

# **SafetyAnalyst Support Transportation Pooled-Fund Study Statement of Work 3/20/2008**

## **1. Introduction**

This document is the statement of work for a new transportation pooled-fund study. The objectives of the study are to: (1) support participating States efforts to prepare their data and conduct hands-on testing and evaluation of SafetyAnalyst, and (2) complete development of SafetyAnalyst for long-term distribution, maintenance, technical support, and enhancement as an AASHTOWare product.

The statement of work is organized into 4 sections. Section 2 provides background on the status of SafetyAnalyst development. Section 3 delineates study tasks. Section 4 summarizes the level of effort and cost to participating States.

## **2. Background**

SafetyAnalyst is a software product that provides state-of-the-art analytical tools for use in the decision-making process to help highway agencies identify and manage a systemwide program of site-specific improvements to cost effectively enhance highway safety. The analytical tools support the steps of the traditional highway safety improvement process: network screening to identify potential sites for safety improvements, diagnosis of the safety issues at sites, selection of potential countermeasure, economic appraisal of proposed countermeasures, priority ranking of proposed countermeasures, and evaluation of implemented countermeasures. The tools will also support States in their implementation of strategic highway safety plans through capabilities to screen the highway network for promising sites at which to proactively install selected countermeasures. The capabilities are described in more detail at [www.safetyanalyst.org](http://www.safetyanalyst.org).

SafetyAnalyst development has been managed by FHWA and jointly funded by FHWA and 24 States through transportation pooled-fund studies SPR-2(210) and TPF-5(60). Primary development of SafetyAnalyst will be completed by September 30, 2008.

The consensus of participating State representatives during the December 2007 meeting of the SafetyAnalyst Technical Working Group was that the preferred mechanism for long-term distribution, maintenance, technical support, and enhancement of SafetyAnalyst is AASHTOWare, AASHTO's Cooperative Software Development Program. While a majority of participating States reported progress on or plans for preparing their data for SafetyAnalyst, they also reported the need for additional time for data preparations, testing, and evaluation, before SafetyAnalyst development could be considered complete. Therefore, the TWG recommended that a short-term project be undertaken to provide continuity of SafetyAnalyst support services from October 1, 2008, when the current study ends, through June 30, 2009, after which licensing as an AASHTOWare product would begin. It was further decided that the project should be managed by FHWA as a transportation pooled-fund study.

### 3. Study Tasks

This transportation pooled-fund study will be organized into 8 tasks to support participating States and complete SafetyAnalyst development during the period October 1, 2008 through June 30, 2009:

1. Distribute SafetyAnalyst
2. Maintain the SafetyAnalyst software package
3. Provide technical support
4. Enhance SafetyAnalyst
5. Market SafetyAnalyst
6. Deliver SafetyAnalyst training
7. Develop documentation for licensing of SafetyAnalyst as an AASHTOWare product
8. Perform project management to support the above objectives

The study is structured to offer two levels of services:

- Basic, i.e., services in which all participating States would share equally, and
- Optional, i.e., additional services that participating States could opt to procure at additional cost.

The tasks are summarized below; all services are basic services unless denoted [*OPTIONAL*]:

1. Distribute SafetyAnalyst (to participating States):
  - a. Develop, host, and maintain an access-controlled software download web site for distribution of the software.
  - b. Establish and maintain a database of eligible users in participating agencies, with their contact information and assigned usernames and passwords.
2. Maintain the SafetyAnalyst software package:
  - a. Develop, host, and maintain SafetyAnalyst project web sites, including a Development Team Web Site and a Software Integrator Web Site.
  - b. Develop, host and maintain the SafetyAnalyst software development environment and product-build environment, including a software version control system and archive.
  - c. Develop protocols, in conjunction with participating States and the FHWA project manager, for receiving, diagnosing, assessing, and prioritizing software defects and distinguishing them from enhancements, which are covered under Objective 4.
  - d. Develop, host, and maintain an Issue Tracking (Problem Report/Change Request) System and Database for reported defects and requested enhancements.
  - e. Receive, diagnose, assess, prioritize, and appropriately address (consistent with established protocols) defects identified during data preparations, testing and evaluation, deployment, and use.
  - f. Update the software system to accommodate updates to currently supported operating systems and database management systems and new versions of the Java Virtual Machine, software development tools, and other components of the development environment.
3. Provide technical support (to participating States during SafetyAnalyst data preparation, testing and evaluation, deployment, and use):

- a. Provide remote software and engineering support, including [BASIC service includes approximately 1 person-month of support per participating State; additional person-months of support are *OPTIONAL*]:
  - i. Responding to questions by e-mail, telephone, or web conference;
  - ii. Conducting limited State-specific analyses;
  - iii. Reviewing and commenting on State-generated plans, proposals, procedures, processes, and other documentation; and
  - iv. Developing and documenting software tools and analytical methods.
- b. Develop, host, maintain, and monitor a user forum (Wiki) on the access-controlled software download web site to provide a mechanism for participating States to exchange information, ask and answer questions, give feedback, and share best practices.
- c. Provide on-site software and engineering support; i.e., contractor staff would travel to the State to provide in-depth, on-site software and engineering support. [*OPTIONAL*]
4. Enhance SafetyAnalyst (i.e., specify, design, implement, and test enhancements that extend existing capabilities or add new capabilities/features):
  - a. Develop protocols, in conjunction with participating States and the FHWA project manager, for assessing and prioritizing enhancements requested by participating States and the development team.
  - b. Receive, assess and prioritize (consistent with established protocols) requested enhancements.
  - c. Implement enhancements approved by the FHWA project manager on behalf of participating States, including:
    - i. Preparation of functional specifications.
    - ii. Software design.
    - iii. Software coding/implementation.
    - iv. Verification and alpha testing.
    - v. Management of end-user beta testing.
5. Marketing SafetyAnalyst (within participating States and to other prospective user agencies):
  - a. Update and implement the SafetyAnalyst marketing plan.
  - b. Prepare and distribute marketing materials, consistent with the marketing plan, to inform potential users about SafetyAnalyst. Materials may include, but are not limited to: brochures, fact sheets, resource lists, case studies of early adopters, frequently asked questions, white papers, and PowerPoint presentations.
  - c. Develop content, design, host, and maintain a public SafetyAnalyst web site.
  - d. Develop templates for marketing materials that individual States can customize to support their decision-making process.
  - e. Develop, schedule, publicize, host, and deliver marketing-oriented web conferences.
  - f. Make presentations and software demonstrations to individual agencies and during specified conferences and meetings, consistent with the marketing plan and with the approval of the FHWA project manager.
  - g. Prepare and distribute evaluation copies of SafetyAnalyst to requesters, with the approval of the FHWA project manager, and provide limited technical support to recipients (as described in item 3ai above).
6. Deliver SafetyAnalyst training:
  - a. Schedule, publicize, and deliver 2 offerings of a web-based version of the “Using SafetyAnalyst” training course.
  - b. Schedule and deliver 1 on-site offering of the “Using SafetyAnalyst” training course in each participating State. [*OPTIONAL*]

7. Develop documentation for licensing of SafetyAnalyst as an AASHTOWare product:
  - a. Develop annual work plan, including a statement of work, level of effort, and estimated budget to support distribution, maintenance, technical support, and enhancement of SafetyAnalyst as licensed AASHTOWare product.
  - b. Design and draft a proposal for AASHTOWare service units.
  - c. Draft an AASHTOWare catalog entry for Safety Analyst.
8. Perform project management to support the above objectives:
  - a. Perform general contract administration tasks, including developing and maintaining project schedules, work plans, subcontracts, and billing information.
  - b. Prepare quarterly progress reports.
  - c. Organize, participate in, and document results of bi-weekly conference calls with the FHWA project manager.
  - d. Schedule, organize, handle logistics for (including handling State representatives travel arrangements and costs), participate in, and document results of one in-person meeting of representatives from participating States.
  - e. Schedule, organize, handle logistics for, and host 6 web conferences for participating State representatives.

#### **4. Level of Effort and Cost to Participating States**

This solicitation is structured to provide both basic services and optional additional services. This structure allows States to adapt their level of participation to their particular needs. The majority of the study's level of effort will be devoted to software and engineering support to participating States. FHWA's experience to date suggests that States' requirements for software and engineering support from the SafetyAnalyst development team will vary between 1 and 3 person-months of effort.

Table 1 summarizes the estimated levels of effort for the basic services outlined in Section 3. At the basic level of participation, States would share equally in this basic level of effort.

The basic level of participation provides approximately 1 person-month of software and engineering support per participating State. States requiring more support from the SafetyAnalyst development team have the option to purchase 1 or more additional person-months of support. Similarly, whereas web-based offerings of SafetyAnalyst training are available to States as part of the basic level of participation, on-site offerings of the "Using SafetyAnalyst" training course are available as an optional service for an additional cost.

Table 2 summarizes the cost to States for the basic level of participation and for the optional additional services. The basic level of participation is \$20,000 per State. States may request additional person-months of software and engineering support at a cost of \$20,000 per person-month. States may also request on-site offerings of the "Using SafetyAnalyst" training course at an additional cost of \$10,000 per on-site offering.

**Table 1. Basic Level of Effort by Study Objective**

<b>Study Objective</b>	<b>Estimated Person Months</b>
1. Distribute SafetyAnalyst to participating States	0.50
2. Maintain the SafetyAnalyst software package	3.00
3. Provide technical support	15.50
4. Enhance SafetyAnalyst	3.00
5. Marketing SafetyAnalyst to prospective user agencies	3.00
6. Deliver SafetyAnalyst training	0.50
7. Develop documentation for licensing as an AASHTOWare product	0.50
8. Perform project management to support the above objectives	1.00
<b>TOTAL ESTIMATED LEVEL OF EFFORT FOR BASIC SERVICES</b>	<b>27.0</b>

**Table 2. Cost to Participating States**

<b>Basic/Optional Service</b>	<b>Increment of Service</b>	<b>Cost</b>
Basic level of participation	States benefit equally from the basic level of effort (Table 1)	\$20,000
Optional additional software and engineering support	1 person-month	\$20,000
Optional on-site “Using SafetyAnalyst” training course	1 offering	\$10,000

For example, a State participating at the \$20,000 level would have access to approximately 1 person-month of software and engineering support from the SafetyAnalyst development team in addition to sharing in the software distribution, maintenance and enhancement mechanisms as well as the marketing and web-based training services. A State that requires 2 person-months of software and engineering support from the SafetyAnalyst development team and 1 on-site training course offering should participate at \$50,000 (i.e., \$20,000 for the basic services plus \$20,000 for an additional person-month of software and engineering support plus \$10,000 for an on-site course). A State that requires 3 person-months of software and engineering support should participate at \$60,000 (i.e., \$20,000 for the basic services plus \$20,000 for each of 2 additional person-months of support).

**NOTES:**

1. The Federal Highway Administration will also contribute funding to this study
2. Approval for 100% SP&R funding is pending.