

4.3 Reference Site Data for SPF Development

Reference sites that have not been resurfaced will be selected in each participating state. The total length of reference site selected will be approximately the same as the length of treated sites in a state, and road-shoulder-type categories will be matched in the same manner. For example, if treated sites were only on two-lane rural roads in a state, then reference sites will also be chosen from two-lane rural roads. In states where four-lane treated sites are available, the total length of four-lane reference sites will be equivalent to the total length of two-lane reference sites. Reference sites will be chosen from the same highway districts as the treated sites. Input from district engineers will be sought to ensure that the reference sites match treated sites in that area.

The reference sites will be chosen in the first year of the evaluation. Five years of crash data will be requested. The date of the previous resurfacing for each reference site will be determined to ensure that the site was not resurfaced during the five-year study period. Road characteristics and traffic volumes will be compared to the treated sites to ensure that similar roadway sections are chosen.

For the first-year interim report, the reference site crash data will be analyzed to develop SPFs for targeted crash types for each road-shoulder-type combination in each state. Additional sites will be added if necessary to develop statistically reliable SPFs.

4.4 After-Period Data Collection and Sequencing of Preliminary and Final Analyses

The cost and date of resurfacing for each treated site will be collected in the after period. Some of these dates and resurfacing costs have already been collected and are available.

Approximately one year after resurfacing, field data will be collected in an identical manner to the before-period field data collection that has already been completed including field measurements of any drop-offs that are present. (See field data collection methodology in Appendix C.) Drop-off will be measured on safety edge sites in the same manner as for non-safety edge sites. While we do not necessarily expect a large number of drop-offs to have developed during the first year after resurfacing, the field data will confirm this, will indicate where drop-offs are more common without the safety edge than with it. If drop-offs are present on safety edge treated sites they may still be safer than other drop-offs due to the shaped of the drop-off. Field data collection will also document that each site is still in the same road-shoulder-type category. AADT, road characteristics and crash data will also be collected as soon as available. When Year 1 crash data are available, we will perform both the before-after EB and cross-sectional analyses using the before-period data and the Year 1 crash data for the after period. While it is unlikely that one year of after-period data will produce reliable results, the interim analysis should assure us that there is not an increase in any type of crash, and will reveal how the safety edge treatments affect the formation of drop-offs in the first year after resurfacing. A Year 1 interim report presenting these analysis results will be submitted.

In Years 2 and 3, we will again collect field, crash, road characteristic, and ADT data, including field measurement of drop-offs. In Years 2 and 3, we will redo both the EB and cross-sectional analyses using all available data. We expect that at least three years of data will be necessary to obtain reliable results, and it is possible that additional years and/or treated sites will be needed.

An interim report will be submitted at the end of Year 2, and the study final report will be submitted at the end of Year 3.

SAFETY EDGE EVALUATION

Year 1 Tasks

Work for the Year 1 portion of the evaluation can begin immediately as the one year anniversary of the safety edge installation and paving of control sites is fast approaching especially for Indiana sites. The tasks required for the Year 1 evaluation are listed below:

- Field data collection-measurement of drop-offs and other field data identical to the before data collection. Field data should be collected in the order of Indiana sites, Georgia sites, and New York sites.
- AADT, road characteristics, and crash data will also be collected as soon as they are available.
- Determine a number of reference sites in each state identical to the number of test and control sites. Reference sites are sites similar to the test and control sites except they have not been resurfaced for the last three years.
- Road characteristics (including AADT) and crash data for the reference sites will be collected in each state.
- The resurfacing dates and cost of resurfacing should be determined for each test and control site, if not already collected.
- Perform before-after EB and cross-sectional analysis using before period data and Year 1 crash data for the after period.
- Prepare a Year 1 Interim report presenting the analysis results.

- Continue to work with additional states such as North Carolina and Colorado which may add sites to the evaluation.