Crash Modification Factors Clearinghouse

The Search for Safety

2018 Transportation Engineering and Safety Conference

Session 2A:
Highway Safety - The Final Frontier

December 5, 2018

What is a Crash Modification Factor?

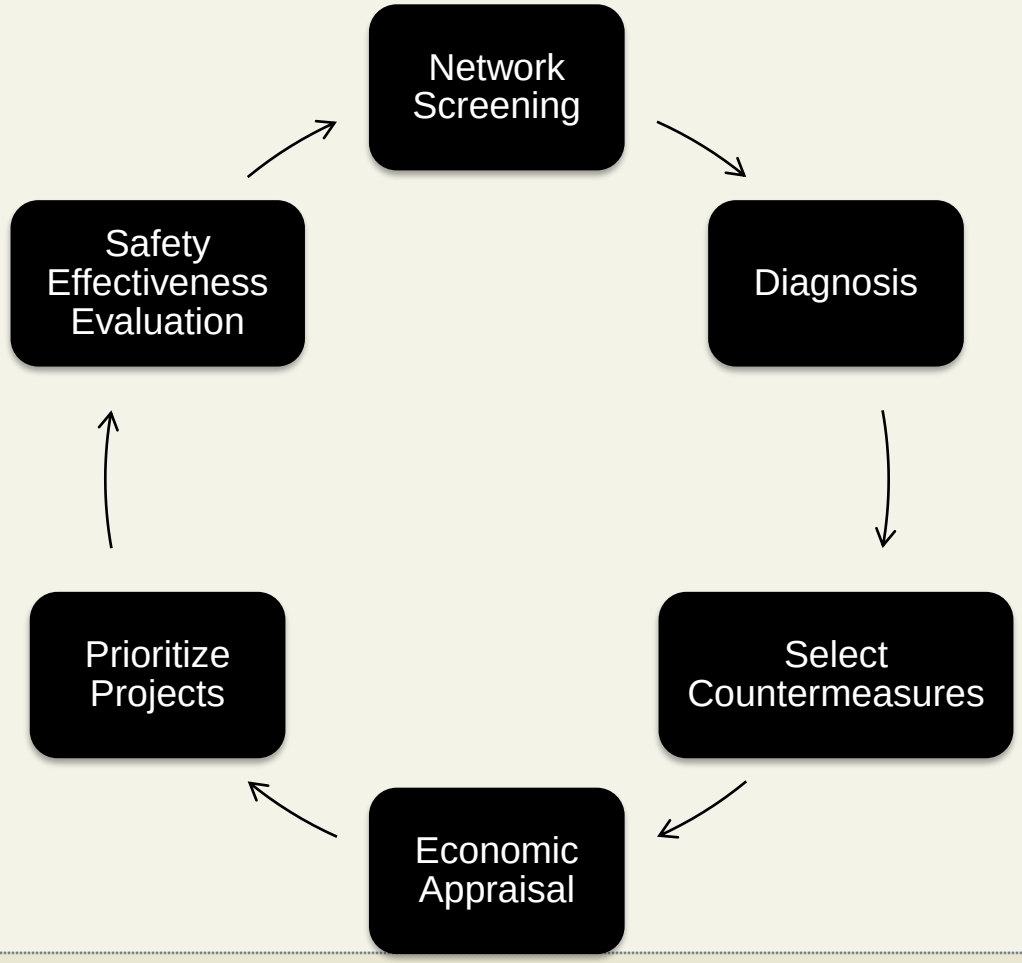
- A CMF is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site.

  Example:

  CMF = 0.8

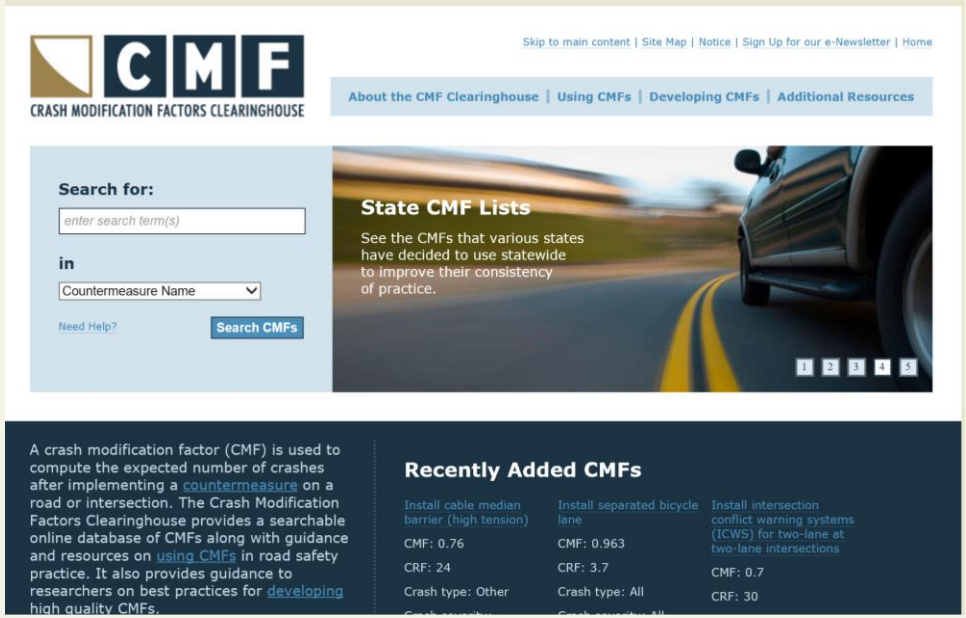
  (The crashes would be expected to be reduced by 20%)

How do you use CMFs?



What is the purpose of the CMF Clearinghouse?

- Provides CMF data
- Educates CMF users
- Facilitates CMF research



What's in the Clearinghouse?

- Nearly 7,000 CMFs with star ratings
- Covers almost 1,000 countermeasures
- CMFs obtained from 400+ studies

- CMF information
  - CMF value
  - Collision type and crash severity
  - Roadway type and characteristics
  - Standard errors
  - Star quality rating
  - Study information

Star Quality Rating

- Structured but subjective process
- Star quality rating criteria (excellent, fair, poor)
  1. Study design
  2. Sample size
  3. Standard error
  4. Potential bias
  5. Data source

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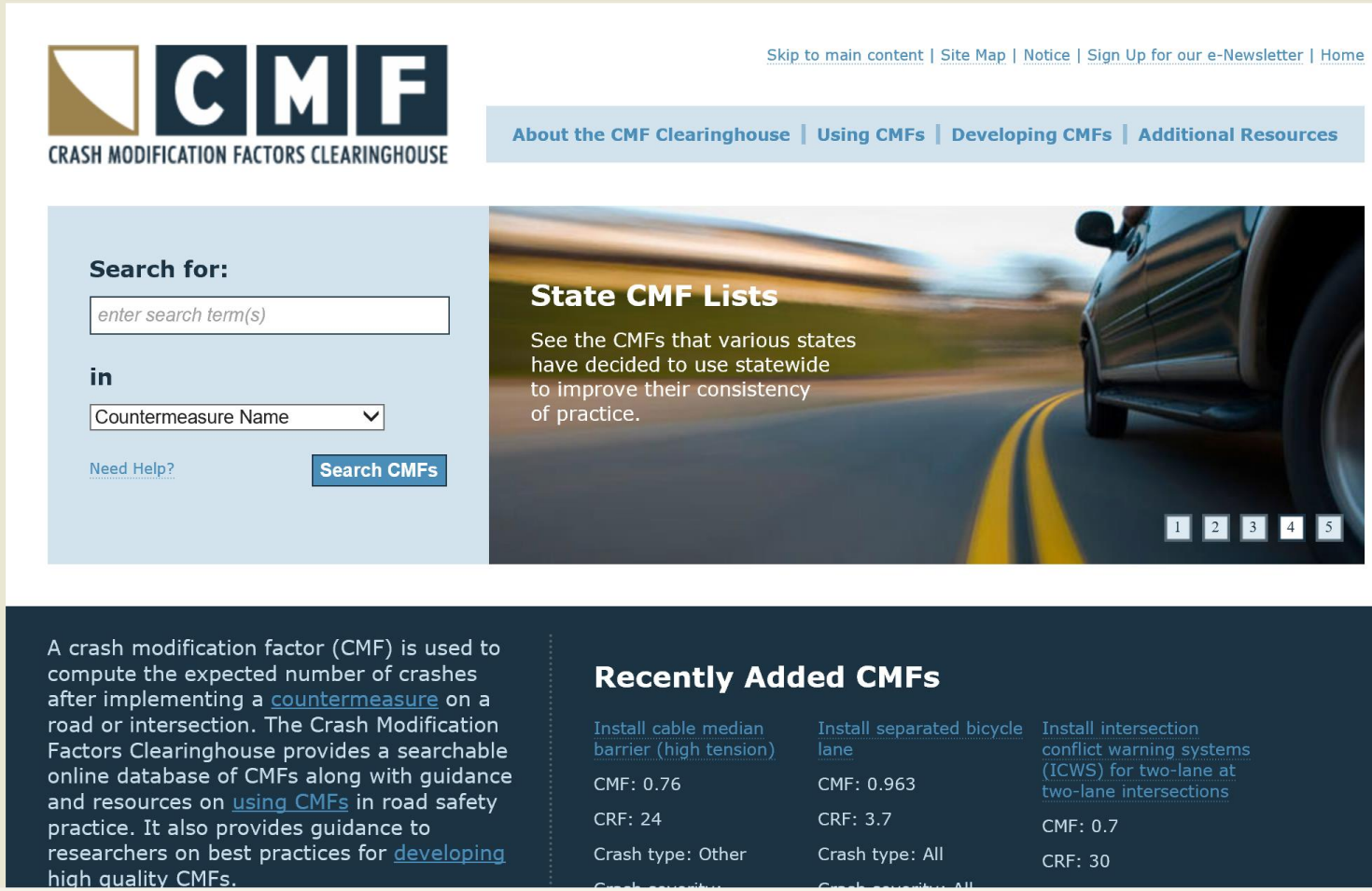


Live Demo

FAQs

- How do I select a CMF when major factors are the same?
- How do I apply more than one CMF?

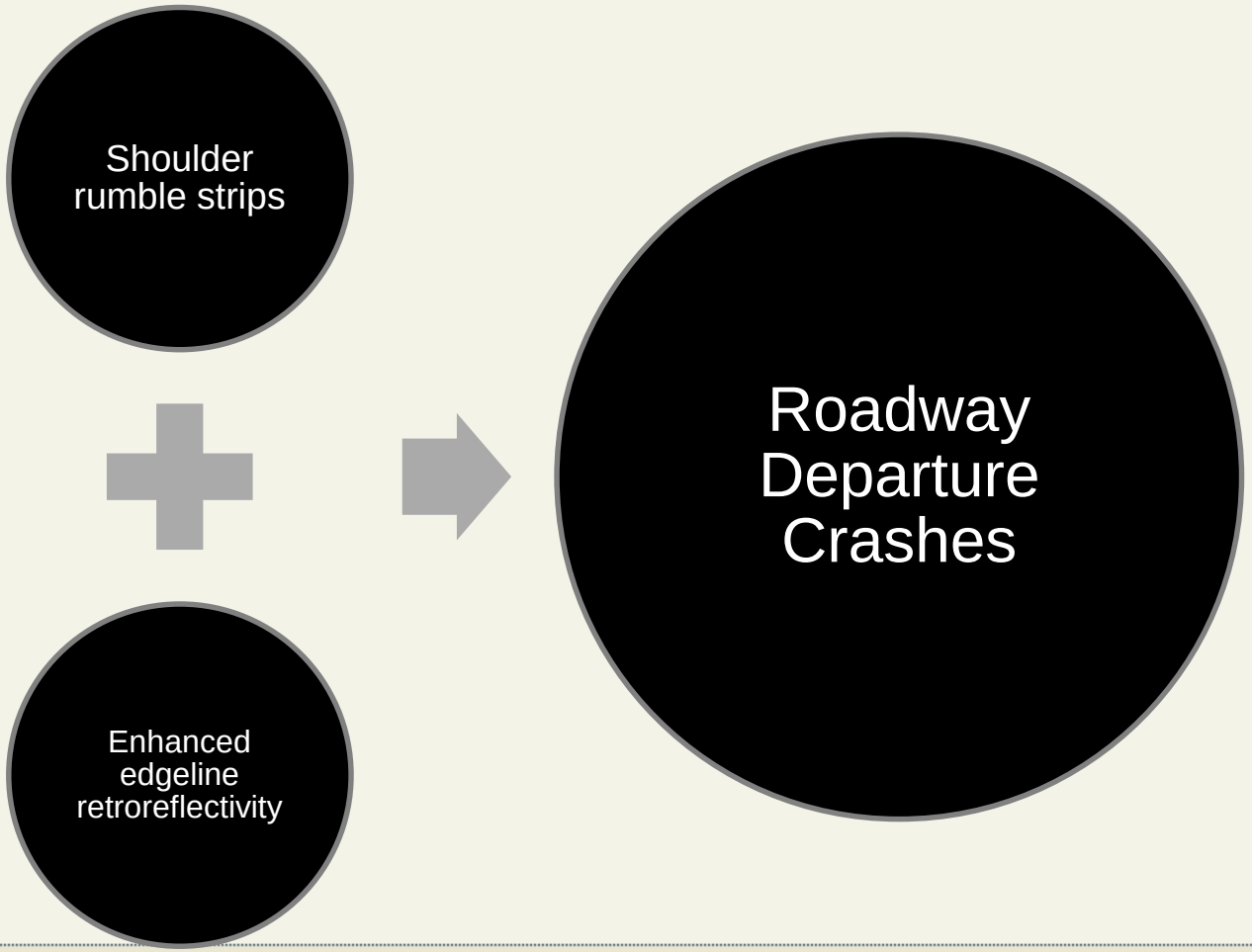
How do I select a CMF when major factors are the same?

- Star Quality Rating
- Score Details
- Similar Locality
- Traffic Volume Range
- Age of Data
- Original Study Report

How do I apply more than one CMF?

- Common practice is to multiply CMFs
- Limited understanding of interrelationships
- Likely to overestimate combined effect
- Assumes independence
- Use engineering judgement, especially when more than 3 CMFs are proposed

Example of Related CMFs (Target same crash type)



Examples of Independent CMFs (Target different crash types)

Convert left turn phase from permissive to protected

- Angle crashes

Installation of an exclusive right turn lane

- Rear end crashes

Looking Ahead

- CMF Tune Up: Resources, Methods and Real World Applications
  - Monday, December 17th 2:00 -3:30 PM ET
  - Register on CMF CH Website
- Developing Quality CMFs
  - NHI Course 380119
  - Offered in Spring and Fall
- Highway Safety Manual, 2nd edition
  - Part D Changes
  - NCHRP 17-72 Review Criteria

Questions?

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www.cmfclearinghouse.org