



# CMF / CRF Details

CMF ID: 2421

Install shoulder rumble strips

Description:

Prior Condition: *No Prior Condition(s)*

Category: Shoulder treatments

Study: [Impact of Rumble Strips on Collision Reduction on BC Highways: A Comprehensive Before and After Safety Study, Sayed et al., 2010](#)

Star Quality Rating:	
4 Stars	<a href="#">[View score details]</a>

Crash Modification Factor (CMF)	
Value:	0.74
Adjusted Standard Error:	
Unadjusted Standard Error:	

Crash Reduction Factor (CRF)	
Value:	26.1 (This value indicates a <b>decrease</b> in crashes)
Adjusted Standard Error:	
Unadjusted Standard Error:	

## Applicability

**Crash Type:** Run off road

**Crash Severity:** All

**Roadway Types:** Principal Arterial Other

**Number of Lanes:** 2

**Road Division Type:** Undivided

**Speed Limit:**

**Area Type:** Rural

**Traffic Volume:**

**Time of Day:** All

### *If countermeasure is intersection-based*

**Intersection Type:**

**Intersection Geometry:**

**Traffic Control:**

**Major Road Traffic Volume:**

**Minor Road Traffic Volume:**

## Development Details

**Date Range of Data Used:** 2000 to 2006

**Municipality:** British Columbia

**State:**

**Country:**

**Type of Methodology Used:** 2

<b>Sample Size Used:</b>	Site-years
<b>Before Sample Size Used:</b>	102 Site-years
<b>After Sample Size Used:</b>	68 Site-years

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	
<b>Comments:</b>	The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 to give 10 points as a benefit of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggregate dataset used for CMF development.

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