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## CMF / CRF DETAILS

CMF ID: 11157

### CABLE BARRIER AND GUARDRAIL

DESCRIPTION:

PRIOR CONDITION: SEGMENT WITHOUT CABLE BARRIER AND GUARDRAIL

CATEGORY: ROADSIDE

STUDY: [SAFETY AND ECONOMIC EVALUATION OF THE HIGHWAY SAFETY IMPROVEMENT PROGRAM: IS THERE A RETURN ON INVESTMENT?](#) BORIS CLAROS, ERYNN SCHROED BRUMMETT, MADHAV CHITTURI, ANDREA BILL, AND DAVID A. NOYCE, 2022

Star Quality Rating: [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 80

#### Crash Modification Factor (CMF)

Value: 0.429

Adjusted Standard Error:

Unadjusted Standard Error:

#### Crash Reduction Factor (CRF)

Value: 57.1 (This value indicates a *decrease* in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:

#### Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Street Type: Not Specified

Minimum Number of Lanes:

Maximum Number of Lanes:

Number of Lanes Direction:

Number of Lanes Comment:

Crash Weather: Not specified

Road Division Type:

Minimum Speed Limit:

Maximum Speed Limit:

Speed Unit:

Speed Limit Comment:

Area Type: Not specified

Traffic Volume:

Average Traffic Volume:

Time of Day: Not specified

*If countermeasure is intersection-based*

Intersection Type:

Intersection Geometry:

Traffic Control:

Major Road Traffic Volume:

Minor Road Traffic Volume:

Average Major Road Volume :

Average Minor Road Volume :

#### Development Details

Date Range of Data Used:

Municipality:

State: WI

Country:

Type of Methodology Used:

#### Other Details

Included in Highway Safety Manual? No

Date Added to Clearinghouse: Aug 25, 2022

Comments:

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For more information, contact Sarah Weissman Pascual at [sara.pascual@unc.edu](mailto:sara.pascual@unc.edu)

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## CMF / CRF DETAILS

CMF ID: 3

### INCREASE LANE WIDTH FROM 11 FEET TO 12 FEET

DESCRIPTION:

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: ROADWAY

STUDY: [LANE WIDTH AND SAFETY, HAUER, E., 2000](#)

Star Quality Rating: [VIEW SCORE DETAILS]

Rating Points Total: 75

#### Crash Modification Factor (CMF)

Value: 0.95

Adjusted Standard Error: 0.32

Unadjusted Standard Error: 0.11

#### Crash Reduction Factor (CRF)

Value: 5 (This value indicates a *decrease* in crashes)

Adjusted Standard Error: 32

Unadjusted Standard Error: 11

#### Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Street Type:

Minimum Number of Lanes: 2

Maximum Number of Lanes: 2

Number of Lanes Direction:

Number of Lanes Comment:

Crash Weather:	Not specified
Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Rural
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
<i>If countermeasure is intersection-based</i>	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	
<b>Development Details</b>	
Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Meta-analysis
<b>Other Details</b>	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	

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# CRASH MODIFICATION FACTORS CLEARINGHOUSE

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## CMF / CRF DETAILS

CMF ID: 4825

### CHANGE SHOULDER WIDTH FROM X TO Y (IN FEET)

DESCRIPTION: CHANGE SHOULDER WIDTH ON A RURAL TWO-LANE HIGHWAY FROM X TO Y (IN FEET)

PRIOR CONDITION: RURAL TWO-LANE HIGHWAY WITH SHOULDER WIDTH X (IN FEET)

CATEGORY: SHOULDER TREATMENTS

STUDY: [EFFICACIES OF ROADWAY SAFETY IMPROVEMENTS ACROSS FUNCTIONAL SUBCLASSES OF RURAL TWO-LANE HIGHWAYS, LABI, 2011](#)

Star Quality Rating: [VIEW SCORE DETAILS]

Rating Points Total: 40

#### Crash Modification Factor (CMF)

Value:  $CMF = e^{(-0.0943(Y-X))}$

Adjusted Standard Error:

Unadjusted Standard Error:

#### Crash Reduction Factor (CRF)

Value:  $CRF = 100 \times (1 - e^{(-0.0943(Y-X))})$

Adjusted Standard Error:

Unadjusted Standard Error:

#### Applicability

Crash Type: All

Crash Severity: K (fatal),A (serious injury),B (minor injury),C (possible injury)

Roadway Types: Principal Arterial Other

Street Type:

Minimum Number of Lanes: 2

Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	
Crash Weather:	Not specified
Road Division Type:	Undivided
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Rural
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All
<i>If countermeasure is intersection-based</i>	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	
<b>Development Details</b>	
Date Range of Data Used:	1997 to 2000
Municipality:	
State:	IN
Country:	
Type of Methodology Used:	Regression cross-section
Sample Size (site-years):	2160 site-years
<b>Other Details</b>	
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	May 01, 2013
Comments:	There is no indication of statistical significance in the paper. As such, the star rating does not reflect the level of significance. There is no indication of sample size in terms of number of crashes. The star rating reflects a moderate sample based on number of site-years.



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