A Clearly Defined Methodology for Analyzing the Crash History for a Given Location or Corridor

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ABSTRACT

Good crash analysis is not a simple process. In order to adequately determine if a correctible problem exists, the analyst may need to follow many steps, make multiple calculations, recognize specific patterns, and compare multiple rates and ratios. These steps can seem overwhelming to most analysts, and many of the steps may be unnecessary, depending on the level of detail needed and the intermediate findings. With the increasing availability of crash data to engineers and technicians, there has followed an increased need to define a sound crash analysis procedure. Most practitioners who are new to crash data analysis are eager to include safety in their projects and decisions, but they have many questions and would benefit greatly from clear guidance. Multiple sources are available that cover several aspects of crash analysis; however, they have not been organized and condensed into a practical methodology for the majority of crash data users. The purpose of this paper is to clearly define a methodology for investigating the crash history for a corridor or spot location. This methodology will follow a logical sequence and provide guidance regarding the level of detail needed to determine whether the crash history indicates the potential to reduce the risk of future crashes at a given location. Some of the topics and guidance that will be defined include the number of years of crash history required, length of segment considerations, use of frequencies, rates and comparables, consideration of animal-related crashes, and some of the intricacies involved with freeway and grade-separated interchange analysis. The result will be a flexible, sequential methodology for crash analysis that will not be dependent on any particular crash data software or lookup tool. The flexibility will allow the analyst to focus on areas of concern and skip unnecessary steps. The methodology will lead the analyst through the process to a statistically sound result that can be used in decision making and resource allocation. The ultimate result will be a product that enables more engineers, technicians, and analysts to efficiently and effectively use crash data as a factor to improve roadway safety.

Key words: crash analysis—crash reduction—safety