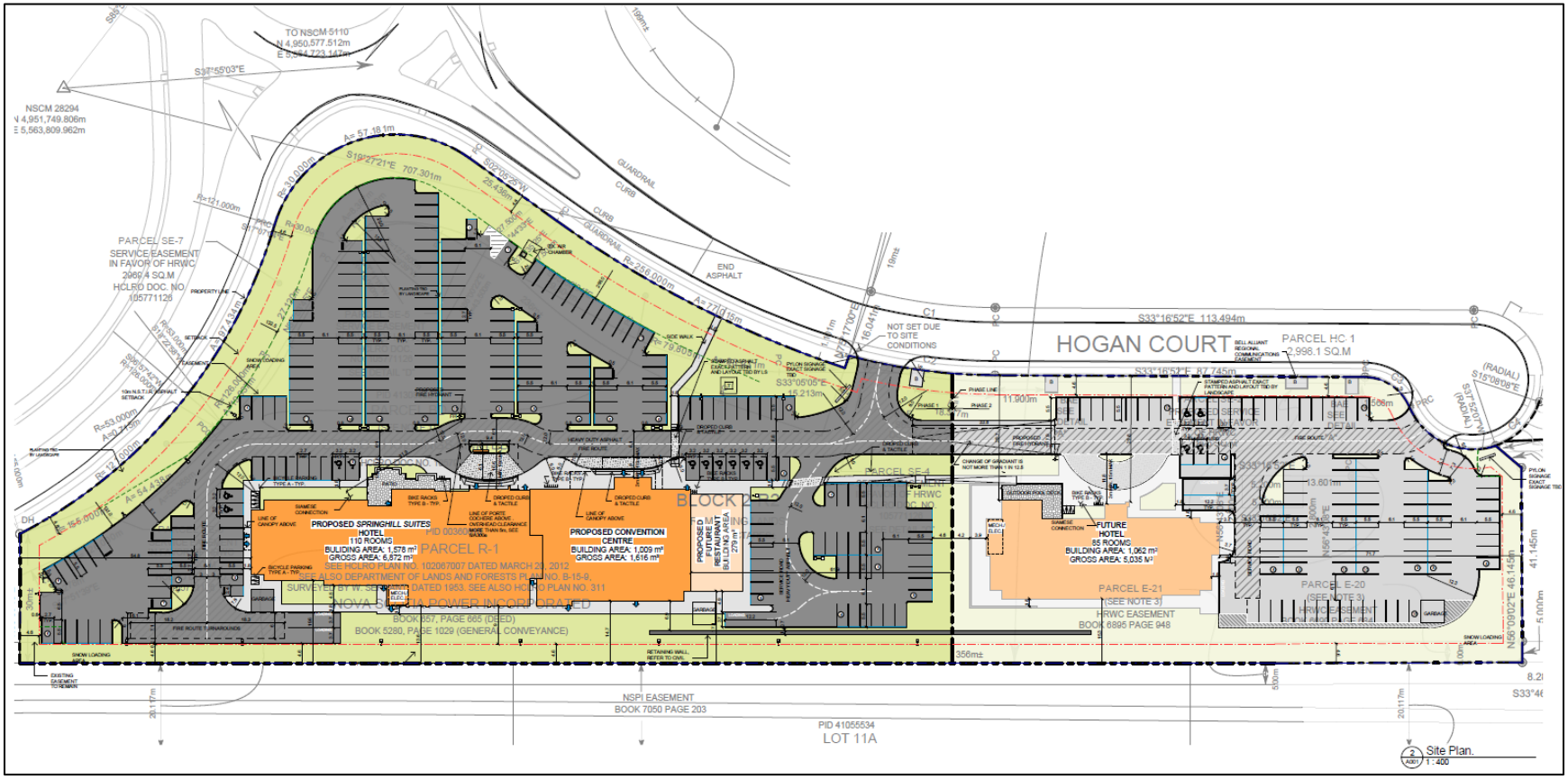


Figure 3: Updated Development Plan West of Hogan Court

3 Trip Generation and Distribution

The trip generation estimates for the development were quantified using trip generation rates from the *ITE Trip Generation Manual (10th edition)*. The vehicle trip estimates were adjusted to reflect trips made using non-auto transportation modes such as transit and active transportation; the reduction of 15 percent used in the original study was used for the purpose of this comparison. It should be noted that the reduction was not applied to trips to/from the gas station.

The vehicle trip estimates were also reduced to reflect on-site synergies. The internal captures were calculated using the National Cooperative Highway Research Program's (NCHRP) methodology outlined in *Report 684 Enhancing Internal Trip Capture Estimation for Mixed Use Developments*. This methodology is the recommended practice in the *ITE Trip Generation Handbook (3rd edition)*.

The weekday morning (AM) and afternoon (PM) peak hour trip generation estimates for the proposed development are summarized in Table 2. On a typical weekday, the proposed development is expected to generate 380 external trips in the morning peak hour (196 trips entering, 184 trips exiting) and 596 external trips in the afternoon peak hour (317 trips entering, 279 trips exiting). These external trips reflect the traffic volumes which are expected to enter and exit Hogan Court at the roundabout.

A portion of the external trips are expected to consist of commercial pass-by trips, which are intermediate trips made to the site by traffic already travelling along Larry Uteck Boulevard. Pass-by trips generated by the development are not considered new trips on Larry Uteck Boulevard. The difference between the total external trips and the pass-by trips are consider the primary trips or new trips which reflect the increase in traffic volumes which are expected on Larry Uteck Boulevard. The development is expected to generate 306 primary trips in the morning peak hour (159 trips entering, 147 trips exiting) and 436 primary trips in the afternoon peak hour (237 trips entering, 199 trips exiting).

Table 2: Trip Generation Estimates

Land Use	Units		Trip Generation Rates						Trips Generated (vph)					
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
			Rate	In	Out	Rate	In	Out	Total	In	Out	Total	In	Out
850 - Supermarket	42.83	1000 ft^2	3.82	60%	40%	9.24	51%	49%	164	98	66	396	202	194
932 - High-Turnover Restaurant	2.18	1000 ft^2	9.94	55%	45%	9.77	62%	38%	22	12	10	22	14	8
944 - Gasoline/Service Station	8.00	Pumps	10.28	50%	50%	14.03	50%	50%	83	42	41	113	57	56
820 - Shopping Centre	22.12	1000 ft^2	0.94	62%	38%	3.81	48%	52%	21	13	8	85	41	44
222 - Multifamily Housing (High-Rise)	272	Units	0.31	24%	76%	0.36	61%	39%	85	20	65	98	60	38
310 - Hotel	110	Rooms	0.47	59%	41%	0.6	51%	49%	52	31	21	66	34	32
931 - Quality Restaurant	3.00	1000 ft^2	0.73	50%	50%	7.8	67%	33%	3	2	1	24	16	8
310 - Hotel	85	Rooms	0.47	59%	41%	0.6	51%	49%	40	24	16	51	26	25
Total Vehicle Trips									470	242	228	855	450	405
Internal Capture Rate (NCHRP)									38	19	19	174	87	87
Transit and Active Transportation Usage (15%)									52	27	25	85	46	39
External Trips									**380**	**196**	**184**	**596**	**317**	**279**
Commercial Pass-By Trips (25%)									74	37	37	160	80	80
Primary External Trips									**306**	**159**	**147**	**436**	**237**	**199**

4 Comparison to Original Trip Generation Estimates

The traffic volumes generated by the current development proposals were compared to the original trip generation estimates to determine if the impact of the development will be similar. The review of the traffic volumes during the afternoon peak hour is detailed in Table 3. It should be noted that the trip estimates from the original study were quantified using the Shopping Centre land use code from the 7th edition of the *ITE Trip Generation Manual* which reflects lower trip generation rates than the current edition for the code that was used.

The changes in land uses mix at the site include the reallocation of a portion of the commercial density to residential density, resulting in a reduction in commercial density. However, the quantification of trips using more detailed information regarding the types of commercial land uses result in an additional 76 trips entering and 18 trips exiting, for a difference of 94 external trips during the PM peak hour, which relates to less than two additional trips per minute.

Table 3: Comparison of Total and External Trips Generated

Full Build Out PM Peak Hour	Total Trips (vph)		External Trips (vph)	
	In	Out	In	Out
Original Study (2008)	357	387	241	261
Actual Development	450	405	317	279
Difference			**76**	**18**

5 Traffic Operations

The Junctions 8 ARCADY software was used to complete the intersection performance analysis for roundabouts. ARCADY uses an empirical model based on the application of statistical regression of a large data set of observed roundabout operations in the United Kingdom.

5.1 Measures of Effectiveness

The performance of an intersection can be evaluated using a number of measures of effectiveness (MOEs), including level of service (LOS), delay, volume-to-capacity ratio (v/c) and vehicle queuing.

Level of service is a qualitative measure used to describe the level of performance of an intersection in terms of traffic movement. Level of service is a measure of driver discomfort, frustration and increased travel time. The quality of traffic movement is divided into six levels ranging from A to F, where level of service A represents the best quality of traffic where the driver has the freedom to drive with free flow speed and level of service F represents the worst quality of traffic where the level of congestion is considered unacceptable to most drivers. The level of service criteria for intersections (Table 4) are stated in terms of average control delay per vehicle.

The volume-to-capacity (v/c) ratio is a measure of how the peak hour traffic volume on an approach to an intersection compares to the theoretical maximum volume that could be accommodated on that intersection approach. As the v/c ratio approaches 1.0, the movement has reduced ability to accommodate any additional volume of traffic.

The 95th percentile queue (95th% queue) is the estimated length in metres of a queue of vehicles stopped on an intersection approach which is only exceeded five percent of the time. Since a stopped vehicle

occupies approximately seven metres of queue length, a 95th% queue of 14 metres indicates that less than five times of out 100 the queue may exceed two vehicles on the approach. The 95th% queue is typically used to determine if sufficient vehicle storage is available to maintain efficient traffic flow.

Table 4: Level of Service Criteria

Level of Service	Description	Signalized Control Delay	Unsignalized Control Delay
A	No congestion; most vehicles do not stop. (Excellent)	≤ 10 sec/veh	≤ 10 sec/veh
B	Very light congestion; some vehicles stop. (Very Good)	10-20 sec/veh	10-15 sec/veh
C	Light congestion; most vehicles stop. (Good)	20-35 sec/veh	15-25 sec/veh
D	Noticeable congestion; vehicles must sometimes wait through more than one red light. No long-standing queues. (Satisfactory)	35-55 sec/veh	25-35 sec/veh
E	Congestion; vehicles must often wait through more than one red light. Long-standing queues are formed. (Unsatisfactory)	55-80 sec/veh	35-50 sec/veh
F	Severe congestion; demand exceeds the capacity of the intersection. (Unacceptable)	≥ 80 sec/veh	≥ 50 sec/veh

5.2 Existing Operations (2020)

Weekday traffic data was collected at the Larry Uteck Boulevard interchange roundabouts using Miovision 'Scout' video data collection devices. Turning movement counts were collected during the morning (7:00am to 9:00am) and afternoon (4:00pm to 6:00pm) peak periods of traffic on a typical weekday in February, 2020. Traffic volumes (categorized as 'light' and 'other' vehicles) and pedestrians were recorded in 15-minute intervals. The morning and afternoon peak hour traffic volumes at the intersections are illustrated diagrammatically in Appendix A.

The weekday peak hour traffic volumes were used to analyze existing conditions at the Larry Uteck Boulevard interchange. The roundabouts were modelled using the existing lane configurations with the exception of the Highway 102 Northbound Off-Ramp. The right turn by-pass on the Highway 102 Northbound Off-Ramp approach was modelled as a third entry lane to the roundabout. Arcady does not include by-pass traffic volumes when computing the delay for an approach. Given that there are known queuing problems on the approach due to high right turn traffic volumes during the peak hour, the by-pass was modelled as a third lane entry to reflect the right turn volumes in the analysis results. The results obtained were considered more reflective of observed field conditions

The MOE results including delay, level of service, volume-to-capacity ratio and 95th percentile queue lengths are summarized in Table 5. The detailed Arcady reports can be found in Appendix B. The analysis indicates that both roundabouts operate at acceptable levels of service during the peak hours. While the operations are considered acceptable, significant queues (greater than 200 metres) are observed on the Highway 102 Northbound Off-Ramp during the afternoon peak hour.

The analysis indicates that the additional trips generated by the Hogan Court development can be accommodated at the interchange. Since the development is located to the west of the interchange, it will not increase traffic volumes for the northbound right turn movement on the Highway 102 Northbound Off-Ramp.

Table 5: Existing Traffic Operations

Existing Operations (2020)	Weekday AM Peak Hour				Weekday PM Peak Hour			
Intersection	Delay (s/veh)	LOS	v/c	Queue 95th% (m)	Delay (s/veh)	LOS	v/c	Queue 95th% (m)
Larry Uteck Boulevard & Highway 102 SB Ramps	**3.2**	**A**			**3.8**	**A**		
Larry Uteck Boulevard (West)	2.9	A	0.40	7.0	2.5	A	0.30	7.0
Larry Uteck Boulevard (East)	3.1	A	0.51	7.0	3.4	A	0.55	7.1
Hogan Court (South)	4.3	A	0.03	7.0	4.0	A	0.03	7.0
Highway 102 SB Off-Ramp	4.0	A	0.23	7.0	6.1	A	0.46	7.1
Larry Uteck Boulevard & Highway 102 NB Ramps	**3.0**	**A**			**11.2**	**A**		
Larry Uteck Boulevard (West)	2.0	A	0.26	7.0	2.5	A	0.37	7.1
Larry Uteck Boulevard (East)	3.1	A	0.48	7.0	3.2	A	0.43	7.1
Highway 102 NB Off-Ramp	3.7	A	0.04	7.0	24.9	C	0.90	207.1

6 Summary and Conclusions

The traffic impact statement was completed to support the development permit application for the mixed-use development on Hogan Court in Bedford, Nova Scotia. The statement addresses the Halifax Regional Municipality requirements to review the impacts of the current development proposal and compare these impacts to those identified in the original traffic impact study which informed the development of transportation infrastructure in the area.

The proposed mixed-use development will include approximately 217,190ft^2 (20,178m^2) of commercial space and 272 residential units. The proposed development is expected to generate 380 external trips in the morning peak hour (196 trips entering, 184 trips exiting) and 596 external trips in the afternoon peak hour (317 trips entering, 279 trips exiting). External trips reflect the traffic volumes which are expected to enter and exit Hogan Court at the roundabout.

When compared to the afternoon peak hour traffic volumes from the original study, the results indicate that the current development proposal will generate slightly higher external trips than originally anticipated: an additional 94 vehicle trips (76 trips entering, 18 trips exiting). While changes to the land use mix at the site result in a minor increase in traffic volumes along Hogan Court, the increase in traffic volumes along Hogan does not directly translate to an increase in traffic volumes on Larry Uteck Boulevard since a portion of the external trips are expected to consist of commercial trips pass-by trips, which are intermediate trips made to the site by traffic already travelling along Larry Uteck Boulevard.

Weekday peak hour traffic volume date were collected at the Larry Uteck Boulevard interchange roundabouts in February 2020. The existing weekday peak hour traffic volumes were used to analyze existing conditions at the interchange. The analysis indicates that both roundabouts operate at acceptable levels of service during the peak hours. While the operations are considered acceptable, significant queues (greater than 200 metres) are observed on the Highway 102 Northbound Off-Ramp during the afternoon peak hour. The analysis of existing traffic operations at the Larry Uteck Boulevard interchange

indicates that the additional trips generated by the Hogan Court development can be accommodated at the interchange.

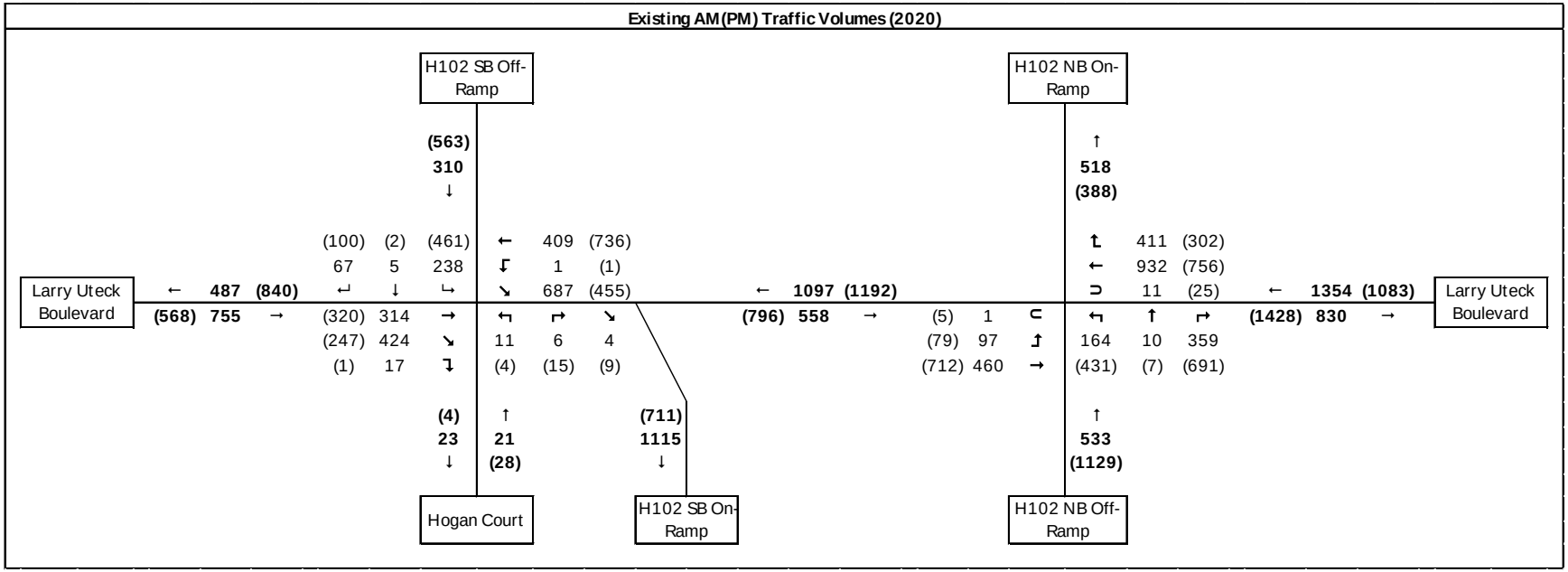
If you have any questions or additional discussion, please feel free to contact the undersigned.

Regards,

Harbourside Transportation Consultants
Michael MacDonald, P. Eng.
Senior Transportation Engineer, Principal
Tel.: 902.405.4655
Email: mmacdonald@harboursideengineering.ca

Appendix A

Traffic Volumes


Existing AM(PM) Traffic Volumes (2020)
H102 SB Off-Ramp
H102 NB On-Ramp
Larry Uteck Boulevard
Hogan Court
H102 SB On-Ramp
H102 NB Off-Ramp
Larry Uteck Boulevard
(563) 310
518 (388)
(100) (2) (461) 409 (736)
67 5 238 1 (1)
411 (302)
932 (756)
← 487 (840)
(568) 755 →
(320) 314
(247) 424
(1) 17
687 (455)
11 6 4
(4) (15) (9)
← 1097 (1192)
(796) 558 →
(5) 1 (79) 97 (712) 460
11 (25)
164 10 359
(431) (7) (691)
← 1354 (1083)
(1428) 830 →
(4) 23
21 (28)
(711) 1115
533 (1129)

Appendix B

Analysis Reports

Junctions 8

ARCADY 8 - Roundabout Module

Filename: 202003 Larry Uteck Blvd - Highway 102 NB.arc8
Path: Z:\Harbourside Transportation Consultants\Projects\202003 Hogan Court\02 Analysis\Arcady
Report generation date: 05/03/2020 3:11:04 PM

Summary of intersection performance

	AM							PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - 2020													
Larry Uteck Boulevard (East)	0.90	~1	3.14	0.48	A	3.02	A	0.77	1.02	3.22	0.43	A	11.16	B
Larry Uteck Boulevard (West)	0.35	~1	2.04	0.26	A			0.60	1.02	2.46	0.37	A		
Highway 102 NB Off-Ramp	0.61	1.00	3.74	0.38	A			8.11	29.58	24.91	0.90	C		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.
"D1 - 2020, AM " model duration: 8:00 AM - 9:30 AM
"D2 - 2020, PM" model duration: 5:00 PM - 6:30 PM

Run using Junctions 8.0.4.487 at 05/03/2020 3:11:04 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	28/10/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	hec45
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.00	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - 2020, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020, AM	2020	AM		ONE HOUR	08:00	09:30	90	15		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Intersection Delay (s)	Intersection LOS
1	Larry Uteck Boulevard & Highway 102 NB	Roundabout	1,2,3,4			3.02	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Name	Leg	Name	Description
Larry Uteck Boulevard (East)	1	Larry Uteck Boulevard (East)	
Highway 102 NB On-Ramp	2	Highway 102 NB On-Ramp	
Larry Uteck Boulevard (West)	3	Larry Uteck Boulevard (West)	
Highway 102 NB Off-Ramp	4	Highway 102 NB Off-Ramp	

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)
Larry Uteck Boulevard (East)	0.00	99999.00
Highway 102 NB On-Ramp	0.00	99999.00
Larry Uteck Boulevard (West)	0.00	99999.00
Highway 102 NB Off-Ramp	0.00	99999.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Larry Uteck Boulevard (East)	7.00	8.00	10.00	30.00	60.00	30.00	
Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓
Larry Uteck Boulevard (West)	7.00	8.00	10.00	30.00	60.00	30.00	
Highway 102 NB Off-Ramp	4.00	12.00	10.00	30.00	60.00	30.00	

Bypass

Name	Leg Has Bypass	Bypass Utilisation (%)
Larry Uteck Boulevard (East)	✓	100
Highway 102 NB On-Ramp		
Larry Uteck Boulevard (West)		
Highway 102 NB Off-Ramp		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
Larry Uteck Boulevard (East)		(calculated)	(calculated)	0.681	2388.859
Highway 102 NB On-Ramp		(calculated)	(calculated)	Exit-only	Exit-only
Larry Uteck Boulevard (West)		(calculated)	(calculated)	0.681	2388.859
Highway 102 NB Off-Ramp		(calculated)	(calculated)	0.600	1923.753

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
Larry Uteck Boulevard (East)	ONE HOUR	✓	1354.00	100.000
Highway 102 NB On-Ramp	Exit-only	✓	Exit-only	Exit-only
Larry Uteck Boulevard (West)	ONE HOUR	✓	558.00	100.000
Highway 102 NB Off-Ramp	ONE HOUR	✓	533.00	100.000

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	**Highway 102 NB On-Ramp**	**Larry Uteck Boulevard (West)**	**Highway 102 NB Off-Ramp**
From	**Larry Uteck Boulevard (East)**	11.000	411.000	932.000	0.000
	Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only
	Larry Uteck Boulevard (West)	460.000	97.000	1.000	0.000
	Highway 102 NB Off-Ramp	359.000	10.000	164.000	0.000

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Turning Proportions (PCE) - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	**Highway 102 NB On-Ramp**	**Larry Uteck Boulevard (West)**	**Highway 102 NB Off-Ramp**
From	**Larry Uteck Boulevard (East)**	0.01	0.30	0.69	0.00
	Highway 102 NB On-Ramp	0.25	0.25	0.25	0.25
	Larry Uteck Boulevard (West)	0.82	0.17	0.00	0.00
	Highway 102 NB Off-Ramp	0.67	0.02	0.31	0.00

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Vehicle Mix

Average PCE Per Vehicle - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	**Highway 102 NB On-Ramp**	**Larry Uteck Boulevard (West)**	**Highway 102 NB Off-Ramp**
From	**Larry Uteck Boulevard (East)**	1.000	1.000	1.000	1.000
	Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only
	Larry Uteck Boulevard (West)	1.000	1.000	1.000	1.000
	Highway 102 NB Off-Ramp	1.000	1.000	1.000	1.000

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Truck Percentages - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	Highway 102 NB On-Ramp	Larry Uteck Boulevard (West)	Highway 102 NB Off-Ramp
From	Larry Uteck Boulevard (East)	0.0	0.0	0.0	0.0
	Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only
	Larry Uteck Boulevard (West)	0.0	0.0	0.0	0.0
	Highway 102 NB Off-Ramp	0.0	0.0	0.0	0.0

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Larry Uteck Boulevard (East)	0.48	3.14	0.90	~1	A
Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
Larry Uteck Boulevard (West)	0.26	2.04	0.35	~1	A
Highway 102 NB Off-Ramp	0.38	3.74	0.61	1.00	A

(Default Analysis Set) - 2020, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020, PM	2020	PM		ONE HOUR	17:00	18:30	90	15		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Intersection Delay (s)	Intersection LOS
1	Larry Uteck Boulevard & Highway 102 NB	Roundabout	1,2,3,4			11.16	B

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Name	Leg	Name	Description
Larry Uteck Boulevard (East)	1	Larry Uteck Boulevard (East)	
Highway 102 NB On-Ramp	2	Highway 102 NB On-Ramp	
Larry Uteck Boulevard (West)	3	Larry Uteck Boulevard (West)	
Highway 102 NB Off-Ramp	4	Highway 102 NB Off-Ramp	

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)
Larry Uteck Boulevard (East)	0.00	99999.00
Highway 102 NB On-Ramp	0.00	99999.00
Larry Uteck Boulevard (West)	0.00	99999.00
Highway 102 NB Off-Ramp	0.00	99999.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Larry Uteck Boulevard (East)	7.00	8.00	10.00	30.00	60.00	30.00	
Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓
Larry Uteck Boulevard (West)	7.00	8.00	10.00	30.00	60.00	30.00	
Highway 102 NB Off-Ramp	4.00	12.00	10.00	30.00	60.00	30.00	

Bypass

Name	Leg Has Bypass	Bypass Utilisation (%)
Larry Uteck Boulevard (East)	✓	100
Highway 102 NB On-Ramp		
Larry Uteck Boulevard (West)		
Highway 102 NB Off-Ramp		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
Larry Uteck Boulevard (East)		(calculated)	(calculated)	0.681	2388.859
Highway 102 NB On-Ramp		(calculated)	(calculated)	Exit-only	Exit-only
Larry Uteck Boulevard (West)		(calculated)	(calculated)	0.681	2388.859
Highway 102 NB Off-Ramp		(calculated)	(calculated)	0.600	1923.753

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
Larry Uteck Boulevard (East)	ONE HOUR	✓	1083.00	100.000
Highway 102 NB On-Ramp	Exit-only	✓	Exit-only	Exit-only
Larry Uteck Boulevard (West)	ONE HOUR	✓	796.00	100.000
Highway 102 NB Off-Ramp	ONE HOUR	✓	1129.00	100.000

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	**Highway 102 NB On-Ramp**	**Larry Uteck Boulevard (West)**	**Highway 102 NB Off-Ramp**
From	**Larry Uteck Boulevard (East)**	25.000	302.000	756.000	0.000
	Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only
	Larry Uteck Boulevard (West)	712.000	79.000	5.000	0.000
	Highway 102 NB Off-Ramp	691.000	7.000	431.000	0.000

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Turning Proportions (PCE) - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	**Highway 102 NB On-Ramp**	**Larry Uteck Boulevard (West)**	**Highway 102 NB Off-Ramp**
From	**Larry Uteck Boulevard (East)**	0.02	0.28	0.70	0.00
	Highway 102 NB On-Ramp	0.25	0.25	0.25	0.25
	Larry Uteck Boulevard (West)	0.89	0.10	0.01	0.00
	Highway 102 NB Off-Ramp	0.61	0.01	0.38	0.00

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Vehicle Mix

Average PCE Per Vehicle - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	**Highway 102 NB On-Ramp**	**Larry Uteck Boulevard (West)**	**Highway 102 NB Off-Ramp**
From	**Larry Uteck Boulevard (East)**	1.020	1.020	1.020	1.020
	Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only
	Larry Uteck Boulevard (West)	1.020	1.020	1.020	1.020
	Highway 102 NB Off-Ramp	1.020	1.020	1.020	1.020

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Truck Percentages - Larry Uteck Boulevard & Highway 102 NB (for whole period)

		To			
		Larry Uteck Boulevard (East)	Highway 102 NB On-Ramp	Larry Uteck Boulevard (West)	Highway 102 NB Off-Ramp
From	Larry Uteck Boulevard (East)	2.0	2.0	2.0	2.0
	Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only
	Larry Uteck Boulevard (West)	2.0	2.0	2.0	2.0
	Highway 102 NB Off-Ramp	2.0	2.0	2.0	2.0

Leg 2 is exit only and so the above grid should be ignored for this Leg.

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Larry Uteck Boulevard (East)	0.43	3.22	0.77	1.02	A
Highway 102 NB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
Larry Uteck Boulevard (West)	0.37	2.46	0.60	1.02	A
Highway 102 NB Off-Ramp	0.90	24.91	8.11	29.58	C

Junctions 8

ARCADY 8 - Roundabout Module

Filename: 202003 Larry Uteck Blvd - Highway 102 SB.arc8
Path: Z:\Harbourside Transportation Consultants\Projects\202003 Hogan Court\02 Analysis\Arcady
Report generation date: 05/03/2020 3:12:38 PM

Summary of intersection performance

	AM							PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
A1 - 2020														
Larry Uteck Boulevard (East)	1.03	?	3.08	0.51	A	3.16	A	1.24	1.02	3.42	0.55	A	3.84	A
Highway 102 SB Off-Ramp	0.30	~1	4.04	0.23	A			0.86	1.02	6.09	0.46	A		
Larry Uteck Boulevard (West)	0.67	1.00	2.89	0.40	A			0.43	~1	2.50	0.30	A		
Hogan Court (South)	0.03	~1	4.34	0.03	A			0.03	~1	3.98	0.03	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.
"D1 - 2020, AM " model duration: 8:00 AM - 9:30 AM
"D2 - 2020, PM" model duration: 5:00 PM - 6:30 PM

Run using Junctions 8.0.4.487 at 05/03/2020 3:12:37 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	28/10/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	hec45
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.00	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - 2020, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020, AM	2020	AM		ONE HOUR	08:00	09:30	90	15		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Intersection Delay (s)	Intersection LOS
1	Larry Uteck Boulevard & Highway 102 SB	Roundabout	1,2,3,4,5			3.16	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Name	Leg	Name	Description
Larry Uteck Boulevard (East)	1	Larry Uteck Boulevard (East)	
Highway 102 SB Off-Ramp	2	Highway 102 SB Off-Ramp	
Larry Uteck Boulevard (West)	3	Larry Uteck Boulevard (West)	
Hogan Court (South)	4	Hogan Court (South)	
Highway 102 SB On-Ramp	5	Highway 102 SB On-Ramp	

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)
Larry Uteck Boulevard (East)	0.00	99999.00
Highway 102 SB Off-Ramp	0.00	99999.00
Larry Uteck Boulevard (West)	0.00	99999.00
Hogan Court (South)	0.00	99999.00
Highway 102 SB On-Ramp	0.00	99999.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Larry Uteck Boulevard (East)	7.00	8.00	10.00	30.00	75.00	30.00	
Highway 102 SB Off-Ramp	4.00	8.00	10.00	30.00	75.00	30.00	
Larry Uteck Boulevard (West)	7.00	12.00	10.00	30.00	75.00	30.00	
Hogan Court (South)	4.00	8.00	10.00	30.00	75.00	30.00	
Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓

Bypass

Name	Leg Has Bypass	Bypass Utilisation (%)
Larry Uteck Boulevard (East)		
Highway 102 SB Off-Ramp	✓	100
Larry Uteck Boulevard (West)		
Hogan Court (South)		
Highway 102 SB On-Ramp		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
Larry Uteck Boulevard (East)		(calculated)	(calculated)	0.594	2388.859
Highway 102 SB Off-Ramp		(calculated)	(calculated)	0.501	1771.999
Larry Uteck Boulevard (West)		(calculated)	(calculated)	0.649	2747.762
Hogan Court (South)		(calculated)	(calculated)	0.501	1771.999
Highway 102 SB On-Ramp		(calculated)	(calculated)	Exit-only	Exit-only

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
Larry Uteck Boulevard (East)	ONE HOUR	✓	1097.00	100.000
Highway 102 SB Off-Ramp	ONE HOUR	✓	310.00	100.000
Larry Uteck Boulevard (West)	ONE HOUR	✓	761.00	100.000
Hogan Court (South)	ONE HOUR	✓	21.00	100.000
Highway 102 SB On-Ramp	Exit-only	✓	Exit-only	Exit-only

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	**Highway 102 SB Off-Ramp**	**Larry Uteck Boulevard (West)**	**Hogan Court (South)**	**Highway 102 SB On-Ramp**
From	**Larry Uteck Boulevard (East)**	0.000	0.000	409.000	1.000	687.000
	Highway 102 SB Off-Ramp	238.000	0.000	67.000	5.000	0.000
	Larry Uteck Boulevard (West)	314.000	0.000	6.000	17.000	424.000
	Hogan Court (South)	6.000	0.000	11.000	0.000	4.000
	Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Turning Proportions (PCE) - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	Highway 102 SB Off-Ramp	Larry Uteck Boulevard (West)	Hogan Court (South)	Highway 102 SB On-Ramp
From	Larry Uteck Boulevard (East)	0.00	0.00	0.37	0.00	0.63
	Highway 102 SB Off-Ramp	0.77	0.00	0.22	0.02	0.00
	Larry Uteck Boulevard (West)	0.41	0.00	0.01	0.02	0.56
	Hogan Court (South)	0.29	0.00	0.52	0.00	0.19
	Highway 102 SB On-Ramp	0.20	0.20	0.20	0.20	0.20

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Vehicle Mix

Average PCE Per Vehicle - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	Highway 102 SB Off-Ramp	Larry Uteck Boulevard (West)	Hogan Court (South)	Highway 102 SB On-Ramp
From	Larry Uteck Boulevard (East)	1.000	1.000	1.000	1.000	1.000
	Highway 102 SB Off-Ramp	1.000	1.000	1.000	1.000	1.000
	Larry Uteck Boulevard (West)	1.000	1.000	1.000	1.000	1.000
	Hogan Court (South)	1.000	1.000	1.000	1.000	1.000
	Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Truck Percentages - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	Highway 102 SB Off-Ramp	Larry Uteck Boulevard (West)	Hogan Court (South)	Highway 102 SB On-Ramp
From	Larry Uteck Boulevard (East)	0.0	0.0	0.0	0.0	0.0
	Highway 102 SB Off-Ramp	0.0	0.0	0.0	0.0	0.0
	Larry Uteck Boulevard (West)	0.0	0.0	0.0	0.0	0.0
	Hogan Court (South)	0.0	0.0	0.0	0.0	0.0
	Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Larry Uteck Boulevard (East)	0.51	3.08	1.03	?	A
Highway 102 SB Off-Ramp	0.23	4.04	0.30	~1	A
Larry Uteck Boulevard (West)	0.40	2.89	0.67	1.00	A
Hogan Court (South)	0.03	4.34	0.03	~1	A
Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

(Default Analysis Set) - 2020, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2020, PM	2020	PM		ONE HOUR	17:00	18:30	90	15		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Intersection Delay (s)	Intersection LOS
1	Larry Uteck Boulevard & Highway 102 SB	Roundabout	1,2,3,4,5			3.84	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Name	Leg	Name	Description
Larry Uteck Boulevard (East)	1	Larry Uteck Boulevard (East)	
Highway 102 SB Off-Ramp	2	Highway 102 SB Off-Ramp	
Larry Uteck Boulevard (West)	3	Larry Uteck Boulevard (West)	
Hogan Court (South)	4	Hogan Court (South)	
Highway 102 SB On-Ramp	5	Highway 102 SB On-Ramp	

Capacity Options

Name	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)
Larry Uteck Boulevard (East)	0.00	99999.00
Highway 102 SB Off-Ramp	0.00	99999.00
Larry Uteck Boulevard (West)	0.00	99999.00
Hogan Court (South)	0.00	99999.00
Highway 102 SB On-Ramp	0.00	99999.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Larry Uteck Boulevard (East)	7.00	8.00	10.00	30.00	75.00	30.00	
Highway 102 SB Off-Ramp	4.00	8.00	10.00	30.00	75.00	30.00	
Larry Uteck Boulevard (West)	7.00	12.00	10.00	30.00	75.00	30.00	
Hogan Court (South)	4.00	8.00	10.00	30.00	75.00	30.00	
Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓

Bypass

Name	Leg Has Bypass	Bypass Utilisation (%)
Larry Uteck Boulevard (East)		
Highway 102 SB Off-Ramp	✓	100
Larry Uteck Boulevard (West)		
Hogan Court (South)		
Highway 102 SB On-Ramp		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
Larry Uteck Boulevard (East)		(calculated)	(calculated)	0.594	2388.859
Highway 102 SB Off-Ramp		(calculated)	(calculated)	0.501	1771.999
Larry Uteck Boulevard (West)		(calculated)	(calculated)	0.649	2747.762
Hogan Court (South)		(calculated)	(calculated)	0.501	1771.999
Highway 102 SB On-Ramp		(calculated)	(calculated)	Exit-only	Exit-only

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
Larry Uteck Boulevard (East)	ONE HOUR	✓	1192.00	100.000
Highway 102 SB Off-Ramp	ONE HOUR	✓	563.00	100.000
Larry Uteck Boulevard (West)	ONE HOUR	✓	568.00	100.000
Hogan Court (South)	ONE HOUR	✓	28.00	100.000
Highway 102 SB On-Ramp	Exit-only	✓	Exit-only	Exit-only

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	**Highway 102 SB Off-Ramp**	**Larry Uteck Boulevard (West)**	**Hogan Court (South)**	**Highway 102 SB On-Ramp**
From	**Larry Uteck Boulevard (East)**	0.000	0.000	736.000	1.000	455.000
	Highway 102 SB Off-Ramp	461.000	0.000	100.000	2.000	0.000
	Larry Uteck Boulevard (West)	320.000	0.000	0.000	1.000	247.000
	Hogan Court (South)	15.000	0.000	4.000	0.000	9.000
	Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Turning Proportions (PCE) - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	Highway 102 SB Off-Ramp	Larry Uteck Boulevard (West)	Hogan Court (South)	Highway 102 SB On-Ramp
From	Larry Uteck Boulevard (East)	0.00	0.00	0.62	0.00	0.38
	Highway 102 SB Off-Ramp	0.82	0.00	0.18	0.00	0.00
	Larry Uteck Boulevard (West)	0.56	0.00	0.00	0.00	0.43
	Hogan Court (South)	0.54	0.00	0.14	0.00	0.32
	Highway 102 SB On-Ramp	0.20	0.20	0.20	0.20	0.20

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Vehicle Mix

Average PCE Per Vehicle - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	Highway 102 SB Off-Ramp	Larry Uteck Boulevard (West)	Hogan Court (South)	Highway 102 SB On-Ramp
From	Larry Uteck Boulevard (East)	1.020	1.020	1.020	1.020	1.020
	Highway 102 SB Off-Ramp	1.020	1.020	1.020	1.020	1.020
	Larry Uteck Boulevard (West)	1.020	1.020	1.020	1.020	1.020
	Hogan Court (South)	1.020	1.020	1.020	1.020	1.020
	Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Truck Percentages - Larry Uteck Boulevard & Highway 102 SB (for whole period)

		To				
		Larry Uteck Boulevard (East)	Highway 102 SB Off-Ramp	Larry Uteck Boulevard (West)	Hogan Court (South)	Highway 102 SB On-Ramp
From	Larry Uteck Boulevard (East)	2.0	2.0	2.0	2.0	2.0
	Highway 102 SB Off-Ramp	2.0	2.0	2.0	2.0	2.0
	Larry Uteck Boulevard (West)	2.0	2.0	2.0	2.0	2.0
	Hogan Court (South)	2.0	2.0	2.0	2.0	2.0
	Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Leg 5 is exit only and so the above grid should be ignored for this Leg.

Results

Results Summary for whole modelled period

Name	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
Larry Uteck Boulevard (East)	0.55	3.42	1.24	1.02	A
Highway 102 SB Off-Ramp	0.46	6.09	0.86	1.02	A
Larry Uteck Boulevard (West)	0.30	2.50	0.43	~1	A
Hogan Court (South)	0.03	3.98	0.03	~1	A
Highway 102 SB On-Ramp	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only