



CMF / CRF Details

CMF ID: 5510

Increase paved outside shoulder width from 10ft to 12ft

Description: Increase paved outside shoulder width from 10ft to 12ft

Prior Condition: 10 ft paved outside shoulder width

Category: Shoulder treatments

Study: [Using multivariate adaptive regression splines \(MARS\) to develop crash modification factors for urban freeway interchange influence areas, Haleem et al., 2013](#)

Star Quality Rating:



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

Crash Modification Factor (CMF)

Value: 0.9

Adjusted Standard Error:

Unadjusted Standard Error: 0.106

Crash Reduction Factor (CRF)

Value: 10 (This value indicates a **decrease** in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:	10.6
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Applicability

Crash Type:	All
Crash Severity:	K (fatal),A (serious injury),B (minor injury),C (possible injury)
Roadway Types:	Principal Arterial Other Freeways and Expressways
Number of Lanes:	4 to 6+
Road Division Type:	Divided by Median
Speed Limit:	
Area Type:	Urban
Traffic Volume:	5700 to 309000 <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:	2007 to 2010
Municipality:	
State:	FL

Country:	USA
Type of Methodology Used:	Regression cross-section
Sample Size Used:	18525 Crashes

Other Details	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Apr-30-2014
Comments:	CMF for urban freeway interchange areas

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