Transportation Pooled-Fund Program
SPR-2(210) SafetyAnalyst

Solicitation for Participation in Phase 2 of SafetyAnalyst Development

This solicitation invites States to participate in Phase 2 of SafetyAnalyst development. SafetyAnalyst is a set of software tools to help State and local highway agencies advance their programming of site-specific safety improvements.

SafetyAnalyst includes tools for:

- Network screening to identify potential sites for safety improvement
- Diagnosis of the nature of problems at sites
- Countermeasure selection to mitigate the problems diagnosed at sites
- Economic analysis of proposed countermeasures
- Priority ranking of countermeasures
- Evaluation of implemented countermeasures

White papers describing the capabilities of SafetyAnalyst are posted at www.safetyanalyst.org.

Phase 1 of SafetyAnalyst development culminated in December 2006 with release of an interim version to participating pooled-fund States.

Phase 2 will add planned capabilities and address issues participating States raise during their evaluation of the interim version. Phase 2 will yield a final, enhanced version of SafetyAnalyst by September 30, 2008. Table 1 summarizes the enhancement priorities for Phase 2.

States considering use of SafetyAnalyst are encouraged to participate in this pooled-fund study. Benefits to participating States include:

- Access to interim versions of the SafetyAnalyst software for testing and evaluation
- Technical support and training on interim versions of SafetyAnalyst through September 30, 2008
- Opportunity to provide user feedback to enhance the software
- Input to prioritization of enhanced capabilities during the second phase of development.
- Input to decisions on long-term maintenance, technical support, training, and enhancement of SafetyAnalyst

FHWA will host a web conference for States interested in an overview and demonstration of SafetyAnalyst. The 1½-hour web conference is scheduled for Thursday June 21 starting at 11:00 am Eastern/10:00 am Central/9:00 am Mountain/8:00 am Pacific. States interested in participating in the web conference should RSVP to Ray Krammes, ray.krammes@fhwa.dot.gov, (202) 493-3312, by June 15, 2007 in order to receive web conference access instructions.

SafetyAnalyst development is jointly funded by participating pooled-fund States and the Federal Highway Administration. The recommended contribution level is $100,000 per State, but lesser amounts are accepted. Contributions may be made during FY 2007 and FY 2008. The study is approved for 100 percent SP&R funding.

For additional information, contact:

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TABLE 1. Enhancement Priorities for Phase 2 of *SafetyAnalyst* Development

GENERAL MODIFICATIONS – potentially affect all modules

Data Management Issues

- Improve existing data import capabilities
- Design and implement Enterprise data management capability (networked software with direct link to existing agency data files)
- Facilitate importing of existing countermeasure lists to implemented countermeasures file
- Add data editor for site characteristics and accident data in Administrative Tool

Safety Performance Functions (SPFs)

- Modify SPFs to include other variables in addition to ADT and segment length
- Develop a capability to calibrate SPFs for individual accident severity levels, rather than calibrating just for total accidents

Other Improvements to Existing Capabilities

- Modify search/query capabilities in creating site lists
- Improve capability to define and create homogeneous roadway segments
- Add capability to display accident lists with case number and characteristics for selected sites
- Add capability to export site characteristics or crash data

Improve Reports

- Enhance/reorganize output reports
- Include warning messages about sites with missing data in output report
- Print documentation for a particular site from throughout all modules
- Report results in terms of fatalities and injuries, not just fatal and injury crashes
- Export output reports to Word or Excel

New Capabilities

- Incorporate capability to evaluate Fatal + Serious Injury accidents rather than just FI (Fatal + All Injury) accidents
- Develop a new tool to generate “5% reports” to meet user-specified needs
- Develop capability to analyze safety at existing roundabouts
- Design and implement GIS interface
- Conduct analyses by direction of travel and/or by intersection approach

MODULE 1—Network Screening

Peak Searching Algorithm

- Include CV test in peak-searching algorithm for intersections and ramps
- Refine peak searching algorithm for PDO and EPDO accidents

Test for High Proportions

- Add capability to perform test for high proportions for individual accident severity levels or additional collision types
- Clarify segment length issues in determining beta parameters and consider including beta parameters by severity level and collision type

Test for Sudden or Steady Increases

- Add capability to screen for sudden or steady increases on measures other than total accidents

Other Improvements to Existing Capabilities

- Add analysis period selection (like Module 4) to Module 1
- Add capability to screen for additional types of accidents (weather conditions, light conditions, etc.)
- Show observed crashes and predicted crashes on output report
- Include user-specified variables using definitions used by individual agencies (e.g., aggressive driving)
- Have software automatically set major reconstruction flag in implemented countermeasure file based on countermeasure type
- Determine minimum number of sites and accidents for calibration process and determine how to handle cases where minimums are not met
- Screen changes in response to heuristic review

MODULE 2—Diagnosis and Countermeasure Selection

Collision Diagrams

- Incorporate third-party collision diagram software

Diagnostic Questions

- Develop and implement diagnostic questions for urban arterials, including roadway segments and intersections (urban four-leg signalized intersections have already been implemented)
- Develop and implement diagnostic questions for rural two-lane highway intersections (rural two-lane highway segments have already been implemented)

- Develop and implement diagnostic questions for rural multilane highways, including roadway segments and intersections

Identification of Accident Patterns

- Develop capability to test proportions for factors in addition to collision types and turning maneuvers (e.g., wet weather, light condition, etc.)
- Perform tests on accident patterns by direction of travel and/or by intersection approach
- Identify accident patterns separately for different severity levels

New Capabilities

- Provide capability to specify a countermeasure and have SafetyAnalyst identify locations where that countermeasure would be appropriate
- Provide capability to specify a countermeasure and select sites at which to install that countermeasure to obtain maximum safety benefits within a user-specified budget
- Include user capability to add additional diagnostic questions and additional countermeasures for existing questions
- Determine whether to add supplementary data for ramps

MODULE 3—Economic Analysis and Priority Ranking

Improvements to Existing Capabilities

- Perform economic analysis for specific collision types

New Capabilities

- Implement HSIP procedures (or see that current economic analysis procedures are recognized in HSIP)

MODULE 4—Countermeasure Evaluation

New Capabilities

- Develop tests for shifts in distribution of accident severity
- Format output reports to match FHWA requirements