



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:



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 *Average Daily Traffic (ADT)*

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: | Before/after using empirical Bayes or full Bayes |
| 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 |

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