

B/C Analysis

0 Ave Corridor Traffic Calming, Langley

BACKGROUND



Typical section on 0 Ave showing long straight rural conditions

The Township of Langley has requested ICBC to cost share in a road improvement project to provide a traffic calming treatment along the 0 Ave corridor.

A safety study was undertaken on 0 Ave for ICBC in 2001 by Hamilton Associates. This study recommended a combination of road closures and speed humps to mitigate the serious speeding issues associated with the roadway.

Even allowing for increased collisions that would likely occur on the parallel route of 16th Ave due to migration effects, the study estimated that about \$116,000 in net annual claims costs could be saved in the Langley portion alone.

The scope of the Township proposal includes the installation of raised speed tables at all intersections and at mid-block locations within the Township portion of 0 Ave. An alternative proposal calls for speed tables at only the intersections as a cheaper option and both options will be evaluated in this B/C analysis.

The current proposals are quite different from the 2001 Hamilton study recommendations. As a result, a revised B/C analysis is presented here using the results from the Hamilton study as well as more up to date ICBC Claims Statistics as a guide.

0 Ave Corridor Improvements - B/C Review Langley Township

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SAFETY ISSUES

The 2001 Hamilton safety study identified a number of safety concerns along the 0 Ave Corridor:

- High Travel Speeds
- Aggressive driving behaviour
- Wildlife
- Winter road conditions
- Horizontal Curves

A review of the ICBC Claims database for the corridor between 1996 and 2000 determined the following main collision types:

- 47% - Off road
- 22% - Wild Life
- 10% - Rear-End
- 7% - Head-on 1 Sideswipe
- 5% - Overtaking
- 5% - Intersection Turning Related

A review of more recent Claims data is showing an increasing trend in incidents along the corridor. The following tables provide a summary for the Langley Portion by itself, as well as for the complete corridor that includes Surrey and Abbotsford. **The data shows an increasing crash frequency since the 2001 Hamilton study was undertaken.** The latest claims data using data for the 4 year period from 2000 to 2003 will be used for this B/C analysis to account for the rising Collision trend:

0 Avenue Corridor

January 01, 1996 to December 31, 2003

(note from Trudy – these figures are wrong – there were three fatalities that I know of on Zero Avenue during this time – one in Abbotsford section, one near 256 and one near 204)

City (All)

Incident Count Year	Severity			Injury	Fatal	Grand Total
	MID>\$1000	MID<=\$1000	Other			
1996	16	5	0	4	0	25
1997	12	8	1	5	0	26
1998	7	10	0	6	0	23
1999	18	8	0	6	0	32
2000	18	13	0	10	1	41
2001	15	8	0	6	0	30
2002	34	13	0	10	0	57
2003	25	8	0	11	1	44
Grand Total	145	73	1	58	3	278

0 Avenue Corridor

January 01, 1996 to December 31, 2003

(note from Trudy – these figures are wrong – there were two fatalities on Langley Zero during this time, that I know about – one at 204 and one at 256)

City LANGLEY

Incident Count Year	Severity					Grand Total
	MD.>\$1000	MD<\$1000	Other	Injury	Fatality	
1996	9	2	0	3		14
1997	6	7	1	3		17
1998	6	5	0	3		14
1999	10	5	0	3		18
2000	14	9	0	6		29
2001	10	5	0	3		18
2002	25	6	0	4		35
2003	14	3	0	9		26
Grand Total	94	42	1	34		171

BIC ASSUMPTIONS:**Speed:**

Speed is a key factor associated with most collisions along the corridor. Although posted at 50 and 60 km/hr speed surveys show much greater average speeds due to the long straight rural conditions for most of its length. There are no traffic lights and the only friction with intersections is along the northern side of the road as the U.S Border runs immediately adjacent to the south side. 0 Ave is being used as a high speed commuter route that runs east-west through Abbotsford, Langley and Surrey and is seen as a desirable alternative to the more congested and slower 16th Ave Corridor that runs parallel to it.

A treatment that effectively lowers the speed along the 0 Ave corridor will likely have a considerable impact on improving safety by reducing the severity of collisions and frequency of most collision types. The Township proposal, Option A, would be an effective traffic calming measure. ***On the other hand the alternative proposal that only includes traffic calming measures at the intersections, Options B & C, would still result in speeding between the intersections and may not deter the high speed commuters from diverting from 16th Ave.*** As a result, the B/C analysis for ***Options B & C do not provide as high a safety benefit than for Option A.***

A CRIF of 40% will be adopted for Option A based on safety research for traffic calming measures to address high speed locations. ***As 0 Ave fits this criteria, this relatively high value is reasonable given the local conditions and recorded crash history.*** A lower CRIF of 10% will be adopted for Options B&C. This is due to the fact that ***most collisions are occurring mid-block on 0 Ave and speed tables at the intersections alone will not likely have a significant impact on speeding between them.***

Collision Migration Impacts: The 2001 Hamilton study considered the safety impact of diverting traffic from 0 Ave to 16th Ave as a result of providing traffic calming treatments on 0 Ave. It was estimated that a combination of road closures and speed humps on 0 Ave would increase traffic volumes and claims costs on 16th Ave by about \$79,000 per year. The current Township proposal of installing 50km/hr raised speed tables is unlikely to divert as much traffic as the road closure option and therefore the migration affect is considered to be significantly less. A value of \$30,000 (dis-benefit) for the corridor as a whole will be adopted for analysis purposes in this B/C for Option A due to this migration affect.

It is expected that migration impacts will be much less for options B & C as less traffic will likely be diverted from 0 Ave to 16th Ave if speed tables were only located at intersections in Langley. For the purposes of this B/C, a figure of \$10,000 will be adopted.

Spill-over Safety Benefits in Surrey & Abbotsford Sections:

The 2001 Hamilton study assumed that a corridor wide treatment would be adopted that included the sections of 0 Ave in Surrey, Langley and Abbotsford. However, the current Langley proposal naturally only covers traffic calming on 0 Ave in the Langley area. ***It is considered that a comprehensive application of speed tables at all Langley intersections as well as at mid-block locations in Langley (Option A) will have a spill-over impact in both Surrey and Abbotsford.***

Long distance commuters currently using 0 Ave as a convenient high speed alternative to 16th Ave will not be inclined to use 0 Ave if intensive traffic calming measures are in place in Langley. ***However, it is expected that a high proportion of the local trips will stay on 0 Ave if this route provides the most direct and easiest path despite the slower speeds.*** As a result, localized speeding may still occur on 0 Ave in Surrey and Abbotsford where there are no traffic calming measures assumed to be in place. ***The B/C analysis for the Surrey and Abbotsford portions of 0 Ave will be reviewed separately using a lower CRF value than used in the Hamilton study unless these municipalities can be encouraged to implement complimentary traffic calming in their areas as well.***

If Options B or C are adopted where speed tables are placed at only the intersections in Langley it will be expected that there will be little or no spill-over safety benefits in Surrey and Abbotsford. ***The relatively large spacing between intersections and the generous 50km/hr designed speed tables will likely not deter traffic from diverting or slowing down between the intersections.***

B/C Analysis Results:

Option - (26 Raised speed tables at all Langley intersections and at mid-block locations) It is expected that ***ICBC will achieve a total annual safety benefit of \$164,700*** and can invest up to \$109,800 towards the \$260,000 estimated project cost in order to gain a 3:1 return in 2 years.

Option B or C - (12 to 16 Raised Speed Tables at all Langley Intersections) It is expected that ***IC60 will achieve a total annual safety benefit of \$23,800*** and can invest up to \$15,900 towards the \$120,000 or 160,000 estimated project costs in order to gain a 3:1 return in 2 years.