



CMF / CRF Details

CMF ID: 4231

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

Description: Interchange influence area on urban four-lane freeway with a 10-ft inside paved shoulder and a 10-ft outside 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:	
3 Stars	[View score details]

Crash Modification Factor (CMF)	
Value:	0.977
Adjusted Standard Error:	
Unadjusted Standard Error:	0.1

Crash Reduction Factor (CRF)	
Value:	2.3 (This value indicates a decrease in crashes)
Adjusted Standard Error:	

Unadjusted Standard Error:	10
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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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