



CMF / CRF Details

CMF ID: 6190

Pave deteriorated shoulder (2 ft)

Description: Paving the same width of the existing paved shoulder that has deteriorated over time

Prior Condition: Deteriorated shoulder (2 ft)

Category: Shoulder treatments

Study: [*Safety Effects of Shoulder Paving for Rural and Urban Interstate, Multilane, and Two-Lane Highways, Li et al., 2013*](#)

Star Quality Rating:



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

Crash Modification Factor (CMF)

Value: 0.97

Adjusted Standard Error:

Unadjusted Standard Error: 0.02

Crash Reduction Factor (CRF)

Value: 3 (This value indicates a **decrease** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:

2

Applicability

Crash Type:

Fixed object,Head on,Run off road,Sideswipe

Crash Severity:

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

Roadway Types:

Not specified

Number of Lanes:

Multilane

Road Division Type:

Speed Limit:

Area Type:

Rural

Traffic Volume:

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:

2000 to 2006

Municipality:

State:

IL

Country:	USA
Type of Methodology Used:	2
Sample Size Used:	

Other Details	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Mar-11-2015
Comments:	Crash type is "Run-off-road right, then head-on and sideswiped with a vehicle in the opposite direction; Run-off-road right, then sideswiped with a vehicle in the same direction of multilane highways; Run-off-road right, then collided with fixed object on the right; Run-off-road right, then collided with fixed object on the left; Run-off-road right, then overturned in road or roadside involving single vehicle; and Run-off-road right, then overturned in road or roadside involving multiple vehicles" The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 to give 10 points as a benefit of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggregate dataset used for CMF development.

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