



CMF / CRF Details

CMF ID: 5509

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:	
<input type="text" value="4 Stars"/>	[View score details]

Crash Modification Factor (CMF)	
Value:	0.774
Adjusted Standard Error:	
Unadjusted Standard Error:	0.095

Crash Reduction Factor (CRF)	
Value:	22.6 (This value indicates a decrease in crashes)
Adjusted Standard Error:	
Unadjusted Standard Error:	9.5

Applicability

Crash Type:	All
Crash Severity:	All
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:	7
Sample Size Used:	40008 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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