



## CMF / CRF Details

**CMF ID: 10020**

### **Implement Active Traffic Management Strategies with Hard Shoulder Running**

**Description:** Implement a mix of advisory variable speed limits, lane use control signals, and hard shoulder running on a segment of interstate.

**Prior Condition:** Static speed limits, no lane use control signals, and no hard shoulder running.

**Category:** Advanced technology and ITS

**Study:** [\*Evaluation of the Impact of the I-66 Active Traffic Management System: Phase II, Dutta et al., 2018\*](#)

**Star Quality Rating:**



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

### **Crash Modification Factor (CMF)**

**Value:** 0.691

**Adjusted Standard Error:**

**Unadjusted Standard Error:** 0.071

### **Crash Reduction Factor (CRF)**

**Value:** 30.9 (This value indicates a **decrease** in crashes)

<b>Adjusted Standard Error:</b>	
<b>Unadjusted Standard Error:</b>	7.1

<b>Applicability</b>	
<b>Crash Type:</b>	Rear end
<b>Crash Severity:</b>	All
<b>Roadway Types:</b>	Principal Arterial Interstate
<b>Number of Lanes:</b>	6-8
<b>Road Division Type:</b>	Divided by Median
<b>Speed Limit:</b>	
<b>Area Type:</b>	Not specified
<b>Traffic Volume:</b>	133000 to 184000 <i>Annual Average Daily Traffic (AADT)</i>
<b>Time of Day:</b>	All

<b><i>If countermeasure is intersection-based</i></b>	
<b>Intersection Type:</b>	
<b>Intersection Geometry:</b>	
<b>Traffic Control:</b>	
<b>Major Road Traffic Volume:</b>	
<b>Minor Road Traffic Volume:</b>	

<b>Development Details</b>	
<b>Date Range of Data Used:</b>	2011 to 2016
<b>Municipality:</b>	

<b>State:</b>	VA
<b>Country:</b>	United States
<b>Type of Methodology Used:</b>	Before/after using empirical Bayes or full Bayes
<b>Sample Size Used:</b>	

<b>Other Details</b>	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Jul-26-2019
<b>Comments:</b>	Applies to a segment with advisory variable speed limits, lane use control signals, and hard shoulder running.

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