



CMF / CRF Details

CMF ID: 4251

Increase outside paved shoulder width from 10ft to 12ft (inside paved shoulder width = 4ft)

Description: Interchange influence area on urban four-lane freeway with a 12-ft outside paved shoulder and a 4-ft inside paved shoulder with warning device.

Prior Condition: 4-ft paved inside shoulder and 10-ft paved outside shoulder within interchange influence area

Category: Shoulder treatments

Study: [Developing Crash Modification Factors for Interchange Influence Areas on Urban Four-Lane Freeways Using Multivariate Adaptive Regression Splines, Haleem, Gan, and Lu, 2012](#)

Star Quality Rating:	
<input type="text" value="3 Stars"/>	[View score details]

Crash Modification Factor (CMF)	
Value:	0.793
Adjusted Standard Error:	
Unadjusted Standard Error:	0.1

Crash Reduction Factor (CRF)	
Value:	20.7 (This value indicates a decrease in crashes)
Adjusted Standard Error:	

Unadjusted Standard Error:

10

Applicability

Crash Type:

All

Crash Severity:

All

Roadway Types:

Principal Arterial Other Freeways and Expressways

Number of Lanes:

4

Road Division Type:

Divided by Median

Speed Limit:

Area Type:

Urban

Traffic Volume:

Time of Day:

Not specified

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:

2005 to 2008

Municipality:

State:

FL

Country:	United States
Type of Methodology Used:	7
Sample Size Used:	12078 Crashes

Other Details	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Nov-01-2012
Comments:	Applies only to interchange influence areas. Countermeasure name changed in Jan 2014 to be more consistent with other CMFs from same study.

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