An Implementation Primer

For the Second Strategic Highway Research Program

Version One (07/06/12)

Foreword

Congress authorized the second Strategic Highway Research Program (SHRP2) to conduct research that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the nation's highway system. This research has resulted in solutions that, when implemented, will help our roads meet the country's needs for mobility, safety, economic vitality, motorist satisfaction, and quality of life.

Successful implementation of SHRP2 products, called SHRP2 Solutions, requires a comprehensive and collaborative approach among three partner organizations: the Transportation Research Board (TRB), Federal Highway Administration (FHWA), and the American Association of State Highway and Transportation Officials (AASHTO). This primer outlines the partner organizations' larger implementation strategy and provides relevant background information and source materials for individuals involved in implementation support and deployment activities now and in the future. It also serves as a reference document, helping any reader gain an overarching understanding of the collaborative decision making process and structure of SHRP2 implementation, as well as the terms and documents that are fundamental to the program.

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Background

Overview

Funded through Congressional legislation, the second Strategic Highway Research Program (SHRP2) is an extensive and comprehensive effort to advance innovative methods for planning, renewing, and operating the nation's highway system. Through partnership and collaboration, the SHRP2 partner organizations manage a complex, dynamic, and diverse program that began with research and now transitions into an implementation phase that must balance competing needs and uncertain resources for much of the next decade. The partner organizations are the Transportation Research Board (TRB), the Federal Highway Administration (FHWA), and the American Association of State Highway and Transportation Officials (AASHTO).

Congress allocated approximately $235 million for SHRP2 research when it passed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. Utilizing those funds, TRB/SHRP2 conducted in-depth studies and extensive consultation with an array of stakeholders to identify and conduct more than 100 research projects that addressed the most critical highway needs. In addition to the research, SAFETEA-LU called for a report that would propose the strategies and structure needed to implement the results of research. In response, the TRB publication *Special Report 296: Implementing the Results of the Second Strategic Highway Research Program: Saving Lives, Reducing Congestion, Improving Quality of Life* identified potential implementation activities for a portion of the approximately 100 products that emerged from the research and recommended an implementation budget of more than $400 million.

SHRP2 Research Areas

SHRP2 research has addressed some of the most pressing needs related to the nation's highway system: the high toll taken by highway deaths and injuries, aging infrastructure that must be rehabilitated with minimum disruption to users, and congestion stemming from both inadequate physical capacity and events that reduce the effective capacity of a highway facility. These needs have defined the four research focus areas in SHRP2:

- The **Safety** area has conducted the largest-ever naturalistic driving study to better understand the interactions among various factors involved in highway crashes—drivers, vehicles, and infrastructure—so better safety countermeasures can be developed and applied to save lives.
- The **Renewal** area has researched technologies and institutional solutions to support systematic rehabilitation of highway infrastructure in a way that is rapid, presents minimal disruption to users, and results in long-lasting facilities.
- The **Reliability** area has researched basic analytical techniques, design procedures, and institutional approaches to address situations—such as crashes, work zones, special events, and inclement weather—that result in congestion that makes travel times unreliable.

- The **Capacity** area has explored how more accurate data and collaborative decision making in the development of new highway capacity can expedite the provision of that capacity while simultaneously addressing economic, community, and environmental objectives associated with new construction.

The TRB, in collaboration with the other partner organizations (the FHWA and AASHTO), has coordinated SHRP2 research and development across the four focus areas. As various research projects within the focus areas draw to a close, the partner organizations evaluate the emerging products to determine readiness for implementation.

Process

The SHRP2 process follows a continuum illustrated in Figure 1. This is the process through which an innovative technology typically moves—from the initial research phase through deployment and integration into normal business practices. In developing this approach, the partner organizations considered successful program management components of the FHWA Every Day Counts initiative and Highways for LIFE Program.
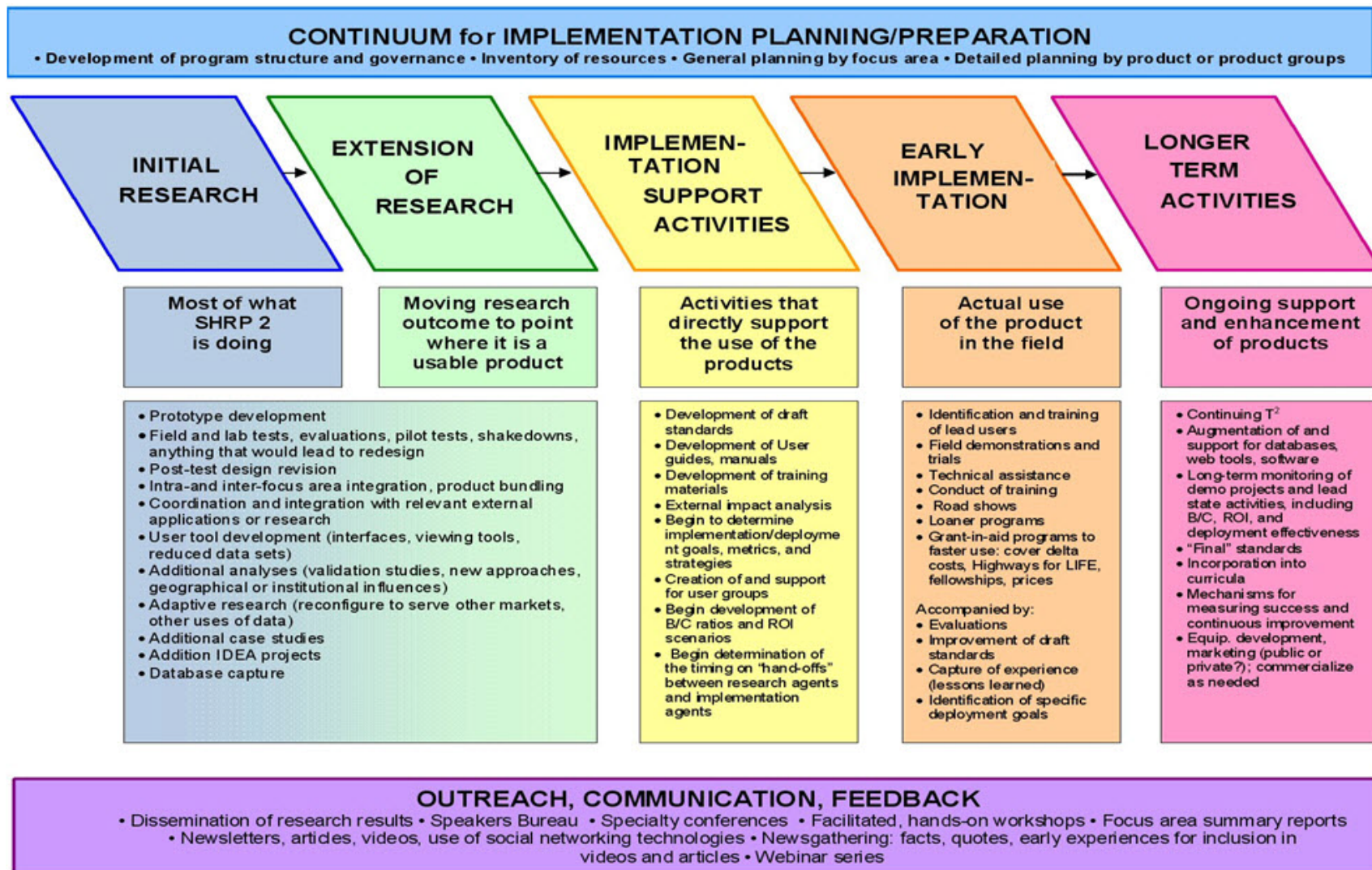
CONTINUUM for IMPLEMENTATION PLANNING/PREPARATION
• Development of program structure and governance • Inventory of resources • General planning by focus area • Detailed planning by product or product groups

INITIAL RESEARCH	EXTENSION OF RESEARCH	IMPLEMEN-TATION SUPPORT ACTIVITIES	EARLY IMPLEMEN-TATION	LONGER TERM ACTIVITIES
Most of what SHRP 2 is doing	Moving research outcome to point where it is a usable product	Activities that directly support the use of the products	Actual use of the product in the field	Ongoing support and enhancement of products
• Prototype development • Field and lab tests, evaluations, pilot tests, shakedowns, anything that would lead to redesign • Post-test design revision • Intra-and inter-focus area integration, product bundling • Coordination and integration with relevant external applications or research • User tool development (interfaces, viewing tools, reduced data sets) • Additional analyses (validation studies, new approaches, geographical or institutional influences) • Adaptive research (reconfigure to serve other markets, other uses of data) • Additional case studies • Addition IDEA projects • Database capture		• Development of draft standards • Development of User guides, manuals • Development of training materials • External impact analysis • Begin to determine implementation/deployment goals, metrics, and strategies • Creation of and support for user groups • Begin development of B/C ratios and ROI scenarios • Begin determination of the timing on "hand-offs" between research agents and implementation agents	• Identification and training of lead users • Field demonstrations and trials • Technical assistance • Conduct of training • Road shows • Loaner programs • Grant-in-aid programs to faster use: cover delta costs, Highways for LIFE, fellowships, prices Accompanied by: • Evaluations • Improvement of draft standards • Capture of experience (lessons learned) • Identification of specific deployment goals	• Continuing T^2 • Augmentation of and support for databases, web tools, software • Long-term monitoring of demo projects and lead state activities, including B/C, ROI, and deployment effectiveness • "Final" standards • Incorporation into curricula • Mechanisms for measuring success and continuous improvement • Equip. development, marketing (public or private?); commercialize as needed

OUTREACH, COMMUNICATION, FEEDBACK
• Dissemination of research results • Speakers Bureau • Specialty conferences • Facilitated, hands-on workshops • Focus area summary reports
• Newsletters, articles, videos, use of social networking technologies • Newsgathering: facts, quotes, early experiences for inclusion in videos and articles • Webinar series

Figure 1: Continuum of SHRP2 Implementation Planning/Preparation

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INITIAL RESEARCH

During the initial phase, researchers study problems using a variety of techniques, including literature reviews, surveys, data collection, and laboratory and field experiments. They develop prototypes, analyze new approaches, and refine and validate their methodologies.

EXTENSION OF RESEARCH

Development activities extend research beyond prototypes, frameworks, and concepts to create actual usable products. Pilot tests identify needed modifications and define the conditions in which a product benefits the user.

IMPLEMENTATION SUPPORT ACTIVITIES

Following the development of usable products, implementing organizations define and develop standards, user guides, and training materials for end users. The organizations outline implementation goals, strategies, metrics for success, and plans to transition project work to those individuals who will implement the products in the field.

EARLY IMPLEMENTATION

During early implementation, users receive product training and technical assistance to help facilitate the introduction of products into the field. Roadshows, briefings, and field demonstrations showcase the products in use. Peer-to-peer exchanges communicate lessons learned, helping improve draft standards and refine future product deployment plans.

LONGER-TERM ACTIVITIES

To help ensure the long-term success and future adoption of products by other users, implementing organizations will augment user support tools and utilize mechanisms to continually monitor and improve products. Commercialization and marketing help expand the use of products in both the public and private sectors.

OUTREACH, COMMUNICATION, AND FEEDBACK

Implementing organizations conduct outreach and communications activities to support product deployment and encourage further adoption of products. These activities include product promotion through specialty workshops, webinars, news articles, videos, and social networking.

Implementation

The goal of implementation is to employ a systematic and collaborative process to identify the most effective and useful products resulting from research and development, and deploy these products, called SHRP2 Solutions, so they become a part of the normal business of appropriate users within the transportation community. The same principle that inspired the creation of SHRP2 and has supported the program's research and development activities guides the implementation process: collaboration among partner organizations, stakeholders, and potential users to provide the transportation community with innovations that will help meet the needs of the nation's highway system.

Users must ultimately implement SHRP2 Solutions: State Departments of Transportation (DOTs), metropolitan planning organizations (MPOs), environmental agencies, vehicle manufacturers, tow-truck operators, police officers, emergency personnel, and a host of other potential groups. However, the size and scope of SHRP2 presents complex, dynamic, and diverse challenges that require partner organizations to build an implementation process that balances competing needs and uncertain resources. Accordingly, this primer describes an implementation process that responds to partner agency priorities, changing schedules, uncertain funding levels, and the needs of stakeholders in the states while providing a framework in which implementation activities that have already been approved may move forward.

The success of SHRP2 implementation relies on effective coordination and communication among the partner organizations and various stakeholders. The Implementation Process chart (Figure 2 on the following page) illustrates how products transition from the Research and Development Phase led by TRB into the Implementation Phase jointly led by AASHTO and FHWA.

DRAFT SHRP2 Implementation Process
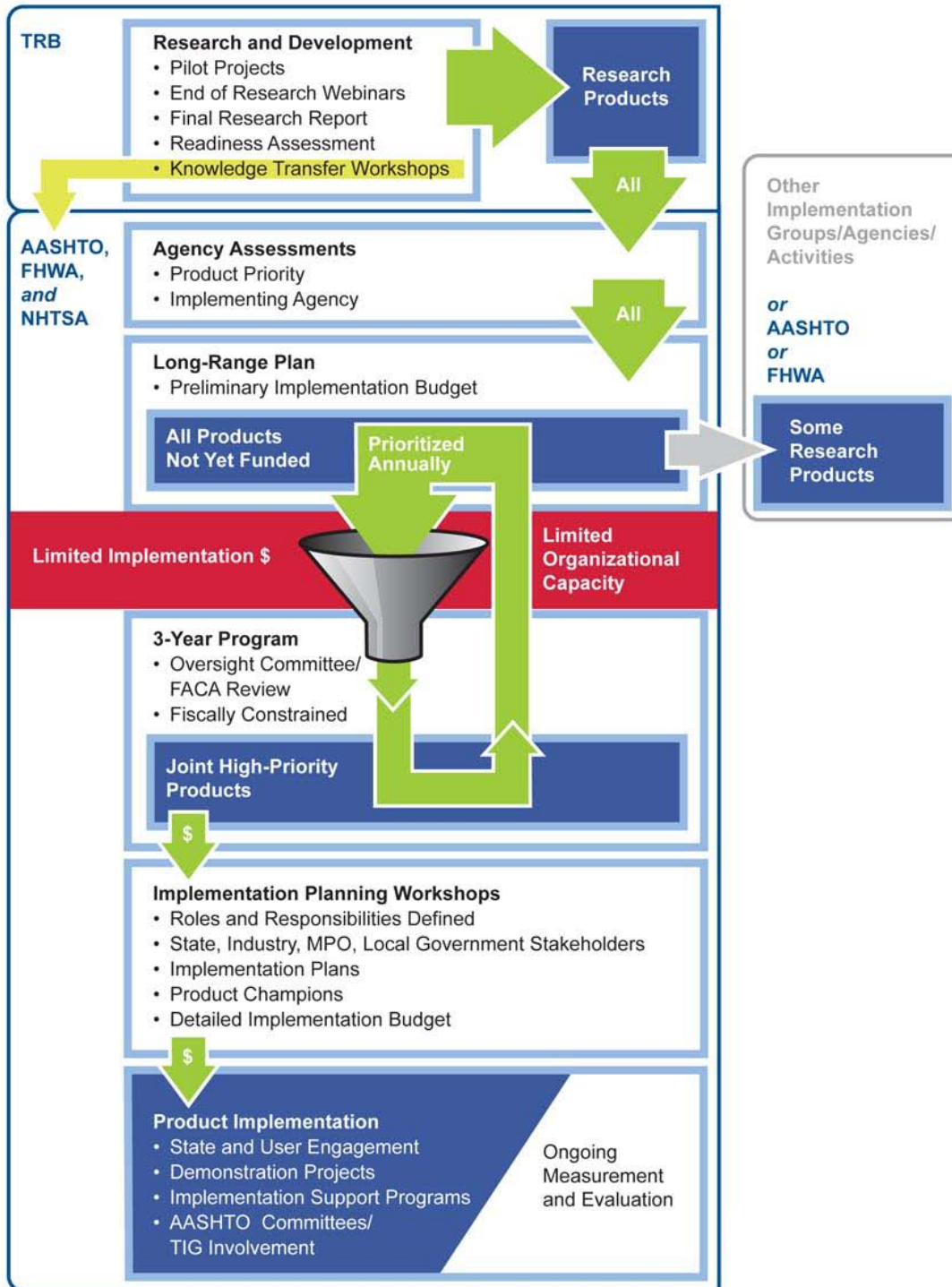
Figure 2: SHRP2 Implementation Process Flow

As the above diagram shows, the SHRP2 Implementation Process includes the following components: research and development, agency assessments, a long-range plan, product prioritization and funding (three-year program), Implementation Planning Workshops (IPW), and product implementation.

Research and Development
Contractors perform research and development under the oversight of TRB special program officers and Technical Coordinating Committees (TCCs). Research and development can include pilot projects, which test initial research and development and identify further research needs, as well as webinars and reports to disseminate research and development results. The TRB conducts a readiness assessment of each product as it nears completion. Near the end of research and development, TRB/SHRP2 organizes Knowledge Transfer Workshops (KTWs) (see Appendix B), which bring together researchers, the partner organizations, and potential early adopters of the products to produce product implementation strategies. Products become available for implementation on a rolling basis, as research and development work is completed.

Agency Assessments and Long-Range Plan
As partner organizations gain access to the details of products, each agency conducts product assessments that include an assessment of product readiness. Assessment procedures may vary by product type or focus area. See Appendix D for the FHWA assessment and implementation matrix and Appendix E for the assessment process for information technology (IT) products. To begin preparing for implementation, technical representatives from the partner organizations will often hold a strategic planning session.

The partner organizations determine preliminary implementation needs and budgets, and incorporate all available products into a long-range plan for SHRP2 product implementation. The long-range plan is the list of all available products from which SHRP2 Solutions will be selected for implementation.

Product Prioritization and Funding
AASHTO and FHWA cooperatively develop a three-year program of joint high-priority products to be funded with SHRP2 implementation funds over the next three fiscal years. See Appendix F for the current three-year program. The partner organizations re-prioritize products annually (Annual Business Plan) and update the three-year program to reflect these new priorities. This program is fiscally constrained by the amount of funding that is available and the organizational capacity of the partner organizations. The Implementation Advisory Committee reviews and comments on the three-year program, which may be revised based on its feedback. Products that are not funded remain in the long-range plan for funding consideration in the following fiscal year. The partner organizations actively seek out other organizations to take on some products that are not joint high-priority products or are not a good fit for implementation by AASHTO or the FHWA.

Joint high-priority products that are funded for implementation are branded SHRP2 Solutions and proceed to an IPW. Joint high-priority products not yet available for implementation (research and development not complete) are advanced to the following year's prioritization process. The partner organizations will conduct this reassessment and validation process of the SHRP2 priorities annually to ensure that previous products listed as high priority but not advanced to the implementation phase are still considered a high priority, while other products not listed as high priority are reevaluated to determine their new priority status.

This short-term selection process allows the decision makers to select the best available products to become SHRP2 Solutions with the understanding that other meritorious products may not be immediately ready, or they may be slightly lower in priority. Implementation planning will take into account the realities of which products are available and how much is prudent to commit financially. Financial strategy will be important because of the uncertainty of appropriation and the partner organizations' desire to hold funds for the highest-priority implementation projects that may not be immediately available.

Implementation Planning Workshops (IPWs)
AASHTO and the FHWA conduct IPWs for all products that are funded in the three-year program. These workshops invite the following participants: State, industry, MPO, and local government stakeholders that are likely early adopters of the products. The focus of an IPW (see Appendix B) is to develop detailed implementation plans and budgets, including the identification of demonstration projects (see Appendix C), key partners, and product champions. IPWs will often be preceded by KTWs and strategic planning sessions.

Following an IPW, participants from the partner organizations meet to revise, finalize and formally approve the implementation plan for the SHRP2 Solution(s) addressed in the IPW. Part of this process is agreeing on a project manager who will be the individual primarily responsible for ensuring that the implementation plan is carried out, collecting information on implementation progress and results, and reporting back to the SHRP2 Steering Group.

Product Implementation
Product implementation activities require State engagement and may require AASHTO committee and Technology Implementation Group (TIG) involvement. Implementation activities include demonstration projects, implementation support programs, and numerous other activities detailed in the implementation plan for the SHRP2 Solution. The partner organizations measure and evaluate these activities based on performance measures identified in the implementation plan.

Organizational Structure

Responsibilities and Roles of Implementation Agencies

The successful implementation of SHRP2 Solutions requires the cooperation of multiple committees and entities that make up the SHRP2 implementation program. These groups further the implementation process through strategic and tactical activities. Strategic activities provide leadership, vision, authority, and approval for implementation. Tactical activities produce an action or do work; they are the day-to-day activities that move SHRP2 implementation forward.

Strategic Activities

- **SHRP2 Oversight Committee** – Provides program oversight and manages program budget for research. TCCs and Expert Task Groups (ETGs) report to it.
  - Technical Coordinating Committees (TCCs) – Assist SHRP2 TRB staff in defining and executing the management of research, development activities, and outreach activities in a focus area.
  - Expert Task Groups (ETGs) – Assist SHRP2 TRB staff with developing research statements of work and recommending contractor teams.
  - Technical Expert Task Groups (TETGs) – Assist SHRP2 TRB staff with the management of individual research and development contracts and with defining and describing SHRP2 products.
- **Implementation Advisory Committee (IAC)** – This advisory committee complies with Section 15 of the Federal Advisory Committee Act (FACA) and provides advice to the FHWA, AASHTO, and TRB on implementation programming and implementation phase management.
- **AASHTO** – Provides advice to the FHWA and TRB on implementation program strategies and priorities and assists State transportation agencies with implementation programs, activities, and resources.
  - Implementation Task Force (ITF) – Prioritizes SHRP2 products and groups of products from the AASHTO perspective.
  - Technology Implementation Group (TIG) – Provides marketing and communications for technologies through a process called the "Lead States Process," which helps states understand new, but proven, technologies.
  - Research Advisory Council (RAC) – Coordinates AASHTO research priorities and helps coordinate SHRP2 product demonstration and showcases. Conducts communications and promotes SHRP2 awareness.
  - Standing Committee on Research (SCOR) – Assists with communications and implementation activities.
- **FHWA** – Defines, in collaboration with the partner organizations, a national SHRP2 implementation strategy and oversees budgets for implementation. Works with AASHTO and other partner organizations to define and conduct implementation strategy. Works with State transportation agencies and other implementers to conduct implementation activities.

Implementing agency for all products other than those related to State transportation agencies, stakeholders, and other users.

- **TRB** – Conduit for knowledge transfer about research outcomes and products. Cooperatively leads development activities (pre-implementation) and provides advice about implementation strategies.

Tactical Activities

- **State transportation agencies** – Individual agencies select products for implementation, identify and select support needed, and conduct implementation.
- **AASHTO** – Provides State transportation agencies with information about SHRP2 Solutions and works with the FHWA to provide resources needed to assist transportation agencies with implementation.
  - AASHTO staff – Serve as liaison to provide AASHTO committees with information as well as help and feedback to the Steering Group, ITF, Implementation Advisory Committee (IAC)/SHRP2 OC, and AASHTO implementation coordinator.
  - AASHTO committees – Provide input to ITF, IAC/SHRP2 OC, and AASHTO staff.
  - Consultant program management implementation staff (CH2M Hill) – Provide specific implementation support and materials, staff, and information.
- **SHRP2 Steering Group** – Coordinating group that conducts day-to-day activities to support its individual organizations' implementation needs and the SHRP2 implementation program as a whole. The Steering Group reports to and receives input and guidance from individual partner agency managers.
  - AASHTO implementation coordinator – Provides State transportation agencies with resources and information to assist with acceptance and implementation of SHRP2 Solutions. Receives direction from AASHTO management and advisory groups, and coordinates with the FHWA and TRB.
  - FHWA implementation staff – Develops, facilitates, and provides leadership for internal FHWA SHRP2 implementation activities. In cooperation with AASHTO, provides State transportation agencies with resources, information, and program assistance to encourage, nurture, and sustain implementation of SHRP2 Solutions.
  - TRB SHRP2 staff – Manages development activities in cooperation with other partner organizations. Provides AASHTO and the FHWA with advice about implementation and information about research outcomes and products.
- **FHWA** – Coordinates implementation with AASHTO and other partner organizations. Provides resources to SHRP2 Solutions users and stakeholders and encourages and provides support for product acceptance and implementation.
  - **The Office of Corporate Research, Technology, and Innovation Management** and the **Office of Technical Services** jointly coordinate and administer the SHRP2 Implementation Program in the agency.
  - **FHWA Associate Administrators** champion FHWA efforts for SHRP2 product implementation in alignment with Research and Technology program plans.
    - FHWA-designated SHRP2 Liaisons and Coordinators – meet on a regular basis to coordinate to take a corporate approach.

- FHWA Discipline Teams – institutionalize and integrate SHRP2 results while providing technical assistance and training to the states.
- Consultant implementation staff – available as an extension of staff.
- **TRB SHRP2** – Completes research and product development and provides implementation advice and knowledge transfer of research outcomes and products.
  - SHRP2 Director and Deputy Director
  - SHRP2 Implementation Coordinator
  - Senior program officers – TRB staff experts on research and products in a specific focus area.
- **Project Managers** – Individuals responsible for overseeing, tracking and reporting on the execution of approved SHRP2 Solution implementation plans. Jointly designated by AASHTO and the FHWA as part of the implementation planning process, project managers will likely be AASHTO or FHWA technical staff, but may in some cases be an employee of another key organization with substantial responsibilities in the approved implementation plan (e.g., lead State or MPO, industry professional organization, academic research center).

Each of the partner organizations has designed internal organizational structures and processes to ensure successful transition of research projects to transportation solutions.

Marketing and Communications

Successful implementation of SHRP2 Solutions requires a comprehensive marketing and communications strategy that ensures that the right users and audiences are informed about the most effective solutions resulting from the program. In order to increase national awareness and to promote the adoption of products resulting from SHRP2 research, the SHRP2 Oversight Committee and the Steering Group established a Marketing and Communications Work Group (MarCom). MarCom includes representatives from the AASHTO, the FHWA, the TRB, and the Research and Innovative Technology Administration's Volpe National Transportation Systems Center.

MarCom has developed a strategic approach to marketing the SHRP2 program in order to enhance communication within the partner organizations and foster communication among and between the SHRP2 research, stakeholder, and user communities; the broader transportation community; policy and decision makers; and the public at large. While many selected products may require unique and targeted marketing efforts, all of them, once selected to be a part of the SHRP2 Solutions portfolio, are considered to be "under the umbrella" of this overarching marketing and communications plan. Marketing for these products should use the SHRP2 Solutions logos, may use tool-kit materials such as briefings and other templates, and will collaborate with and advise individual product managers and their implementation and marketing teams within a formal SHRP2 Solutions marketing community.

Whether part of MarCom's overarching strategic communications effort or an individual product's marketing plan, all SHRP2 communications support the overall implementation goals for each product/project and identify specific and measureable outcomes. SHRP2 communications must also be based on the following process:

1. Develop a plan and timeline for conducting marketing and communications.
2. Collect and analyze information about relevant stakeholders, audiences, and end users.
3. Use the resulting information to develop product messaging, visual identity, and tactics for reaching the relevant groups.
4. Evaluate on a continual basis the success of the above strategy and adjust as needed.

Evaluating SHRP2

The success of the SHRP1 program led to SHRP2. In order to build the case for continued allocation of resources for strategic highway research, there is a need to evaluate and document the success of SHRP2. As part of being accountable to funders and policy makers, the SHRP2 program must effectively communicate the full range of benefits it has delivered.

SHRP2 must anticipate and answer policy makers' questions:
- How was the money spent?
- What products resulted from the program?
- To what extent were these products deployed?
- Whom did they reach?
- What was the value and impact of SHRP2 products on the transportation community? For example, are State DOTs, MPOs, or contractors doing things more cheaply, better, faster? Are they achieving better results?

Evaluation is critical not only to address these questions, but also to determine if and how SHRP2 implementation efforts need to be revised to increase effectiveness. By building evaluation into SHRP2 implementation from the start, performance can be monitored, and lessons learned from implementing the first group of products can be applied to subsequent product releases. For example, information can be gathered on:
- The success of products reaching users.
- Key factors influencing deployment.
- User expectations and values about products.
- Key barriers to implementation.
- Effective strategies and tactics for overcoming these barriers.
- Types of deployment support (e.g., training, technical assistance, and policy guidance) that are the most beneficial.

The implementation plans for individual SHRP2 Solutions will identify specific performance measures and processes for tracking and analyzing performance data, reporting on results, and using the data to improve results. However, there must also be an overall evaluation strategy to ensure that the data can be aggregated to provide a comprehensive national picture of the SHRP2 program and that lessons learned from one implementation effort are transferred to other efforts.

In order to assess the overall value of the SHRP2 program, it may be helpful to look at each of the four research focus areas—safety, renewal, reliability, and capacity—and to determine the extent to which the products in each area have addressed the expected research outcomes. Other ways of examining program outcomes are by type of product (e.g., software application, database, technical training materials, model specifications, et cetera) or by target audience (e.g., DOTs, MPOs, resource agency or planners, engineers, policy makers, et cetera).

Evaluation design must be considered at the beginning of the process as implementation plans are developed. This will ensure that data are collected in a way that enables aggregation across individual products. Evaluation also facilitates the collection of baseline data, which helps to isolate the impact and explain the value of SHRP2 Solutions.

The first step in developing an overall SHRP2 evaluation strategy is to clarify program goals and approaches—the inputs, activities, outputs, and short- and long-term outcomes. From there, the task is to agree on researchable evaluation questions and to determine the most straightforward and cost-effective ways of gathering data to address these questions.

While evaluation does require time and effort, investing in evaluation from the start enables mid-stream corrections to improve effectiveness and ensure that resources are being focused on the most critical deployment issues. This process also ensures that the information will be available to demonstrate that SHRP2 dollars have been well spent.

Appendix A - Glossary

The glossary of terms below is specific to the SHRP2 program and in some cases may differ from traditional and more commonly used definitions.

AGENCY ASSESSMENTS
Individual partner agency determinations regarding the readiness and priority of individual products.

ANNUAL BUSINESS PLAN
A three-year program and budget for implementation of joint high-priority products based on the partner organizations' annual re-prioritization process. Also referred to as the "three-year program."

AUDIENCE
A group of individuals or organizations to which a communications or marketing effort is applied. A target audience has an ability to affect the manner and extent to which a SHRP2 Solution is used.
A second use of audience defines a group of individuals or organizations that receive information about a SHRP2 Solution as a result of a demonstration or as a result of the use of the SHRP2 Solution (e.g., training products).

AVAILABLE
A product emerging from the research and development phase that has reached a point at which the partner organizations may begin implementation planning activities, such as a KTW.

DEMONSTRATION
A collaborative implementation support activity between the partner organizations and a target end user of a SHRP2 Solution. A product demonstration illustrates the product's application and benefits to other potential users. Within SHRP2, product demonstrations are heterogeneous in structure and focus and may involve actual construction projects or advanced highway operations trials. Demonstrations may lead to the development of guide specifications or the application of suggested change management processes to intra- or multi-agency decisionmaking. Product demonstrations are an appropriate part of the implementation process for market-ready innovations that have been selected as SHRP2 Solutions. However, it is possible that minor refinements to a SHRP2 Solution could result from a product demonstration.

DEPLOYMENT
Activities to support implementation of SHRP2 Solutions by target users. Deployment activities support the acceptance and use of SHRP2 Solutions through showcases, briefings, demonstrations, technical assistance, lead-state team concepts, and peer-to-peer exchanges. Deployment activities are commonly coordinated with related communication and marketing tools such as webinars, technical presentations, and informational collateral.

DEVELOPMENT
Activities that refine research by advancing products beyond a prototype, framework, or concept. A part of the Research and Development Phase, development may include pilots conducted at experimental, analytical, and full-scale levels. Development may also include activities that help partner organizations

plan for future implementation of a product such as identifying potential users and stakeholders; involving stakeholders in research and development efforts; preparing knowledge transfer documents and implementation strategies; and disseminating information about research status, outcomes, and products.

EVERY DAY COUNTS

A FHWA program designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of roadways, and protecting the environment. The Every Day Counts website is located here: http://www.fhwa.dot.gov/everydaycounts/

FOCUS AREAS

Four research classifications – identified as Safety, Renewal, Reliability, and Capacity – that support the overarching research approach and respond to areas of need identified in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the Congressional legislation that funds SHRP2. The focus areas direct research towards goals that are meaningful to highway users, such as increasing safety, reducing congestion, minimizing disruption to users when roads are being rehabilitated, and providing new capacity that enhances neighborhoods and avoids environmental harm.

HIGHWAYS FOR LIFE

A FHWA program that advances longer–lasting highway infrastructure using innovations to accomplish the fast construction of efficient and safe highways and bridges. The three goals of Highways for LIFE are to improve safety during and after construction, reduce congestion caused by construction, and improve the quality of the highway infrastructure. The Highways for LIFE website is located here: http://www.fhwa.dot.gov/hfl/

IMPLEMENTATION

The routine use of SHRP2 Solutions. Implementation is an end state carried out by users: State Departments of Transportation (DOTs), Metropolitan Planning Organizations (MPOs), resource agencies, and other highways industry stakeholders (e.g., vehicle manufacturers, tow-truck operators, police officers, and emergency personnel). If the initial applications are successful, users will incorporate SHRP2 Solutions into their ordinary ways of doing business and will routinely account for these products within their budgets. Implementation is also a general term that describes activities occurring within the Implementation Phase of SHRP2.

IMPLEMENTATION ADVISORY COMMITTEE

The Implementation Advisory Committee (IAC) provides expert advice to the partner organizations on Implementation Phase activities and program management. The IAC complies with Section 15 of the Federal Advisory Committee Act (FACA) Amendments of 1997 and is also commonly referred to as the "SHRP2 FACA." Many of the members of the IAC may have also served on the Oversight Committee.

IMPLEMENTATION PHASE

The period in the SHRP2 implementation process following the Research and Development Phase. During this phase partner organizations make product prioritization decisions and determine which products will become SHRP2 Solutions. The partner organizations then organize IPWs to create implementation plans for SHRP2 Solutions and prepare the products to be marketed to users through implementation support and strategic communications and marketing.

IMPLEMENTATION PLAN

The implementation plan is tactical and outlines how a product will be delivered, the potential users of the product, the risks to product delivery, the timeline for product delivery, the communications activities that will support deployment, and the resources required to deliver the product. The implementation plan also includes tools or processes to evaluate the success of product implementation.

The implementation plan is drafted as the primary output from an IPW. The product implementation strategy, developed during the product KTW, is a primary input to the implementation plan. Draft implementation plans must be reviewed, revised, and approved by the partner organizations before being finalized.

IMPLEMENTATION PLANNING WORKSHOP (IPW)

A collaborative meeting in which partner organizations and likely end users develop a detailed implementation plan and budget for a SHRP2 Solution. The IPW is tactical in nature and defines roles and responsibilities; identifies demonstration projects and other implementation activities; and identifies key partners and product champions.

IMPLEMENTATION STRATEGY

The primary output of a KTW. The implementation strategy is a starting point and draft roadmap to guide and prioritize implementation activities once a product or group of products become a SHRP2 Solution.

IMPLEMENTATION SUPPORT

A wide range of tactics, tools, and services that help a user implement a SHRP2 Solution. These activities further deployment of a product and may include technical training, conferences, demonstration projects, and technical support. Implementation support activities should be detailed in the implementation plan. Another term often used for this purpose is "technology deployment activities."

IMPLEMENTING AGENCY

The partner agency that coordinates implementation of a SHRP2 Solution in consultation with the other partner organizations.

INTEGRATION

The process of assimilating SHRP2 Solutions into existing programs or processes. A minority of SHRP2 Solutions will be completely new and uniquely creative as stand-alone innovations. Implementation of SHRP2 Solutions may require the application of change management principles to eliminate or minimize obstacles present within public and private organizations. Deployment of SHRP2 Solutions must support and not conflict with existing and related technology deployment initiatives.

JOINT HIGH-PRIORITY PRODUCT

A product that the partner organizations have collaboratively determined to be available and of a high priority for implementation; also known as a SHRP2 Solution.

KNOWLEDGE TRANSFER WORKSHOP (KTW)

A collaborative meeting in which the research team, partner organizations, and potential early adopters of a product share information, make early projections for market interest, and identify resources needed to implement the product. The KTW is strategic in nature and is a step toward handing off and

implementing a product. The primary output of a KTW is an implementation strategy. The SHRP2 Steering Group will organize a KTW for most products.

MANAGEMENT TOOL

An interactive tool that partner organizations use to track, manage, and provide accountability for the SHRP2 program. The database contains product descriptions and related information; tracks prioritization and implementation activities; and stores key product-level documents such as implementation strategies and plans. The database will be used by Steering Group members to generate management reports for agency leadership and the SHRP2 Federal Advisory Committee Act (FACA) Oversight Committee.

MARKETING AND COMMUNICATIONS WORK GROUP (MARCOM)

Appointed by the Steering Group, MarCom includes representation from AASHTO, the FHWA, the TRB, and the Research and Innovative Technology Administration's Volpe National Transportation Systems Center. The purpose of MarCom is to guide and participate in the design, development, and execution of the SHRP2 program-level, or "corporate," communications strategy and plan, and will solicit information and feedback from, and make recommendations to, the Steering Group.

MARKETING PLAN

A section of or addendum to a product or product group's implementation plan that describes how the product or product group will be marketed to potential users and audiences.

OVERSIGHT COMMITTEE

The oversight committee was established to guide the Research and Development Phase of the SHRP2 program. The oversight committee provides the TRB with expert advice on the research priorities of the SHRP2 focus areas and is ultimately responsible for all aspects of SHRP2 research.

PARTNER ORGANIZATIONS

The organizations responsible for SHRP2. The partner organizations include the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and the Transportation Research Board (TRB).

PILOT

A development activity that tests, defines, or illustrates a product as an extension of research. Part of the Research and Development Phase, pilot results and evaluation may identify refinements and modifications that are necessary before the Implementation Phase can begin. Pilots are intended to define the boundary conditions, refinements, and limitations under which products provide value and positive cost/benefit results.

PRODUCT

An output of SHRP2 research that has been further developed for implementation and is suitable for use by end users. Products include a wide range of developed outputs, from guidebooks and technical standards documentation to market-ready innovations. Research activities identify new and innovative processes and technologies that are explored and developed within TRB reports, pilots, and KTWs. If the partner organizations jointly determine that a product is of a high priority, the implementing agency deploys the product as a SHRP2 Solution.

PRODUCT CHAMPIONS
A SHRP2 product champion actively supports the implementation of SHRP2 Solutions through partnership and outreach activities. Public advocates for a SHRP2 Solution, champions are often early adopters or likely end users and will likely participate in IPWs or demonstrations.

PROJECT
A set of research and development activities for a defined topic; coordinated by the TRB.

PROJECT MANAGER
The individual with primary responsibility for overseeing, tracking and reporting on the execution of an approved SHRP2 Solution implementation plan. Jointly designated by AASHTO and the FHWA as part of the implementation planning process, project managers will likely be AASHTO or FHWA technical staff, but may in some cases be an employee of another key organization with substantial responsibilities in the approved implementation plan (e.g., lead State or MPO, industry professional organization, academic research center).

READINESS
A determination by the partner organizations that a product is sufficiently developed for implementation planning to begin.

RESEARCH
The identification of new processes and technologies through a variety of techniques, including literature reviews; surveys; data collection; laboratory and field experiments; and development and validation of methodologies. The TRB manages research as part of the Research and Development Phase.

RESEARCH AND DEVELOPMENT PHASE
The period preceding the Implementation Phase, led by the TRB. Research identifies and studies innovative process and technologies and development activities advance emerging products to prepare for implementation.

RESEARCH REPORT
The collected results and findings of a specific SHRP2 project. A research report includes study steps, research data, conclusions, and general recommendations for how the research findings could be applied in the field or within professional practice. SHRP2 research reports are not considered products.

SHRP2 SOLUTIONS
Joint high-priority products selected by the partner organizations and funded for implementation. Not all high-priority products will become SHRP2 Solutions due to limiting factors such as available funding, organizational capacity, and market requirements.

STEERING GROUP
The SHRP2 Steering Group is a coordinating group that conducts day-to-day activities to support their individual organizations' implementation needs and the SHRP2 implementation program as a whole. The Steering Group reports to and receives input and guidance from individual partner agency managers.

STRATEGIC PLANNING SESSION

A Strategic Planning Session brings together a small group of implementation coordinators and key focus-area liaisons from the SHRP2 partner organizations to develop expectations and desired outcomes for a future KTW or IPW. Participants will develop a budget range for implementation activities and identify the likely roles and responsibilities of the partner organizations.

TECHNICAL COORDINATING COMMITTEES (TCCs)

These committees assist SHRP2 TRB staff in defining and executing the management of research, development activities, and outreach activities in a focus area.

USER OR USER GROUP

A user is an individual or organization that directly uses a SHRP2 Solution (or would benefit from its use). Users incorporate SHRP2 Solutions into their business practices as part of comprehensive implementation.

Appendix B – Workshop Guidance

Table of Contents

Section 1: Workshops Overview

Effective communication and knowledge transfer are important to the successful handoff of products from the research and development phase of the second Strategic Highway Research Program (SHRP2), which is led by the Transportation Research Board (TRB), to the implementation phase, which is jointly led by the other SHRP2 partner organizations: the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA). To facilitate successful product handoff and implementation, two workshops will typically be held: a Knowledge Transfer Workshop (KTW) and an Implementation Planning Workshop (IPW). These workshops will typically be preceded by a Strategic Planning Session.

A KTW is the first tangible step toward handing off and implementing a product that has resulted from SHRP2 research and development. A KTW shares information between the research team, implementation agencies, and potential early adopters of the product. The primary output of a KTW is an Implementation Strategy for a given SHRP2 product.

An IPW brings the partner organizations together with likely end users and champions of high-priority SHRP2 products (branded "SHRP2 Solutions") to develop a tactical Implementation Plan for the product. The Implementation Plan sets detailed roles, responsibilities, and budgets for implementation of SHRP2 Solutions.

This appendix is intended to create common and consistent process templates for the planning, conduct, and documentation of KTWs and IPWs. However, it is anticipated that these templates may vary by product category and may be customized by the workshop organizers to meet the unique aspects of each product.

OVERARCHING ASSUMPTIONS

- The implementing agency (likely AASHTO or FHWA) for a product or group of products will be qualified to organize and host the KTW and IPW activities. However, in the near term, it may be desirable for the initial workshops to be planned and conducted by two or more partner organizations.

- A small group of implementation coordinators and key focus-area liaisons from the SHRP2 partner organizations will review, comment on, and modify existing implementation workshop templates and report outlines (as developed for FHWA's Every Day Counts initiative and previous SHRP2 workshops) to ensure the desired workshop's outcomes match the scope, content, and details assembled prior to and during the workshop. This activity will likely be accomplished via email communication and should be coordinated by the implementing agency.

- Each workshop will have a designated facilitator (either a professional facilitator or a member of the SHRP2 Implementation Steering Group or one of their respective contractors).

- In advance of the workshop, the facilitator shall provide participants with enough of a tutorial about SHRP2 that such a tutorial will not be necessary during the workshop in order for participants to understand the implementation planning process for a SHRP2 product.

- In advance of the workshop, the designated facilitator will work with several participants (possibly SHRP2 staff and contractors) to develop draft content for portions of the workshop narrative and templates. This content will likely be customized to meet the unique aspects of each product.

Section 2: Strategic Planning Session

Purpose

As a first step in planning a KTW or an IPW, a small group of implementation coordinators and key focus-area liaisons from the SHRP2 partner organizations should participate in a Strategic Planning Session. The purpose of the Strategic Planning Session is to discuss expectations and desired outcomes for the upcoming KTW and IPW for a specific product or product group. During the session the group should identify the respective roles of the partner organizations in product implementation and discuss logistical details of the workshop(s) being planned.

Section 3: Knowledge Transfer Workshop (KTW)

PURPOSE

Near the end of a SHRP2 research project, FHWA and AASHTO, with the assistance of TRB SHRP2 staff, will organize a Knowledge Transfer Workshop (KTW). A KTW is a first step in the implementation process. (The precursor to a KTW was called a "pre-implementation workshop"). Products that FHWA and AASHTO jointly select as high-priority products (branded "SHRP2 Solutions") will undergo more detailed implementation planning in the form of an Implementation Planning Workshop.

The purpose of the KTW is to:

- Share information between the research team, implementation agencies, and potential early adopters of the product;

- Function as a bridge between research and implementation and as the beginning point for hand-off and future implementation planning efforts;

- Formulate estimated costs and staff commitments needed for implementation;

- Inform implementation funding decisions; and

- Begin forging relationships between the partner organizations and product stakeholders.

The primary output of the KTW will be an Implementation Strategy. This document outlines implementation goals and strategies, identifies likely target audiences and marketing conduits for the product, and includes a preliminary budget. AASHTO and FHWA will use the Implementation Strategy to inform the Long-Range Plan for SHRP2 product implementation funding and staffing decisions. The Implementation Strategy will also serve as a starting point for later development of a tactical Implementation Plan (i.e. the primary output of an IPW). In the event that a KTW and IPW are combined, the primary output would be an Implementation Plan.

The KTW will provide relevant implementation goals and marketing strategies for the research product that will be useful even in the event that the product is not funded for implementation under the SHRP2 program.

SHRP2 products will be ready for KTWs on a rolling basis, as research and development work is completed.

ASSUMPTIONS

- **FHWA and AASHTO will convene KTWs for most, if not all, products once TRB has deemed the research to be reasonably complete.** In some cases, FHWA and AASHTO may have completed a readiness and risk assessment. However, in the majority of cases, the KTW will be used to "inform" AASHTO and FHWA technical staffs so that readiness and risk assessments can later be performed in an informed manner.

- **KTWs will typically take place after a TRB-hosted SHRP2 product end-of-research webinar, but before the final research report has been published.** A potential product's KTW will always precede or be combined with the IPW for high-priority products (branded "SHRP2 Solutions").

- **KTWs will typically be face-to-face, one-day events.**

- **KTWs are a starting point for future implementation planning**. The scale of the KTW will be proportionate to the anticipated needs of the implementation planning effort for a specific product.

- **KTWs will establish a product Implementation Strategy and preliminary budget that will inform future implementation planning efforts.**

- **FHWA and AASHTO will identify a facilitator (internal or external) to assist with the planning and execution of KTWs.** The facilitator should have significant experience facilitating diverse groups and have knowledge of SHRP2. It is not a requirement that the facilitator be a subject matter expert, although this may be desirable in some cases.

PARTICIPANTS

The KTW should convene research team members (SHRP2 TRB personnel and research contractors) as well as FHWA staff, AASHTO staff, and state representatives who may be responsible for helping to evaluate, prioritize, market, and implement the SHRP2 research product. KTWs should also involve potential early adopters of the research product (e.g., volunteering State DOTs, resource agencies, MPOs, or others). Industry representation may or may not be appropriate depending on the specific product.

When identifying participants it is important to include representatives from varying levels within an organization, as well as those who are not already committed to supporting the SHRP2 product.

ORGANIZING A WORKSHOP

See Section 5 for a detailed Workshop Planning Checklist.

The KTW workshop organizer, in coordination with the meeting facilitator, should do the following:

- **Consider the required workshop length and approximate number of participants.** KTWs will typically be one day in length, and the number of participants could vary from approximately 5 to 15. This is in contrast to the IPWs, which are envisioned to be longer in length and involve more participants.

- **Identify internal or external facilitators and recorders.** These individuals will help develop the workshop agenda, facilitate the workshop program, document findings, and prepare the draft and final Implementation Strategy. It is assumed that most workshops will require some level of external assistance. The workshop organizer should provide guidance to the facilitator about FHWA and AASHTO's expectations for the KTW. This guidance should make the goals and desired outputs clear to the facilitator well in advance of the KTW.

- **Identify workshop location and arrange for participant travel.** The workshop organizer should ensure that the meeting participants are provided with appropriate meeting, hotel, and invitational travel arrangements. Logistics and travel arrangements will typically be performed by a contractor (or in some cases two contractors). Following the workshop, the contractor(s) should follow up to ensure that participants have been properly reimbursed (See Section 7 for Invitation Travel Logistics Memo Template).

- **Adapt Agenda Template**: The agenda template for all KTWs (see Section 11) promotes a standardized, efficient methodology for conducting KTWs for all SHRP2 products. However, the template may be customized as necessary to fit the unique aspects of a product or focus area.

- **Develop read-ahead materials:** Provide participants with read-ahead materials that outline the purpose, structure, goals and desired outputs of the workshops. Read-ahead materials should also include a description of the specific product or product group that is the focus of the KTW. The read-ahead materials should provide participants with enough of a tutorial about SHRP2 that such a tutorial will not be necessary during the workshop in order for participants to understand the implementation planning process for a SHRP2 product. Definitions of key SHRP2 terms (such as those contained in the SHRP2 Primer Glossary) should also be provided to all workshop participants to facilitate the speedy development of a common language.

- **Identify Available Resources:** Gather information about all planned, ongoing, and recently-completed research, development, and deployment activities associated with the product. Efforts should also be made to identify existing and planned products, activities, or programs within FHWA, AASHTO, or other agencies that complement, conflict with, or overlap the product. Though all research and development deliverables may not be in their final state, any draft or beta versions of these products should inform the KTW.

  The conveners of a KTW should also ensure that all participants are provided sufficient access to online and hardcopy reference resources. This would include copies of relevant FHWA and AASHTO technical references, TRB reports, legislation, wireless internet access, and computer workstations

- **Review Implementation Strategy Template:** The Implementation Strategy template (see Section 13) provides a standardized format for the documentation of the output of a KTW. The template will provide a starting point to focus and speed development of the Implementation Strategy, which is the primary output of the KTW. It is recommended that the facilitator not share the Implementation Plan template with participants; rather, the facilitator should use the template to help inform the direction of workshop discussions.
- **Conduct pre-workshop webinar or conference call with participants**: Convene a pre-workshop webinar or conference calls with participants to discuss the workshop. During the call discuss the purpose of the KTW and the desired outcomes/outputs, and review the agenda and read-ahead materials.

- **Develop a schedule for workshop output production and review.** Workshop participants should be encouraged to review and comment on the Implementation Strategy and any other outputs of the KTW before they are finalized. A schedule for when these materials will be provided and the timeline for the requested review and comment should be provided at the end of the KTW. The distribution of the final Implementation Strategy and the location of the official workshop file should also be discussed.

WORKSHOP ASSESSMENT

At the end of each workshop the organizer and/or facilitator should conduct a workshop assessment survey (See Section 15). The workshop assessment is particularly valuable for early KTWs in the SHRP2 implementation timeline. The proceedings of the workshop assessment should be recorded and

documented by the workshop organizer but not included in the Implementation Strategy. FHWA and AASHTO developed a standard survey instrument to collect data from workshop participants for assessing KTW success.

Section 4: Implementation Planning Workshop (IPW)

PURPOSE

Following implementation agency assessments and consideration of long-term planning, a SHRP2 product or group of products may be assessed to be of a high priority for implementation and will be included for funding within a three-year implementation program. For joint high-priority SHRP2 products (SHRP2 Solutions), AASHTO and FHWA will conduct Implementation Planning Workshops (IPWs) for all products that are funded in the three-year program.

The purpose of the IPW is to:

- Develop a draft Implementation Plan and budget for a SHRP2 Solution;

- Define roles and responsibilities;

- Identify the scope and objectives of demonstration projects and other technology deployment activities; and

- Identify key partners, product champions, and audiences.

The primary output of an IPW will be a draft Implementation Plan. This plan should include, at minimum, a near-term action plan, specific organizational and individual responsibilities, a schedule, marketing and communications plans, and a high-level implementation budget. The draft implementation plan will be reviewed, revised and finalized by the partner organizations following the IPW and may require the appropriate organizations' managers' review and approval.

The IPW should also produce information needed to support detailed planning by partners and product users. Some products will require additional detailed planning for some aspects of implementation (e.g., product demonstrations, locally tailored technical assistance). The draft Implementation plan should contain information that will be needed by organizations and individuals who will engage in additional detailed implementation planning related their defined roles and responsibilities. Another output of the IPW should be a performance monitoring and reporting plan. The IPW should establish the structure by which implementation success will be monitored, reported, and assessed.

ASSUMPTIONS

The following are assumptions for developing an IPW:

- **FHWA and AASHTO will conduct IPWs for all SHRP2 Solutions funded in the three-year program.** These products will be jointly identified by FHWA and AASHTO as high-priority products and endorsed by the Implementation Oversight Committee and Implementation Advisory Committee.

- **IPWs will typically be two-day, face-to-face events.**

- **FHWA and AASHTO will identify staff to plan and conduct IPWs.** AASHTO or FHWA will identify members of their agencies who are qualified to organize the IPW. The workshop organizer does not have to be a subject matter expert. In fact, this is not likely the best choice in order to maintain consistency. It is acknowledged that while one agency may take on the majority of the roles and

responsibilities for implementation of a particular product, it is intended that all the partner organizations (TRB, AASHTO, and FHWA) will work collaboratively to conduct IPWs and throughout the implementation process.

- **In some cases, the KTW will be combined with the IPW.**

- **FHWA and AASHTO will identify a workshop facilitator.** The workshop facilitator should be able to guide participants through the necessary workshop phases such that dedicated training on the process for developing the Implementation Plan will not be needed during the IPW.

PARTICIPANTS

IPWs will include Federal, State, Tribal, industry, MPO, and local government stakeholders who are likely to be early product adopters. In addition, technical and SHRP2 implementation staff from the partner organizations and the key research study contractors will participate in planning, conducting, and documenting the workshop. The following is recommended:

- **FHWA and AASHTO will identify "product champions."** Product champions will be early-adopter agencies that will play a significant role in product implementation (e.g., host a product demonstration). The product champions will promote the product and identify other potential early adopters. The primary responsibility of the product champions is to share knowledge about the product and to advise potential users of possible benefits.

- **FHWA, AASHTO, TRB, and key SHRP2 contractors identify and document key stakeholders and user groups and/or specific individuals to participate in IPWs.** For example, these stakeholders could include AASHTO committee members, AASHTO Technology Implementation Group (TIG) members, FHWA technical discipline team members, contractors, material suppliers, and industry and professional association representatives. Participants should be leaders/champions in their organizations for the related topic and have some degree of responsibility and authority related to product implementation for their respective organizations. Ideally, multiple IPW participants will represent potential early adopters.

- **When possible, the IPW should include some of the same people who participated in the KTW, in addition to users who have volunteered to deploy the products, as well as those who are not yet committed to using the product.**

- **The workshop organizer should consider regional differences when identifying participants for the IPW.** A broad distribution of participants is often advantageous; however, the workshop organizer should consider whether the product is applicable and practical in all areas of the country and for all levels of users. It is possible that regional differences and variations in local or regional state of practice may warrant conducting multiple IPWs for some SHRP2 Solutions.

ORGANIZING A WORKSHOP

See Section 5 for a detailed Workshop Planning Checklist.

The workshop organizer, in coordination with the workshop facilitator, should do the following:

- **Consider the required workshop length and approximate number of participants.** Workshops are envisioned to be two days in length, and the number of participants could vary from approximately 10 to 25.

- **Identify internal or external facilitators and recorders.** These individuals will help develop the workshop agenda, facilitate the workshop program, document findings, and prepare the draft and final Implementation Plan. It is assumed that most workshops will require some level of external assistance. The workshop organizer should provide guidance to the facilitator about FHWA and AASHTO's expectations for the IPW. This guidance should make the goals and desired outputs clear to the facilitator well in advance of the IPW.

- **Identify workshop location and arrange for participant travel.** The workshop organizer should ensure that the meeting participants are provided with appropriate meeting, hotel, and invitational travel arrangements. Logistics and travel arrangements will typically be performed by a contractor (or in some cases two contractors). Following the workshop, the contractor(s) should follow up to ensure that participants have been properly reimbursed. (See Section 7 for Invitational Travel Logistics Memo Template).

- **Develop a schedule for workshop output production and review.** Workshop participants should be encouraged to review and comment on the Implementation Plan and any other outputs of the IPW before they are finalized. A schedule for when these materials will be provided and the timeline for the requested review and comment should be provided at the end of the IPW. The distribution of the final Implementation Plan and the location of the official workshop file should also be discussed.

- **Adapt Agenda Template:** The IPW Agenda Template (see Section 10) promotes a standardized, efficient methodology for conducting IPWs for all SHRP2 Solutions. The agenda is based on the "Leap not Creep" methodology and early SHRP2 workshops known as "pre-implementation workshops." However, the Agenda Template may be customized as necessary to fit the specific aspects of a SHRP2 Solution or focus area.

- **Develop read-ahead materials:** Provide participants with read-ahead materials that outline the purpose, structure, goals and desired outputs of the workshops. Read-ahead materials should also include a description of the specific product or product group that is the focus of the IPW. The read-ahead materials should provide participants with enough of a tutorial about SHRP2 that such a tutorial will not be necessary during the workshop in order for participants to understand the implementation planning process for a SHRP2 product. Definitions of key SHRP2 terms (such as those contained in the SHRP2 Primer Glossary) should also be provided to all workshop participants to facilitate the speedy development of a common language.

- **Identification of available resources and reference documents:** Identify all recently completed, ongoing, and planned activities by AASHTO, FHWA, and industry that complement, overlap, or conflict with the SHRP2 Solution and approved TRB SHRP2 research and development activities.
  - **Identify currently available SHRP2 project reports and products.** These could include "pre-implementation workshop" materials, draft training materials, specifications, guidelines, beta-version information technology tools, etc.

  - **Identify available partner agency completed, ongoing, and planned development, technology deployment, and technical training programs and tactics. Many SHRP2 products provide gap-**

filling and capstone tools and innovations that logically can be integrated within other agency efforts. Developing a complete awareness of these activities during the IPW will be valuable in identifying audiences, opportunities, obstacles, and tactics, and will have a direct impact on the implementation plan schedule and budget.

o **Identify available measures and assessments of the existing state of practice (as compared to the state of the art) related to the innovation and the range of practice among the primary and secondary audience groups**. Potential sources of this information are FHWA and AASHTO technical leadership, for the respective innovations, and TRB SHRP2 phase I research reports. This information will be helpful in the creation of the right message, at the right level, and with appropriately managed outcomes for a specific target-level of practice.

o **Identify resources available to assist with implementation.** Resources may be available within implementation or partner organizations' own offices. For example, public information offices can assist with planning/marketing activities and ongoing/planned outreach, and technology deployment activities may allow the blending of resources (technical staff and funding).

o **The conveners of an IPW will ensure that sufficient access to online and hardcopy reference resources is provided to all participants.** This would include copies of relevant FHWA and AASHTO technical references, TRB reports, legislation, wireless internet access, and computer workstations.

- **Review Implementation Plan Template:** The workshop organizer should provide an annotated Implementation Plan Template (see Section 14) to serve as the basis for discussion and generation of the Implementation Plan. The template is based on existing implementation workshop templates and workshop report outlines (e.g. FHWA's Every Day Counts Initiative and previous SHRP2 "pre-implementation workshops"). It is recommended that the facilitator not share the Implementation Plan template with participants; rather, the facilitator should use the template to help inform the direction of workshop discussions and for the writing of the draft implementation plan following the IPW.

- **Conduct pre-workshop webinar or conference call with participants:** Convene a pre-workshop webinar or conference calls with participants to discuss the workshops. During the call discuss the purpose of the IPW and the desired outcomes/outputs, and review the agenda and read-ahead materials.

WORKSHOP ASSESSMENT

To evaluate the impact of the IPW and to improve future IPWs, it is recommended that FHWA and AASHTO do the following:

- Conduct a final survey of participants that assesses the success of workshop activities (see Section 15 for a Workshop Assessment Survey).

- Apply lessons learned to future IPWs.

Section 5: Implementing the Plan

Following an IPW, the workshop facilitator and organizer will work together to produce a draft Implementation Plan, which will include a detailed action plan and budget for implementing the product or group of products. Developing and implementing the final Implementation Plan will require the following steps:

1. **Develop workshop summary:** Shortly after the IPW, the workshop facilitator and recorder will develop a 2 to 5 page summary document that provides a high-level summary of the workshop proceedings. The summary can serve as an Executive Summary for the subsequent Implementation Plan. The facilitator will share a draft summary document with the workshop organizer and SHRP2 partner organizations.

2. **Develop draft implementation plan:** The workshop facilitator and recorder will complete and submit a draft of the Implementation Plan to the workshop participants for comment. The facilitator will incorporate comments into the draft and schedule a workshop debrief with the workshop organizer and partner organizations to review, revise (if necessary) and approve the plan.

3. **Conduct workshop debrief:** The workshop facilitator will schedule a debrief meeting with key staff from the partner organizations who will be involved in implementing the SHRP2 Solution. The following issues should be discussed during the meeting:
    a. Provide a debrief of the IPW and identify lessons learned to inform future workshops
    b. Review consultant services available to support implementation (e.g., marketing and communications)
    c. Finalize specific roles and responsibilities of the partner organizations and contractors in the action plan
    d. Review and, if necessary, refine estimated budget allocations for the implementation strategies
    e. Designate a Project Manager who will be responsible for overseeing the execution of the implementation plan, and collecting information on, and reporting on the overall implementation for the SHRP2 Solution(s)
    f. Formally agree to approve the implementation plan

4. **Develop final implementation plan.** The facilitator will incorporate any remaining changes into a final approved implementation plan and submit final version to the workshop organizer and project manager.

5. **Develop funding request:** Once implementation plans are approved, the FHWA technical lead will present the budget the FHWA Research and Technology (R&T) Leadership Team for final approval and request that the FHWA Office of Research, Development and Technology transfer funds to the appropriate FHWA program office or AASHTO.

6. **Form Implementation Group:** The project manager will form an implementation group. The group should consist of individuals who have a role in implementing the strategies and tactics outlined in the approved implementation plan. The implementation group will coordinate as needed to execute the action plan and monitor the results.

7. **Provide status reports on achievements to SHRP2:** the project manager will develop and submit bi-annual status reports to the SHRP2 partner organizations that outline progress toward achieving implementation plan objectives.

Section 6:   Workshop Planning Checklist

PURPOSE

The Workshop Planning Checklist is intended to be used as a tool by the second Strategic Highway Research Program (SHRP2) professional and support staff to plan Knowledge Transfer Workshops (KTWs) and Implementation Planning Workshops (IPWs). This guidance document attempts to address the what, who, and when associated with these SHRP2 implementation activities.

WORKSHOP PLANNING ROLES

- **Workshop organizer**: A representative from the American Association of State Highway and Transportation Officials (AASHTO) or the Federal Highway Administration (FHWA) who coordinates with Transportation Research Board (TRB) staff to establish workshop content, participants, and planning schedule.

- **Workshop facilitator**: Runs the workshop, assists in preparing content for the workshop, facilitates the workshop discussions, and drafts the Implementation Strategy or Implementation Plan.

- **MarCom representative**: Assists in preparation of MarCom materials before the workshop and provides marketing and communications expertise during the workshop.

- **Logistics coordinator**: Arranges workshop facility details and manages workshop attendance.

- **Travel coordinator**: Arranges invitational travel for participants.

In some instances, multiple roles will be filled by one individual.

CHECKLIST

✓	WORKSHOP TASK	SUGGESTED STAFF	TIMEFRAME	DATE
WORKSHOP INTERNAL PLANNING				
	Schedule an internal meeting with appropriate TRB, FHWA, and AASHTO staff to discuss details of the event.	Workshop organizer	10 weeks prior	
	Identify the specific research product or product group that is the subject of the workshop. (This not as straightforward as it first appears and may be best accomplished by coordinating with the appropriate TRB SHRP2 staff member.)	Workshop organizer & partner organizations	10 weeks prior	
	Develop cost estimate and resources needed to plan, convene, and document the workshop.	Workshop organizer & logistics coordinator	9 weeks prior	
	Define and seek consensus on the objective of the workshop. Identify any additional workshop outputs.	Workshop organizer & partner organizations	9 weeks prior	
	Establish a workshop action plan, including critical workshop milestones and schedule. Clarify the responsible staff member for each required action.	Workshop organizer & partner organizations	9 weeks prior	
PLANNING THE WORKSHOP EVENT				
	Identify an appropriate workshop facilitator.	Workshop organizer	8 weeks prior	
	Identify workshop recorder to take notes and document the findings of the workshop.	Workshop organizer	8 weeks prior	
	Process appropriate contractual actions if the workshop will require external facilitators and recorders.	Workshop organizer	8 weeks prior	

	Identify all recently completed, ongoing, and planned implementation activities by AASHTO, FHWA, and industry that complement, overlap, or conflict with SHRP2 research products and approved SHRP2 development activities.	Workshop organizer & partner organizations	8 weeks prior	
	Identify SHRP2 project reports and products currently available (workshop materials, draft training materials, specifications, guidelines, beta version IT tools, etc.).	Workshop organizer & TRB SHRP2 staff	8 weeks prior	
	Meet with SHRP2 Marketing and Communications Workgroup (MarCom) to discuss appropriate communication and marketing information notice.	Workshop organizer & MarCom representative	8 weeks prior	
	Identify key stakeholders and user groups and specific individuals who should participate in workshops. The participants should be leaders in organizations for the related topic and have some degree of responsibility and authority related to product implementation for their respective organizations. Identify "product champions." Product champions will be early-adopter agencies that will play a significant role in product implementation (e.g., conduct a product demonstration).	Workshop organizer	8 weeks prior	
	Call potential participants to provide background and gauge interest in the workshop. Transmit a "Save the Date" email notice to workshop participants.	Workshop organizer or facilitator	8 weeks prior	
	Identify and confirm workshop meeting facility (for off-site events, process appropriate paperwork and obtain approvals).	Logistics coordinator	8 weeks prior	
	Customize agenda template for the workshop.	Workshop organizer & workshop facilitator	7 weeks prior	

Compile read-ahead materials.	Workshop facilitator	7 weeks prior	
Identify the number of workshop participants who will require travel support.	Logistics coordinator	7 weeks prior	
Reserve room block for traveling participants.	Travel coordinator	7 weeks prior	
Transmit a formal workshop invitation, with the workshop agenda, participant list, and read-ahead materials attached. Transmit a travel and logistics memo with invitational travel procedures.	Logistics coordinator & travel coordinator	6 weeks prior	
Confirm event requirements and needs (breakout rooms, AV, working meals, and reception).	Logistics coordinator	4 weeks prior	
Identify an on-site contact at the meeting location who will serve as the point person for resolving specific site issues, such as IT access.	Logistics coordinator	4 weeks prior	
Agree on timeline for delivering workshop product.	Workshop facilitator	4 weeks prior	
Identify key Marketing and Communications components that can be obtained from the participants during the workshop.	Workshop facilitator & MarCom representative	4 weeks prior	
Arrange and conduct a pre-workshop conference call with all participants to review the agenda and provide a better understanding of what the workshop will entail.	Workshop facilitator	2 weeks prior	
Identify additional individuals who would have an opportunity to review the draft Implementation Strategy or Implementation Plan. Clarify expectations for review of the draft.	Workshop facilitator	2 weeks prior	

	Develop draft content for some portions of the Implementation Strategy (based on TRB material) or Implementation Plan (based on KTW material).	Workshop facilitator	2 weeks prior	
POST WORKSHOP TASKS				
	Identify individuals and agencies to receive copies of the Implementation Strategy or Implementation Plan.	Workshop organizer	1 week after	
	Transmit a reminder email to event participants that suggests the timely submittal of their travel expenses and receipts.	Travel coordinator	1 week after	
	Develop workshop summary. Submit draft summary to workshop organizer and partner organizations.	Workshop facilitator	Within 2 weeks	
	Obtain, verify, and process the content of all workshop receipts.	Travel coordinator	3 weeks after	
	Submit a draft of the Implementation Strategy or Implementation Plan to the workshop organizer.	Workshop facilitator	4 weeks after	
	Return draft to workshop facilitator with comments.	Workshop organizer	5 weeks after	
	Incorporate workshop organizer comments into an updated draft. Distribute to workshop participants for comment. Allow 2-3 weeks for participant review.	Workshop facilitator	6 weeks after	
	Incorporate workshop participants' feedback into final draft. Submit complete Implementation Strategy or Implementation Plan to Workshop Organizer.	Workshop facilitator	9 weeks after	

	<IPW ONLY> Convene a debrief meeting with principals from AASHTO and FHWA to finalize and approve the Implementation Plan and budget, and assign a Project Manager responsible for overseeing the execution of the plan.	Workshop Organizer	9 weeks after	
	Distribute approved Implementation Strategy or Plan to all workshop participants	Workshop Organizer	10 weeks after	

Section 7: Facilitator Guidance

PURPOSE OF GUIDANCE

The SHRP2 partner organizations—Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials (AASHTO), and Transportation Research Board (TRB)—have established Knowledge Transfer Workshops (KTW) and Implementation Planning Workshops (IPW) as key steps in the continuum of advancing an innovation from research to implementation. This guidance identifies the critical steps that a facilitator must consider when preparing for and executing a workshop.

ASSUMPTIONS

A workshop organizer from either AASHTO or FHWA will provide guidance to the workshop facilitator that clarifies the SHRP2 partner organizations' expectations for the KTW or IPW. This guidance shall make the goals and desired outputs clear to the facilitator well in advance of the workshop.

EXPECTATIONS

The workshop facilitator will help develop the workshop agenda, facilitate the workshop program, document findings, and prepare the draft and final Implementation Strategy or Implementation Plan.

In advance of the workshop, the facilitator shall provide participants with enough of a tutorial about SHRP2 that such a tutorial will not be necessary during the workshop in order for participants to understand the implementation planning process for a SHRP2 product.

When possible, the workshop facilitator should work with a few workshop participants (possibly FHWA, AASHTO, TRB staff, and the SHRP2 principal investigator) to develop draft content for some portions of the Implementation Strategy templates before the workshop.

CRITICAL STEPS

1. Customize the agenda template for the workshop.

2. Compile read-ahead materials.

3. Agree on a timeline for delivering the workshop product.

4. Identify key Marketing and Communications components that can be obtained from the participants during the workshop.

5. Arrange and conduct a pre-workshop conference call with all participants to review the agenda and provide a better understanding of what the workshop will entail.

6. Identify additional individuals who would have an opportunity to review the draft Implementation Strategy or Implementation Plan. Clarify expectations for review of the draft.

7. Develop draft content for some portions of the Implementation Strategy or Implementation Plan. Clarify expectations for review of the draft.

8. Assist workshop organizer in any additional planning tasks as requested.

9. Attend and facilitate the workshop.

10. **For two-day workshops only:** Develop a one-page summary of the first day's findings to present on the morning of the second day.

11. Complete and submit a draft of the Implementation Strategy or Implementation Plan to the workshop organizer.

12. Incorporate workshop organizer comments into an updated draft. Distribute to workshop participants for comment. Allow 2-3 weeks for participant review.

13. Organize and facilitate a meeting with AASHTO and FHWA principals to review, revise and approve the Implementation Strategy or Implementation Plan and in the case of an IPW, assign a project manager to oversee the execution of the Implementation Plan.

14. Incorporate final changes into final draft. Submit completed Implementation Strategy or Implementation Plan to workshop organizer and project manager.

15. Assist workshop organizer in any close-out tasks as requested.

Note: These steps are also included in the Workshop Planning Checklist (see Section 5).

Section 8:   Facilitator Conference Call Invitation Template

The facilitator should use the following template to invite participants to the pre-workshop conference call. *Note: text highlighted in blue indicates a field that should be customized.*

Hello everyone,

 My name is [facilitator's name] and I will be the facilitator at our upcoming [project code] workshop on [workshop dates, including month, day and year] at the [workshop facility] in [workshop location including city and state]. I look forward to meeting you at the workshop. I will be hosting a conference call for those of you who have any questions about the agenda or work product. We will also review a template of the final work product that you will be asked to contribute to. I will send out more details on the call but wanted to make sure you had a save the date/save the time notice as soon as possible:

 [conference call date including weekday name, month and day]

[conference call start and end time, including time zone]

Audio Call-in: [Audio call-in number]

Passcode: [passcode]

The call will last no longer than [conference call duration] and is provided to give you an opportunity to go over the agenda and learn more about what the workshop will entail. We will have a full agenda for the workshop and we would like to give you every opportunity to come ready to participate.

 If you have any questions in the meantime, please contact me at the number below.

 [facilitator name]

[facilitator phone number]

Section 9: Invitational Travel Logistics Memo Template

The travel coordinator should use the following template to inform workshop participants about invitational travel procedures. *Note: text highlighted in blue indicates a field that should be customized.*

Dear Participants:

[Processing organization or agency] will be processing your travel authorization and reimbursement to attend and participate in the second Strategic Highway Research Program (SHRP2) [insert "Knowledge Transfer" or "Implementation Planning"] Workshop on [name of product or product group] (Project [Project number]) in [workshop city, state] on [workshop dates].

Please read the following instructions carefully, as they contain information pertinent to your request for travel reimbursement:

- *FORMS:* Please fill out the attached documents ([insert document names]) and fax them to my attention to [fax number] by **[insert form completion date including weekday name, month, and day].** Only complete the highlighted sections on the GovTrip New User Request Form. It is essential that we have your completed forms by this date in order to get your travel authorized in advance of the event, and to reimburse you for travel and related expenses. *Please note that the U.S. Treasury Department requires y*ou *to submit your Social Security Number and bank account number to receive direct deposit and be reimbursed. See <<<*http://www.fms.treas.gov/tinpolicy/regulations.html*>>> for more information on these regulations.*

- *AIRLINE RESERVATIONS:* Please contact the [agency processing travel arrangements] travel agency, **[travel agency name]**, to make your flight reservations. **Call [travel agency phone number and hours of operation].** Inform [travel agency name] that you will be traveling on behalf of the [agency processing travel arrangements]. All airfare will be charged directly to the federal government. An electronic ticket will be issued to you three business days before your departure date. [any additional details related to booking and billing participant invitation travel]

- *HOTEL:* [Agency processing travel arrangements] will reimburse you for up to **[number of nights to be reimbursed] nights** of lodging at the government/group rate of $[Group Rate] per night, plus tax. A room block has been arranged at the [hotel name and address including zip code] for the SHRP2 [insert "Knowledge Transfer" or "Implementation Planning"] Workshop for the nights of [workshop date(s) including weekday name, month, and day]. To make a reservation, please call the hotel reservation line at [hotel phone number] and identify yourself as a member of the [**Group Name**] in order to obtain the government/group rate of $[Group Rate] per night plus tax. Please note that any attendee who does not identify his or her affiliation with the **SHRP2** room block at the time of reservation will not be guaranteed the group rate. The deadline for

reserving a room is [insert reservation deadline date including weekday name, month, and day]. Reservations received after this date will only be accepted on a space and rate available basis at the group rate. If you wish to cancel your reservation, please contact the hotel within 48 hours of the arrival date. Your lodging expenses will be reimbursed to you upon conclusion of the workshop and submittal of a travel expense report (detailed instructions will be emailed to you three days prior to departure).

> **[Hotel Name]**
> [Hotel address]
> [Hotel phone number]
> [Hotel reservation line]

- *PER DIEM:* You will be reimbursed **[Federal Per Diem Rate]** for meals and incidental expenses for each <u>full</u> day of travel. You will be reimbursed **[First/Last Day of Travel Federal Per Diem Rate]** for meals and incidental expenses for the first and last day of travel.

- *TRANSPORTATION:* Rental cars are not authorized for the workshop; however, taxis are authorized for transportation to and from the airport. If you are driving your privately operated vehicle (POV) to the meeting location or airport, you will be reimbursed $0.51 per mile.

- MEETING LOCATION:

> **[Workshop Location Name]**
> [Workshop Location Address]

Please let me know if you have any questions.

Thank you.

[Workshop logistics coordinator name]

Logistics Coordinator

[Contact Information]

Section 10: KTW Invitation Template

The Logistics Coordinator should use the following invitation template to invite participants to the KTW. *Note: text highlighted in blue indicates a field that should be customized.*

SHRP2
STRATEGIC HIGHWAY
RESEARCH PROGRAM

[date]

[insert recipient name and address]

Dear [recipient name]:

You are invited to participate in the second Strategic Highway Research Program (SHRP2) Knowledge Transfer Workshop (KTW) on **[Product Name] (Project [Project number])**. The KTW is being convened in [workshop location including city, state] by the American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and the Transportation Research Board (TRB). The workshop will be conducted at [workshop location including building name and street address]. As shown in the attached agenda, the two-day workshop will start at [workshop start time] on [workshop start date including weekday name, month and day] and end at [workshop completion time] on [workshop completion date including weekday name, month, day, and year].

The goal of this two-day workshop is to develop a strategic implementation plan and budget. In order to accomplish this goal, the workshop will bring together some [number of participants] representatives from transportation agencies, industry, and academia to:

- Share information about research products from the Project [Project number] team;

- Identify marketing and implementation strategies;

- Identify potential champions for this technology and early adopters of the products;

- Discuss roles and responsibilities for implementation, including a possible continuing role for KTW participants and/or others who should be involved in future endeavors; and,

- Discuss the need for some type of follow-up group to oversee and monitor demonstrations.

The detailed products developed under Project **[Project number]** are incorporated in the **Final Technical Report (Project [Project number])**, which you will receive under a separate cover. Attached is a copy of

the **Final Product Summary (Project [Project number])**, which provides a brief description of products, including the following:

1. Overall findings
2. Findings based on SHRP2 field testing
3. Guidelines for project selection
4. Guidelines for system acceptance
5. Guidelines for design
6. Guidelines for fabrication
7. Guidelines for installation
8. Implementation plan
9. Long-term monitoring plan for projects
10. Model specifications

Also attached is the workshop agenda, roster of participants, and [Titles and descriptions of additional read-ahead materials].

With your help, the outcome from the workshop will be an implementation strategy that can be utilized by AASHTO and FHWA to guide and prioritize implementation activities and to ensure that the transfer and integration of Project [Project number] products into standard practice will take place in a smooth and efficient manner.

All invitational travel arrangements of non-federal-government participants will be reimbursed by **[agency processing travel arrangements].**

A room block has been reserved at the [hotel name and address including zip code] for the nights of [workshop dates including weekday names, month, days and year]. To make a reservation, please call the reservation line at [hotel phone number] and identify yourself as a member of the **SHRP2 group** in order to obtain the government/group rate of $[Group Rate]per night plus tax. The deadline for reserving a room is **[reservation deadline date including weekday name, month and day].** Reservations received after this date will only be accepted on a space and rate available basis at the group rate. If you wish to cancel your reservation, please contact the hotel within 48 hours of the arrival date. Individuals are to pay for their own room, tax, and incidentals, and will be reimbursed upon conclusion of the workshop and submittal of a travel expense report.

Please respond by email to [Logistics Coordinator name and email address] no later than [RSVP date including month, day and year] if you will, or will not, be able to participate in the workshop. Logistics information regarding the workshop and procedures for invitational travel will be provided by email within the next two weeks. Workshop participants who accept the invitation are asked to attend the entire two-day workshop.

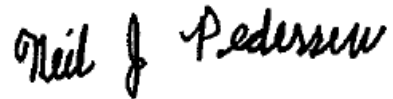Thank you in advance for your professional service to AASHTO, FHWA, TRB, and the SHRP2 program.

Sincerely,

(signature)	*(signature)*	*(signature)*
James McDonnell, P.E.	J. B. "Butch" Wlaschin, P.E.	Neil Pedersen
Program Director, Engineering	Director, Office of Asset Management	Deputy Director, SHRP2
American Association of State Transportation Officials	Federal Highway Administration	Transportation Research Board

CC: [Name of cc recipient], Email: [cc recipient email address]

Attachments: Agenda – KTW on [Product Name] (Project [Project number]).

Final Product Summary (Project [Project number])

Roster of Invited Participants

[Titles of Additional Read-ahead Materials]

Section 11:   IPW Invitation Template

The Logistics Coordinator should use the following invitation template to invite participants to the IPW. *Note: text highlighted in blue indicates a field that should be customized.*

![SHRP2 SOLUTIONS logo]

[date]

[insert recipient name and address]

Dear [recipient name]:

You are invited to participate in the second Strategic Highway Research Program (SHRP2) Implementation Planning Workshop (IPW) on **[Product Name] (Project [Project number])**. The IPW is being convened in [workshop location including city, state] by the American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and the Transportation Research Board (TRB). The workshop will be conducted at [workshop location including building name and street address]. As shown in the attached agenda, the two-day workshop will start at [workshop start time] on [workshop start date including weekday name, month, day and year] and end at [workshop completion time] on [workshop completion date including weekday name, month, day, any year].

The goal of this two-day workshop is to develop a product implementation plan and budget. In order to accomplish this goal, the workshop will bring together some [number of participants] representatives from transportation agencies, industry, and academia to:

- Develop a near-term action plan and budget for the implementation of the product(s);

- Define marketing and implementation tactics;

- Define demonstration projects, technical assistance, and other implementation activities;

- Define roles and responsibilities for implementation activities, including possible continuing roles for IPW participants and/or others who should be involved in implementation activities;

- Develop product performance monitoring and reporting procedures; and

- Discuss the need for some type of follow-up group to oversee and monitor implementation activities.

An Implementation Strategy for **[Product Name] (Project [Project number])** was developed during a Knowledge Transfer Workshop (KTW) held in [KTW Month/Year]. Attached is a copy of the Implementation Strategy, which contains the following:

1. A detailed product description

2. The expected impact of the product on practice

3. An analysis of the product's benefits and limitations

4. An analysis of opportunities and obstacles to product implementation

5. Target product users and stakeholders

6. Product implementation goals and strategies

7. A suggested marketing approach

8. A preliminary implementation budget

Also attached is the workshop agenda, roster of participants, and [Titles and descriptions of additional read-ahead materials].

With your help, the outcome of the workshop will be an implementation plan that defines specific implementation tactics that can be utilized by AASHTO and FHWA to guide and prioritize implementation activities and to ensure that the transfer and integration of **[Product Name] (Project [Project number])** into standard practice will take place in a smooth and efficient manner.

All invitational travel arrangements of non-federal-government participants will be reimbursed by **[agency processing travel arrangements].**

A room block has been reserved at the [hotel name and address including zip code] for the nights of [workshop dates including weekday names, month, days and year]. To make a reservation, please call the reservation line at [hotel phone number] and identify yourself as a member of the **SHRP2 group** in order to obtain the government/group rate of $[Group Rate] per night plus tax. The deadline for reserving a room is **[reservation deadline date including weekday name, month, day and year].** Reservations received after this date will only be accepted on a space and rate available basis at the group rate. If you wish to cancel your reservation, please contact the hotel within 48 hours of the arrival date. Individuals are to pay for their own room, tax, and incidentals, and will be reimbursed upon conclusion of the workshop and submittal of a travel expense report.

Please respond by email to [Logistics Coordinator name and email address] no later than **[RSVP date including month, day and year]** if you will, or will not, be able to participate in the workshop. Logistics information regarding the workshop and procedures for invitational travel will be provided by email within the next two weeks. Workshop participants who accept the invitation are asked to attend the entire two-day workshop.

Thank you in advance for your professional service to AASHTO, FHWA, TRB, and the SHRP2 program.

Sincerely,

James McDonnell, P.E.

Program Director, Engineering

American Association of State
Transportation Officials

J. B. "Butch" Wlaschin, P.E.

Director, Office of Asset Management

Federal Highway Administration

Neil Pedersen

Deputy Director, SHRP2

Transportation Research Board

CC: [Name of cc recipient], Email: [cc recipient email address]

Attachments: Agenda – IPW on [Product Name] (Project [Project number]).

[Product Name] (Project [Project number]) Implementation Strategy

Roster of Invited Participants

[Titles of Additional Read-ahead Materials]

Section 12:   KTW Agenda Template

The following agenda template promotes a standardized, efficient methodology for conducting KTWs for all SHRP2 products. However, the template may be customized as necessary to fit the unique aspects of a product or focus area. *Note: text highlighted in blue indicates a field that should be customized.*

SHRP2

**STRATEGIC HIGHWAY
RESEARCH PROGRAM**

SHRP2 Knowledge Transfer Workshop

Product Title [Project #]

Location: [TBD]

Date: [TBD]

MEETING OBJECTIVES

- To communicate and discuss significant research project outcomes and products with key partner organization technical and management staff. The knowledge transfer should focus on the SHRP2 product description, capabilities and limitations, value added to the transportation community, impact on practice indexed to the current state of the practice, and, finally, the product format, date of availability, and potential date for "official" handoff to the implementation agent(s).

- To define the goals and objectives for implementation and develop a framework of potential strategies.

- To identify opportunities, risks, and estimated resources affecting potential implementation of [Product Name].

AGENDA

1. Introductions

2. Overview and Purpose of the Workshop
    a. Participant's role in workshop
    b. How workshop outputs will be used in future implementation activities

      c.   Roles/responsibilities of SHRP2 partner organizations during product implementation phase

3.   Product(s) Description
      a.   Project Summary
      b.   Impact on Practice
      c.   Benefits and Limitations
      d.   Questions/Answers

4.   Stakeholders
      a.   Target User Group(s)
      b.   Stakeholder Landscape
            i.   Decisionmakers
           ii.   Users
         iii.   Beneficiaries
         iv.   Advocates

5.   Implementation Goals and Strategic Approaches
      a.   Implementation Goals and Outcomes
            i.   Opportunities and Obstacles
      b.   Assumptions and Risks
      c.   Implementation Strategies
            i.   Estimated Resource Allocation
      d.   Marketing and Communications Approach

6.   Wrap-up and Next Steps

7.   Workshop Assessment Survey

Section 13:   IPW Agenda Template

The following IPW Agenda Template promotes a standardized, efficient methodology for conducting IPWs for all SHRP2 Solutions. However, the Agenda Template may be customized as necessary to fit the specific aspects of a SHRP2 Solution or focus area. *Note: text highlighted in blue indicates a field that should be customized.*

SHRP2 Implementation Planning Workshop

Product Title [Project #]

Location: [TBD]

Date: [TBD]

<u>**MEETING OBJECTIVE**</u>

- To communicate and discuss significant research project outcomes and products with key partner organization technical and management staff. The knowledge transfer should focus on the SHRP2 product description, capabilities and limitations, value added to the transportation community, impact on practice indexed to the current state of the practice, and, finally, the product format, date of availability, and potential date for "official" handoff to the implementation agent(s).

- To develop a detailed implementation plan and budget for [SHRP2 Solution name] that will support adoption by the SHRP2 Solution(s) user and stakeholder groups.

<u>**AGENDA**</u>

1. Introductions

2. Overview and Purpose of the Workshop
    a. Participant's role in workshop
    b. Emphasize that [project code] is a high-priority SHRP2 Solution
    c. Provide material for the Implementation Plan
    d. Build upon the Implementation Strategy from the Knowledge Transfer Workshop
    e. Discuss how [project code] fits into the national SHRP2 marketing campaign

3. Product(s) Presentation

    a. Product Description
    b. Stakeholders
    c. Implementation Goals and Outcomes
    d. Review Implementation Strategy
    e. Other Takeaways from Knowledge Transfer Workshop (if applicable)
    f. Roles/responsibilities of SHRP2 partner organizations during product implementation phase
    g. Questions/Answers

4. Refine Strategy for Implementation
    a. Define specific tactics and outputs for the proposed implementation strategies
    b. Categorize tactics into the range of funding scenarios (baseline, expanded, or full implementation)
    c. Outline a timeline for implementation
    d. Construct high-level implementation budget (consider funding scenarios and costs per year)

5. Marketing and Communications
    a. Strategy Goals
    b. Communications Timeline
    c. Information Gathering
    d. Product Messaging
    e. Evaluating Success

6. Develop Performance Measures

7. Wrap-up

8. Workshop Assessment Survey

Implementation Strategy

[Product Name (project number)]

Table of Contents

Implementation Strategy

[Product Name (project number)]

Executive Summary

- Highlight key aspects of the strategy, including the product description and impact on practice, key audiences for the product, and suggested goals for product implementation.

Overview

Authorized by the U.S. Congress under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the second Strategic Highway Research Program (SHRP2) is addressing some of the most pressing needs related to the Nation's highway system: the high toll taken by highway deaths and injuries, aging infrastructure that must be rehabilitated with minimum disruption to users, and congestion stemming from both inadequate physical capacity and events that reduce the effective capacity of a highway facility.

The Implementation Strategy is a product of the [Product Name (project code)] Knowledge Transfer Workshop and is a starting point and draft roadmap to guide and prioritize implementation activities, ensuring that, once the product is determined to be of high priority, the integration of these products within standard practice occurs in a smooth and efficient manner.

Product(s) Descrption

Describe the product within the context of the SHRP2 focus area and theme from which it was developed.

- Describe the problem or challenges the product will address. Summarize what the SHRP2 product will accomplish.

- Describe the impact on practice of the product.

- Identify the benefits and limitations of the product.

Stakeholders

Key stakeholders for the [Product Name (project number)] product include target audiences who must be understood and marketed to in order to achieve successful implementation. These groups of individuals or organizations can affect the manner and extent to which the product is used and must be considered in reaching the implementation goals.

- Identify the stakeholders for the product. They may not use the SHRP2 product, but have a vested interest in the subject.

- Identify those stakeholders that are the target audiences for the product(s). Target audiences include users as well as decisionmakers, beneficiaries, and advocates. Target audiences will receive information, such as training, as a result of implementation activities.

- To the extent possible, identify the obstacles and opportunities for reaching the identified target audiences, the message that should be delivered to each target audience, and the method by which the message should be delivered.

- **Table 1: Stakeholder Landscape.** is provided as a template.

- The Stakeholder Landscape and target audience(s) will inform the Marketing and Communications Approach.

Implementation Goals and Strategic Approaches

As part of their assessment of the products, workshop participants develop and prioritize implementation goals and outcomes for the [Product Name (project code)] product. Participants develop near-term (within three years) and long-term (beyond three years) goals that are specific, measurable, achievable, realistic, and timely.

Implementation Goals And Outcomes

- Identify both near-term (within three years) and long-term (beyond three years) goals for product implementation. These goals should be compatible with the relevant stakeholder communities.

- Describe the desired outcomes (i.e., changes in behavior) of each implementation goal for the SHRP2 product(s).

- **Table 2: Implementation Goals and Outcomes** is provided as a template.

- Identify the opportunities and obstacles related to the achievement of each goal.

- **Table 3: Opportunities and Obstacles** is provided as a template.

Assumptions And Risks

- Discuss factors that must be considered or satisfied for implementation to be successful.

- Identify vulnerabilities that could adversely affect implementation and describe how these challenges will be managed, minimized, or eliminated.

Implementation Strategies

- Describe the recommended strategies for achieving the implementation goals.

- Develop cost estimates for implementing each outlined strategy.

- **Table 4: Implementation Strategies** is provided as a template.

- Include additional tables or illustrations that can further explain the Implementation Strategy as needed.

Marketing/Communications Approach

- Develop marketing and communications goals and outcomes that support the product implementation goals.

- Discuss potential strategies and outputs.

Table 1: Stakeholder Landscape

The below table illustrates a stakeholder landscape for the [Product Name or Product Group Name] that provides additional details about the user groups, decisionmakers, beneficiaries, and advocates. Identify the stakeholders involved in the [Product Name or Product Group Name], and then complete the table below for those stakeholders identified as target audiences.

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
State & local elected officials	*EXAMPLES:* *- Low technical skill* *- Highly motivated by politics*	*- Multiple priorities* *- Economic recession*	*- Demonstrate to electorate benefits of SHRP2 Solution*	*- Putting tax dollars to good use* *-Maintaining and improving customer satisfaction*	*- Chief of Staff* *- Agency Director* *- FHWA* *- State DOTs*	*- Presentations* *- Articles* *- Council meetings* *- Hearings*

(Complete one table for each SHRP2 product addressed during the Knowledge Transfer Workshop.)

Table 2: Implementation Goals and Outcomes

The table below contains the strategic goals for the implementation of [SHRP2 Solution Name (project number)]. These goals address both near-term (within three years) and long-term (beyond three years) goals.

[SHRP2 Product Name]			
Goal #	**Goal** (in order of priority)	**Near-Term / Long-Term**	**Desired Outcome**
1	*EXAMPLE: 25% of states adopt SHRP2 Solution*	*Near-term*	*More efficient project delivery*
2			
3			
4			
5			
6			
7			
8			

(Complete one table for each SHRP2 product addressed during the Knowledge Transfer Workshop.)

Table 3: Opportunities and Obstacles

The tables below contain potential opportunities and obstacles to achieving some of the above goals. Discussion of these opportunities and obstacles will be a starting point for beginning to think about strategies for implementation.

[Product Number]	[Product Goal]	
Opportunities: • • • • • •		Obstacles: • • • • • •

(Complete one table for each listed goal.)

Table 4: Implementation Strategies

The below tables contain strategies and cost estimates for the above strategic goals.

Product #	Goal	
Strategy Number	**Strategy/Approach** (method for achieving the implementation goal)	**Est. Resource Allocation** (est. budget/percent of implementation funding)
1		
2		
3		
4		
5		
6		

(Complete one table for each goal.)

Section 15: Product Implementation Plan Template

Implementation Plan

[SHRP2 Solution Name (project number)]

Table of Contents

SHRP2 Implementation Plan

[Subtitle – Product Name (project number)]

1. Executive Summary

- Provide a general description of the Implementation Plan and its purpose.

- Highlight key aspects of the plan, including the action plan and schedule as well as the responsible parties and their key roles and responsibilities for specific actions.

- Identify how the plan is envisioned to be used and by whom.

Overview

Authorized by the U.S. Congress under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the second Strategic Highway Research Program (SHRP2) is an extensive and comprehensive effort to advance innovative methods for planning, renewing, and operating the Nation's highway system. SHRP2 addresses some of the most pressing needs related to the Nation's highway system: the high toll taken by highway deaths and injuries, aging infrastructure that must be rehabilitated with minimum disruption to users, and congestion stemming from both inadequate physical capacity and events that reduce the effective capacity of a highway facility.

This SHRP2 Implementation Plan is a product of the [SHRP2 Solution Name (project number)] Implementation Planning Workshop. It includes a detailed action plan and budget for the implementation of the [SHRP2 Solution Name (project number)] SHRP2 Solution. The Implementation Plan may include information developed during a Knowledge Transfer Workshop, which brings together researchers, partner organizations, and potential early adopters to produce product implementation strategies.

PRODUCT DESCRIPTION

- Describe the SHRP2 Solution(s) within the context of the SHRP2 focus area and theme from which it was developed.

- Describe the problem or challenges the SHRP2 Solution(s) will address. Summarize what the SHRP2 Solution(s) will accomplish and its impact on practice.

- Describe the benefits and limitations of the SHRP2 Solution(s). These should be as specific as possible (e.g., 20% decrease in cost)

- The material for the Product Description section may have been largely developed during a previous Knowledge Transfer Workshop.

STAKEHOLDERS

Key stakeholders for the [SHRP2 Solution Name (project number)] SHRP2 Solution include target audiences who must be understood in order to achieve successful implementation. These groups of individuals or organizations can affect the manner and extent to which the SHRP2 Solution is used and must be considered in reaching the implementation goals.

- Identify the stakeholders for the SHRP2 Solution(s). They may not use the SHRP2 Solution but have a vested interest in the subject.

- Identify the target audiences for the SHRP2 Solution(s). Target audiences include users as well as decisionmakers, beneficiaries, and advocates. Target audiences will receive information, such as training, as a result of implementation activities.

- To the extent possible, identify the obstacles and opportunities for reaching the identified target audiences, the message that should be delivered to each target audiences, and the method by which the message should be delivered.

- **Table 1: Stakeholder Landscape** is provided as a template.

- The Stakeholder Landscape and target audience(s) will inform the Marketing and Communications section of the Implementation Plan (Section 0).

- The material for the Stakeholder section may have been largely developed during a previous Knowledge Transfer Workshop.

IMPLEMENTATION GOALS AND OUTCOMES

- Describe the desired goals and outcomes (i.e., changes in behavior) of implementation for the SHRP2 Solution(s).

- **Table 2: Implementation Goals and Outcomes** is provided as a template.

- The material for the Implementation Goals and Outcomes section may have been largely developed during a previous Knowledge Transfer Workshop.

ASSUMPTIONS AND RISKS

- List factors that must be considered or satisfied for implementation to be successful.

- Identify vulnerabilities that could adversely affect implementation and describe how these challenges will be managed, minimized, or eliminated.

[SHRP2 Solution Name (project number)] Implementation

This section outlines the implementation strategies and tactics for implementing the [SHRP2 Solution Name (project number)] SHRP2 Solution. Included in this section is an Action Plan that identifies the agencies and organizations that will participate, their roles and responsibilities in executing various tactics, and a timeline for advancement.

IMPLEMENTATION APPROACH

- Summarize how the partners will deliver the product. For example, which U.S. DOT office(s) or AASHTO committee(s) will manage delivery of the solution? In many cases, the overall plan will be advanced jointly by two or more of the partner organizations.

- Describe the strategies that will be undertaken to achieve the implementation goals. Many of these strategies may have been developed during a previous Knowledge Transfer Workshop.

- Identify tactics for carrying out each of the implementation strategies.

- Consider developing up to three scenarios for implementation (baseline, expanded, full implementation).

  o Baseline: the minimum implementation effort that is worthwhile

  o Expanded: an intermediate effort requiring more resources than the baseline scenario, but not achieving all implementation goals

  o Full Implementation: the effort required to achieve all implementation goals

  The feasibility of the scenarios may be determined based on a variety of factors (e.g., funding, staff capacity).

- **Table 3: Implementation Strategies and Tactics** is provided as a template.

- Include additional tables or illustrations that can further explain the implementation approach as needed.

ACTION PLAN

- Develop an action plan to illustrate the delivery process, including the tactics that are needed and the sequence and priority in which they should be deployed.

- Identify the agencies and organizations that will participate in implementation of the SHRP2 Solution(s) as well as the roles and responsibilities of these agencies.

- List the tactics that are needed to implement the SHRP2 Solution(s).

- Outline which individuals, teams, and organization will participate in each identified tactic.

- If a strategy involves multiple phases, as with a program of demonstrations, organize tactics within each phase.

- **Table 4: Action Plan i**s provided as a template.

TIMELINE

- Provide a graphic that illustrates when tactics will be deployed to achieve the implementation goals.

Resource Allocation

This section outlines the resources needed to successfully implement the [SHRP2 Solution Name (project number)] SHRP2 Solution in a multi-year budget.

- Summarize the resources required to implement the solution over time in a multi-year budget.

- Connect the resources to each tactic in the action plan.

- Break down cost estimates by cost category and year.

- Provide a budget for each scenario (baseline, expanded, and full implementation).

- **Table 5: Implementation Budget** is provided as a template.

- Provide a graphic that illustrates cost by strategy and tactic.

Marketing and Communications

Successful implementation of SHRP2 Solutions requires a comprehensive marketing and communications strategy that ensures that the right users and <u>audiences</u> are informed about the most effective solutions resulting from the program. This section outlines the marketing and communications goals and tactics for the [SHRP2 Solution Name (project number)] SHRP2 Solution.

COMMUNICATIONS STRATEGY GOALS

- Develop communications strategy goals that support the overall implementation goals for the SHRP2 Solution(s) and identify specific and measureable outputs and outcomes.

COMMUNICATIONS TIMELINE

- Maintain an ongoing communications timeline that tracks and aligns key stages of the product's implementation schedule and the schedule of research, evaluation, and outreach opportunities related to the product, such as meetings, conferences, and other special events.

INFORMATION GATHERING

- Conduct information gathering through the following:

- Communications Evaluation: Review current communications (newsletters, media articles, online) related to the product/project.

- Environmental Scan: Study factors (political, economic, technological, environmental, etc.) that will impact communications about the product/project.

  - Audience Analysis: Consult the Stakeholder Landscape (Table 1) and those audience groups identified in Section 0 of this document: users, decisionmakers, beneficiaries, and advocates. Users are groups of individuals or organizations that will utilize the SHRP2 Solution(s). Decision makers, beneficiaries, and advocates may not use the product, but have a vested interest in the subject and can affect change. If necessary, identify additional groups and characteristics (preferences, mission, current communications avenues, etc.) of audiences that will receive communications about the product/project.

- SWOT: Identify strengths, weaknesses, opportunities, and threats to the project/product reaching target audiences.

PRODUCT MESSAGING

- Use outcomes of information gathering to develop messages, themes, and content for delivery to target audiences.

- Consult SHRP2 corporate brand development to ensure product identity is informed by overall messaging.

- Develop the visual identity and format of communications materials (online components, collateral, talking points, etc.) that will deliver product messaging to target audiences.

- Develop tactics for connecting materials to target audiences.

- Test the above elements on a subset of audience groups to ensure overall effectiveness of the outreach.

EVALUATE SUCCESS

- Evaluate the ongoing success of the above steps to confirm that actions meet communications goals and to ensure the effectiveness of resulting materials and tactics and the identification of appropriate stakeholders.

Evaluation

Evaluation is an integral part of SHRP2 implementation. Evaluation benefits executives and policy makers by helping them understand the benefits of product implementation (agency relevant outcomes and societal impacts) and providing them metrics to help describe the results to others. This section identifies specific performance measures and evaluation processes for tracking and analyzing performance data, reporting on results, and using performance data to improve results.

The following are examples of questions the evaluation program could address:

- DEPLOYMENT SUPPORT

    - To what extent are SHRP2 Solution(s) implemented?

    - Whom are they reaching?

    - What types of deployment support (e.g., training, technical assistance, policy guidance) are most effective?

- IMPACT EVALUATION

    - Can the societal benefits of the SHRP2 Solution(s) be determined?

    - To what extent were the intended goals and outcomes achieved?

    - What contribution did the SHRP2 Solution(s) make in addressing the original problems?

PERFORMANCE MEASURES

- Identify performance measures for each implementation goal and if possible, a potential target value for each measure.   Performance measures can be recorded in terms of goals, outputs, and outcomes, and may be "soft or hard" and qualitative or quantitative.

- Table 6: Performance Measures is provided as a template.

INCORPORATING EVALUATION RESULTS

- Evaluate ongoing success of implementation tactics in reaching the outlined goals.

- Revisit performance measures and timelines to accommodate accelerated implementation or unexpected obstacles to timely implementation.

Table 1: Stakeholder Landscape

[Product Name (project number)] stakeholders include target audiences who can affect the manner and extent to which the product is used. This stakeholder landscape identifies and prioritizes these individuals and organizations (including users, decisionmakers, beneficiaries, and advocates) that have a vested interest in implementation of the [Product Name (project number)] SHRP2 Solution. The goal of this analysis is to gain a strategic view of the human and institutional landscape, the relationships among these groups, the issues they care about, and the messages that will resonate with them.

- The material for the Stakeholder Landscape may have been partially developed during a previous Knowledge Transfer Workshop.

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
State & local elected officials	*EXAMPLES:* *- Low technical skill* *- Highly motivated by politics*	*- Multiple priorities* *- Economic recession*	*- Demonstrate to electorate benefits of SHRP2 Solution*	*- Putting tax dollars to good use* *-Maintaining and improving customer satisfaction*	*- Chief of Staff* *- Agency Director* *- FHWA*	*- Presentations* *- Articles* *- Council meetings*

(Complete one table for each SHRP2 Solution addressed during the Implementation Planning Workshop.)

Table 2: Implementation Goals and Outcomes

The table below contains the strategic goals for the implementation of the [SHRP2 Solution Name (project number)] SHRP2 Solution. These goals address both near-term (within three years) and long-term (beyond three years) goals.

[SHRP2 Solution Name]			
Goal #	**Goal** (in order of priority)	**Near-Term /** **Long-Term**	**Desired Outcome**
1	*EXAMPLE: 25% of states adopt SHRP2 Solution*	*Near-term*	*More efficient project delivery*
2			
3			
4			
5			
6			

(Complete one table for each SHRP2 Solution addressed during the Implementation Planning Workshop.)

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Table 3: Implementation Strategies and Tactics

The following tables contain approaches and tactics for implementation of the [SHRP2 Solution Name (project number)] SHRP2 Solution. Desired outputs and outcomes for each strategy are also included.

Goal #	Goal Description			
Strategy #	**Strategy** (method for achieving the implementation goal) In order of priority	**Tactic** (vehicle for putting the strategy in action) In order of priority	**Output of each Tactic** (tangible result)	**Scenario** (baseline, expanded, or full implementation)
1.1	*EXAMPLE: Conduct trainings for the SHRP2 Solution*	1.1.1 *Conduct 10 in-person trainings for State DOTs* 1.1.2 *Conduct 5 webinars*	*- 10 in-person trainings* *- 5 webinars*	*- Expanded* *- Baseline*
1.2		1.2.1 1.2.2		

(Complete one table for each goal; if multiple products are addressed in the Implementation Plan, complete one set of tables per SHRP2 Solution.)

Table 4: Action Plan

The table below lists the detailed tactics that will be undertaken to implement the [SHRP2 Solution Name (project number)] SHRP2 Solution.

Tactic # (In order of priority)	Tactic Description	Participants (Role) Lead listed first	Estimated Start Date	Estimated Completion Date
1.1.1	*EXAMPLE: Conduct 10 in-person trainings for State DOTs*	*FHWA* *Virginia DOT* *Oklahoma DOT* *Washington DOT* *(other states to be determined)*	*1/2013*	*6/2014*
1.1.2				

(Complete one table for each SHRP2 Solution addressed.)

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Table 5: Implementation Budget

The tables below outline the estimated budget and timeline for each implementation scenario: baseline, expanded, or full implementation.

Scenario: [insert "Baseline," "Expanded," or "Full Implementation"]									
Tactic #	Tactic Description	Cost Category	Estimated Total Cost	Estimated SHRP2 Contribution	Estimated Start Date	Estimated Completion Date	Estimated SHRP2 Cost: FY12	Estimated SHRP2 Cost: FY13	Estimated SHRP2 Cost: FY14
		Total Cost:				Cost/Year:			

(Create one table for each scenario.)

Table 6: Performance Measures

The table below identifies performance measures for tracking and evaluating progress toward the achievement of the implementation goals for the [SHRP2 Solution Name (project number)] SHRP2 Solution.

	[SHRP2 Solution Name (project number)]		
Goal #	Goal	Performance Measure	Potential Target/Date
1			
2			
3			
4			
5			
6			

(Complete one table for each SHRP2 Solution.)

Section 16:   Workshop Assessment Survey

Evaluation of the Implementation Planning Workshop should be conducted by a participant survey, perhaps in an online format. *Note: Workshop assessments should not be included as part of the Implementation Strategy or Plan, rather, they should be stored separately by the Workshop Organizer*.

 Suggested survey questions include the following:

1.   What was the most valuable aspect of the workshop?

2.   What was the least valuable aspect of the workshop?

3.   Are there questions or issues you wished the workshop had addressed that it didn't?

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4. I understand the topic better now than before the workshop.

☐ Strongly Agree

☐ Agree

☐ Undecided

☐ Disagree

☐ Strongly Disagree

5. My expectations for what I would learn in the workshop were met.

☐ Strongly Agree

☐ Agree

☐ Undecided

☐ Disagree

☐ Strongly Disagree

6. I believe I can apply what I learned from the workshop in my job.

☐ Strongly Agree

☐ Agree

☐ Undecided

☐ Disagree

☐ Strongly Disagree

7. The presenters delivered clear information.

☐ Strongly Agree

☐ Agree

☐ Undecided

☐ Disagree

☐ Strongly Disagree

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8. If you were dissatisfied with the content covered in the workshop, explain why:

9. Describe any logistical difficulties you experienced while planning your participation in the workshop.

10. What suggestions do you have to improve future workshops?

11. Additional comment or suggestions:

12. May we contact you in six months to ask about how to discuss the impact of this workshop?

☐ Yes

☐ No

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Appendix C – Demonstration Program Guidance

[in development]

Appendix D – FHWA Product Assessment and Implementation Matrix

PROJECT NAME AND NUMBER		
PRODUCT NAME		
Question	**Check-Off and List**	**Comments**
RELEVANCE		
Is there a demonstrated need (e.g. identified problem) for which the product/tool/technology presents a solution?	The product/tool/technology provides:	
	Limited improvement to mission effectiveness	
	Some improvement to mission effectiveness	
	Dramatic improvement to mission effectiveness	
Is the project aligned with FHWA activities?	The project is:	
	Tied to the Every Day Counts initiative	
	Aligned with current FHWA activities	
	Aligned with planned FHWA activities	
What are the impacts – to the agency, stakeholders, potential users of the product/ tool/ technology?	The product/tool/technology affects:	
	A limited number of beneficiaries	
	A lot of beneficiaries	
	Specify/list all that apply	

READINESS			
How close is this project to completion?	0-1 year		
	1-2 years		
	>2 years		
Once the project is completed, how ready will the product be for implementation?	Will need more research or refinement		
	Will need more pilot testing or evaluation		
	Will be ready for demonstration project		
	Will be ready for immediate implementation		
RISKS			
What is the organizational risk of implementing this product/ tool/technology?	It will require significant organizational or business process change to implement		
	Other (please list)		
What is the anticipated level of interest among users in this product?	High – champions exist		
	Medium – probable interest but no champions exist		
	Low – anticipated resistance		
What is the technical risk of implementing this product/tool technology?	Does not conform to FHWA technology architecture		
	Very little experience with this technology		
	Other (please list)		
Are there other deployment barriers?	Product/tool/technology is proprietary		
	Other (please list)		
Will changes in legislation, regulations, or standards be needed to implement this product/tool/ technology?	No changes needed		
	Changes will be needed (please specify)		

What are the risks of not implementing this product/tool/technology?	High – failure to implement will limit FHWA's ability to meet agency goals		
	Medium – incremental change		
	Low - impact can be achieved by other means		
RESOURCES			
What are the estimated costs to implement this product/tool/technology?	$0-$100,000		
	$100,001-$500,000		
	More than $500,000		
Will users need training and technical support for implementation?	No support needed		
	Some support needed		
	Requires lots of training and support		
What types of FHWA staff resources are required for implementation?	Can be done with existing staff		
	Requires some new staff		
	Requires many new staff		
Do FHWA staff have the requisite skills to deploy this product/tool/technology?	Possess the right skills		
	Need some training		
	Need a lot of training		
Will users need financial assistance/incentives to implement?	No financial assistance needed		
	Some financial assistance		
	A lot of financial assistance		

ROLES		
Who is in the best position to take the lead role in moving this product/tool/technology forward?	FHWA	
	AASHTO	
	Industry	
	Academia	
	Other (please specify)	

RECOMMENDATION		
What priority do you think FHWA should give this product/tool/technology for implementation? **Please circle your choice and provide the rationale for your rating in the comments column.**	Do not implement	1
		2
		3
		4
		5
		6
		7
		8
		9
	Implementation is key to meeting FHWA goals	10

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Appendix E – FHWA IT Readiness Process

Table of Contents

Overview

Objective

The Federal Highway Administration (FHWA) Second Strategic Highway Research Program (SHRP2) Information Technology (IT) Readiness Process is a clear, organized, and repeatable process for evaluating and, as appropriate, bringing to market the SHRP2 IT products. Specifically, the SHRP2 Readiness Process will act as a decision making assessment tool for Federal Highway Administration (FHWA) program offices and to prepare them to present a product before the FHWA Investment Review Board (IRB).

SHRP2 Readiness Process

In developing the SHRP2 Readiness Process, the FHWA based the process upon the IRB evaluation criteria for technology products as well as evaluation elements from the *FHWA Capital Planning Guide*. For each SHRP2 IT product that was evaluated, engaging in the SHRP2 IT Readiness Process will:

- Clarify the impact of incorporating IT products into the FHWA operating environment.
- Determine the need, cost, and management structure for each of the IT products.
- Prepare FHWA program offices to take full ownership of accepted SHPR2 IT products.

The SHRP2 Readiness Process features three major components. The first component is a set of information-gathering activities conducted in coordination with the FHWA SHRP2 program staff, the SHRP2 research teams, FHWA program offices, the TRB SHRP2 staff, and the American Association of State Highway and Transportation Officials (AASHTO). The second component is a final deliverable that evaluates the needs, costs, and risks associated with implementing any given SHRP2 IT product. The program office will present this final deliverable, made up of the templates found in the appendices, after the program office has made the final decision to adopt or to reject the IT product. Should the program office accept the product the program office staff would work with the IRB to initiate phase one of the FHWA IRB process. The IRB will evaluate whether FHWA can accept the product as is, FHWA can accept the product with modifications, or FHWA will reject the product (See Figure 1 below for a diagram of the SHRP2 IT Readiness Process). The third component is a close-out meeting, held following the IRB decision that charts the path forward for the product.

SHRP2 IT Readiness Process
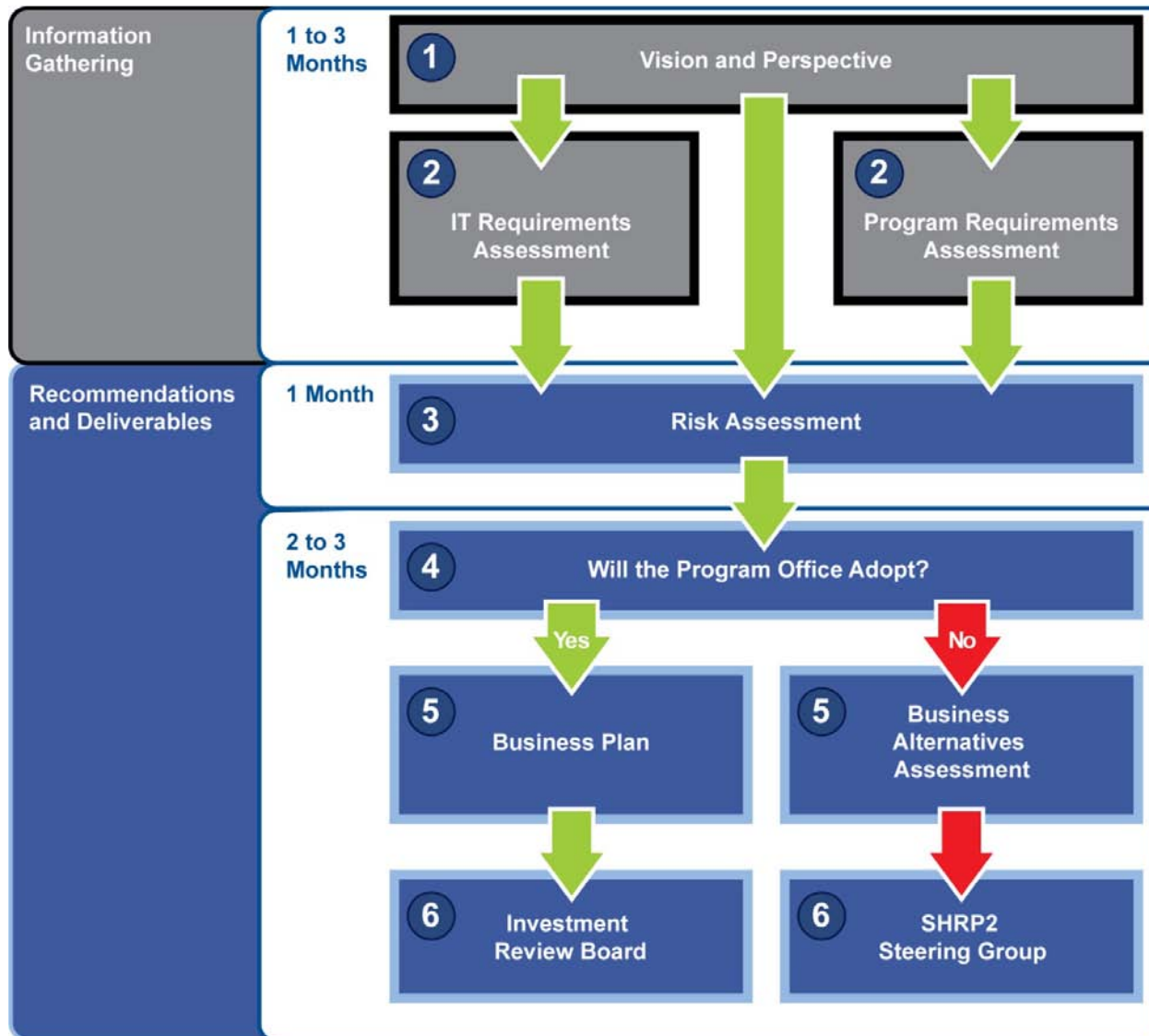
Figure E-1. FHWA SHRP2 IT Readiness Assessment Process Diagram

Information Gathering

The SHRP2 Readiness Process information-gathering activities will assist FHWA in answering key questions about each IT product and will feed directly into the final deliverable. The information-gathering activities include collecting the following information (See Chapter 1 for full descriptions of each component):

- The <u>Vision and Perspective:</u> A walk-through of the product, preliminary IT and program requirements, and next steps of the SHRP2 Readiness Process.
- The <u>Program Requirements:</u> A description of how the FHWA program office would use a product, what the office mission and objectives would be for the product, and how the office would maintain the product over time.
- The <u>Information Technology Requirements</u>: The critical components of the product and the work required to translate the product to the FHWA operating environment.

Deliverable

The primary deliverable of the SHRP2 Readiness Process is a written analysis for each SHRP2 product that will assist the program office and the IRB with final decisionmaking on the FHWA adopting each product. The FHWA will draw the content of the deliverable from the SHRP2 Readiness Process information-gathering activities and other short-term follow-on activities, such as work-group meetings. If the program office decides to adopt the SHRP2 IT product, the content developed for the deliverable will be used to complete the IRB Phase I process forms.

- <u>Risk Assessment:</u> An assessment on how FHWA will mitigate and/or absorb the risk associated with a SHRP2 IT product (See Chapter 2).
- <u>Business Case or Business Alternatives:</u> A document presenting the FHWA final decision on whether or not to adopt a SHRP2 IT product that includes product purpose, vision, impact, marketing strategy, management plan, cost implications, and plan for implementation into the FHWA operating environment (See Chapter 3).

Conclusion

The SHRP2 IT Readiness Process will guide FHWA program offices through the process of evaluating SHRP2 IT products. Engaging in the SHRP2 IT Readiness Process will provide each program office with a full scope of the impact of incorporating a SHRP2 IT product into its program and the FHWA operating environment. By engaging in the SHRP2 IT Readiness Process, the FHWA will be able to make informed decisions on the value, risk, and implications of adopting each SHRP2 IT product.

Chapter 1: Information Gathering

The Second Strategic Highway Research Program (SHRP2) Information Technology (IT) Readiness Process will include information-gathering activities that will feed into the final deliverable created by the Federal Highway Administration (FHWA) program office. Information gathering is the first of three steps in the FHWA SHRP2 IT Readiness Process. This process is part of the FHWA overall assessment of a product's readiness and should ideally take place before product funding priorities have been made and prior to any substantive implementation planning (e.g., implementation planning workshops).

Information Gathering Topic Areas

Information gathering activities should address three topic areas: Vision and Perspective, Program Requirements, and Information Technology Requirements.

Vision and Perspective
- A walk-through on the product vision, size, and scope of the product.
- Preliminary IT and program requirements.
- Close scrutiny of FHWA IT costs.
- Identification of next steps in the SHRP2 Readiness Process.

Program Requirements
- How the FHWA program office would use the SHRP2 product should it take ownership of that product.
- The FHWA program office mission and objectives for the product.
- The FHWA program office plan for technology development and maintenance so that the product remains valuable and relevant to its intended users.

Information Technology Requirements
- Critical components of the product and how it will be translated to the FHWA operating environment.
- Estimated labor, equipment, and enhancements needed to successfully implement and operate the SHRP2 IT product.
- Estimated total cost of the product, including enhancements; transition to the FHWA operating environment; maintenance, training, and security improvements.

Information-Gathering Meetings and Participants:

Information gathering can occur as a series of meetings, each focused on one topic area, or as a combined meeting to address all topic areas. The following groups should be included in the information-gathering process:
- FHWA Program Office
  - FHWA Technical Lead for the product
  - Additional program office staff (as necessary)
  - Program Office IT specialist (if available)

- FHWA Information Technology Division (ITD)
  - o FHWA IT decisionmakers
  - o FHWA IT security specialists (ISSM)
  - o FHWA IT staff with technical expertise related to the product

- TRB Contractors (when possible)
  - o Principal investigator (PI) for the SHRP2 project and/or the contractor's technical team

Assumptions

It is assumed that an information-gathering session will be less formal than a knowledge transfer workshop or implementation planning workshop and that it will be:

- less than one-half day in length
- held at a federal facility
- include 10-20 attendees

Sample Information-Gathering Session Agenda

The following is a sample agenda for an information-gathering session. The conveners of the session should customize the agenda as needed.

9. Overview and Purpose of the Meeting
   a. Introductions
   b. Participants role in the workshop
   c. Emphasize that the information gathered during the session will help the IRB and program office determine next steps for the product

10. Product Presentation
    a. Project Summary
    b. Impact on Practice
    c. Benefits and Limitations

11. Clarify impact of incorporating product into the FHWA operating environment
    a. Consider security and technical implications

12. Determine the need, cost and management structure for the product
    a. What are the IT and program requirements

13. Determine Next Steps
    a. Assign roles and responsibilities for completing information-gathering activities and proceeding with the IT Readiness Process.

14. Wrap-up

Chapter 2: Risk Assessment Template

The Federal Highway Administration (FHWA) Second Strategic Highway Research Program (SHRP2) Information Technology (IT) Readiness Process Risk Assessment, outlined below, will allow FHWA program offices to identify the risk(s) associated with the FWHA adoption of any given Transportation Research Board (TRB) SHRP2 IT product and to develop a strategy to manage, mitigate, or absorb these risks.

Activity	Description
Gather information about potential risk presented by adopting the IT product	Determine the types of risk associated with adopting the IT product: • Will adopting this product change the way the program office's program is delivered? • Is the program office's current staff knowledgeable about the product? • Will the program office have enough personnel to manage this product? • Will adopting this product affect current program contracting mechanisms? • Will adopting this product increase the program office's use of general operating expenses? • Will reauthorization or other legislative changes significantly impact the product and how it can be used?
Identify risk associated with adopting the IT product	Based upon the list of potential risks from the information-gathering effort, develop a list of risks that will have a direct impact on the program and product.
Develop a risk statement	Describe the events that may occur in the event that a potential risk is realized and the impact of those events. For example: "If FHWA program office personnel are not trained to use the IT product, it will not be an effective tool and have no value to the agency."
Analyze risk	Analyze the likelihood that the risk will be realized and the severity of the impact. For example: "There is a 45-50 percent (likelihood) of personnel being undertrained on this product, which will result in delays in delivering the product to the market."
Develop a risk response strategy	Determine if new strategies will be required to respond to the potential risk or if the program office will be able to conduct business as usual. Examples of risk response strategies include: • Avoid the risk: Adopt an alternate approach to objectives. • Accept the risk: Develop a contingency plan. • Transfer or share the risk: get insurance, warranties. • Mitigate the risk: Lower the likelihood or impact. • Enhance the risk: Increase likelihood or impact.
Prioritize the risk	Sort risks based on the expected severity of impact. Validate this prioritization through program office leadership or a work group. Then, determine what risk-response strategies should be implemented.
Monitor, evaluate, adjust	Monitor and measure the effectiveness of the implemented risk-response strategies: • What actions were taken? • Did the strategies change the risk?

Chapter 3: Business Case or Business Alternatives Template

3.1 Introduction

A key component of the Second Strategic Highway Research Program (SHRP2) Readiness Assessment is a business analytics document that explains if the Federal Highway Administration (FHWA) will adopt a SHRP2 Information Technology (IT) product.

3.2 Business Plan

If a FHWA program office decides to adopt a SHRP2 IT product, the program office must develop a business plan for that product. The business plan will describe the product purpose, vision, impact, marketing strategy, management plan, cost implications, and plan for implementation into the FHWA operating environment. The program office will submit the business plan to the FHWA Investment Review Board (IRB) for review; and if approved, the program office can adopt the SHPR2 IT product.

3.3 Business Alternatives

If a FHWA program office completes the SHRP2 Readiness Assessment and determines that the FHWA will not adopt the SHRP2 IT product, the program office must develop a Business Alternatives document to explain this decision.

3.4 Business Plan Outline:

a. Executive Summary
- Program office core mission and objectives
- Program opportunity created by this product
- Summary of the program office decision to implement the product

b. IT Product Description
- Product description
- Intended use of the product
- Demonstrated product effectiveness

c. Vision and Objectives
- Vision for how the program office will use this product
- Program office long- and short-term objectives for using this product

d. Performance Measures
- Identification of performance measures so that a program office can determine if the product has been successful over a period of time

e. Audience Description and Marketing Plan
- Target audience
- Audience analysis
- Marketing and communication strategy
- Marketing and communication strategy implementation plan

f.   Organizational Management
- Administrative management plan
- Performance management plan
- FHWA program office product stewardship
- FHWA program office responsibilities
- Contract responsibilities
- Training plan

g.   Financial Information
- Financial needs
- Cost-benefit analysis
- Estimated annual cost
- Cost structure
- Sources of funding

3.5 Business Alternatives Outline:

a.   Executive Summary
- Program office core mission and objectives
- Program opportunity created by this product
- Summary of the program office decision not to implement the product

b.   IT Product Description
- Product description
- Intended use of the product
- Demonstrated product effectiveness

c.   Decision Justification
- Explanation of why the FHWA will not adopt the product
- Other sectors that could adopt the product
- Other uses for the product

d.   Financial Information
- Financial needs
- Cost-benefit analysis
- Estimated annual cost
- Cost structure discussion

e.   Conclusion
- Explanation of why the FHWA will not adopt the product
- Further recommendations

Chapter 4: Lessons Learned (*Draft*)

Introduction

The Federal Highway Administration's (FHWA) Second Strategic Highway Research Program (SHRP2) Information Technology (IT) Readiness Process is a clear, organized, and repeatable process for evaluating and, as appropriate, bringing to market SHRP2 IT products. The FHWA SHRP2 program developed the SHRP2 Readiness Process as a decisionmaking assessment tool for FHWA program offices to evaluate SHRP2 IT products and, if applicable, to present a product before the FHWA Investment Review Board (IRB). By engaging in the SHRP2 IT Readiness Process, FHWA will be able to make informed decisions on the value, risk, and implications of adopting each SHRP2 IT product.

This document puts forth findings and recommendations for any program office applying the SHRP2 IT Readiness Process. These suggestions are not modifications but are recommendations on how to best apply the Readiness Process to achieve optimal results.

Background

The FHWA based the SHRP2 IT Readiness Process on the FHWA IRB evaluation criteria for technology products as well as evaluation elements from the *FHWA Capital Planning Guide*.

To test the SHRP2 IT Readiness Process, the FHWA SHRP2 program selected a project from the SHRP2 Capacity area, C01: Transportation for Communities: Advancing Projects through Partnerships (TCAPP). TCAPP is an integrated web-based resource intended to enhance collaboration in decisionmaking for transportation, resource, and regulatory agencies at the federal, state, regional, and local levels. TCAPP provides users with decisionmaking guidance, collaboration assessment tools, and a resource library containing relevant case studies and reports.

TCAPP was developed by ICF International with the support and guidance of the FHWA Office of Planning, Environment and Realty (HEP). During the pilot, the FHWA SHRP2 program, with support from the U.S. Department of Transportation, John A. Volpe National Transportation Systems Center (Volpe Center), provided assistance to HEP as the program office completed the SHRP2 IT Readiness Process. This assistance included meeting preparation and facilitation, data collection and compilation, preparation of key documents, and provision of connections between the program office and FHWA IT Department (ITD) staff. HEP brought TCAPP before the IRB for a Phase I review on February 29, 2012. The IRB approved TCAPP for further analysis in the Phase II IRB process.

Findings and Recommendations

The FHWA SHRP2 program developed the findings and recommendations in this document through the pilot application of the SHRP2 IT Readiness Process. Each finding draws from an important experience or

set of experiences during the pilot, and each recommendation sets forth a course for successful implementation of the Readiness Process.

Finding: *Information-gathering meetings were an efficient way to collect critical information about SHRP2 IT products.*

Holding meetings to gather key information about SHRP2 IT products allowed the SHRP2 program to elicit the most important material during the pilot. In addition, through these meetings, all relevant stakeholders were able to ask questions and thoroughly consider each project. The full engagement of these stakeholders in these meetings helped to build support for the SHRP2 IT Readiness Process.

Recommendation: *Information gathering should be conducted through a series of meetings, including:* A vision and perspective meeting: The SHRP2 research team presents all relevant information at an appropriate point in the SHRP2 project to the appropriate FHWA audience. The vision and perspective meeting is a walk-through of the product to gather preliminary IT and program requirements and next steps of the SHRP2 IT Readiness Process. This meeting should be attended by the program office, FHWA ITD, the TRB, (AASHTO), and SHRP2 research team.

A program requirements meeting: The program office should describe and assess how to use the product, what the office mission and objectives are for the product, and how the office should maintain the product over time. The program office should also develop three potential adoption scenarios. Representatives from FHWA ITD and the FHWA SHRP2 program should attend this meeting. The program requirements meeting should be an internal FHWA meeting; the TRB and the SHRP2 research team should not attend.

An information technology requirements meeting: Participants identify critical components of the product and work required to translate the product to the FHWA operating environment. The FHWA ITD, the FHWA program office, the TRB, and the SHRP2 development team should attend this meeting. Participants should develop at least three hosting scenarios to address potential shifts in technology or hosting environment and identify related costs for each scenario.

Finding: *The FHWA or TRB may incur major costs to adopt SHRP2 IT products, and these costs should be discovered early in the SHRP2 IT Readiness Process.*

During the SHRP2 IT Readiness Assessment pilot, FHWA discovered that the product being assessed was created using development tools that are not supported by FHWA. While FHWA had been aware that operations and maintenance costs would be associated with adopting a new IT product, the program office had not prepared for the substantial cost to convert the tool to the FHWA operating environment. By discovering similar costs up front on other projects, FHWA can make more informed decisions about adopting SHRP2 products and identifying the work which the TRB needs to accomplish before a product is considered complete.

Recommendation: *Cost information must be compiled before an official program office decision can be made on whether or not to adopt a SHRP2 IT product.*

A preliminary cost estimate should be developed through the information-gathering efforts conducted during initial meetings and separately by the program office. This material should include the cost to adopt the product and the cost to operate and maintain the product throughout its lifetime. This information should feed directly into the program office decision of whether to adopt a product; this decision should be suspended until cost information is available.

Finding: Without significant follow-up, it may be difficult to get stakeholders to commit to next steps and action items.

During the pilot information gathering meetings, members of the FHWA ITD and the SHRP2 research team committed to completing tasks in order to make an expeditious decision to adopt the product. The FHWA SHRP2 program, with support from the Volpe Center, managed the SHRP2 IT Readiness Process to ensure that assigned tasks were carried out. This oversight ensured that all deadlines were met on time. Without this oversight, the process would likely have fallen behind schedule.

Recommendations: The FHWA SHRP2 program should either provide oversight or assign an individual in the relevant program office to provide oversight for each SHRP2 IT product that is assessed for readiness.

To ensure that all relevant information is gathered for each SHRP2 IT product, the FHWA SHRP2 program should assign a staff member or proxy from the Volpe Center or program office to assist program offices. This individual should track the project and verify that each action item is completed as assigned.

Finding: Developing a program office working group is an effective way to complete SHRP2 IT Readiness Assessment deliverables.

By engaging a group of stakeholders from across the program office during the pilot, the FHWA SHRP2 program was able to ensure that all information in the deliverables was accurate and that the program office had fully evaluated how it would adopt the product and deliver it to the customers.

Recommendation: Assemble a small work group made up of different stakeholders within the program office to complete all deliverables.

A program office readiness assessment work group should meet every other week to ensure that the office is meeting deadlines and progressing at a reasonable pace. Two individuals should be named to lead the work group and should assign tasks and follow up to make sure that they are completed.

Finding: Identifying and developing a risk mitigation strategy soon after a FHWA program office decided to pursue adoption of a SHRP2 IT product led to improved communication and planning with the IRB.

During the pilot, the SHRP2 program met with the leads from the program office work group, ITD, and the Information Systems Security Manager (ISSM) to discuss the risks associated with adopting the product and to develop mitigation strategies for those risks. Developing a risk assessment before the IRB

review helped the program office to thoroughly consider the pilot project and to ensure that all substantial risks had been fully considered.

Recommendation: The program office should collaborate with other relevant stakeholders at the FHWA to develop a risk assessment.

A small group made up of the program office, the ITD, and the ISSM should work collaboratively to develop a risk assessment that will be robust enough to withstand IRB scrutiny and broad enough to examine all possible risks posed by adopting the product. This assessment can be conducted though a meeting or by seeking input via email.

Finding: By developing scenarios for IT and program adoption in the information-gathering process, the program office was able to make a more informed decision about whether it was feasible to adopt the SHRP2 IT product.

During the pilot, the FHWA ITD and the program office developed three potential scenarios for adoption of the pilot product. This helped the program office to better understand the feasibility of adopting the product and to determine, based on cost and ease of implementation, the best adoption method.

Recommendation: Draft three IT scenarios and three program scenarios for each IT product under consideration for adoption by the FHWA.

For the IT scenarios, FHWA ITD and the SHRP2 research team should prepare information on the platform, development tools, and hosting situation for any given SHRP2 product. For the program scenarios, the program office should develop a range of scenarios that represent either a range of levels or types of implementation. This activity will help the program office to prepare for the Phase II IRB review if the office chooses to adopt the product.

Finding: By engaging the FHWA IRB organizers early in the SHRP2 IT Readiness Process, a program office can ensure a smoother transition from its decision making process to the IRB Phase I review.

During the pilot, the FHWA SHRP2 program engaged members of the IRB in the development of the SHRP2 IT Readiness Process and in the pilot itself. This ensured that all of the information needed for IRB review was gathered in the Process and that IRB members had some knowledge of the pilot project. For the Phase I review of the pilot, this awareness and preparation led to smooth approval for Phase II review.

Recommendation: Between the initial vision and perspective meeting and the IRB Phase I meeting, hold at least three meetings between the program office and the IRB organizers.

If a program office chooses to adopt a SHRP2 IT product, holding at least three meetings between the program office and the IRB organizers will ensure that the IRB understands the product and that the program office is gathering the correct information for the IRB Phase I review.

Conclusion

Establishing if and when a SHRP2 IT product is ready for FHWA adoption is a complicated process that, if performed correctly, should prepare a program office to make a clear and well-informed decision. Furthermore, in the event that a program office decides to adopt a product, the implementation of the above recommendations should thoroughly prepare the FHWA program office to present the product to the IRB and ultimately adopt the product.

Appendix F – Three-Year Program

The three-year program is the high-level plan for the allocation of SHRP2 implementation funding for the current fiscal year (FY) and the next two fiscal years. The program includes an overall budget and the list of SHRP2 Solutions that will be funded for implementation in this period.

Overall Budget (FY12-14)

The overall budget for SHRP2 implementation includes implementation funding for SHRP2 Solutions from the Capacity, Reliability and Renewal focus areas in FY12, FY13 and FY14. The budget also includes funding to begin implementation of the Safety focus area products when they become available, future product development, smaller-scale implementation of products not included in the three-year program, marketing and communications, IT support, and program administration. Table 1 and Figure 1 below show the overall budget as of July 6th, 2012.

1. Table 1 - SHRP2 Three Year Implementation Budget FY12 –FY14

Budget Category	Funding (millions of dollars)
2012 Starts	$20
2013 Starts	$14
2014 Starts	$11
Safety Focus Area	$10
Additional Product Development / Future Priorities	$3
Other Product Implementation (not included in list of projects)	$3
Marketing & Communications	$5
IT Support	$3
FHWA, AASHTO, TRB Administration	$12
TOTAL	**$81**
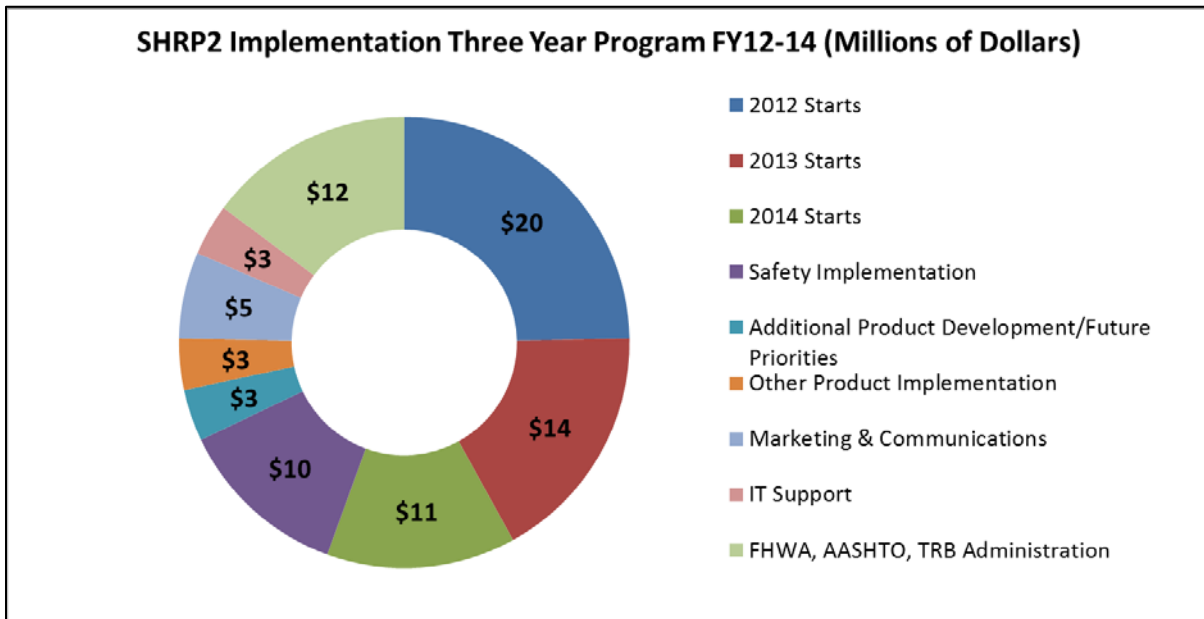
Figure 1 - Breakdown of SHRP2 Three-Year Implementation Budget for FY12 - FY14

Three-Year Program (FY12-14)

The SHRP2 partner organizations jointly determined the list of SHRP2 Solutions to be funded for implementation beginning in FY12-14 contained in Table 2 below. The table also indicates the key technical staff responsible for the SHRP2 Solutions, the year in which implementation funding will begin, and estimated dates for key implementation planning milestones. For FY13 and FY14, funding levels that are indicated are the approximate likely range. The three-year program will be re-evaluated as more information about the SHRP2 Solutions becomes available or if anticipated funding resources change.

Table 2 – SHRP2 Three Year Program for FY12-14 - Capacity, Reliability and Renewal Focus Areas (updated 07/06/2012)

Two or more projects grouped together by color indicate similar and/or complementary subject matter and a shared implementation funding allocation.

Project Number	Project Title	TRB Special Program Officer	FHWA Technical Responsibility	AASHTO Technical Responsibility	Start Year	Earliest KTW Date	Earliest IPW Date	Ready for Transfer	Funding (millions of dollars)
	2012 Starts								
R09	Managing Risk in Rapid Renewal Contracts	J Bryant	T Nelson - HIPD	G Smith	2012	Sep-12	Nov-12	Aug-12	$0.5
R10	Managing Complex Projects	J DiMaggio	J Sinnette - HIPD	G Smith	2012	Dec-12	Dec-12	Dec-12	
R04	Bridge Designs for Rapid Renewal	M Starnes	B Beerman, S Burrows	K Rehm	2012	May-12	Jun-12	Nov-12	$4.2
R26	Preservation on High Volume Roadways	J Bryant	T Van	K Platte, T Johnson	2012	n/a	Complete	May-12	$3.2
L12/L32	Training for Traffic Incident Responders	D Plazak	P Jodoin	G Murthy, S Sharma	2012	n/a	Complete	Sep-12	$4.4
L31	CEO Workshop on Operations	N Pedersen	R Arnold, J Lindley	G Murthy, S Sharma	2012	Sep-12	Sep-12	Jun-12	$6.6
L17	Knowledge Transfer System	D Plazak	R Arnold, J Lindley	G Murthy, S Sharma	2012	Sep-12	Sep-12	Jun-12	
L06	Organizing Agencies for Systems Operations and Management	W Hyman	S Clinger, R Arnold	G Murthy, Greta Smith	2012	n/a	n/a	Complete	
L01	Business Processes for Reliability	D Plazak	W Berman, R Arnold	G Murthy, S Sharma	2012	Sep-12	Sep-12	Jun-12	
C06B	Integrating Ecosystem & Highway Planning	S Andrle	S Schaftlein, R Rentch	S Eggleston	2012	May-12	Nov-12	Dec-13	$1.5

Project Number	Project Title	TRB Special Program Officer	FHWA Technical Responsibility	AASHTO Technical Responsibility	Start Year	Earliest KTW Date	Earliest IPW Date	Ready for Transfer	Funding (millions of dollars)
	2013 Starts (estimated)								
C01	TCAPP	S Andrle	S Stevens, J Cheatham	M Hardy, S Eggleston	2013	Jun-12	Jul-12	Sep-14	
C02	Performance Measures	S Andrle	H Miller, E Smith		2013	Jun-12	Jul-12	Sep-14	$6 - 7
C19	Expedited Project Delivery	S Andrle	S Schaftlein		2013	Jun-12	Jul-12	May-12	
R07	Performance Specs for Rapid Renewal	J Bryant	J Balis	J McDonnell	2013	Feb-13	May-13	Apr-13	$0.2 – 0.5
R15B	Integrating Utility/Transportation	J Bryant	L Paiewonsky (Volpe), J Obenberger	K Platte	2013	May-12	May-12	May-12	$2 - 3
R16	Railroad Agreements	M Starnes	L Paiewonsky (Volpe), J Obenberger	K Platte	2013	May-12	May-12	May-12	$1 - 2
R23	Long-Life Pavements	J Bryant	T Van, TBD	K Platte, T Johnson	2013	May-12	May-12	Oct-12	$1 - 2
R06	Web Tool for Non-Destructive Testing	M Starnes	J Ocel, TBD		2013			Dec-13	$1 -2
	2014 Starts (estimated)								
C03	Economic Impact Case Studies	D Plazak	S Natzke		2014	May-12	Jan-14	Mar-14	$1 -2
C11	Economic Impact Analysis Tools	D Plazak	S Natzke		2014	Sep-12	Jan-14	Oct-13	
C10	Travel Demand and Network Models	S Andrle	B Gardner	M Hardy	2014	Dec-12	Oct-13	Dec-13	$3 -4
C15	Freight Planning Guide	D Plazak	E Strocko, S Stevens	S Eggleston	2014	Jul-12	Jul-12	Mar-13	$1 -2

Project Number	Project Title	TRB Special Program Officer	FHWA Technical Responsibility	AASHTO Technical Responsibility	Start Year	Earliest KTW Date	Earliest IPW Date	Ready for Transfer	Funding (millions of dollars)
L02	Monitoring Programs for Reliability	W Hyman	R Rupert	G Murthy, S Sharma	2014	Sep-12	Sep-12	Nov-12	$3 - 4
L05	Planning/Programming for Reliability	W Hyman	D Laird	G Murthy, S Sharma	2014	Mar-13	Mar-13	Feb-13	$3 - 4
L08	Reliability in the Highway Capacity Manual	W Hyman	J Hunt		2014	Mar-13	Mar-13		$3 - 4
L36	Regional Operations Forum	N Pedersen	S Clinger	G Murthy, S Sharma,	2014		May-14	May-14	$0.5 - 1
R19A	Bridges Beyond 100 Years	J DiMaggio	I Friedland, A Ahmad	K Rehm	2014	Oct-12	Oct-12	Jan-13	$1 - 2
R05	Modular Pavement Solutions	J Bryant	S Tyson	K Platte	2014	Complete	Complete	Jul-12	TBD
R21	Composite Pavement Systems	J Bryant	T Van	K Platte	2014	May-12	Sep-12	Aug-12	TBD

**SHRP2 Implementation Primer
Version One (07/06/12)**