



# CMF / CRF Details

CMF ID: 3470

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:

3 Stars

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

## Crash Modification Factor (CMF)

Value: 0.91

Adjusted Standard Error:

Unadjusted Standard Error: 0.0719

## Crash Reduction Factor (CRF)

Value: 9 (This value indicates a **decrease** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error: 7.19

## 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 92757 *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:**

7

<b>Sample Size Used:</b>	Crashes
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<b>Other Details</b>	
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<b>Included in Highway Safety Manual?</b>	No
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<b>Date Added to Clearinghouse:</b>	Mar-21-2011
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<b>Comments:</b>	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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