



CMF / CRF Details

CMF ID: 3419

Install shoulder rumble strips

Description:

Prior Condition: *No Prior Condition(s)*

Category: Shoulder treatments

Study: [*NCHRP Report 641: Guidance for the Design and Application of Shoulder and Centerline Rumble Strips, Torbic et al., 2009*](#)

Star Quality Rating:



[\[View score details\]](#)

Crash Modification Factor (CMF)

Value: 1.14

Adjusted Standard Error:

Unadjusted Standard Error: 0.0801

Crash Reduction Factor (CRF)

Value: -14 (This value indicates an **increase** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:	8.01
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Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Number of Lanes:	2
Road Division Type:	Undivided
Speed Limit:	
Area Type:	Rural
Traffic Volume:	782 to 10386 <i>Average Daily Traffic (ADT)</i>
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:	1997 to 2005
Municipality:	
State:	MN

Country:	U.S.A.
Type of Methodology Used:	2
Sample Size Used:	Crashes
Before Sample Size Used:	296 Crashes
After Sample Size Used:	220 Crashes

Other Details	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Mar-21-2011
Comments:	The authors collected data on thru lanes and speed limits but did not provide those data in the report (see p. 50).

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

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