

2009 BC Land Summit



Transportation Planning:
Translating between Urban Planner and
Transportation Modellers – a case study of
the Downtown Victoria Plan

Charlotte Bathurst, PTP
Transportation Project Planner



- The Planners
- The Project
- The Transportation Modellers
- The Transportation Planners

The Planners



The Planners

The Planners



- City of Victoria
- 1990 Downtown Plan
- Review and update of Downtown Plan in 2006 - 2008
 - Maintaining status of downtown as heart of the Region
 - Ensuring that it promotes wellness
 - Is accessible
 - Environmentally sustainable
- Four future (20-25 year) land use scenarios with varying amount of density
- Scenario 3: *Crosstown* emerged as the favoured land use scenario during consultation



The Project



The City wanted to:

- Evaluate the transportation implications of Scenario 3: *Crosstown*, and
- Determine the feasibility and effectiveness that TDM measures would have on this scenario



The Project

Project objectives:

- Review and quantify transportation implications of Scenario 3: *Crosstown*
- Determine suitable TDM strategies consistent with Scenario 3: *Crosstown* and the goals and principles of the Downtown Plan
- Test the effectiveness of the TDM strategies



The Transportation Modeler

The Transportation Modeler



The Transportation Modeler

Capital Regional District's emme/2 model

- Estimates future traffic volumes based on future population and employment characteristics and the road network characteristics
- Traffic generated by the land use within zones and the relative attraction generated by the zones are used to develop an O/D matrix
- Based on road network characteristics and the expected travel time, traffic volumes can be forecast, generated and estimated.

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- Develop data sets for Scenario 3: *Crosstown*
- Determine traffic characteristics to be modelled

Construction

Average Household Size by Dwelling Type, 2006 Census, Capital Region

	Total - All Dwelling Types	Single-Detached House	Semi-Detached House	Apartment Five or More Storeys	Apartment Less than Five Storeys	Apartment Duplex	Row house	Other Single-attached House	Movable Dwelling	Other Dwelling
Core										
Esquimalt	2.0	2.4	2.5	1.8	1.7	2.2	2.1	2.5	0	1.9
Oak Bay	2.6	2.6	2.5	1.4	1.4	2.4	1.7	2.0	0	1.7
Saanich	2.4	2.6	2.3	1.6	1.6	2.5	2.3	2.6	2.0	2.2
Victoria	1.8	2.4	2.2	1.4	1.6	2.2	2.3	2.3	1.9	1.7
View Royal	2.4	2.7	2.5	0	1.8	2.6	2.3	2.0	2.0	2.2
Peninsula										
Central Saanich	2.5	2.8	2.2	0	1.8	2.4	1.8	2.0	2.2	2.0
North Saanich	2.5	2.8	2.6	0	2.1	2.3	1.8	1.0	0	2.2
Sidney	2.0	2.4	2.2	1.4	1.5	2.4	1.8	2.6	3.5	1.8
West Shore										
Colwood	2.7	2.8	2.9	0	1.8	2.6	2.5	3.0	2.5	2.5
Highlands	2.7	2.7	2.9	0	4.0	2.1	0	0	1.0	2.3
Juan de Fuca E.A. (1)	2.4	2.4	3.0	0	2.8	2.2	0	0	2.1	2.4
Langford	2.8	2.7	2.5	0	2.0	2.9	2.5	2.2	1.7	2.5
Metchosin	2.8	2.8	2.4	0	2.7	2.4	0	4.0	1.7	2.5
Sooke (2) (3)	2.5	2.8	2.9	0	1.7	2.6	1.8	3.0	1.9	2.3
Gulf Islands										
Salt Spring Island E.A.	2.2	2.2	1.8	0	1.8	2.2	1.5	2.5	2.0	1.8
Southern Gulf Is. E.A.	1.9	1.9	1.3	0	0	1.8	1.0	2.0	1.7	1.5
Capital Region	2.2	2.6	2.4	1.4	1.6	2.4	2.2	2.3	1.9	2.0

CRD CAPITAL REGIONAL DISTRICT
Planning & Protective Services
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Traffic Zone	Population				Employment			
	Exisiting Model		Option 3	Option 3	Exisiting Model		Option 3	Option 3
	2003	2026	Can	Can	2003	2026	Can	Can
3820	155	427	1132	1132	474	466	2595	2595
3830	36	281	135	135	67	241	309	309
3860	63	266	880	880	277	720	2018	2018
3870	0	76	962	962	219	309	2206	2206
3880	31	104	955	955	169	369	2189	2189
3910	0	82	916	916	323	796	2099	2099
3920	12	82	1551	1551	179	526	3554	3554
3930	0	0	0	0	71	219	0	0
3940	259	326	230	230	63	165	0	0
3950	248	114	521	521	983	616	1402	1402
3960	159	235	742	742	1555	820	1701	1701
3970	0	0	110	110	749	1283	252	252
3980	479	505	1083	1083	197	359	840	840
3990	763	889	253	253	344	511	0	0
4000	64	43	246	246	382	288	787	787
4010	4	0	8	8	610	720	17	17
4020	107	138	0	0	1425	1962	1982	1982
4030	168	179	0	0	241	1357	2150	2150
4040	268	465	1695	1695	457	594	0	0
4140	80	52	499	499	1501	1848	1145	1145
4150	43	103	220	220	572	1027	504	504
4160	162	40	0	0	893	2537	2306	2306
4170	8	26	0	0	845	1333	4149	4149
4180	255	342	1621	1621	610	772	0	0
4190	234	315	2147	2147	334	424	0	0
4200	0	25	145	145	1766	1765	333	333
4210	0	0	57	57	2494	1215	132	132
4220	26	89	134	134	1640	1928	2703	2703
4230	306	379	0	0	798	1086	2665	2665
4240	433	482	995	995	444	745	581	581
4250	449	501	1625	1625	369	618	0	0
4290	26	3	140	140	1322	2928	321	321
4300	0	0	178	178	3044	2189	409	409
4310	0	0	244	244	2113	3275	1724	1724
4320	1	75	769	769	1111	1605	805	805
4330	81	77	70	70	595	760	0	0
4340	544	591	87	87	358	457	0	0
4380	299	248	384	384	501	577	881	881
4410	0	0	0	0	1122	1224	0	0
4440	2	67	0	0	721	1306	0	0
4480	0	0	0	0	1429	922	0	0
4490	124	10	694	694	264	1399	1591	1591
4500	218	266	49	49	190	123	0	0
Total (SA)	6107	7983	21480	21480	33821	44385	44349	44349
Total (Vic)	104115	117612	114984	114984	95503	99115	100138	100138
Total (CRD)	396146	409643	396146	396146	201453	205065	201453	201453
Total (non-SA)	362418	362418	348913	348913	140646	140646	137034	137034
Diff (SA)			13497	0			-36	0
Diff (Vic)			13497	-2628			3612	1023
Diff (CRD)			13497	-13497			3612	-3612

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Comparison of future base case, and future Scenario 3

- Capital Regional District (CRD) emme/2 model run with data sets from Scenario 3: *Crosstown*
- Total estimated number of people that work in the study area are similar c. 44,000 people
- Total estimated number of people living in the study area is expected to increase from c.8,000 (future base case) to over 21,000 (future Scenario 3)
- Change in number of residents varies from zone to zone



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emme/2 results of expected change in traffic volumes between future base case (2026), and future Scenario 3 (2026)



The Transportation Planner



The Transportation Planner

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Transportation Demand Management measures

- Measures should be well suited to meet the target population and trips
- There are a wide variety of alternative measures
- The various measures should be promoted and supported by the City

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- **Pricing based TDM**
 - Increase parking prices
 - Reduce transit prices

- **Non-pricing based TDM**
 - Reduce parking supply
 - Low maximum parking rates for residential and workplace
 - Bus Rapid Transit (BRT)
 - Traffic Calming and Pedestrianisation
 - Road Capacity Reduction
 - Pedestrian and Bicycle networks

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Expected trip reduction factors

TDM Measures for City of Victoria	Literature Review Estimate % Reduction
Pricing	
Increase Parking Prices	7.0%
Reduce Transit Prices	4.0%
Non-Pricing	
Reduce Parking Supply	0.5%
Low Maximum Parking Rates for Residential / Workplace	1.2%
HOV Lanes	2.7%
Traffic Calming / Pedestrianisation	0.3%
Road Capacity Reduction	0.2%
Pedestrian and Bicycle Networks	4.6%
Bicycle Networks	Combined with ped networks
Total	20%



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emme/2 run of Scenario 3 with TDM 2026 and compared to:

- Base 2026
- Scenario 3 2026

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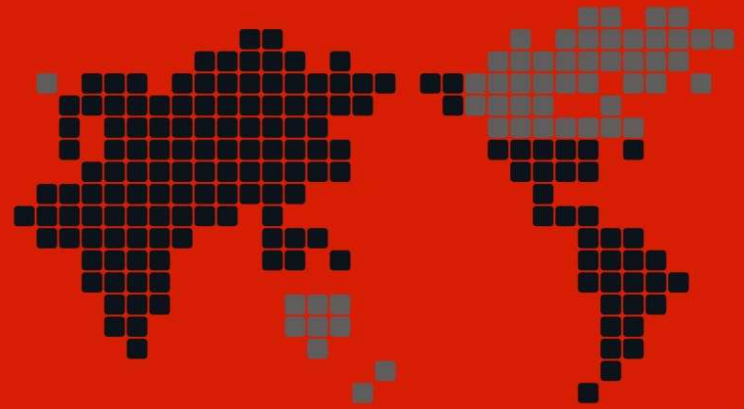
emme/2 results of expected change in traffic volumes between future base case (2026), and future Scenario 3 (2026)



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emme/2 results of comparison between future Scenario 3 (2026) with and without TDM measures





Questions

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