



CMF / CRF Details

CMF ID: 3422

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: 0.84

Adjusted Standard Error:

Unadjusted Standard Error: 0.0725

Crash Reduction Factor (CRF)

Value: 16 (This value indicates a **decrease** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error: 7.25

Applicability

Crash Type:

All

Crash Severity:

K (fatal),A (serious injury),B (minor injury),C (possible injury)

Roadway Types:

Principal Arterial Other Freeways and Expressways

Number of Lanes:

Road Division Type:

Divided by Median

Speed Limit:

Area Type:

Urban

Traffic Volume:

11254 to 59391 *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 2006

Municipality:

State:

PA

Country:

U.S.A.

Type of Methodology Used:

2

Sample Size Used:	Crashes
Before Sample Size Used:	231 Crashes
After Sample Size Used:	162 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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