

Evaluation of Low-Cost Safety Improvements Pooled Fund Study

Progress Report

January to March of 2008

The goal of this research is to develop reliable estimates of the safety effectiveness of safety improvements identified as strategies in the National Cooperative Highway Research Program (NCHRP) Report 500 Guidebooks through scientifically rigorous before-after evaluations of sites within the U.S. where these strategies are being implemented.

A target of 20 strategies totaling \$4.38 million over 3 to 5 years is planned for ELCSI-PFS studies in four phases. The progress (as of the September, 2007) for each phase is stated below.

Phase I - Retrospective Evaluation

Evaluations include following strategies:

- 1) STOP Signs with Increased Retroreflectivity,
- 2) Flashing Beacons,
- 3) STOP AHEAD Pavement Markings, and
- 4) Two-Way Left-Turn Lanes.

Status:

- The Phase I evaluations are completed. All the four studies of Phase I are published by FHWA (April, 2008).
- Transportation Research Board (TRB) presented studies of 1) Flashing Beacons, 2) STOP AHEAD Pavement Markings, and 3) Two-Way Left-Turn Lanes in TRB Annual Meeting of 2008.
- TRB will publish; 1) Flashing Beacons, 2) STOP AHEAD Pavement Markings, and 3) Two-Way Left-Turn Lanes, in 2008.

Phase II - Retrospective Evaluation

Evaluations include following strategies:

- 1) Offset Left-Turn Lanes,
- 2) Advance Street Name Signing,
- 3) ~~Combinations of Shoulder and Centerline Rumble Strips/Stripes~~, Evaluation of Curve Treatment strategy, and
- 4) Lane Width/Shoulder Width Combinations.

Status:

At present the first draft of Lane Width/Shoulder Width Combinations is being received by FHWA.

Due to delay in completion of strategy installation by the State of Missouri for Dual Application of Rumble Strips, FHWA selected the Evaluation of Curve Treatment strategy in lieu of the Dual Application of Rumble Strips. This decision will help us to meet the July 2008 deadline. Also, there were two more reasons behind this decision,

1. Curve Treatment strategy in Connecticut is a uniform multi-strategy curve treatment in 47 sites (added; chevrons with fluorescent yellow sheeting, added post mounted delineators, and warning sign in the curve area was upgraded with FY sheeting). This treatment is very much in line with our Phase III, except this is a retro-respective treatment.
2. The Low-Cost Safety Phase IV is simulating the curve treatment with chevron and post mounted delineators. The Connecticut curve treatment will complement our simulation study.

Phase II evaluations are ongoing for strategies; Offset Left-Turn Lanes, Advance Street Name Signings, and Evaluation of Curve Treatment strategy. All evaluations are expected to be completed and published by September of 2008.

Phase III - Prospective Evaluations

In the annual TAC Meeting, 2007, "Run-of-Road" (ROR) strategies were among the highest rated (balloting process) strategies for evaluation in the Phase III of the Low-Cost Safety PFS. The ROR countermeasures are the most comprehensive strategy in all phases (I-IV) of the Low-Cost Safety PFS. These sets of strategies will be based on the NCHRP Report 500, Volume 6: A Guide for Addressing Run-Off-Road (ROR) Collisions. The above volume states that to reduce the number of ROR fatality crashes, important objectives are to:

- Keep vehicles from encroaching on the roadside
- Minimize the likelihood of crashing or overturning if the vehicle travels off the shoulder
- Reduce crash severity

Status:

- For this phase that is "build-to-evaluate" phase, FHWA selected multi-strategy ROR countermeasures and proposed possible sets of strategies for installation by volunteer states for purpose of evaluations.
- States of Iowa, Kansas, Florida, Virginia, and Kentucky have volunteered to build these strategies for evaluation of sets of safety countermeasures.
- Volunteer states have reviewed and approved the general concept for these phase.
- Volunteer states are in the process of data collection and data analysis for selection of sites and their corresponding sets of ROR countermeasures (uniform sets of strategy per state.)
- At present FHWA is negotiating contract for this phase.

Phase IV - Simulation

The simulation phase has two parts as described below.

Part1- The low cost safety improvements for curves will include;

- Edge lines,
- Chevrons, and
- Post-mounted delineators.

These safety countermeasures are all designed to enhance the visibility of curves at night.

Part 2- The low cost safety improvements for small towns will include;

- Bulb-outs,
- Chicanes, and
- Medians.

These safety countermeasures are all designed to slow traffic down while driving through small towns.

Status:

- Work plans are completed for this phase. The driving simulations are in progress for various countermeasures.
- The driving simulation data collections are expected to be completed by the August of 2008.
- The driving simulation data analysis is expected to be completed in June of 2009.