



# CMF / CRF Details

CMF ID: 5308

**Install shoulder rumble strips on roads with existing centerline rumble strips**

**Description: Install shoulder rumble strips on roads with existing centerline rumble strips**

**Prior Condition: Existing Centerline Rumble Strips**

**Category: Shoulder treatments**

**Study: [Performance Analysis of Centerline and Shoulder Rumble Strips Installed in Combination in Washington State, D. Olson, M. Sujka, and B. Manchas, 2013](#)**

<b>Star Quality Rating:</b>	
<input type="text" value="✖ Star"/>	<a href="#">[View score details]</a>

<b>Crash Modification Factor (CMF)</b>	
<b>Value:</b>	0.932
<b>Adjusted Standard Error:</b>	
<b>Unadjusted Standard Error:</b>	0.403

<b>Crash Reduction Factor (CRF)</b>	
<b>Value:</b>	6.8 (This value indicates a <b>decrease</b> in crashes)
<b>Adjusted Standard Error:</b>	
<b>Unadjusted Standard Error:</b>	40.3

**Applicability**

<b>Crash Type:</b>	Head on,Sideswipe
<b>Crash Severity:</b>	All
<b>Roadway Types:</b>	Not specified
<b>Number of Lanes:</b>	2
<b>Road Division Type:</b>	
<b>Speed Limit:</b>	
<b>Area Type:</b>	Rural
<b>Traffic Volume:</b>	
<b>Time of Day:</b>	Not specified

***If countermeasure is intersection-based***

<b>Intersection Type:</b>	
<b>Intersection Geometry:</b>	
<b>Traffic Control:</b>	
<b>Major Road Traffic Volume:</b>	
<b>Minor Road Traffic Volume:</b>	

**Development Details**

<b>Date Range of Data Used:</b>	2002 to 2010
<b>Municipality:</b>	
<b>State:</b>	WA
<b>Country:</b>	

<b>Type of Methodology Used:</b>	3
<b>Sample Size Used:</b>	Crashes
<b>Before Sample Size Used:</b>	10 Crashes
<b>After Sample Size Used:</b>	11 Crashes

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Dec-02-2013
<b>Comments:</b>	Exposure is presented as VMTBefore MVMT = 196.26After MVMT = 231.34Crash type is total cross centerline crashes

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