CMF Clearinghouse Webinar – December 13, 2023

CMFs In Real Life: Issues, Tools, and Applications

Audience Questions with CMF Clearinghouse Team Responses

Some questions have been re-worded for clarity.

Questions for Clearinghouse/CMF Use

Question: How are CMFs "approved"? Are any CMFs not approved? Are any CMFs removed from the Clearinghouse?

The process is outlined in the *"Introduction to the CMF Clearinghouse"* online (https://www.cmfclearinghouse.org/userguide_clearinghouse.php). Specifically, it provides sections on *"What Kind of CMFs Does the CMF Clearinghouse Include?"* and *"Where do CMFs Come From?"*, with the process for each review cycle listed out at the bottom of the page.

Question: Is it possible to search CMFs that are based on before/after studies (rather than cross sectional studies)?

This data is shown on the individual CMF/CRF Details pages. Also, if you download the entire database via the API page (https://www.cmfclearinghouse.org/cmf_data.php), you can filter the entire database by both simple before/after and before/after using EB. We can consider adding a filter in the search options based on study method.

Question: *What is FHWA doing regarding updates to the CMF Clearinghouse to archive older CMFs that may have been replaced with more recent/better studies?*

The CMF Clearinghouse transitioned to the CMF rating criteria developed as part of the NCHRP 17-72 project for the Update of CMFs for the Highway Safety Manual on February 15, 2021. This new rating system is more rigorous than the legacy CMF Clearinghouse rating criteria and provides scores for different factors including sample size, study design, methodology, and statistical significance. More detailed information on the new methodology is provided on the CMF Clearinghouse website here: https://www.cmfclearinghouse.org/sqr.php.

As part of the rating transition, all CMFs (including the older ones) were rated using the new rating system. Currently, there are no plans to archive any of the older CMFs. However, we recently added a new filter functionality allowing users to filter CMFs by publication years.

Is there any guidance for which CMFs to use when there are several CMFs for the same countermeasure, particularly when the CMFs indicate conflicting effects on crashes (despite similar star ratings)?

Different studies can find different CMFs for the same treatment depending on the treatment scenario. CMF Clearinghouse doesn't recommend using a specific CMF for a treatment for

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which multiple CMFs are available. Users are encouraged to use the compare tool and review the CMF details to find the best CMF applicable to their specific use case/application scenario.

The star quality rating indicates the quality or confidence in the results of the study producing the CMF. Various factors go into determining the star rating of a CMF. Further details about star quality rating scan be found at https://www.cmfclearinghouse.org/sqr.php. When selecting a CMF for use, users are encouraged to look at the CMF details in addition to the star ratings to ensure that the CMF that is being selected is appropriate for and applicable to their specific use case. The CMF Clearinghouse does not recommend a minimum star rating when selecting a CMF, rather it provides users with pertinent information to make informed decisions.

Questions for CMFs for High-Friction Surface Treatment (HFST) and High-Tension Cable Median Barriers (HTCMB) in Pennsylvania Presentation

Question: For HFST on Horizontal curves, were all of your variables significant? If not, which ones were not significant?
Many (approx. 40) SPFs for this project due to the large number of CMFs estimated. Most of the variables were statistically significant and kept in the model. The primary ones that were not significant were spatial/temporal indicators.

Question: Whether considering the lighting at the sharp curves would impact the CMF?
The presence of lighting would have a large impact. Unfortunately, we did not have access to this information to include in the study.

Question: Previously you had 700 curves in your data set, but in slide 10 and 11 you are showing just over 500. Which curves were removed?
The 700+ curves were all curves with HFST in Pennsylvania. The 500+ were all on two-lane undivided roadways AND removing curves that were extremely short (less than 50 ft long) or missing information to include in the analysis.

Question: Does the HFST need to be applied periodically to not lose friction over time and become less effective?
FHWA has some very good resources on HFST, including what practitioners throughout the State DOTs are using (Please see: https://highways.dot.gov/safety/proven-safety-countermeasures/pavement-friction-management, https://highways.dot.gov/safety/rwd/keep-vehicles-road/pavement-friction/hfst). We generally use a 10-year lifecycle for HFST, though individual sites will vary for a number of reasons.

Question: What did the application of high friction treatment look like at intersections? I.e., what kind(s) of crashes was it intended to address and where exactly in the intersection or on the approaches was the high friction treatment applied?
Our understanding was that the HFST was applied to a segment and the intersection was located within the segment and thus included the intersection. At a minimum, it includes the

approaches on the major road. Per our understanding, it was installed to address wet road crashes or other crashes in which vehicle friction was an issue.

Question: What is the difference between FI Fatal and Incapacitating and KA crashes?
FI is fatal and injury, including K, A, B, and C in the KABCO scale. KA is just the K and A outcomes.

Question: For the median barrier analysis did you look at run-off-road to the left rather than roadway departures in general?
For HTCMB analysis, we specifically focused on cross median crashes in which vehicles left the roadway on the left-hand side and went into the opposing traffic lane. We did not develop a CMF for roadway departure crashes in general.

Questions for Continuous Flow Intersection (CFI) CMFs Presentation

Question: What rule did you use to determine urban vs. suburban?
We actually had a hard time determining "urban" vs. "suburban" because there were some gray areas that we thought would be hard to argue one way vs. the other. Plus, some sites became more "urban" over time. For that reason, we lumped them together into an urban/suburban category.

Question: Are there CMFs for KA crashes specifically?
Fatal and injury crashes, including K, A, B, and C in the KABCO scale, were modeled together.