



CMF / CRF Details

CMF ID: 5

Four to five lane conversion

Description:

Prior Condition: *No Prior Condition(s)*

Category: Roadway

Study: [*Safety Effects of Using Narrow Lanes and Shoulder-Use Lanes to Increase the Capacity of Urban Freeways*](#) , Bauer et al., 2004

Star Quality Rating:

5 Stars

Crash Modification Factor (CMF)

Value: 1.1

Adjusted Standard Error:

Unadjusted Standard Error: 0.04

Crash Reduction Factor (CRF)

Value: -10 (*This value indicates an **increase** in crashes*)

Adjusted Standard Error:

Unadjusted Standard Error: 4

Applicability

Crash Type:	All
Crash Severity:	A (serious injury),B (minor injury),C (possible injury),O (property damage only)
Roadway Types:	Principal Arterial Other Freeways and Expressways
Number of Lanes:	4 (one direction)
Road Division Type:	
Speed Limit:	
Area Type:	Urban
Traffic Volume:	79000 to 128000 <i>Average Daily Traffic (ADT)</i>
Time of Day:	

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:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	2

Sample Size Used:

Other Details

Included in Highway Safety Manual?

Yes. HSM lists this CMF in bold font to indicate that it has the highest reliability since it has an adjusted standard error of 0.1 or less. However, it also includes an asterisk (*) to indicate that the CMF value itself is within the range 0.90 to 1.10, but that the confidence interval defined by the $CMF \pm$ two times the standard error may contain the value 1.0. This is important to note since a treatment with such an CMF could potentially result in (a) a reduction in crashes (safety benefit), (b) no change, or (c) an increase in crashes (safety disbenefit). HSM recommends that this CMF should be used with caution.

Date Added to Clearinghouse:

Dec-01-2009

Comments:

AADT is one direction

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.