



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:



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

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.

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

The information contained in the Crash Modification Factors (CMF) Clearinghouse is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in the CMF Clearinghouse. The information contained in the CMF Clearinghouse does not constitute a standard, specification, or regulation, nor is it a substitute for sound engineering judgment.