



# CMF / CRF Details

CMF ID: 1864

Install a combination of chevron signs, curve warning signs, and/or sequential flashing beacons

**Description:** Along a curve with a small radius, large deflection angle, available sight distance smaller than stopping sight distance, and superelevation smaller than demanded at design and operating speed

**Prior Condition:** No curve delineation treatment. Radius is greater than 300 m.

**Category:** Signs

**Study:** [Safety Evaluation of Curve Delineation Improvements An Empirical Bayes Observational Before-After Study, Montella, 2009](#)

Star Quality Rating:	
<input type="checkbox"/> 1 Stars	<a href="#">[View score details]</a>

Crash Modification Factor (CMF)	
Value:	0.42
Adjusted Standard Error:	
Unadjusted Standard Error:	0.1

Crash Reduction Factor (CRF)	
Value:	58 (This value indicates a <b>decrease</b> in crashes)
Adjusted Standard Error:	

<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>	
<b>Speed Limit:</b>	
<b>Area Type:</b>	Not specified
<b>Traffic Volume:</b>	7400 to 13975 <i>Annual Average Daily Traffic (AADT)</i>
<b>Time of Day:</b>	All

### *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>	2001 to 2005
<b>Municipality:</b>	Trans European Road Network, Italy
<b>State:</b>	

<b>Country:</b>	
<b>Type of Methodology Used:</b>	2
<b>Sample Size Used:</b>	
<b>Before Sample Size Used:</b>	4
<b>After Sample Size Used:</b>	4

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Dec-01-2009
<b>Comments:</b>	

---

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.*