

Establishing Reliable Accident Modification Factors (AMFs) with Intersection AMF Results

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Abstract

Accident Modification Factors (AMFs) provide an estimate of the expected reduction or increase in collision frequency and/or severity after a change to the roadway. They are sometimes available for specific collision types and levels of severity. AMFs are a desirable tool when making decisions about the design and operation of all transportation facilities, and support road safety program strategies. But how reliable are AMFs?

In order to establish reliable Accident Modification Factors (AMFs), one must consider the methods used to evaluate the safety impact. Observational before and after studies and cross-section studies are the most common types of traffic safety evaluation methods. However, there can be elements of an evaluation that reduce the accuracy and precision of results. Consideration must be given to the quality of data used in the evaluation, regression-to-the-mean effects, and changes in traffic volume.

To this end, a procedure to assess the validity and applicability of evaluation studies was proposed for NCHRP Project 17-27 "Develop Parts I and II of a Highway Safety Manual". This paper provides an overview of the proposed procedure, including the combination of results from multiple studies, and the separation of AMFs by collision, road, and traffic volume elements. Sample results of the procedure are provided for several published evaluations for various widely-used intersection safety measures, such as adding exclusive turn lanes and modifying traffic control devices.