New Tools for Highway Safety Analysis

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ABSTRACT

New analytical tools have been developed, and are being implemented, to assist highway agencies in managing highway infrastructure improvements to reduce crash frequency and severity. Collectively, these tools are helping to transform highway safety management from an art to a science. The AASHTO Highway Safety Manual (HSM) represents the result of a ten-year joint effort by AASHTO, the National Cooperative Highway Research Program (NCHRP), and the TRB Highway Safety Performance Committee, to develop prediction tools for estimating the expected crash reduction effectiveness of projects as part of the project planning and development process. The HSM also presents a comprehensive safety management process for application by highway agencies. The FHWA Interactive Highway Safety Design Model (IHSDM) provides a faithful implementation of the HSM safety predictive models, as well as a series of other safety analysis tools to enable full consideration of safety in the design process. The AASHTO Safety Analyst software provides software tools that implement each step in the highway safety management process, including network screening, diagnosis, countermeasure selection, economic appraisal, priority ranking, and before-after evaluation. While all of the preceding tools require accurate crash data as input, the U.S. Road Assessment Program (usRAP), under sponsorship of the AAA Foundation for Traffic Safety, has developed usRAP Tools software, that can recommend a cost-effective program of highway safety infrastructure improvement projects based on analysis of roadway characteristics data, rather than crash data. usRAP Tools software is suitable for use by any highway agency, but is especially appropriate for local highway agencies, which often lack the detailed crash data available to state highway agencies.