



# CMF / CRF Details

CMF ID: 3533

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:

Stars

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

## Crash Modification Factor (CMF)

Value: 0.87

Adjusted Standard Error:

Unadjusted Standard Error: 0.1643

## Crash Reduction Factor (CRF)

Value: 13 (This value indicates a **decrease** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error: 16.43

## Applicability

**Crash Type:** Run off road

**Crash Severity:** All

**Roadway Types:** Principal Arterial Other Freeways and Expressways

**Number of Lanes:**

**Road Division Type:** Divided by Median

**Speed Limit:**

**Area Type:** Rural

**Traffic Volume:** 6777 to 24752 *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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### Other Details

<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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