**TPF-5(255)**

**Highway Safety Manual Implementation Pooled Fund Study**

**Safety Performance Function Guidance**

**Background**

The Highway Safety Manual (2010), 1st Edition, was published by AASHTO in 2010. The HSM provides the best factual information and tools in a useful form to facilitate roadway planning, design, operations, and maintenance decisions based on precise consideration of their safety consequences. The primary focus of the HSM is the introduction and development of analytical tools for predicting the impact of transportation project and program decisions on road safety.

The AASHTO Standing Committee on Highway Traffic Safety has established a goal to “institutionalize the AASHTO Highway Safety Manual (HSM) and its associated analytical tools to make data-driven decisions, advance the science of safety, and to ultimately reduce fatalities and serious injuries. One proposed action in support of that goal is to establish and maintain an HSM Implementation Transportation Pooled-Fund Study.

**Goals:**

The goals of the study are (1) to advance ongoing efforts by lead states to implement the HSM, and (2) to expand implementation to all states. This study will be coordinated with other ongoing and planned implementation activities sponsored by AASHTO, FHWA, and TRB, including NCHRP Project 17-50 “Lead States Initiative for Implementing the Highway Safety Manual.” It will also be coordinated with projects that develop content for future editions of the HSM including NCHRP Project 17-45 “Enhanced Safety Prediction Methodology and Analysis Tool for Freeways and Interchanges,” NCHRP Project 17-54 “Consideration of Roadside Features in the Highway Safety Manual,” and NCHRP Project 20-07 (Task 332) “User’s Guide to Develop Highway Safety Manual Safety Performance Function Calibration Factors,” which will provide step by step instructions for developing calibration factors for use with the Highway Safety Manual (HSM) safety performance functions.

**Objective:**

This study’s objectives in reaching the above goals are to develop and provide information that will assist state and local agencies calibrate HSM SPFs and/or develop their own SPFs for their state or region.

**Tasks:**

Accomplishment of the study objectives will require at least the following tasks. The Federal Highway Administration (FHWA) in coordination with a panel of participating states will serve as a Technical Advisory Group (TAG) providing feedback and input for all tasks throughout the period of performance for the study.

**Task 1. Develop Work Plan Outline and Conduct Initial Kick-off webinar with FHWA and the TAG**

The Contractor will develop an annotated work plan outline describing their approach and schedule to completing the project tasks. The Contractor in conjunction with FHWA will develop an agenda for the Kickoff Meeting. Within two weeks of receiving assignment, the Contractor will schedule and facilitate a kick-off webinar with the designated lead agencies to discuss the HSM Pooled Fund Study objectives, tasks, and the annotated work plan outline. The contractor will develop and submit draft and final work plans for review by FHWA and the TAG submit a work plan.

*Deliverables:*

Annotated Work Plan Outline

Project Kickoff Agenda

Kickoff meeting

Meeting minutes

Draft work plan

Revised work plan

**Task 2. Develop Report for States Deciding Whether to Proceed with HSM Calibration or Safety Performance Function (SPF) Development.**

The contractor will develop a draft outline for the report for review by FHWA. The final outline will provide the basis for the report. Preceding the release of the report, an executive summary shall be released. The report must give a comparison of the benefits and challenges of agencies either pursuing calibration of HSM SPFs or developing of their own SPFs for their state or region. The Contractor will develop the HSM Calibration section in close coordination with the NCHRP 20-07 Task 332 project. The report shall also include examples from states that have pursued both strategies. A draft report shall be produced for review by FHWA. Based upon the FHWA feedback, a final report shall be submitted.

*Deliverables*:

Draft outline

Final outline

Executive Summary

Draft Report

Final Report

**Task 3. Develop a SPF Guidebook to serve as a ‘How-to’ for States Developing SPFs for their state.**

The guidebook must include a step by step process for an agency to develop SPFs for their state or region. The guide must incorporate a comprehensive definition of SPFs terminology and examples in the HMS where appropriate. The resources and data requirements must be detailed in full. The guide will also contain a process to evaluate the applicability and quality of an SPF developed by another state. Publication No. FHWA-HRT-10-063 “*SafetyAnalyst*: Software Tools for Safety Management of Specific Highway Sites” includes Appendix F “Guidance for *SafetyAnalyst* Users on Developing Safety Performance Functions for Individual Highway Agencies,” which may be useful reference for this task. The contractor will develop a draft outline for the guidebook for review by FHWA. The final outline will provide the basis for the guidebook. Preceding the release of the guidebook, an executive summary shall be released. A draft guidebook shall be produced for review by FHWA. Based upon the FHWA feedback, a final guidebook shall be submitted.

*Deliverables*:

Draft outline

Final outline

Executive Summary

Draft Report

Final Report

**Task 4. Project Management**

The COR will be responsible for all matters potentially requiring modifications to primary issues such as funding or project scope (See HSIS Communications Protocol). The FHWA project manager, Esther Strawder, will interface with HSIS through the COR. The COR will determine whether a matter is primary, as described above, or secondary, issues allowing for direct communication between task manager and HSIS. All work flow and communication protocols are contained in the HSIS Operations Plan and the contract shall operate in accordance with the protocol**. Monthly Progress Reports shall be prepared by the Contractor for delivery via email to the COR and FHWA project manager. Additionally, the Contractor shall produce a quarterly newsletter in support of the HSM implementation pooled fund study.**

**4.1** The Contractor shall facilitate the monthly conference calls scheduled with the Pooled Fund Study Technical Advisory Group. The Contractor will submit monthly progress reports via email to the COR documenting the status of each task including the completed and planned work for each task outlined in the report as well as any anticipated problems or adjustments to the schedule.The contractor will also be responsible for developing a quarterly HSM Implementation Pooled Fund Newsletter to note the accomplishments of the project.

**4.2** FHWA is currently in the process of hiring a Volpe Center team to assist the Pooled Fund Study in assessing other SPF resource needs. The Contractor will coordinate with the Volpe team as needed to ensure that the needs assessment takes full account of the progress of and guidance delivered by the contractor. Similarly, NCHRP 20-07 Task 332 will be considering issues around SPF calibration; any necessary coordination with the relevant team will also occur under this task.

*Deliverables:*

Monthly Progress Reports

Quarterly Newsletter for HSM Implementation Pooled Fund Study

**Schedule of Deliverables**

The delivery schedule below outlines the estimated time to complete each task. All draft deliverables shall assume a four week FHWA review and comment period

|  |  |  |
| --- | --- | --- |
| Task | Deliverable | Due Date |
| **Task 1. Initial Kick-off webinar with designated lead agency** | Annotated work plan outline | One week after assignment acceptance |
| Project Kickoff Agenda | Two weeks after assignment acceptance |
| Kickoff meeting | Two weeks after assignment acceptance |
| Meeting minutes | Two weeks after assignment acceptance |
| Draft work plan | Two weeks after assignment acceptance |
| Revised work plan | Two weeks after assignment acceptance |
| **Task 2. Develop Report for States Deciding Whether to proceed with HSM Calibration or Safety Performance Function (SPF) Development.** | Draft outline | Four weeks after Kickoff meeting |
| Final outline | Six weeks after Kickoff meeting |
| Executive Summary | 16 weeks after Kickoff meeting |
| Draft Report | 18 weeks after Kickoff meeting |
| Final Report | 26 weeks after Kickoff meeting |
| **Task 3. Develop a SPF Guidebook** | Draft outline | 8 weeks after Kickoff meeting |
| Final outline | 10 weeks after Kickoff meeting |
| Executive Summary | 26 weeks after Kickoff meeting |
| Draft Report | 28 weeks after Kickoff meeting |
| Final Report | 36 weeks after Kickoff meeting |
| **Task 4. Project Management** | Monthly Progress Report | by 15th of following month |
| Quarterly Newsletter for HSM Implementation Pooled Fund Study | by 15th of first month of next quarter |

**Level of Effort**

The level of effort (LOE) with estimated hours by task is shown in the following table. The contractor may propose changes with an explanation.

| **Task** | **Estimate of Labor Hours** |
| --- | --- |
| Task 1: Kick Off | 8 |
| Task 2: Develop HSM Calibration/SPF Development  Decision Analysis Report | 700 |
| Task 3: Develop SPF Guidebook | 500 |
| Task 4: Project Management | 100 |
| Total | 1300 hours |

**Period of Performance**

The Period of Performance of this effort is 12 months beginning on the assigned date.

**Place of Performance**

Government facilities shall NOT be used for performance. The primary place of performance shall be at the contractor’s site. Meetings shall be held via teleconference or in Washington, DC.

**Communications Protocol**

In accordance with the Communications Protocol, the COR shall be apprised of the situation necessitating a meeting and determine the means of interactions. For instance, regular information exchange will probably designated as an on-going secondary issue, requiring copy to the COR and PI.

**Personnel**

**The following skill types are anticipated for this effort.**

* Technical Specialists and/or Experts in
	+ Highway Safety Manual
	+ Roadway Safety Management Process
	+ Safety Performance Function Development
	+ Crash Modification Factors
* Writer/Editor
* Graphics Designer/Specialist
* Quality Assurance Specialist
* Marketing Specialist

**Travel**

The Contractor shall be reimbursed for travel to provide contract support under this SOW, as appropriate. The contractor’s proposal estimate shall show anticipated travel. All travel shall be approved by the COR and FHWA project manager in writing prior to commencement of travel.

**Work Plan Specifications:**

**Deliverables**

All work produced should meet the standards for electronic deliverables as specified in the statement of work. The Federal Government has unlimited rights in all data first produced in the performance of this contract and all other data delivered under this contract. The Contractor grants to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable worldwide license for products completed under this contract, to reproduce, prepare derivative works, distribute copies to the public, perform publicly and display publicly, by or on behalf of the Government.

All publications funded by FHWA must show the proper departmental “mark and signature” on the front cover, title page, and (space permitting) the spine. Internet documents must show the mark and signature at the beginning of the document or on the document’s “cover” page.

The full “mark and signature” must be used, which includes the DOT mark (the triskelion), the Department's name, and the Administration's name. The Administration's name must appear in bold typeface. The logo may be reproduced in any color that is appropriate to the color themes of the publication, as long as the elements of the color used allow for sufficient contrast to read and understand the sign and accompanying text. The “same color is used for the entire “mark and signature (logo), including the DOT/FHWA names. The only exception to the one-color rule is the use of DOT blue (Pantone 285) for the triskelion, and black for the text. No other two-color combinations can be used. The logo may not be rearranged, altered, added to, or edited.

If the publication is a jointly prepared document, the FHWA logo must appear if FHWA has contributed to the publication, and, especially, if FHWA pays for the printing. Logos from other DOT modes or Federal agencies may appear along with the FHWA logo on jointly prepared publications. If another agency is a co-author, then that agency's seal or logo should appear to the right or directly below the FHWA logo.

To ensure that publications produced via contractual services will be acceptable for future publication by others it is important that the original publication adhere to generally accepted “Standard Printing Practices” acknowledged by the printing industry. Some of these practices are described below. To ensure that the deliverable produced by the contractor is acceptable to the FHWA we ask that you have the FHWA Office of Information and Management Services, Publishing and Visual Communications Team review it (typically a CD) before theaccepts the deliverable. The Publishing and Visual Communications Team HAIM-23 may be contacted at 202/366.9125 and is physically located at E61-301 of the US DOT Building [1200 New Jersey Avenue SE, Washington, DC]:

GENERAL: FHWA as a government agency uses the **Microsoft Operating System (OS). Other operating systems, including Macintosh/Apple are not acceptable as final deliverables. Please have all work done by contractors delivered in MS OS editable file formats. The Office of Information and Management Services, Publishing and Visual Communications supports only Adobe InDesign and PageMaker for print job purposes. It does NOT support Quark Express, MS Publisher, or any other layout/design software for final print jobs.**

Graphics to be included in print publications should not be embedded in the design software (i.e. Adobe InDesign, etc.). All graphic elements must be linked from a separate “links” (or other suitably named) folder.

Photographs and other graphic elements must be a minimum of 300 dpi for standard print jobs. Photos and other raster images should be displayed in a publication at the same size (or smaller) than the physical size of the element. Enlarging raster images will cause pixilation.

Color used in full-color (process) production must be in CMYK—not RGB.

All fonts and graphics must be included in the final CD. A separate list of all fonts and linked graphics must accompany the CD for printer identification.

**All illustrations are to be done as vector drawings, and all final design and layout deliverables from contractors must include all original source files in their native software configuration. As with all layout publications, original vector artwork that includes text must also include the original fonts used in the element. Adobe Illustrator is the preferred choice for vector drawings, and Adobe InDesign the accepted choice for print layout applications.**

**Adobe PDFs as a substitute for originals are NOT acceptable and should never be used as a final deliverable without the accompanying original files.**

**In the case that final deliverables include layered raster elements, the original layered version of the element is to be included in the final deliverables statement. The preferred software for layered raster elements is Adobe Photoshop (.psd), or Adobe Fireworks (.png—layered).**

The final electronic files for printing shall be delivered to the FHWA on CD-ROMs, or other acceptable media **to be determined and agreed upon prior to contract ratification.** The disk shall include all necessary files for producing the printed document, and be accompanied by the standard GPO Form 952, Desktop Publishing----Disk Information.

***If the contractor fails to provide explicit instructions and all needed files and information with the final deliverables (printer’s dummy and printers disks) the printing process will be delayed until the FHWA receives corrected files or information from the contractor. The FHWA is not responsible for any additional costs, which may be incurred as a result of missing or incomplete information provided by the contractor.***

# General Contract 508 Amendment

“All electronic and information technology (EIT) procured through this Contract must meet the applicable accessibility standards at 36 CFR 1194.

This product must comply with Section 508 of the Rehabilitation Act and the Access Board Standards available for viewing at <http://www.section508.gov>. Specifically the document must meet the applicable accessibility standards for Web-based Intranet and Internet Information (Part 1194.22) available for viewing at <http://www.access-board.gov/sec508/guide/1194.22.htm>.

The following standards have been determined to be applicable to this contract [check appropriate block]:

              \_\_\_\_\_\_1194.21 Software applications and operating systems.

              \_\_\_X\_ \_1194.22 Web-based intranet and internet information and

      applications.

              \_\_\_\_\_\_1194.23 Telecommunications products.

              \_\_\_\_\_\_1194.24 Video and multimedia products.

              \_\_\_\_\_\_1194.25 Self contained, closed products.

              \_\_\_\_\_\_1194.26 Desktop and portable computers.

              \_\_\_\_\_\_1194.31 Functional performance criteria.

              \_\_\_\_\_\_1194.41 Information, documentation, and support.

 Note:  The standards do not require the *installation* of specific accessibility-related software or the attachment of an assistive technology device, but merely require that the EIT be compatible with such software and devices so that it can be made accessible if so required by the agency in the future.

All deliverables for posting on the World Wide Web must conform with the [Minimum Requirements for FHWA Web Pages](http://www.fhwa.dot.gov/wpcz/minimum.htm).  Deliverables will be evaluated for 508 compliance.  Non-conforming deliverables will be returned to the contractor to be brought into conformance at the contractor’s expense.

# ALT tags (Also see Long Descriptions, LONGDESC)

**This attribute contains a text string alternative to display on browsers that cannot display images.  An ALT tag shows up on a Web page (HTML file) as a small, temporarily visible “pop-up box” next to a cursor when a person hovers a mouse over a graphic in an HTML file.   ALT tags give the text replacement for non-text elements (such as, photos, charts, graphs, and equations).  An ALT tag can be read by assistive technologies, such as screen readers, for people with visual disabilities.  See Figure 20 for a sample on how to make ALT tags compliant with** [Section 508 of the Rehabilitation Act](http://www.section508.gov/)**.**

**FHWA minimum standards for web page development are**:

* FHWA Web Pages will be encoded to conform to HTML 4.01 Transitional or higher, as defined by the World Wide Web Consortium.
* File names will not exceed 20 characters in length. File names will be lower case, consist solely of letters, numbers and the underscore and will not contain slashes, spaces, tildes or hyphens. File extensions are to be 3 characters or less whenever possible (i.e. .htm instead of .html).
* All web pages will have a title in the head section of HTML documents. The title should be unique (to the server), brief, and descriptive - not to exceed 150 characters in length.
* Web pages must be free of broken links or missing images. All links to pages within the server will be relative.
* Web pages posted on the public Internet will have a standard header and footer. Web pages posted on StaffNet will use the standard templates.
* FHWA web pages will comply with Section 508 web accessibility standards as established by the Architectural Transportation Barriers Compliance Board.
* All textual files posted on the FHWA Internet server will be available in HTML format. All other formats (PDF, Word, Excel, PowerPoint, etc.) will have HTML equivalents.
* The bodies of web pages will use sans-serif fonts, e.g., Arial or Helvetica.
* Internet web pages will feature "exit doors" on links to non-government web sites (anything other than a federal, state or local governments).
* All entry point web pages on the Internet will feature a privacy policy statement (or a link to the Agency privacy policy statement on the main server).