



RESEARCH PROJECT CAPSULE [12-3SA]

October 2012

TECHNOLOGY TRANSFER PROGRAM

Calibration of the Louisiana Highway Safety Manual

JUST THE FACTS:

Start Date:
July 1, 2012

Duration:
18 months

End Date:
December 31, 2013

Funding:
State: TT-Reg & RITA

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Sponsored jointly by the Louisiana
Department of Transportation and
Development and Louisiana State
University

POINTS OF INTEREST:

Problem Addressed / Objective of
Research / Methodology Used
Implementation Potential

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This project is associated with the Louisiana State University (LSU) partnership with the Regional Southwest University Transportation Center (SWUTC). The SWUTC is a University Transportation Center housed at Texas A&M funded by the Research and Innovative Technology Administration (RITA) of the U.S. Department of Transportation (DOT).



PROBLEM

Louisiana consistently ranks near the bottom in national statistics regarding highway safety, particularly traffic crash related fatalities. To counter these conditions, the Louisiana Department of Transportation and Development (LADOTD) has initiated several programs over the past decade; among these is the Louisiana Strategic Highway Safety Plan (SHSP). The goal of this program is to reach "Destination Zero Deaths" on Louisiana roadways by reducing the human and economic toll on Louisiana's surface transportation system through various collaborative efforts and an integrated 4E approach (Education/Enforcement, Engineering and Operations, Emergency Services, and Everyone Else!).

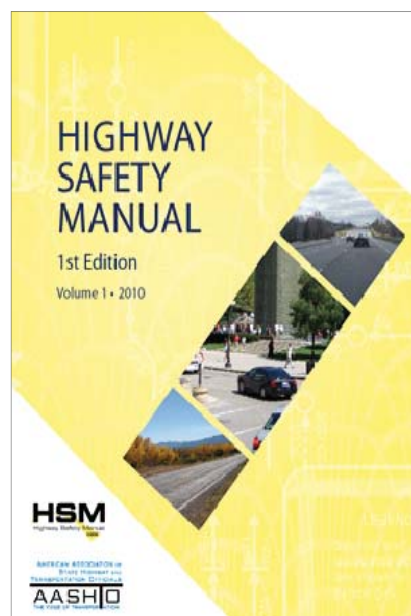


Image courtesy of AASHTO

The past several decades have also seen many new highway safety related innovations on a national level. One of the most promising recent developments has been the publication of the Highway Safety Manual (HSM) by the American Association of State Highway and Transportation Officials (AASHTO). The HSM includes analytical tools and techniques for quantifying the safety effects on planning as well as design alternatives/configurations and operations/maintenance decisions. However, since the HSM has been developed based on national trends and statistics, it must be calibrated for local use. These calibrations allow it to better represent local conditions. This calibration can be accomplished in a number of ways,

including through the development and application of safety performance functions (SPFs) that use locally prevailing crash data and other data that will reflect and account for area-specific variations in traffic patterns, climate, topology, etc. One of the primary goals of this project will be to calibrate the HSM for use in Louisiana.

OBJECTIVE

The objective of this project is to calibrate the Part C predictive model, as outlined in Appendix A of the Highway Safety Manual, for roadway segments in Louisiana, specifically, rural two-lane-two-way roads; rural multi-lane highways; and urban and suburban arterials. A single calibration for each of the aforementioned roadway segments will be conducted and applicable to the entire state of Louisiana. In addition, a comparative analysis will be conducted to compare the SPFs developed specifically for Louisiana to the SPFs determined as a result of calibrating the current HSM models to Louisiana conditions. The development of the Louisiana specific SPFs will be performed by others and is not part of this scope of work. Among the outcomes of this research will be to recommend whether LADOTD should use the state specific SPFs or the calibrated SPFs for future projects.

METHODOLOGY

The proposed steps necessary to achieve state specific calibration for Louisiana are: (1) identify the facility types for which the applicable Part C predictive model is to be calibrated; (2) select sites for calibration of the predictive model for each facility type; (3) obtain data for each facility type applicable to a specific calibration period; (4) apply the applicable Part C model to the predict total crash frequency for each site during the calibration period as a whole; and (5) compute calibration factors for each facility type, as indicated in Part C of the HSM predictive model.

IMPLEMENTATION POTENTIAL

The results of this research will be directly implementable by LADOTD in the form of a recommendation as to whether the Department should use the state specific SPFs or the calibrated SPFs for future projects.