



CMF / CRF Details

CMF ID: 3443

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:

4 Stars

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

Crash Modification Factor (CMF)

Value: 1.11

Adjusted Standard Error:

Unadjusted Standard Error: 0.1707

Crash Reduction Factor (CRF)

Value: -11 (This value indicates an **increase** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error: 17.07

Applicability

Crash Type: Run off road

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 *Average Daily Traffic (ADT)*

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:	61 Crashes
After Sample Size Used:	43 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).

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