



## Committee on Implementing the Research Results of the Second Strategic Highway Research Program (SHRP 2) Letter Report: September 19, 2012

### DETAILS

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# TRANSPORTATION RESEARCH BOARD

OF THE NATIONAL ACADEMIES

September 19, 2012

Mr. Victor M. Mendez  
Administrator  
Federal Highway Administration  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Mr. John Horsley  
Executive Director  
American Association of State Highway and  
Transportation Officials  
444 North Capitol Street, NW  
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Washington, DC 20001

Dear Mr. Mendez and Mr. Horsley:

This is the second letter report of the Committee on Implementing the Research Results of the Second Strategic Highway Research Program (SHRP 2). SHRP 2 is a major research program authorized by Congress and administered by the Transportation Research Board (TRB) under a cooperative agreement with the Federal Highway Administration (FHWA). The committee was established at the request of FHWA to provide policy and technical advice to the U.S. Department of Transportation (USDOT) and the American Association of State Highway and Transportation Officials (AASHTO) on recommended strategies for introducing the results of SHRP 2 into the knowledge base and the active practice of transportation engineers, planners, traffic managers, and other potential users. The committee will focus its recommendations on implementation plans and future actions by USDOT and the state departments of transportation. The committee membership has been drawn from the executive and senior professional levels of state highway agencies, a metropolitan planning organization, private industry, transportation-related associations, and academia.

At its June 18-19, 2012, meeting, FHWA Executive Director Jeffrey Paniati briefed the committee on the actions taken in response to our March 19, 2012, letter. We appreciate the responsiveness of both FHWA and AASHTO to the recommendations that were contained in our letter. It is clear that in the implementation planning that occurred since our last meeting that both FHWA and AASHTO have taken into account the issues and recommendations contained in our previous letter.

## **Summary of June 2012 Committee Meeting**

At the committee's June 18-19 meeting FHWA, AASHTO, and TRB staff made a presentation on the process used to develop a three-year concept plan for implementation of priority SHRP 2 products for the Renewal, Reliability, and Capacity focus areas. We commend the collaborative approach that was used by FHWA and AASHTO, with support from TRB staff, in developing the joint FHWA/AASHTO concept plan. The Safety focus area was not included in the three-year plan because completion of the products of the research phase was not as far along. The committee was briefed on implementation planning activities that have begun by FHWA, NHTSA, AASHTO, and TRB, including issues of ownership and stewardship of the large safety databases being developed by SHRP 2.

Staff from FHWA and AASHTO briefed us on which priority projects are contained in the plan, as shown in Attachment 2, including which interrelated ones will be implemented as bundles or suites of products. Six products had previously been identified by FHWA and AASHTO as priority products that were ready for widespread deployment. In its last letter the committee had recommended that deployment of these six products be initiated as soon as possible. FHWA and AASHTO have incorporated these six products into the three-year plan that was presented at the June meeting, but it appears that there had not been significant progress on deployment of these products at the time of the meeting. The committee again urges that deployment of these products occur in a timely manner.

With the understanding that a more detailed plan will be developed between now and our next meeting and that the plan will be reevaluated and updated annually, the committee endorses the plan as presented. Any updates to the plan should reflect the needs and priorities of the agencies that will be the users of the products, particularly the state DOTs. Priorities should be established by the anticipated users of the products.

The committee was briefed on the draft strategic marketing and communications plan developed by the staff of FHWA, AASHTO, TRB, and the Volpe Center. The committee endorses the overall plan with the understanding that additional details will be developed between now and our next meeting. It is particularly important that work be done on developing messages regarding the benefits and value that are anticipated from implementation of SHRP 2 products.

Throughout the course of the two-day meeting, information technology issues were raised a number of times. Recognizing that many of the products coming out of the SHRP 2 program involve web tools, software, and/or databases, decisions must be made in a timely manner regarding responsibilities for the future hosting, maintenance, upkeep, upgrading, user support, and financial support for these IT products. The SHRP 2 Oversight Committee, which oversees TRB's SHRP 2 research and development program, approved funding for TRB to continue to provide IT support as needed through 2014. For SHRP 2 implementation to be successful, FHWA and AASHTO must decide on ownership and stewardship issues for the IT products prior to a major commitment to implementation of these products. In the case of major IT products, such as the Transportation for Communities: Advancing Projects through Partnerships (TCAPP) web tool and the safety databases, governance issues regarding use and enhancements to the IT product also need to be addressed.

The committee recognizes that detailed implementation planning, including marketing and communications planning, is just now beginning at a product level. It is important that product-level planning is done in the context of strategic and program-wide planning. Many of the products are interrelated, and implementation efforts for these products, including marketing and communications, should be tied together.

### **Recommendations**

The committee is pleased with the collaborative approach used by FHWA and AASHTO, working together with TRB staff, in developing the concept plan for implementation. A consensus-based approach that seeks, receives, and reflects user input and feedback should

continue to be used to jointly develop details for implementation activities. The concept plan presented at the June 18-19 meeting forms a sound basis for moving forward, but many details need to be developed between now and the committee's November meeting. In that context the following recommendations are offered:

1. *Implementation Plan. Using a consensus-based approach, FHWA and AASHTO should jointly develop details for the concept plan that was presented to the committee, both at a program-wide and a product level. The detailed plan should be developed using a process that seeks, receives, and reflects user input and feedback.*

So there is no delay in the start of implementation, prior to the completion of the research and development phase for each product, FHWA and AASHTO, with support from TRB staff, should jointly develop a detailed implementation plan for each product. Product-level implementation plans should identify an implementation strategy, the target audience, roles and responsibilities of each organization, responsible staff from each organization, a schedule, a budget, training needs, a marketing and communications strategy, and an evaluation strategy, including an estimate of return on investment. FHWA and AASHTO should also identify any additional development work that needs to be done by TRB, together with additional support needed from TRB prior to and during implementation.

At its next meeting the committee would like to review more details for the program-wide implementation plan, including an overall implementation strategy for each of the products in the three-year plan. It would also like to review examples of two or three detailed product-level implementation plans for products that had previously been identified as priorities for early deployment.

Planning should also be done at a programmatic level. Products that are shown to start in 2012 will require detailed plans to be developed at this time, but further planning should also be done this year for the products shown with 2013 and 2014 starts to ensure that appropriate budgets, schedules, and resources are included in the plan.

As detailed planning takes place, potential users should provide input to the process. As the plan is updated annually, FHWA and AASHTO should seek out and take into account user needs and priorities, as well as evaluation results and feedback from users of the initial products.

2. *Marketing and Communications Plan. Using a consensus-based approach, FHWA and AASHTO should jointly develop details for both the strategic and individual product marketing and communications plans. The detailed plans should be developed using a process that seeks, receives, and reflects user input and feedback.*

The committee believes that the draft strategic marketing and communications plan is a sound plan, but additional details need to be developed for the program-wide marketing efforts, and marketing and communications for individual SHRP 2 products need to be coordinated with the program-wide plan.

The committee believes that the current plan is overly focused on “image” marketing and recommends that it focus instead more on how individual products will meet the needs of users and how this message should be communicated. The most important goal of marketing and communications is to support the successful technology transfer of products to implementing agencies, and the marketing and communications effort should be focused in that direction.

The committee recommends that an immediate priority be to develop messaging regarding the benefits and value that can be expected to be gained from implementation of SHRP 2 products, an “elevator speech” that can be used with Congressional staff and others who are considering future funding for SHRP 2 implementation. Users, including persons outside the transportation profession who are within the target audience, should be involved in developing and testing such messages. To date less than one-quarter of the \$400 million funding needed for SHRP 2 implementation (over and above the funds provided for research) that was identified in TRB Special Report 296 has been secured. State DOTs will need to identify what portion of Statewide Planning and Research funds will be allocated to SHRP 2 implementation in 2013 and 2014, and Congress will need to decide on additional funding for implementation beyond 2014.

The committee recommends that “signature” products be identified for each focus area and messages be developed for these products that demonstrate the value of implementing SHRP 2 products. The messages need to be technically substantive, be geared toward technology transfer, and not come across as merely advertising or selling. To the extent possible, messaging should be developed that ties the products together, and messages such as the proposed tagline “save lives, save time, save money” should be tested with target audiences. A particular focus of both the program-wide and individual product marketing plans should be the users of products at the staff level within state DOTs and other transportation professionals who will be users of the products, such as local agencies, metropolitan planning organizations (MPOs) and private-sector consultant and contractor firms. The Local Technical Assistance Program (LTAP) offers a major opportunity for marketing to local government agencies. Associations that represent private-sector firms that would use products should also be targeted.

The committee recommends that the benefits of using the products should be estimated at this time, perhaps using ranges, and the benefits should be compared with the costs of developing and implementing the products. \$218 million is being invested in SHRP 2 research, with many useful products emanating from the research. Congress and others will be interested in knowing what benefits have been received from the major investment that has been made in SHRP 2 research. The return on investment in SHRP 2 should be a major part of the marketing message.

3. *Information Technology Plan. Using a consensus-based approach, FHWA and AASHTO should jointly develop details at this time of an information technology (IT) plan that identifies who will own and support each IT product; how each product will be financially supported; and how governance issues will be decided, when pertinent. The detailed plan*

*should be developed using a process that seeks, receives, and reflects user input and feedback.*

Many of the SHRP 2 products consist of web tools, software, and/or databases that will require long-term maintenance, enhancements, and user support. The success of long-term implementation of the overall SHRP 2 program will be significantly tied to decisions on who will provide long-term support for these IT products and how that support will be funded. The SHRP 2 Oversight Committee, which oversees TRB's SHRP 2 research and development program, approved funding for TRB support of these products through 2014. In order to ensure that support will continue past 2014, planning needs to take place now, because there will be a long lead time required to ensure a smooth transition from TRB to the new owner of each of these products. In order for migration to occur for many of these products, they will need to be modified to meet the IT standards of the new owners. This could require a substantial effort that may be both costly and time consuming. For example, the SHRP 2 Oversight Committee approved TRB's assuming responsibility for converting TCAPP to meet USDOT IT standards. It is estimated that conversion could cost as much as \$830,000 and could take a year to carry out. Additional time will be required for USDOT staff to have the capability to fully support the product once it has been migrated to USDOT servers.

FHWA and AASHTO should identify the cost, schedule, and responsibility for conversion for all IT products and should budget money for the conversion. Within the next few months, they should identify those products where they expect TRB to take lead responsibility in managing the conversion, so that money can be budgeted and planning for staff and contractor support can take place.

FHWA should determine which products it intends to support on USDOT servers. AASHTO should identify which products could be supported as part of its AASHTOWare program, including the feasibility of financial support through user fees. Both organizations should explore alternative financial models, such as public-private partnerships. Decisions should be made regarding the future of IT products that neither FHWA nor AASHTO will own or support. These decisions will affect which products can be included in future updates of the overall SHRP 2 implementation plan.

4. *TCAPP Governance Structure. FHWA and AASHTO should agree to a governance structure for TCAPP in which users play a major role in decisions regarding future modifications, enhancements, and issues regarding how TCAPP is used.*

Transportation for Communities: Advancing Projects through Partnerships (TCAPP) is a robust web tool for systematically integrating environmental, economic, and community requirements into the analysis, planning, and design of highway capacity enhancements. This system can help build consensus throughout these processes and ultimately speed project delivery. TCAPP integrates the results of much of the research done in the Capacity program into a single web tool. TCAPP is a tool that has the potential to significantly improve the way planning and highway project development is done in the United States. However, to achieve this vision, it is critical that users voluntarily adopt those portions of



TCAPP that work best within the context of their particular agency's processes and culture. Based on experience with the TCAPP pilot studies, as well as other major process changes of this type that involve IT tools, there are likely to be many suggestions for improvement, both in the IT product itself and in the way it is used. There are likely to be far more changes suggested than resources available to make the changes, so priorities will need to be established. Use of TCAPP will also potentially involve major change management issues within agencies that incorporate it into their business processes. It is important that users learn from each other about the best ways to use TCAPP and that its use not be mandated.

The committee recommends that FHWA explore creation of an advisory committee for TCAPP, perhaps similar to the long-standing program review committees for the Long-Term Pavement Program (LTPP) and the Research and Technology Coordinating Committee (RTCC).

The committee is gratified to hear that current leadership at FHWA does not intend to mandate TCAPP's use, but that could change with a change in leadership. Therefore, we recommend that FHWA issue a policy statement regarding the voluntary use of TCAPP by state DOTs and other implementing agencies. We also recommend that FHWA coordinate with other USDOT modal administrations regarding whether TCAPP and other Capacity program products could be useful for planning and project development for other modes of transportation.

### **Closing**

The committee commends FHWA and AASHTO for the work they have done to date in planning for SHRP 2 implementation. Much is yet to be done, including more detailed planning, but the two organizations have developed a sound conceptual plan. We look forward to continuing our dialogue with FHWA and AASHTO on this important national endeavor. Please let us know if there are specific issues you would like the committee to address, in addition to those raised in this letter, so that they can be used to plan the committee's work and future meetings.

Sincerely,



Kirk T. Steudle  
Chair, Committee on Implementing  
the Research Results of SHRP 2

**Attachments**

## Attachment 1

### TRB Committee on Implementing the Research Results of the Second Strategic Highway Research Program

Kirk T. Steudle, *Chair*, Director, Michigan Department of Transportation  
H. Norman Abramson, Executive Vice President (Retired), Southwest Research Institute  
Alan C. Clark, MPO Director, Houston-Galveston Area Council  
Frank L. Danchetz, Vice President, ARCADIS-US, Inc.  
Stanley Gee, Executive Deputy Commissioner, New York State Department of Transportation  
Michael P. Lewis, Director, Rhode Island Department of Transportation  
Susan Martinovich, Director, Nevada Department of Transportation  
John R. Njord, Executive Director, Utah Department of Transportation  
Charles F. Potts, Chief Executive Officer, Heritage Construction and Materials<sup>1</sup>  
Ananth K. Prasad, Secretary, Florida Department of Transportation<sup>1</sup>  
Gerald Ross, Chief Engineer, Georgia Department of Transportation  
George E. Schoener, Executive Director, I-95 Corridor Coalition  
Kumares C. Sinha, Olson Distinguished Professor of Civil Engineering, Purdue University  
Paul Trombino III, Director, Iowa Department of Transportation

#### Liaisons

Victor M. Mendez, Administrator, Federal Highway Administration  
Ron Medford, Acting Administrator, National Highway Transportation Safety Administration  
John C. Horsley, Executive Director, American Association of State Highway and  
Transportation Officials (AASHTO)

#### TRB Staff

Ann M. Brach, Director of Strategic Highway Research Program 2, Transportation Research  
Board  
Stephen J. Andrie, Deputy Director of Strategic Highway Research Program 2, Transportation  
Research Board  
Neil J. Pedersen, Deputy Director of Strategic Highway Research Program, Transportation  
Research Board

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<sup>1</sup> Did not attend June 18-19, 2012, committee meeting.



## Attachment 2

### Three-Year SHRP 2 Concept Implementation Plan

#### 2012 Starts

- Project Management Tools \$0.5M
    - R09 Managing Risk in Rapid Renewal Contracts
    - R10 Managing Complex Projects
  - R04 Bridge Designs for Rapid Renewal (2011) \$4.0M
  - R26 Preservation on High Volume Roadways (2011) \$3.0M
  - L12 Training for Traffic Incident Responders (2011) \$4.5M
  - Organizing for Reliability \$6.5M
    - L31 CEO Workshop on Operations (2011)
    - L17 Knowledge Transfer System (2011)
    - L06 Organizing Agencies for Systems Operations and Mgt.
    - L01 Business Processes for Reliability
  - C06 Integrating Ecosystem & Highway Planning \$1.5M
- \$20.0M**

#### 2013 Starts - Estimated

- TCAPP \$6 – 7M
    - C01 TCAPP
    - C02 Performance Measures
    - C19 Expedited Project Delivery
  - R07 Performance Specs for Rapid Renewal \$0.2 – .05M
  - R15B Integrating Utility/Transportation (2011) \$2 – 3M
  - R16 Railroad Agreements (2011) \$1 – 2M
  - R23 Long-Life Pavements (2011) \$1 – 2M
  - R06 Web Tool for Non-destructive Testing \$1 – 2M
- Estimated costs ~ \$14M

#### 2014 Starts - Estimated

- Economic Impact Tools \$1 – 2M
    - C03 Economic Impact Case Studies
    - C11 Economic Impact Analysis Tools
  - C10 Travel Demand and Network Models \$3 – 4M
  - C15 Freight Planning Guide \$1 – 2M
  - Reliability Analysis Tools \$3 – 4M
    - L02 Monitoring Programs for Reliability
    - L05 Planning/Programming for Reliability
    - L08 Reliability in the Highway Capacity Manual
  - L36 Regional Operations Forum \$0.5 – 1M
  - R19A Bridges Beyond 100 Years \$1 – 2M
  - Pavement Technologies
    - R05 Modular Pavement Solutions
    - R21 Composite Pavement Systems TBD
- Estimated costs **\$11M**

Total 3-Year Plan Budget