



## CMF / CRF Details

**CMF ID: 9899**

**Change permissive left-turn phasing to protected only or protected/permissive**

**Description:** Treatment group includes intersections where signal phases were changed from permissive to protected-only or protected/permissive.

**Prior Condition:** Intersections with permissive left-turn signal phasing.

**Category:** Intersection traffic control

**Study:** [\*Safety Evaluation of Protected Left-Turn Phasing and Leading Pedestrian Intervals on Pedestrian Safety, Goughnour et al., 2018\*](#)

**Star Quality Rating:**



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

### Crash Modification Factor (CMF)

**Value:** 0.942

**Adjusted Standard Error:**

**Unadjusted Standard Error:** 0.028

### Crash Reduction Factor (CRF)

**Value:** 5.8 (This value indicates a **decrease** in crashes)

**Adjusted Standard Error:**

**Unadjusted Standard Error:**

2.8

### Applicability

**Crash Type:**

Other

**Crash Severity:**

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

**Roadway Types:**

All

**Number of Lanes:**

**Road Division Type:**

**Speed Limit:**

**Area Type:**

**Traffic Volume:**

**Time of Day:**

All

### *If countermeasure is intersection-based*

**Intersection Type:**

Roadway/roadway (not interchange related)

**Intersection Geometry:**

Not specified

**Traffic Control:**

Signalized

**Major Road Traffic Volume:**

**Minor Road Traffic Volume:**

### Development Details

**Date Range of Data Used:**

2001 to 2014

**Municipality:**

Chicago, New York City, Toronto

**State:**

notusa, IL, NY

<b>Country:</b>	USA, Canada
<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>	Mar-11-2019
<b>Comments:</b>	Crash Type = Vehicle-Vehicle Crashes

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