



## CMF / CRF Details

CMF ID: 9774

### Install adaptive traffic signal control

**Description:** ATSC is a traffic management strategy in which traffic signal timings change, or adapt, based on observed traffic demand. These systems utilize increased detection to continually collect data on observed demand, and signal timings are then re-optimized based on current data.

**Prior Condition:** Traditional traffic signal

**Category:** Intersection traffic control

**Study:** [\*Estimating Safety Effects of Adaptive Signal Control Technology using the Empirical Bayes Method, Khattak et al., 2018\*](#)

Star Quality Rating:



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

### Crash Modification Factor (CMF)

**Value:** 0.67

**Adjusted Standard Error:**

**Unadjusted Standard Error:** 0.11

### Crash Reduction Factor (CRF)

**Value:** 33 (This value indicates a **decrease** in crashes)

|                                   |    |
|-----------------------------------|----|
| <b>Adjusted Standard Error:</b>   |    |
| <b>Unadjusted Standard Error:</b> | 11 |

**Applicability**

|                            |                    |
|----------------------------|--------------------|
| <b>Crash Type:</b>         | Multiple vehicle   |
| <b>Crash Severity:</b>     | All                |
| <b>Roadway Types:</b>      | Not specified      |
| <b>Number of Lanes:</b>    |                    |
| <b>Road Division Type:</b> |                    |
| <b>Speed Limit:</b>        |                    |
| <b>Area Type:</b>          | Urban and suburban |
| <b>Traffic Volume:</b>     |                    |
| <b>Time of Day:</b>        | All                |

***If countermeasure is intersection-based***

|                                   |   |
|-----------------------------------|---|
| <b>Intersection Type:</b>         | Roadway/roadway (not interchange related) |
| <b>Intersection Geometry:</b>     | 4-leg                                     |
| <b>Traffic Control:</b>           | Signalized                                |
| <b>Major Road Traffic Volume:</b> |   |
| <b>Minor Road Traffic Volume:</b> |   |

**Development Details**

|                                 |            |
|---------------------------------|------------|
| <b>Date Range of Data Used:</b> |            |
| <b>Municipality:</b>            | Pittsburgh |

|                                  |               |
|----------------------------------|---------------|
| <b>State:</b>                    | PA            |
| <b>Country:</b>                  | United States |
| <b>Type of Methodology Used:</b> | 2             |
| <b>Sample Size Used:</b>         |               |

| <b>Other Details</b>                      |   |
|---|---|
| <b>Included in Highway Safety Manual?</b> | No  |
| <b>Date Added to Clearinghouse:</b>       | Oct-27-2018   |
| <b>Comments:</b>                          | Applies to crashes within 350 feet of an intersection. SURTRAC adaptive signal control system installed. The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 to give 10 points as a benefit of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggregate dataset used for CMF development. |

---

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.*