

The Federal Highway Administration (FHWA) has created five short (10-15 minutes) videos that provide a brief overview of the Highway Safety Manual process. Please note that Michigan has developed state-specific Safety Performance Functions (SPF). These SPFs are shown in MDOT's HSM Spreadsheet as separate tabs. The most current version of the MDOT HSM spreadsheet can be found in the **Application Process** section of the [LAP Safety](#) website.

The Local Safety Program utilizes the HSM results in two ways:

1. As safety project applications are generally for a proposed change in traffic operations and/or site characteristics, we are concerned with the comparison of **predicted** crashes in the existing (base) condition with the **predicted** crashes in the proposed condition.
2. Including the site's observed crashes for the existing (base) condition allows the calculation of the *expected* crashes for the site. This in turn allows the analyzer to see the **Excess Expected** crashes for the site to compare how the location is performing in relation to peer sites.

The MDOT HSM spreadsheet includes many countermeasures within the SPFs. Additionally, there are some approved CMFs available from the dropdown menus within each tab (columns for 'Additional CMF – 1,2,3'). No additional information nor explanation is required when using these built in CMFs.

If you need to include a separate CMF for either your base condition or proposed condition, there is an 'Additional CMF – Numeric' column available. Applicants will need to provide additional information regarding use of this column in their cover letter. If there are multiple CMFs combined to reach the value in the 'Additional CMF – Numeric' column, applicants must list the individual CMFs, the method chosen (additive, multiplicative, dominant effect, or dominant common residuals) for combining them along with the rationale behind the chosen method (see FHWA videos #4 and #5).

FHWA Roadway Safety Analysis Training Videos

1. [The Predictive Method](#): This video describes the use of the predictive method in quantifying the safety performance of existing and proposed designs. The video explains how to define the study location and period of interest; what data are needed to apply the method; how to select and apply safety performance functions (SPF), adjustment factors, and calibration factors; and how to use the Empirical Bayes (EB) method. *Michigan has developed state-specific SPFs and calibration factors that are accounted for in the MDOT HSM Spreadsheet.*
2. [Observed, Predicted, and Expected Crashes](#): This video covers three approaches for quantifying safety performance. The video defines the three approaches, describes the strengths and limitations, explains how to select an

appropriate approach, and illustrates the use of the approaches in estimating safety performance for a given facility.

3. [Application of CMFs](#): This video describes the process of applying CMFs to estimate countermeasure effectiveness, assuming the viewer is familiar with selecting an appropriate CMFs and estimating the safety performance of the base condition. The video explains how to define the base condition, how to apply CMFs, and how to compute and interpret the confidence interval.
4. [Selecting a Method of Analyze Multiple CMFs](#): This video is the first of a two-part series on estimating the combined effect of multiple countermeasures. The video explains how to select an appropriate method based on the scenario of interest, the limits of the combined effect, the potential for overlapping effects among countermeasures, and the magnitude of countermeasure effects.
5. [Applying a Method to Analyze Multiple CMFs](#): This video is the second of a two-part series on estimating the combined effect of multiple countermeasures. The video explains how to apply the additive, multiplicative, dominant effect, and dominant common residuals methods. It also explains how to address scenarios where the CMFs apply to the same or different crash types and severities. The self-paced videos allow you to learn at your own speed. You can pause the videos to work through example problems and skip ahead to specific sections of interest. You can also return at any time for a refresher.