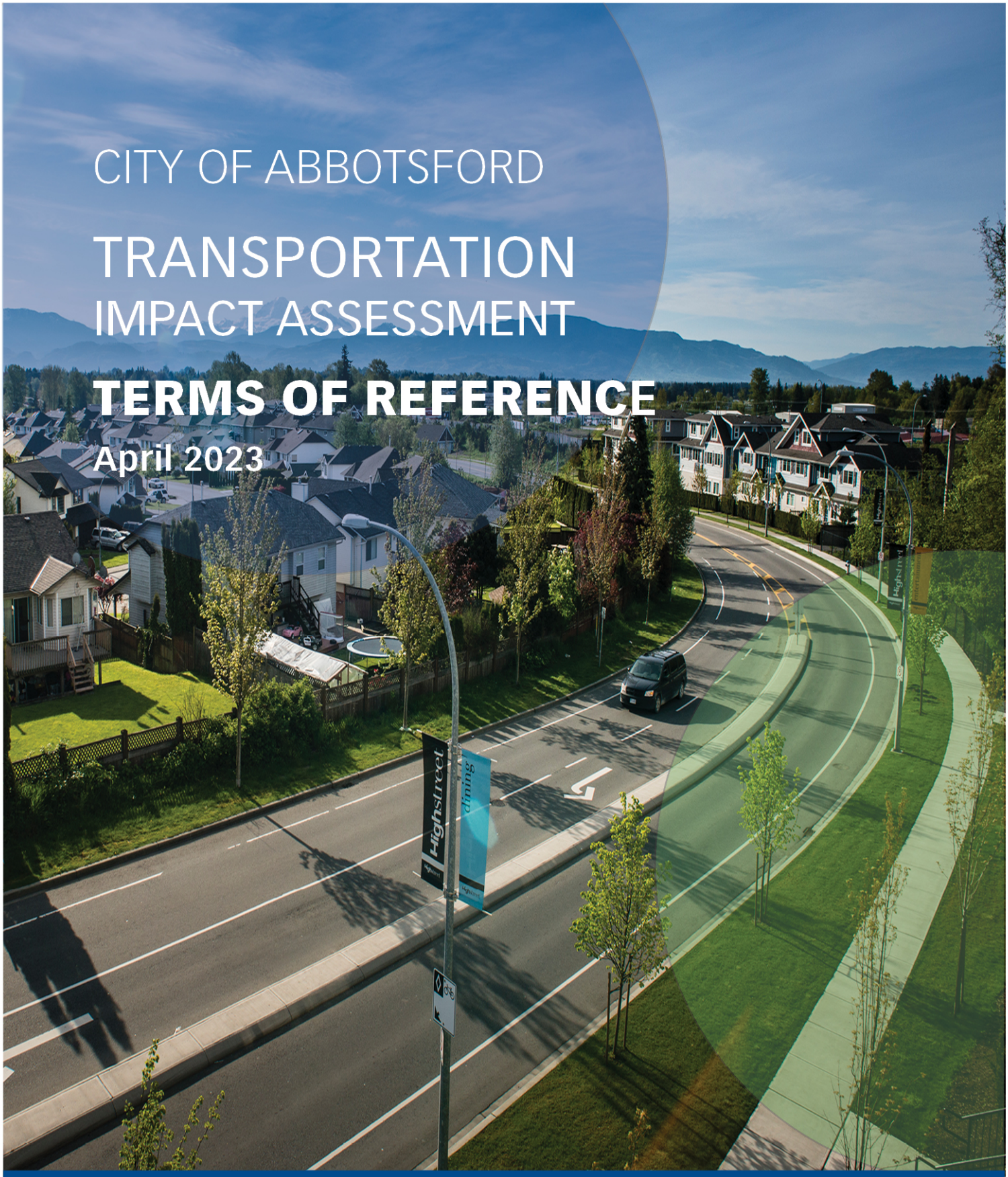
CITY OF ABBOTSFORD

TRANSPORTATION IMPACT ASSESSMENT

TERMS OF REFERENCE

April 2023



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1.0 INTRODUCTION

1.1 Transportation Impact Assessment (TIA)

A Transportation Impact Assessment (TIA) is a study intended to assess the impact of a proposed development on the existing transportation network infrastructure. It identifies the on-site and off-site measures to be undertaken in order to maintain or enhance the transportation system's performance after the development is built and operational.

1.2 Purpose of the TIA Guidelines

This document provides guidelines for transportation consultants who will undertake a Transportation Impact Assessment (TIA) for the City of Abbotsford. These guidelines establish the scope, format, and analysis required to properly assess the impacts of a proposed development on the existing transportation infrastructure, clearly identify the mitigation measures required, and document the results and recommendations.

1.3 Who Can Undertake a TIA

When a TIA is required for the proposed development, the study must be undertaken by a Professional Traffic Engineer or Professional Traffic Operations Engineer, with sufficient experience in traffic engineering, licensed to practice in British Columbia. The final report must be signed and sealed by the Professional Engineer. Any memos, drawings or letters submitted independent of the TIA must also be signed and sealed by the Professional Engineer. These documents should be included as Appendices to the final TIA.

2.0 REQUIREMENTS

2.1 When is a TIA needed?

A TIA is required when the proposed development is anticipated to either:

- generate 80 vehicle trips or more, in either of the daily peak hours
- generate required on-site vehicular parking stalls in excess of 130
- generate required bike parking in excess of 100 stalls

The quantity of vehicle trips generated is determined using the most current version of the Institute of Transportation Engineers Trip Generation Manual.

A TIA may be required by the City of Abbotsford regardless of the quantity of vehicle traffic generated such as in specific circumstances where there are existing traffic concerns or there may be increased delay to transit vehicles, safety concerns and conflicts with transit vehicle and impacts at transit stations or stops. Gaps in cycling and pedestrian network continuity must also be addressed.

Abbotsford will review all submissions against the requirements as set out in the checklist in Appendix E, prior to reviewing the report. Those submissions that do not fulfill these basic requirements will be returned to the applicant with the missing elements listed.

3.0 SCOPE OF WORK

The scope of work for a TIA is to include, but is not limited to:

1. Identify the project site and its location relative to the existing transportation network.
2. Identify a suitable study area to be submitted to the City for approval prior to initiating the study.
3. Reference to relevant documents that potentially affect the study area including, but not limited to:
    a. Official Community Plan
    b. Master Transportation Plan
    c. Area Plans, if available
    d. Neighbourhood Improvement projects
    e. Traffic Calming Policy
    f. BC Transit Area Future Plan
4. Identify anticipated future developments within the study area that may affect the generation of vehicular, transit, pedestrian and cycling trips
5. Specify design peak hour(s) of analysis.
6. Analyze the capacity of signalized and unsignalized intersection(s) within the study area for future horizon years with and without proposed development traffic.
7. Propose a traffic projection methodology, trip distribution and traffic assignment parameters, and traffic volume growth rate to the City of Abbotsford for approval prior to initiating the analysis. In the case of developments with a gross floor area larger than 900,000 square feet, the EMME sub-area model or macroscopic model will be used to forecast changes in travel patterns and future demands. This will allow the spatial extent of the impacts to be determined.
8. Develop improvements to the road layout, traffic control and facilities to accommodate future growth of pedestrian, bicycle, transit and vehicular traffic
9. Estimate potential costs to upgrade the existing transportation network (roads, pedestrian facilities and cycling facilities) that would accommodate additional trips generated by the proposed development.
10. Conduct a swept path analysis.
11. Conduct a sightline analysis.
12. Conduct traffic signal warrant/s in the case of unsignalized intersections that may require upgrading with pedestrian or full signals.

4.0 METHODOLOGY

The Professional Engineer shall prepare a DRAFT Terms of Reference (ToR) to be submitted to the City for approval prior to initiating the study. An example ToR is included in Appendix A.

Examples of the various figures and tables listed below are included in Appendix B and C, respectively.

1. Identify the development proposal details including:
    a. Type and size of each land use within the proposed development
    b. Timing and size of each phase (if more than one phase)
    c. Layout and access to each phase
    d. Bylaw requirements for bicycle and vehicle parking
    e. Bylaw requirements for loading zone (including solid waste handling).

2. Using a figure, identify the project site and its location relative to the existing transportation network. Using a figure, identify a suitable study area which shall at a minimum extend beyond the boundaries of the development to at least the next major intersection anticipated to be impacted by the development. The study area may be expanded as directed by the City to respond to the scale, phasing and nature of development.

3. Identify if the proposed development falls within the jurisdiction of the Ministry of Transportation and Infrastructure (typically within 800 metres of an access to a designated arterial highway under the Ministry's jurisdiction).

4. Reference relevant documents that potentially affect the study area including, but not limited to:

    a. Official Community Plan
    b. Master Transportation Plan
    c. Area Plans, if available
    d. Neighbourhood Improvement projects
    e. Traffic Calming Policy
    f. BC Transit Future Plan
    g. Truck Route map, if development is commercial or industrial

5. Using a photo figure, identify anticipated future developments within the study area that may affect the generation of vehicular trips.

6. Specify design peak hour(s) of analysis – typically the AM, Mid-day and PM peak hours but within the downtown core, all commercial/retail developments will require analysis for weekend mid-day.

7. Use a traffic volume growth rate of 2.0% per annum, straight line till 2040, unless otherwise recommended by the City of Abbotsford.

8. Trip Generation is to be undertaken using the most current version of the Institute of Transportation Engineers Trip Generation Manual for each land use and for each phase within the development. The trip generation table must present both the peak hour of the generator and the peak hour of the adjacent street traffic, as available. The study must identify the setting/location as set out in the ITE Trip Generation Manual. The capacity analyses must be based on the peak hour/s of the adjacent street traffic. If an appropriate land use cannot be determined within the ITE Trip Generation Manual then the proponent must propose an alternative with supporting technical justification to the Municipal Engineer for approval prior to initiating the analysis.
9. Illustrate the trip distribution and assignment in the report for both existing and proposed transportation networks. Computer modelling may be used or required. If a computer model is used, all assumptions and zonal inputs must be documented.
10. Data collection by the applicant must be undertaken for all existing intersections included in the study. The days of the week on which data is to be collected will be specified by the City of Abbotsford. Traffic data used for existing conditions must not be more than two (2) years old. Data collection must occur on days when Abbotsford schools (School District #34) are in session. The days for data collection for weekday analysis are typically Tuesday, Wednesday or Thursdays. Data collection may not occur on the two (2) days prior to, or two (2) days after a Statutory Holiday.
11. Based on the collected data, the engineer is to determine the Peak Hour Factor (not to exceed 0.95), and the appropriate truck percentage to be used in subsequent analyses.
12. Analyze the following scenarios with and without development traffic:
    a. Existing conditions
    b. Opening Day (for each phase)
    c. Opening Day + 5 years (from completion)
    d. Opening Day + 10 years (from completion)
13. Intersection capacity analysis must be undertaken using the Highway Capacity Manual procedures using a current version of Synchro and SIDRA for roundabout analysis. The report must clearly document, for each movement:
    a. Level of Service (LoS)
    b. Volume/Capacity Ratio
    c. Delay (in seconds)
    d. 95th Percentile Queue length
14. The intersection analyses must clearly highlight all movements with a V/C ratio in excess of 0.85 and all movements where the 95th Percentile queue exceeds the available storage length. In the case of new intersections, an estimate of storage space is needed.
15. Where the 95th percentile queue length exceeds the available storage length, the applicant must provide a mitigation measure(s) to ensure that the queue does not spill out of the storage area.

16. Maximum permitted cycle length is 120 seconds. Minor street minimum green is 7 seconds and Major Street minimum green is 15 seconds. Pedestrian walking speed 1.2 m/s; within 200 metres of an elementary school or seniors facility, 1.0 m/s.
17. The minimum acceptable LOS for an Intersection is LoS D, with individual movements not worse than LoS E. For all movements or intersections that do not achieve these Levels of Service, the applicant must propose appropriate mitigation measures. Depending on the development phasing the mitigation measures may need to be introduced over time.
18. Evaluate demand for transit with recommendations for on and off-site improvements to accommodate the anticipated demand generated by the development.
19. Evaluate the pedestrian network and existing and future desire lines with recommendations for on and off-site improvements to meet the desire lines. Include a review of existing and future connections to the network as outlined in the Transportation and Transit Master Plan.
20. Evaluate the cycling network and connections from the proposed development to the network. Include a review of existing and future connections to the network as outlined in the Transportation and Transit Master Plan. Provide recommendations for on and off-site improvements to meet the anticipated demand.
21. Develop improvements to the road layout, traffic control and facilities to accommodate future growth of vehicular traffic (and illustrate with figures and conceptual plans).
22. Estimate potential costs to upgrade the existing transportation network (roads, pedestrian facilities transit facilities and cycling facilities) that would accommodate additional trips generated by the proposed development. These cost estimates are to be Class “D” or better.
23. Conduct a swept path analysis using AutoTurn for loading zones, solid waste handling and parkades. An appropriate design vehicle must be selected. Typically:

    - P-TAC for parkades
    - HSU-TAC for solid waste handling
    - WB-21 for larger commercial enterprises or industrial
    - Other design vehicles will be considered on a case-by-case basis at the discretion of the Director of Transportation.

24. Sightline analysis to be undertaken for all site access points to ensure safe operations on opening day. The minimum required sightline is based on Stopping Sight Distance as set out in the Transportation Association of Canada Geometric Design Guide. The design speed shall be the posted speed limit or the design speed as shown on record drawings for the section of road under consideration. In the absence of such, the Development Bylaw standards for each road classification shall apply. The Professional Engineer is to identify all deficiencies and recommend an appropriate mitigation strategy(s).
25. Evaluate parking layout to ensure sufficient magazine storage and circulation within the site.

5.0 REPORT

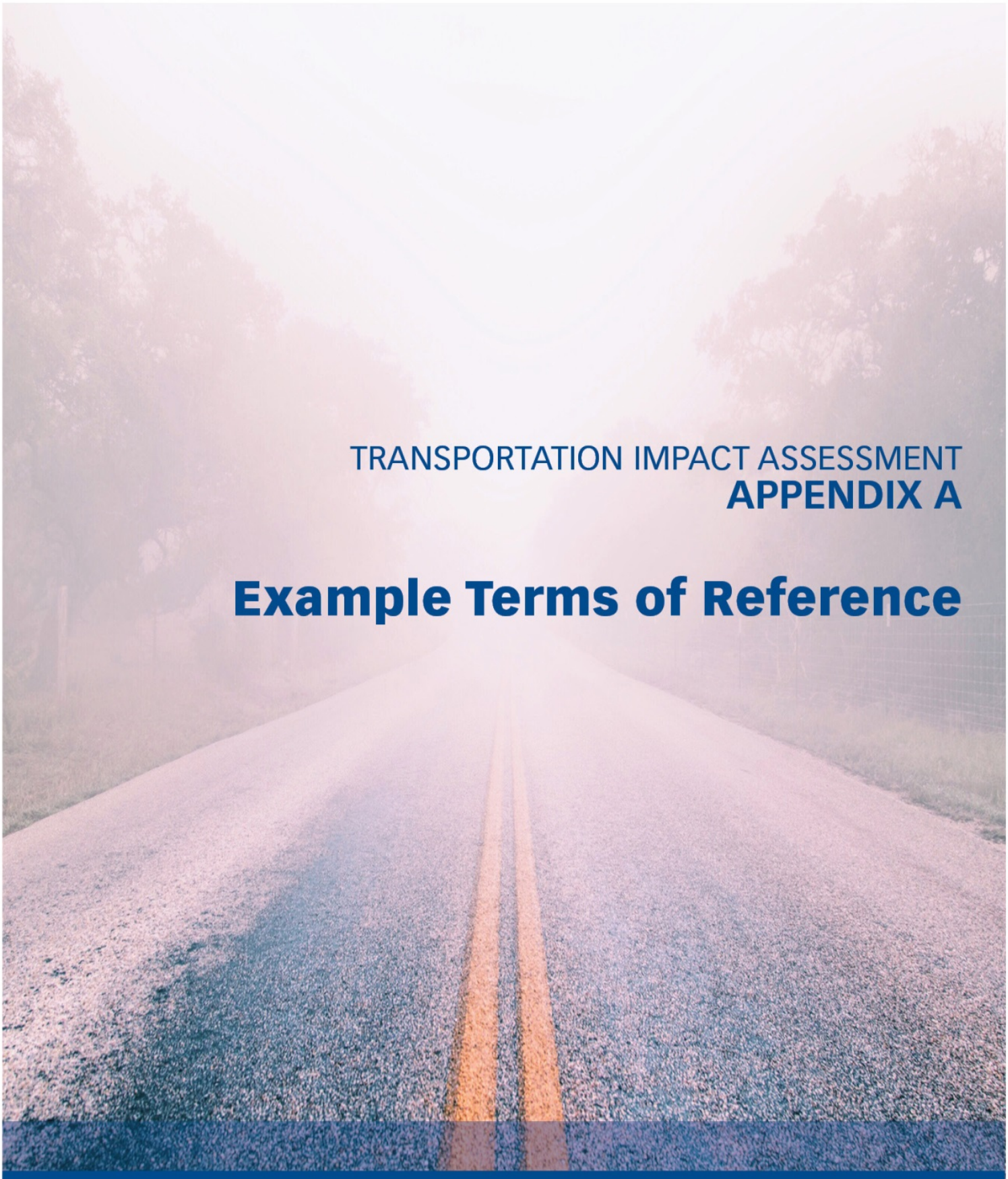
The Professional Engineer shall submit a draft report in PDF format to the City and other Key Stakeholders for review and comment. The draft report must document all of the above and clearly identify all the study conclusions and recommendations. The site plan, collected data and analysis output shall be included in appendices to the report. Any report in excess of 20 pages (excluding appendices) shall have an executive summary of not more than two (2) pages.

The City shall provide the Professional Engineer with written comments on the draft report. The engineer shall review the comments and amend the draft report to the City's approval. For all comments that the engineer elects not to amend the report, the engineer shall provide a detailed written explanation as to why the report was not amended.

The Professional Engineer shall provide the City with a signed and sealed final report in PDF format.

The Professional Engineer shall provide all traffic data collected, to the City in Excel format.

The Professional Engineer shall provide all data files (e.g., HCS, Synchro, SIDRA, etc) used in the analysis to the City in both printed and digital format. It is understood that the Professional Engineer assumes no responsibility for the digital files once transferred to the City and instead relies solely on the printed copies of the model(s) output provided with the final, signed and sealed report.



TRANSPORTATION IMPACT ASSESSMENT
APPENDIX A

Example Terms of Reference

ENGINEERING & REGIONAL UTILITIES
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DRAFT TERMS OF REFERENCE (DATE)

Residential Development, Abbotsford, B.C.

Project Description: **265 unit mixed use development**
units of multi-family
single family dwellings
square feet of commercial

A. Study area limits and list of intersections to analyse

Study area to include the following intersections:

1. LIST OF INTERSECTIONS

B. Existing and future base road network in study area

City of Abbotsford to advise if any proposed changes to road network. Applicant is to check the road requirements in the Development Bylaw and the Strategic Plan

C. Relevant background material

Consultant to use the information provided by City of Abbotsford.

D. Anticipated future developments within study horizon that are above and beyond what can be assumed to be built into an annual traffic volume growth rate.

To be provided by the City of Abbotsford.

E. Design Peak Hour of Analysis

Examine the weekday morning and/or mid-day and/or afternoon and/or weekend peak periods and select the peak hour of each for analysis.

F. Horizon Years of Analysis

Examine the following years:

- LIST ALL HORIZON YEARS

G. Traffic Volume Growth Rate

Propose to use 2.0% per year (simple straight line) to factor up existing base volumes to future horizon years. Use 1.0% per year after 2040.

H. Traffic Projection Methodology

Use current accepted traffic engineering practices for traffic projections and to document any assumptions in the report.

I. Trip Generation Methodology

Use the latest Institute of Transportation Engineers (ITE) vehicle trip generation rates (11th edition) to estimate site traffic volumes as this represents the "worst case scenario" for the impact assessment.

J. Trip Distribution and Traffic Assignment Parameters

Develop trip distribution and traffic assignment parameters in conjunction with City staff.

K. Traffic Engineering Methodology for Analysis

Use 2016 Highway Capacity Manual methodologies for all intersection capacity analysis. (HCS software for unsignalized intersections, SIDRA for roundabouts and Synchro for signalized intersections – current version of each software package).

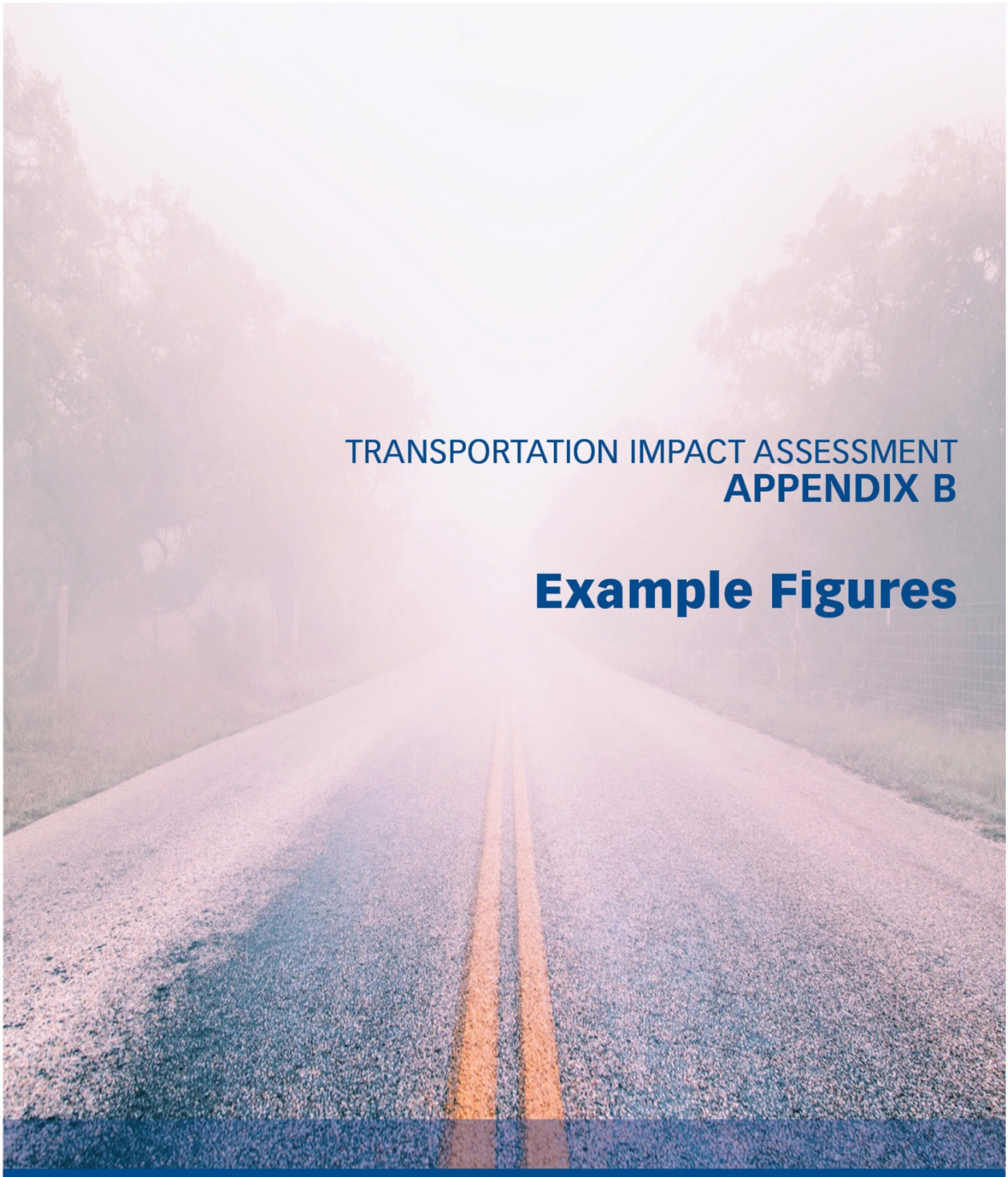
L. Engineering Standards

Use City of Abbotsford Development Bylaw standards for the adjacent roadways.

M. Number of Final Report Copies

- City of Abbotsford — 1 digital copy
- Client — 1 digital copy

N. Other Matters



TRANSPORTATION IMPACT ASSESSMENT
APPENDIX B

Example Figures

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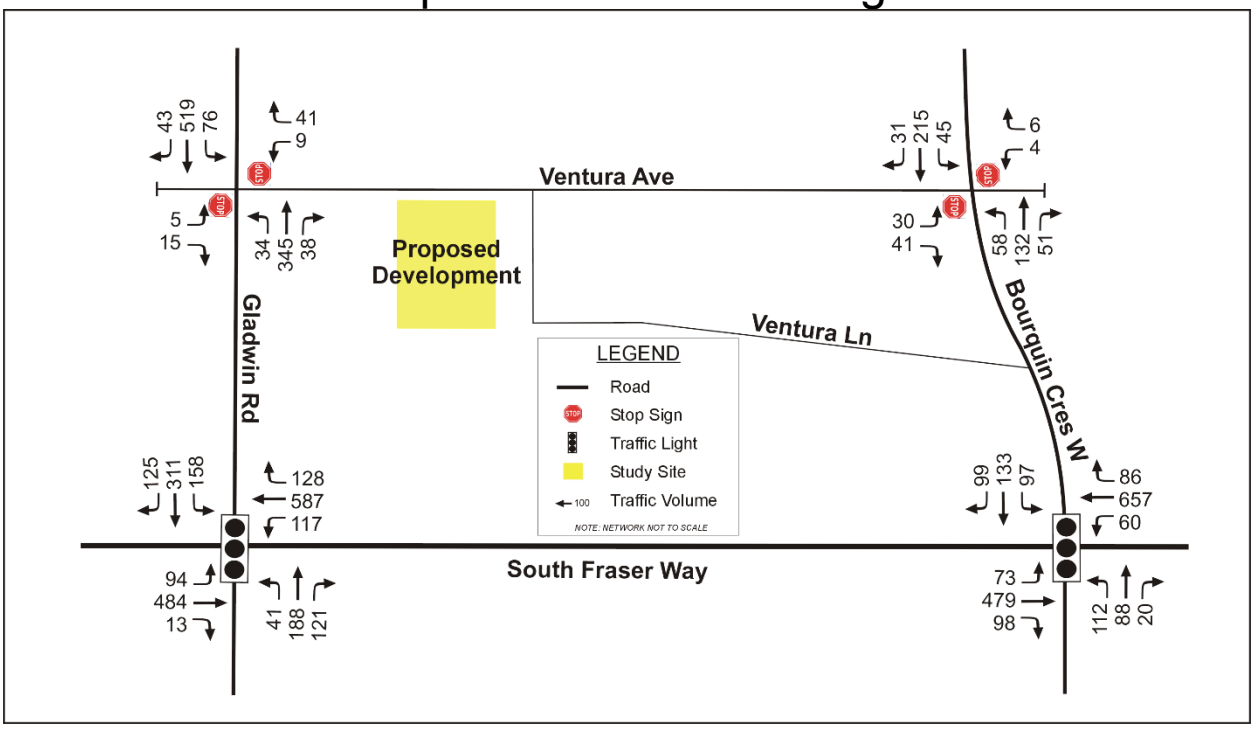
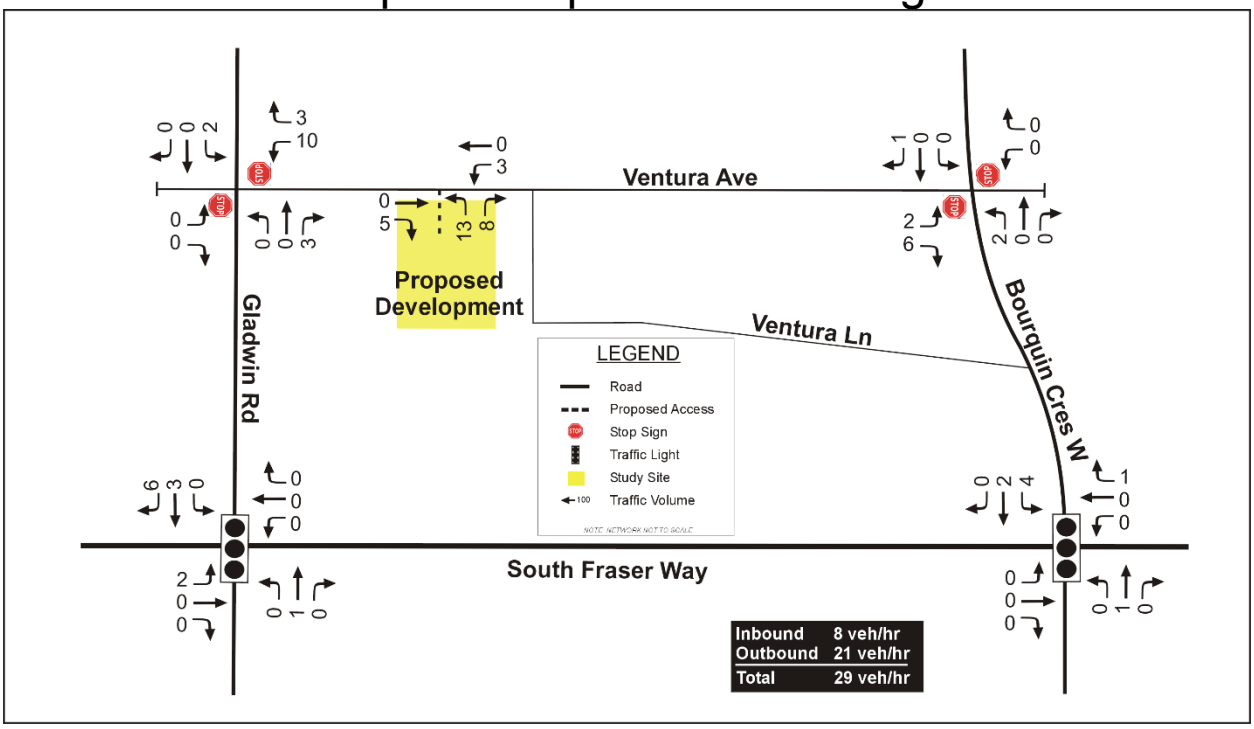
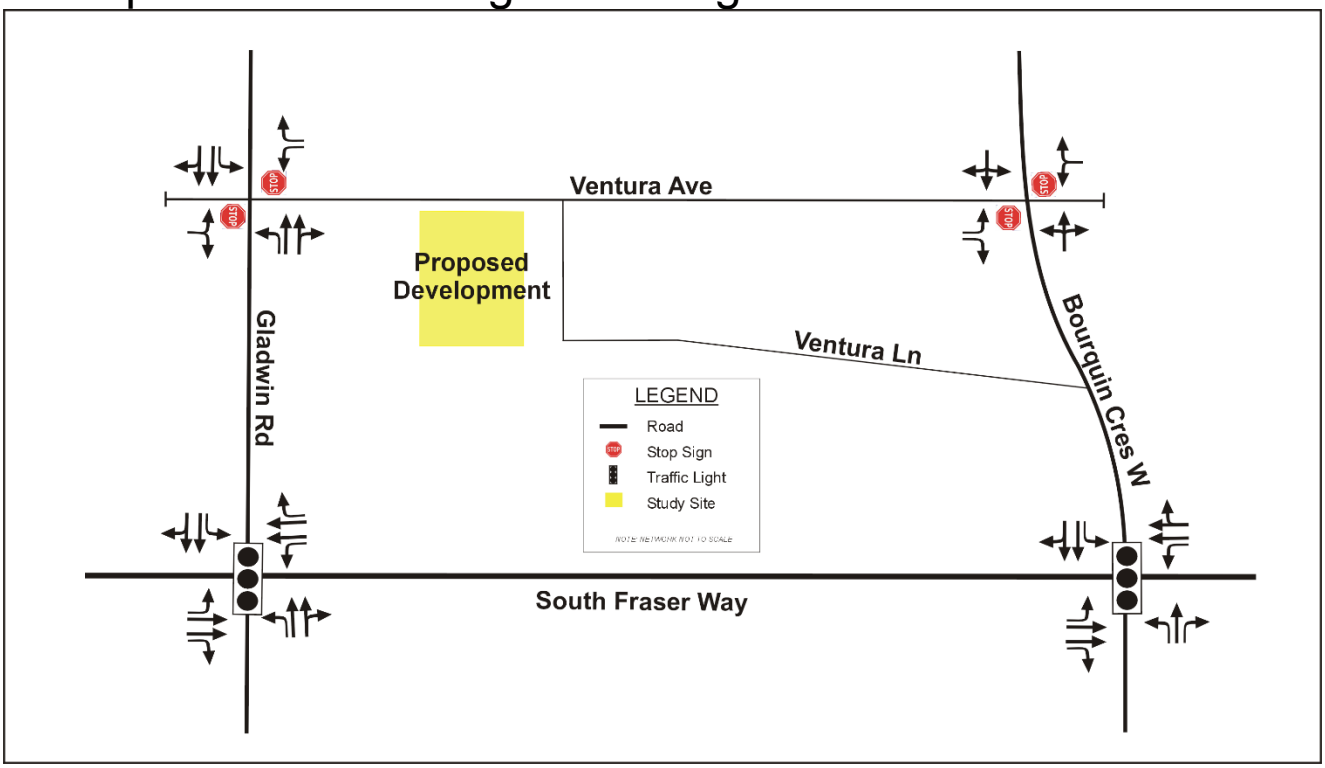
Example of Base Traffic Figure



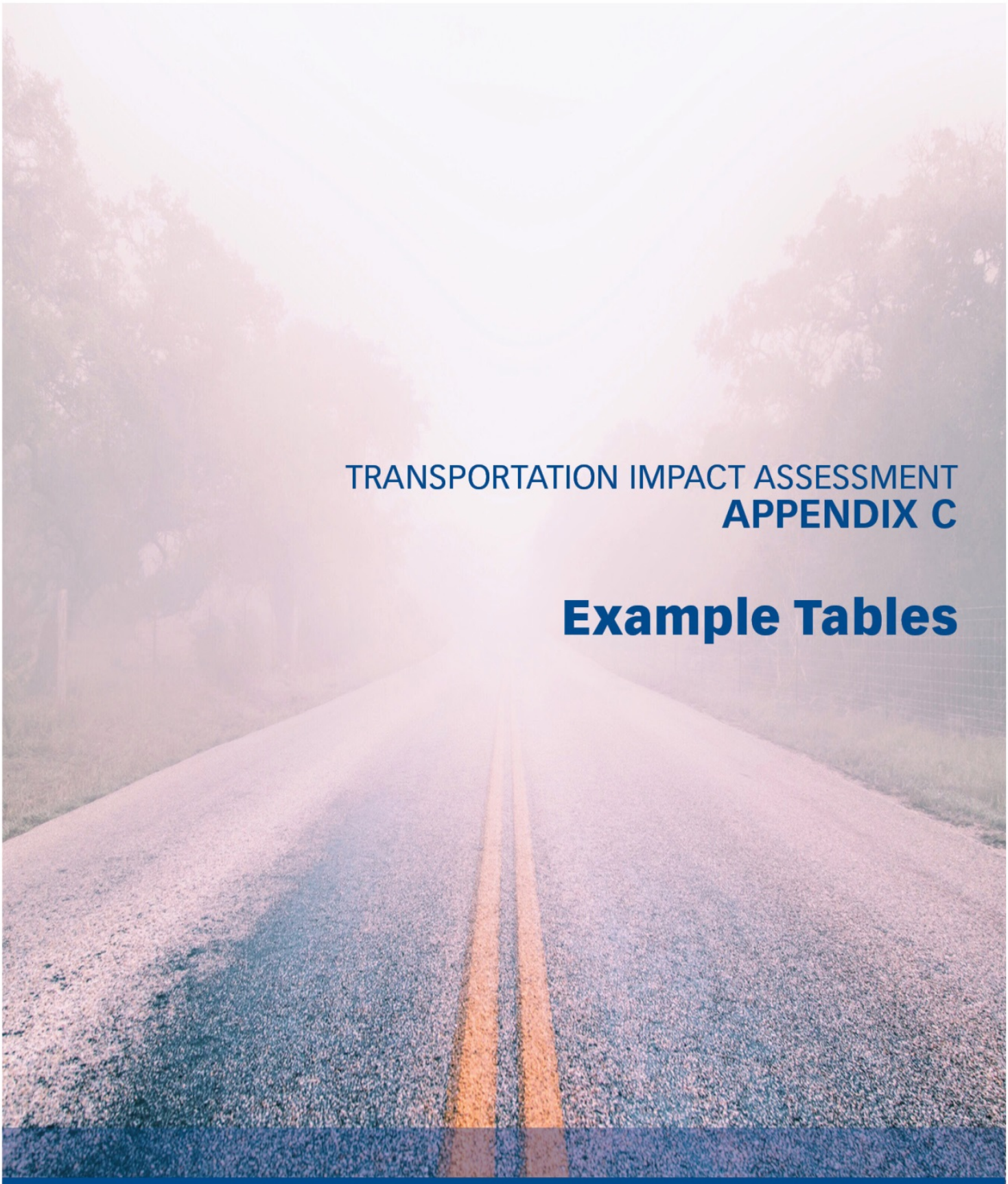
Example of Trip Distribution Figure



Example of Lane Configuration Figure



Example of Study Area Figure



TRANSPORTATION IMPACT ASSESSMENT
APPENDIX C

Example Tables

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Example Trip Generation Table

Land Use	Peak Hour	Trip Generation Variable	Scope of Development	Vehicle Trip Generation Rate	Trip Rate Source	Directional Split		Passby Credit	Peak Hour Volumes (vph)		
						% in	% out		in	out	total
Multifamily Housing (Low-Rise)	Morning Peak	Dwelling Units	83	0.46	ITE 10th Edition - Code 220	23%	77%	0%	8	31	39
	Afternoon Peak			0.56		63%	37%	0%	29	18	47

Land Use	Peak Hour	Trip Generation Variable	Scope of Development	Vehicle Trip Generation Rate	Trip Rate Source	Directional Split		Passby Credit	Peak Hour Volumes (vph)		
						% in	% out		in	out	total
TownHouses	Morning Peak	Dwelling Units	45	0.57	Local Trip Rate	28%	72%	0%	7	19	26
	Afternoon Peak			0.67		66%	34%	0%	20	11	31

Example of Trip Distribution Tables

From / To	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North	31.8%	19.9%	21.6%	23.0%
East	27.8%	24.6%	23.1%	35.3%
South	19.5%	26.0%	25.9%	13.8%
West	20.9%	29.5%	29.4%	27.9%
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**

From / To	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Gladwin Rd (N)	2	3	3	3
Bourquin Cres W (N)	1	1	1	0
Ventura Ave (E)	0	1	0	0
SFW (E)	1	4	4	6
Bourquin Cres W (S)	1	2	2	0
Gladwin Rd (S)	1	3	3	2
SFW (W)	2	6	5	5
Ventura Ave (W)	0	1	0	0
TOTAL	**8**	**21**	**18**	**16**
	29		**34**	

Example of Signalized Intersection Capacity Analysis Summary Table

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Mt Lehman Rd (N/S) and Cardinal Ave (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	51	42	160	83	126	29	206	325	33	27	571	109	A	Okay.
			V/C	0.17	0.39		0.29	0.33		0.63	0.20	0.04	0.06	0.41			
			95% Queue (m)	8.8	13.3		13.1	19.0		42.0	12.4	2.8	3.9	25.1			
		2020 Base	Volumes	52	43	163	85	129	30	210	332	34	28	582	111	A	NBLT 95% queue exceeds left turn bay.
			V/C	0.17	0.39		0.29	0.34		0.66	0.20	0.04	0.06	0.42			
			95% Queue (m)	9.0	13.6		13.4	19.6		44.3	12.9	2.9	4.0	26.2			
		2020 Base + Background	Volumes	73	48	210	85	144	46	210	539	34	32	603	169	A	NBLT 95% queue exceeds left turn bay.
			V/C	0.22	0.43		0.30	0.37		0.74	0.32	0.04	0.08	0.46			
			95% Queue (m)	12.6	16.1		14.9	24.5		52.0	24.1	3.2	5.1	32.9			
		2020 Base + Background + Site	Volumes	73	48	210	85	144	99	210	658	34	38	650	169	B	NBLT 95% queue exceeds left turn bay.
			V/C	0.24	0.42		0.29	0.45		0.79	0.38	0.04	0.11	0.48			
			95% Queue (m)	13.4	16.7		15.5	30.7		54.4	30.2	3.1	6.0	36.0			
		2035 Base + Background	Volumes	82	55	238	159	166	96	246	646	55	58	719	188	D	NBLT exceeds capacity. WBLT and NBLT 95% queue exceeds left turn bay.
			V/C	0.26	0.47		0.55	0.45		1.70	0.49	0.09	0.24	0.68			
			95% Queue (m)	17.1	28.5		40.9	39.0		57.6	28.9	3.8	8.5	41.0			
		2035 Base + Background + Site	Volumes	82	55	238	159	166	184	246	845	55	68	797	188	D	NBLT exceeds capacity. WBLT and NBLT 95% queue exceeds left turn bay.
			V/C	0.37	0.50		0.59	0.62		1.78	0.61	0.08	0.37	0.71			
			95% Queue (m)	20.5	35.9		45.2	66.5		61.9	39.9	3.7	11.5	46.3			
	Weekday Afternoon Peak Hour	2018 Base	Volumes	135	103	160	87	71	51	141	683	106	73	467	71	A	Okay.
			V/C	0.41	0.50		0.31	0.25		0.44	0.50	0.16	0.29	0.40			
			95% Queue (m)	21.7	25.5		15.3	13.9		19.8	31.8	5.7	10.9	23.0			
		2020 Base	Volumes	138	105	163	89	72	52	144	697	108	74	476	72	A	Okay.
			V/C	0.42	0.51		0.32	0.25		0.46	0.51	0.16	0.30	0.40			
			95% Queue (m)	22.2	26.4		15.8	14.2		20.6	33.2	5.8	11.4	24.0			
		2020 Base + Background	Volumes	179	115	207	89	78	57	204	707	108	94	533	98	B	EBLT 95% queue exceeds left turn bay.
			V/C	0.55	0.62		0.44	0.28		0.67	0.46	0.15	0.35	0.42			
			95% Queue (m)	41.2	49.1		24.2	21.8		41.5	39.2	5.9	16.1	32.0			
		2020 Base + Background + Site	Volumes	179	115	207	89	78	68	204	752	108	149	654	98	B	EBLT and NBLT 95% queue exceeds left turn bay.
			V/C	0.59	0.64		0.51	0.31		0.74	0.46	0.14	0.55	0.46			
			95% Queue (m)	42.3	50.9		25.5	23.3		57.2	40.5	5.7	29.2	38.7			
		2035 Base + Background	Volumes	202	133	235	133	90	98	228	864	188	150	616	110	B	WBLT approaching capacity. All left turn 95% queues exceed left turn bay.
			V/C	0.69	0.68		0.87	0.36		0.79	0.51	0.23	0.65	0.43			
			95% Queue (m)	45.1	52.8		45.7	24.5		71.5	59.1	9.0	48.5	45.0			
		2035 Base + Background + Site	Volumes	202	133	235	133	90	117	228	939	188	241	817	110	C	WBLT approaching capacity. NBLT, SBLT exceeds capacity. All left turn 95% queues exceed left turn bay.
			V/C	0.78	0.70		0.97	0.41		1.03	0.53	0.22	1.11	0.53			
			95% Queue (m)	57.9	58.7		51.2	29.6		80.0	59.1	8.0	56.2	56.4			

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or approach demand exceeds capacity (v/c ≥ 1.00)

95% Queue length exceeds the capacity of existing storage bay.

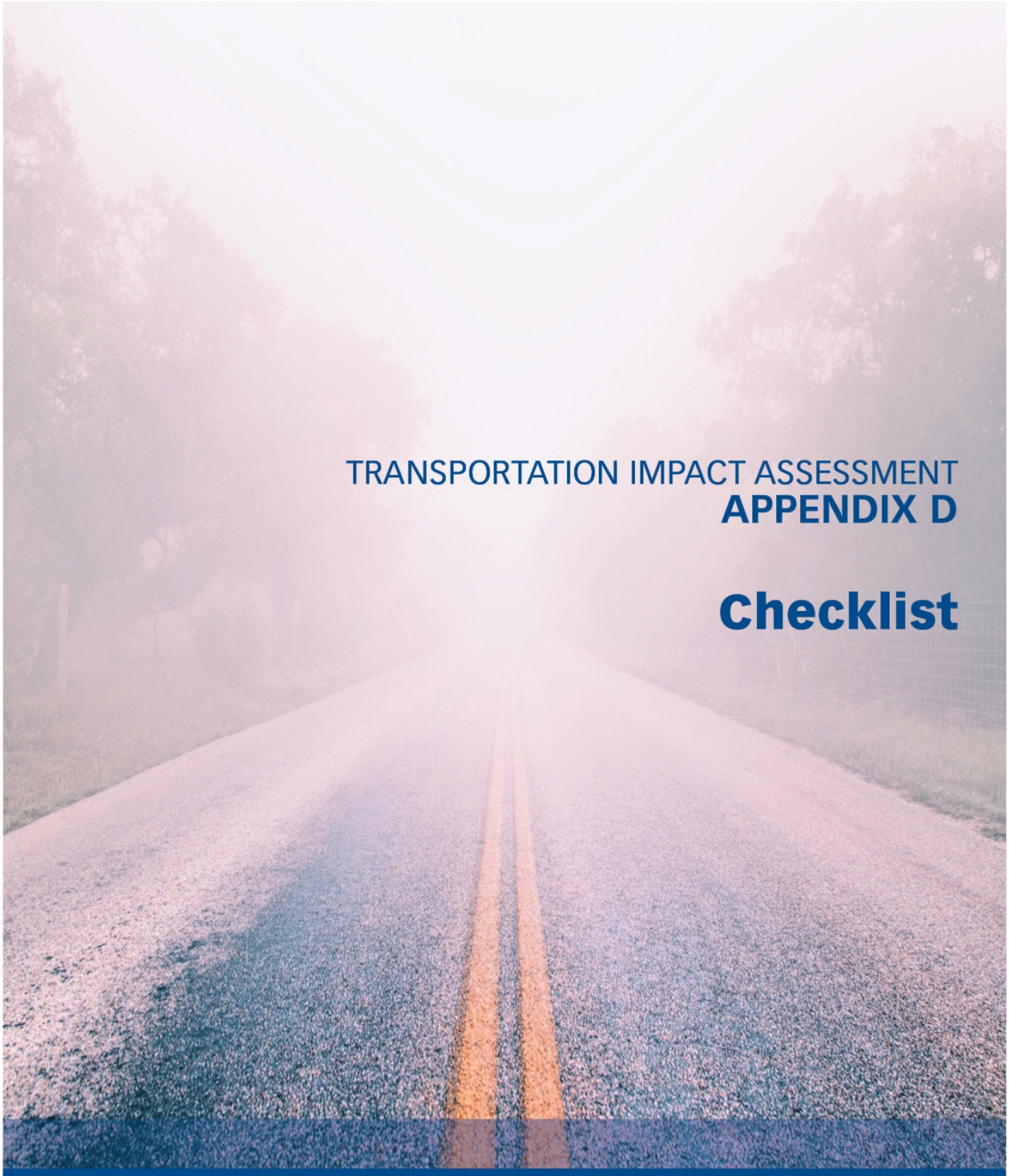
Example of Unsignalized Intersection Capacity Analysis Summary Table

INTERSECTION	TIME OF DAY	SCENARIO	PERFORMANCE MEASURE	EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND			LOS	NOTES
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Gladwin Rd (N/S) and Ventura Ave (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	5		15	9		41	34	345	8	76	519	43	A	Okay.
			Delay	15.0			23.6		9.7	4.9	0.0		8.3	0.0			
		2022 Base	Volumes	7		17	11		45	37	373	42	83	561	47	A	Okay.
			Delay	17.5			27.7		10.0	9.1	0.0		8.6	0.0			
		2032 Base	Volumes	7		20	12		53	44	442	49	98	665	56	A	Okay.
			Delay	21.4			38.7		10.4	9.6	0.0		9.0	0.0			
		2022 Base + Site	Volumes	7		17	21		48	37	373	45	85	561	47	A	Okay.
			Delay	17.6			29.8		10.1	9.1	0.0		8.6	0.0			
		2032 Base + Site	Volumes	7		20	22		56	44	442	52	100	665	56	A	Okay.
			Delay	21.6			43.1		10.5	9.6	0.0		9.0	0.0			
	Weekday Afternoon Peak Hour	2018 Base	Volumes	21		52	24		78	63	715	56	128	540	36	A	Okay.
			Delay	36.6			103.0		12.4	9.1	0.0		10.6	0.0			
		2022 Base	Volumes	24		57	27		85	69	773	61	139	584	39	A	Okay.
			Delay	58.1			167.2		13.0	9.3	0.0		11.1	0.0			
		2032 Base	Volumes	28		67	32		100	81	916	72	164	692	47	C	Okay.
			Delay	249.7			557.2		14.8	10.0	0.0		12.8	0.0			
		2022 Base + Site	Volumes	24		57	31		81	69	773	65	136	584	39	A	Okay.
			Delay	56.0			184.9		13.0	9.3	0.0		11.1	0.0			
		2032 Base + Site	Volumes	28		67	36		96	81	916	76	161	692	47	C	Okay.
			Delay	237.6			616.2		14.7	10.0	0.0		12.8	0.0			
Bourquin Cres (N/S) and Ventura Ave (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	30		41	4		6	58	132	51	45	215	31	A	Okay.
			Delay	16.5		9.9	12.3			7.9			7.8				
		2022 Base	Volumes	33		45	6		7	63	143	56	49	233	34	A	Okay.
			Delay	18.0		10.1	13.5			8.0			7.8				
		2032 Base	Volumes	40		53	6		8	75	169	66	58	278	40	A	Okay.
			Delay	22.6		10.5	15.0			8.2			7.9				
		2022 Base + Site	Volumes	35		51	7		6	65	143	56	49	233	35	A	Okay.
			Delay	18.2		10.1	14.4			8.0			7.8				
		2032 Base + Site	Volumes	42		59	6		8	77	169	66	58	276	41	A	Okay.
			Delay	23.0		10.6	15.2			8.2			7.9				
	Weekday Afternoon Peak Hour	2018 Base	Volumes	67		137	7		9	43	284	45	23	198	12	A	Okay.
			Delay	19.2		10.5	14.8			7.8			8.1				
		2022 Base	Volumes	73		148	9		10	47	307	49	25	214	13	A	Okay.
			Delay	21.7		10.7	16.5			7.9			8.2				
		2032 Base	Volumes	86		176	10		12	56	364	58	30	254	16	B	Okay.
			Delay	30.8		11.5	20.2			8.0			8.4				
		2022 Base + Site	Volumes	73		154	9		10	53	307	49	25	214	14	A	Okay.
			Delay	22.3		10.8	16.9			7.9			8.2				
		2032 Base + Site	Volumes	86		182	10		12	62	364	58	30	254	17	B	Okay.
			Delay	31.9		11.6	20.7			8.0			8.4				
Access (N/S) and Ventura Ave (E/W)	Weekday Morning Peak Hour	2022 Base + Site	Volumes		130	5	3	100		13		8				A	Okay.
			Delay		0.0		7.5			9.7							
		2032 Base + Site	Volumes		152	5	3	118		13		8				A	Okay.
			Delay		0.0		7.6			10.0							
	Weekday Afternoon Peak Hour	2022 Base + Site	Volumes		201	11	7	67		10		6				A	Okay.
			Delay		0.0		7.7			10.1							
		2032 Base + Site	Volumes		237	11	7	79		10		6				A	Okay.
			Delay		0.0		7.8			10.4							

Delay = Average Delay (seconds/vehicle)

Intersection approaching capacity (LOS 'D' or 'E'); ; or medium approach delays (25 sec to <50 sec)

Intersection equals or exceeds capacity (LOS 'F'); or high approach delays (=> 50 sec)



TRANSPORTATION IMPACT ASSESSMENT

APPENDIX D

Checklist

ENGINEERING & REGIONAL UTILITIES
604-864-5514 eng-info@abbotsford.ca
www.abbotsford.ca

ABBOTSFORD

Transportation Impact Assessment Checklist:

Yes / No.....Referenced appropriate background documents

Yes / No.....Site Statistics (square feet of development, number of residential units, quantity parking etc)

Yes / No .....Study Area Figure

Yes / No .....ITE Trip Generation table

Yes / No .....Trip Distribution/Assignment Figure

Yes / No.....Figures illustrating traffic volumes

Yes / No.....Figures illustrating conceptual road improvements

Yes / No.....Figures indicating pedestrian improvements and proposed bus stop locations

Yes / No .....Analysis Summary Table (with and without development)

- Existing
- Opening Day
- Final Phase + 5 years
- Final Phase + 10 years

Yes / No .....Swept Path Analysis

Yes / No .....Sightline analysis

Yes / No .....Cost Estimate for mitigation measures

Yes / No .....Summary/Recommendations

Yes / No .....Site Plan – Appendix

Yes / No .....Traffic Count Data – Appendix

Yes / No .....Analytical Model Output - Appendix

Yes / No .....Crosswalk Warrant Analysis - Appendix

Yes / No .....Traffic Signal Warrant Analysis - Appendix