



CMF / CRF Details

CMF ID: 5402

Upgrade narrow unpaved shoulder (< 5 ft) to wide unpaved shoulder (> 5 ft)

Description: Upgrade narrow unpaved shoulder (< 5 ft) to wide unpaved shoulder (> 5 ft)

Prior Condition: Narrow unpaved shoulder (< 5 ft)

Category: Shoulder treatments

Study: [Evaluation of Safety Effectiveness of Composite Shoulders, Wide Unpaved Shoulders, and Wide Paved Shoulders in Kansas, Zeng et al., 2013](#)

Star Quality Rating:



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

Crash Modification Factor (CMF)

Value: 0.71

Adjusted Standard Error:

Unadjusted Standard Error: 0.048

Crash Reduction Factor (CRF)

Value: 29 (This value indicates a **decrease** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:	4.8
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Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Major Collector
Number of Lanes:	2
Road Division Type:	Undivided
Speed Limit:	
Area Type:	Rural
Traffic Volume:	65 to 4950 <i>Annual Average Daily Traffic (AADT)</i>
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 2009
Municipality:	
State:	KS

Country:	USA
Type of Methodology Used:	7
Sample Size Used:	3135 Crashes

Other Details	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Jan-09-2014
Comments:	The cross sectional model compares narrow unpaved shoulders to wide unpaved shoulders. There are more crashes included in the sample, specifically associated with the category "wide paved shoulders," that wasn't included in the summary statistics.

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

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