Technical Memorandum

To:	Hugo Lalonde; Zeyad Hassan – Caivan	Date:	2022-12-05
Cc:	James McAllister – Caivan		
From:	Andrew Harte; John Kingsley – CGH	Project Number:	2022-008

Re: Conservancy Phase 5 – TIA Update and Concept Review

1 Introduction

This memo serves to confirm the validity of the traffic work supporting the Conservancy East Lands (3285, 3288 & 3305 Borrisokane Road Transportation Impact Assessment, CGH, 2021) and the redline changes proposed in November 2022. The Conservancy East Phase 5 lands include the parcel on the west side of Borrisokane Road, with the conceptual Bus Rapid Transit (BRT) Corridor on the northern limits. The Phase 5 lands had been held while options were explored for the BRT (discussed separately in the Conservancy West – City BRT Comment Response, CGH, 2022 & Conservancy Transit Corridor Protection Evaluation of Alternatives, Morrison Hershfield, 2022 memorandums), now that a recommended alternative has been proposed, a red line change to the area is required to incorporate the selected BRT alternative.

The following sections will outline a comparison of the trip generation and subdivision concept to denote the changes, if additional review is required, and the next steps to satisfy the typical approval process.

2 Trip Generation

The July 2021 plan of subdivision considered 93 detached single dwellings and 241 townhome units for the Phase 5 lands. The redline changes to accommodate the BRT alternative now consider 90 detached dwellings, 297 townhome units and 120 apartment units within this area. This represents an increase of 56 townhome units, a reduction of 3 detached dwelling and the inclusion of the 120 apartment units in the mixed-use zone, north of the BRT, within Phase 5.

To assess the trip generation of the July 2021 plan and the November 2022 redline revisions, the trip generation was updated to the TRANS 2020 methodology. This methodology, included modal splits, was based on the Conservancy West TIA (3288 and 3300 Borrisokane Road, 4205, 4345 and 4375 McKenna Casey Drive Transportation Impact Assessment, CGH, 2021) of which an excerpt has been provided in Attachment A for reference.

The results of the updated trip generation have been summarized in Table 1.

Table 1: Trip Generation by Peak Hour

Version	Land Use	Units	Peak Hour	Peak Hour Person Trips	Peak Hour Trips by Mode				
					Auto	Auto Passenger	Transit	Cycling	Walking
2021 Plan of Subdivision	Single Detached	93	AM	98	37	13	37	1	10
			PM	107	44	19	31	1	12
	Multi-Unit Low Rise	241	AM	166	61	20	64	4	17
			PM	177	66	22	61	4	24
	Total	334	AM	264	98	33	101	5	27
			PM	284	110	41	92	5	36
November 2022 Redline	Single Detached	90	AM	95	36	12	36	1	10
			PM	101	42	18	29	1	11
	Multi-Unit Low Rise	417	AM	289	106	35	112	6	30
			PM	303	113	38	105	6	41
	Total	507	AM	384	142	47	148	7	40
			PM	404	155	56	134	7	52
Net Difference			**AM**	**+120**	**+44**	**+14**	**+47**	**+2**	**+13**
			PM	**+120**	**+45**	**+15**	**+42**	**+2**	**+16**

The above summarize illustrates that the redline revisions will represent an increase on the forecasted trips, based on the TRANS 2020 methodology. The July 2021 TIA was prepared using the old TRANS 2009 methodology and assessed the traffic operations using those forecasted volumes. Table 2 summarizes the trip generation from the July 2021 TIA using the TRANS 2009 methodology, and for the November 2022 redline concept using the TRANS 2020 methodology.

Table 2: Peak Hour Trip Comparison

Concept Plan	Methodology	Peak Hour Person Trips	Peak Hour Trips by Mode				
			Auto	Auto Passenger	Transit	Cycling	Walking
2021 Plan of Subdivision	TRANS 2009	AM	213	53	53	3	32
		PM	247	62	62	4	37
November 2022 Redline	TRANS 2020	AM	142	47	148	7	40
		PM	155	56	134	7	52
Net Difference		**AM**	**-71**	**-6**	**+95**	**+4**	**+8**
		PM	**-92**	**-6**	**+72**	**+3**	**+15**

The comparison to the volumes assessed in the original TIA (July 2021) and any updates to the TRANS 2020 methodology will represent a reduction of 71 auto trips during the AM peak hour and 92 auto trips during the PM peak hour. The original TIA represents a conservative assessment of the traffic conditions and any updates would result in an improvement over the previous analysis. Therefore, no updates to the traffic work are required for the November redline revisions.

3 Subdivision Concept

The mobility plan and concept plan from July of 2021 is illustrated in Figure 1 and the updated mobility plan and concept plan is illustrated in Figure 2.

Figure 1: July 2021 Mobility Plan and Concept Plan

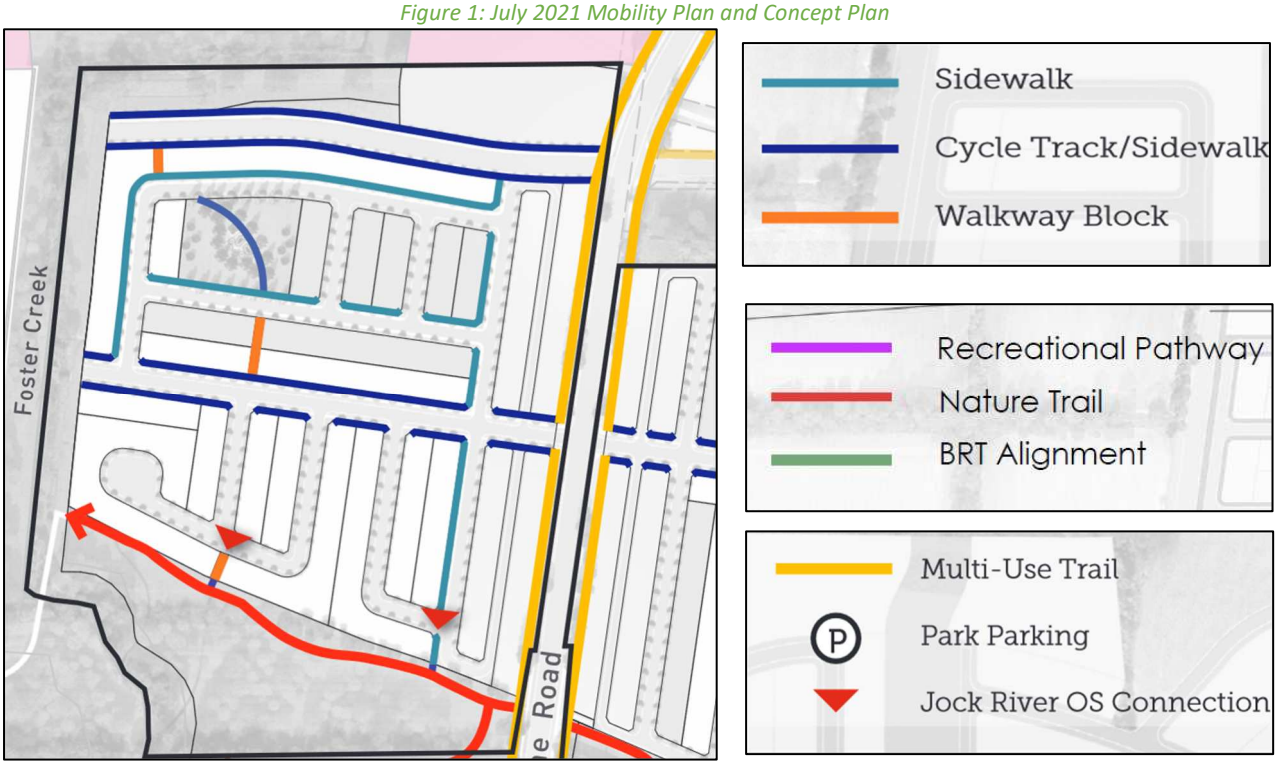
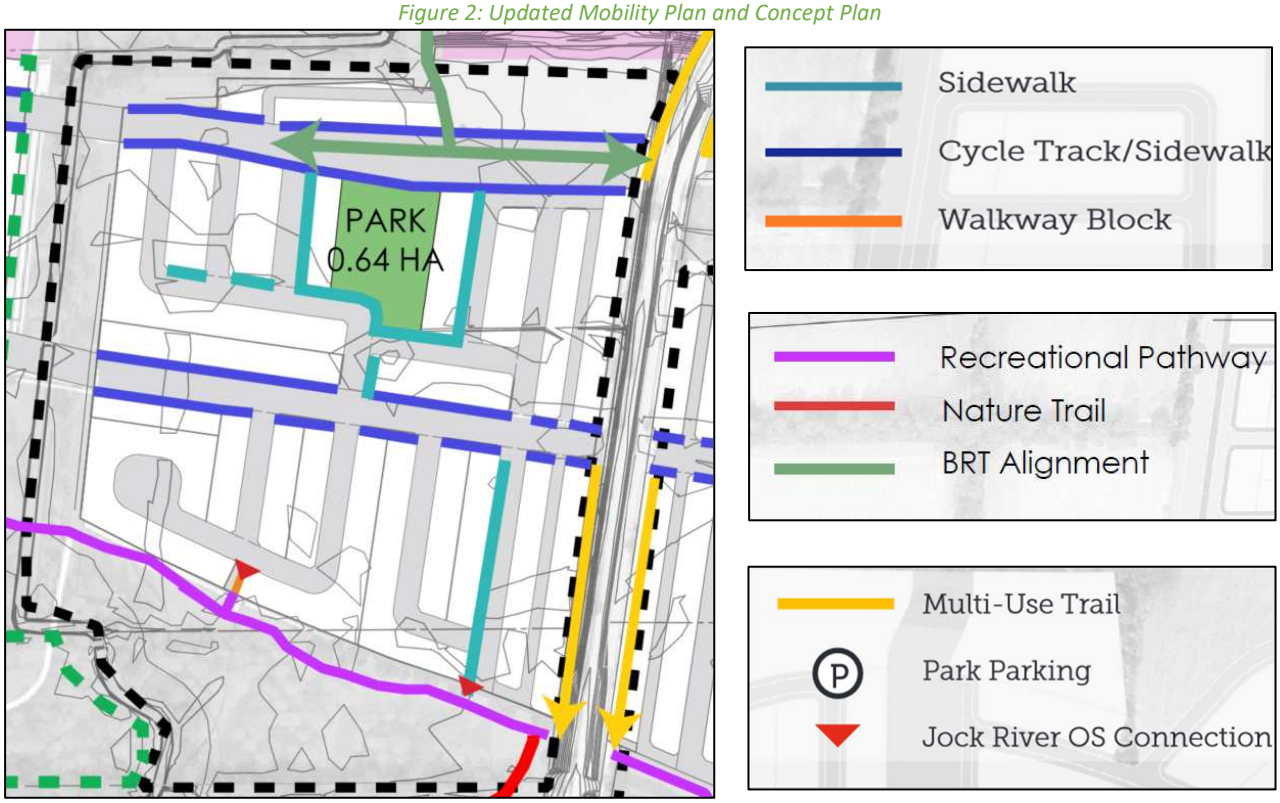


Figure 2: Updated Mobility Plan and Concept Plan



As is noted from comparing the above two concepts, the subdivision area south of Conservancy Way is functionally identical between the concepts.

Based on the accommodating the new BRT alternative, access to the northern collector road has shifted westward, permitting greater access between the community and the northern collector. In this updated concept plan the nature trail along Foster Creek and the multi-use trail along Borrisokane Road may serve as a connection between the portion of the development north of Conservancy Way to the recreational pathway to the south of the development, via the two collector roads. A sidewalk connection on either side of the park converging on the west side of the block south of the park is proposed between the northern collector road and Conservancy Way to provide access to the park for the entire subdivision and to the collectors for the northern subdivision area.

4 Conclusion and Next Steps

Based on the trip generation comparison between the July 2021 plan and the November 2022 redline revisions, and the higher volumes originally assessed in the July 2021 TIA, no further traffic review is considered necessary to support the proposed redline changes.

The redline subdivision concept is functionally identical to the July 2021 plan south of Conservancy Way and the updated portion north of Conservancy Way provides greater access to the northern collector and to the proposed park.

Once the redline revisions have been accepted, the geometric road design will be prepared to incorporate the mobility network plan and traffic calming elements into the road network. In addition, as the West Phases are currently being updated and a subsequent submission planned, the net traffic changes will be captured in this TIA and will confirm intersection requirements along Borrisokane Road.

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

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Attachment A

Conservancy West TIA – Trip Generation

CGH TRANSPORTATION

5 Development-Generated Travel Demand

5.1 Mode Shares

Examining the mode shares recommended in the TRANS Trip Generation Manual (2020) for the subject district, derived from the most recent National Capital Region Origin-Destination survey (OD Survey), the existing average district mode shares by land use for South Nepean have been summarized in Table 8.

Table 8: TRANS Trip Generation Person Trip Rates

Travel Mode	Single Detached		Multi-Unit (Low-Rise)	
	AM	PM	AM	PM
Auto Driver	51%	53%	49%	49%
Auto Passenger	14%	19%	13%	13%
Transit	25%	18%	26%	24%
Cycling	1%	1%	2%	2%
Walking	9%	10%	9%	12%
Total	**100%**	**100%**	**100%**	**100%**

The widening of Strandherd Drive and the construction of Chapman Mills Drive are scheduled to be constructed within the Study Area by the future horizons of this TIA. The BRT lanes within Chapman Mills Drive are not included in the Affordable Network (2031) and no bus facilities are proposed along Strandherd Drive. Beyond the 2031 horizon, the Chapman Mills BRT is assumed to be in place and the terminus station located on the southwest corner of the Strandherd Drive and Borrisokane Road intersection. As transit will be located in proximity to the proposed subdivision, an increase in transit trips is proposed for the development as a whole. The modified mode share targets are proposed for the development and are summarized in Table 9.

Table 9: Proposed Development Mode Shares

Travel Mode	Single-Detached		Multi-Unit (Low-Rise)	
	AM	PM	AM	PM
Auto Driver	41%	43%	39%	39%
Auto Passenger	14%	19%	13%	13%
Transit	35%	28%	36%	34%
Cycling	1%	1%	2%	2%
Walking	9%	10%	9%	12%
Total	**100%**	**100%**	**100%**	**100%**

5.2 Trip Generation

This TIA has been prepared using the vehicle and person trip rates for the residential dwellings using the TRANS Trip Generation Manual (2020). Table 10 summarizes the person trip rates for the proposed residential land uses for each peak period.

Table 10: Generation Person Trip Rates by Peak Period

Land Use	Land Use Code	Peak Period	Person Trip Rates
Single-Detached	210 (TRANS)	AM	2.05
		PM	2.48
Multi-Unit Low-Rise	220 (TRANS)	AM	1.35
		PM	1.58

Using the above person trip rates, the total person trip generation has been estimated. Table 11 summarizes the total person trip generation for the residential land uses.

Table 11: Total Residential Person Trip Generation by Peak Period

Land Use	Units	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Single-Detached	334	206	480	685	513	315	828
Multi-Unit Low-Rise	702	284	664	948	621	488	1109

Using the above mode share targets for a BRT area, the person trip rates, the person trips by mode have been projected. Table 12 summarizes the trip generation by mode and peak hour using the residential peak hour adjustment factor.

Table 12: Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Single-Detached	Auto Driver	**46%**	40	95	135	**41%**	97	59	157
	Auto Passenger	**14%**	14	32	46	**19%**	43	26	69
	Transit	**30%**	40	92	132	**30%**	68	41	109
	Cycling	**1%**	1	3	4	**1%**	2	1	4
	Walking	**9%**	11	25	36	**10%**	27	17	43
	Total	**100%**	**103**	**240**	**343**	**100%**	**226**	**139**	**364**
Multi-Unit (Low-Rise)	Auto Driver	**45%**	53	124	178	**43%**	106	84	191
	Auto Passenger	**13%**	18	41	59	**13%**	36	28	63
	Transit	**30%**	56	131	188	**30%**	99	78	177
	Cycling	**2%**	3	8	11	**2%**	6	5	11
	Walking	**9%**	15	35	49	**12%**	39	31	69
	Total	**100%**	**142**	**332**	**474**	**100%**	**273**	**215**	**488**
Total	Auto Driver	-	93	219	313	-	203	143	348
	Auto Passenger	-	32	73	105	-	79	54	132
	Transit	-	96	223	320	-	167	119	286
	Cycling	-	4	11	15	-	8	6	15
	Walking	-	26	60	85	-	66	48	112
	Total	-	**245**	**572**	**817**	-	**499**	**354**	**852**

As shown above, a total of 313 AM and 348 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.