



## CMF / CRF Details

**CMF ID: 4233**

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

**Description: Interchange influence area on urban four-lane freeway with a 12-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:**



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

### Crash Modification Factor (CMF)

**Value:** 0.946

**Adjusted Standard Error:**

**Unadjusted Standard Error:** 0.1

### Crash Reduction Factor (CRF)

<b>Value:</b>	5.4 ( <i>This value indicates a <b>decrease</b> in crashes</i> )
<b>Adjusted Standard Error:</b>	
<b>Unadjusted Standard Error:</b>	10

### Applicability

<b>Crash Type:</b>	All
<b>Crash Severity:</b>	All
<b>Roadway Types:</b>	Principal Arterial Other Freeways and Expressways
<b>Number of Lanes:</b>	4
<b>Road Division Type:</b>	Divided by Median
<b>Speed Limit:</b>	
<b>Area Type:</b>	Urban
<b>Traffic Volume:</b>	
<b>Time of Day:</b>	Not specified

### *If countermeasure is intersection-based*

<b>Intersection Type:</b>	
<b>Intersection Geometry:</b>	
<b>Traffic Control:</b>	
<b>Major Road Traffic Volume:</b>	
<b>Minor Road Traffic Volume:</b>	

### Development Details

<b>Date Range of Data Used:</b>	2005 to 2008
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<b>Municipality:</b>	
<b>State:</b>	FL
<b>Country:</b>	United States
<b>Type of Methodology Used:</b>	7
<b>Sample Size Used:</b>	12078 Crashes

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Nov-01-2012
<b>Comments:</b>	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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