

August 20, 2002

Ms. Mary E. Peters  
Administrator  
Federal Highway Administration  
Room 4218  
400 7th Street, SW  
Washington, D.C. 20590

Dear Administrator Peters:

The Research and Technology Coordinating Committee (FHWA) met on June 17 and 18, 2002, at the J. Erik Jonsson Woods Hole Center at the National Academy of Sciences in Woods Hole, Massachusetts. The enclosed meeting roster indicates the members, liaisons, guests, and TRB staff in attendance. On behalf of the committee, I want to thank FHWA for its continuing interest in the work of the RTCC. I also want to thank and commend the FHWA staff for their presentations and participation in the meeting.

The meeting on June 18, 2002, concluded with a closed session at which the committee met to begin the preparation of this report, which was completed through correspondence among the members. The purpose of this report is to provide a record of the meeting discussions, review the actions taken by the committee during the meeting, and state its plans for future activities. The report summarizes the committee's key discussions, organized under four main topics: stakeholder involvement in applied research and technology (R&T), program management and stakeholder involvement in advanced research, laboratory assessment procedures, and plans for a future symposium on the national highway R&T program.

### **Stakeholder Involvement in FHWA's Applied R&T Program**

The committee reviewed the paper prepared for it by Brach (2002) and included with this letter report. Providing for stakeholder involvement means giving stakeholders opportunities to help shape the research program. This influence can occur at one or more points during the research management process, from identification of research needs and setting of priorities through evaluation and implementation of research results. Stakeholder involvement can contribute to the research program in several ways, including the following:

- Helping to define the research problems and suggesting worthwhile research projects to address those problems

- Ensuring the relevance of the research
- Maintaining the focus of the research
- Providing quality control by reviewing proposals and ongoing research
- Evaluating research results
- Providing early education of potential implementers
- Developing a cadre of supporters for the research program and its continued funding

In addition, broad stakeholder involvement helps reduce biases or special interest pleading from individuals and individual groups. Stakeholders are also more likely to promote the use of research results from applied research—the majority of FHWA’s research program—if they are involved in the innovation process from the start (TRB 1999).

Recent reports of the RTCC and the General Accounting Office (GAO) call for more stakeholder involvement in the FHWA R&T program (TRB 2001a; GAO 2002). At the meeting, Kate Siggerud and Sally Gilley of GAO presented that agency’s recommendations for a more systematic process for stakeholder involvement. They noted that the work of the RTCC is one form of such involvement. They pointed out, however, that while the committee can provide external guidance to FHWA on program strategy, its membership is not broad enough to offer continuing advice on the full range of research needs. They also suggested that FHWA incorporate in its R&T program peer review or other best practices in use at federal agencies that conduct research.

FHWA has used various stakeholder involvement mechanisms—formal and informal—during the last several decades (Brach 2002). Examples include the RTCC, which was created to provide high-level, strategic advice and guidance to FHWA on its R&T program after the Intermodal Surface Transportation Efficiency Act of 1992 (ISTEA) substantially increased the agency’s research program. For several years in the late 1990s, FHWA maintained R&T coordinating groups to plan and coordinate its R&T activities within major program areas (structures, pavements, policy, safety, motor carrier, highway operations, planning, and environment). The RTCC assigned liaisons to the groups during that period. FHWA currently employs formal advisory committees for several infrastructure research programs: the Superpave<sup>®</sup> program, the Long-Term Pavement Performance program, and the program of Research for Improved Concrete Pavements.

**Recommendation: FHWA should compile an inventory of the stakeholder involvement activities now under way within the agency as a basis for the stakeholder involvement plan recommended below. Brach (2002) identifies four general types of external stakeholders for research—sponsors, scientific and technical experts, users, and other affected parties—and provides models (Figures 2 and 3) for presenting such an inventory and identifying current agency best practices and gaps.**

A key component of FHWA's recent stakeholder involvement activity has been the National Highway R&T Partnership. Created in late 1998 by FHWA, the American Association of State Highway and Transportation Officials (AASHTO), and TRB, this partnership was initiated in response to the limitations placed on federal highway research funding by the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), and as a means of encouraging more stakeholder involvement in the development of a national highway research agenda. The partnership's recently published summary report, together with the reports of its working groups, represents a significant contribution to the identification of highway R&T needs and provides a basis for formulating future programs and research collaborations (Partnership 2002). The partnership has illustrated the willingness of highway-sector stakeholders and research partners to work together to identify highway R&T needs. Although it is not clear what next steps the partnership will take or how those efforts can be sustained, work is under way on preparing specific research program plans based on the partnership's activities in the areas of highway safety and pavement research.

**Recommendation: As the committee has stated previously (TRB 2001a), FHWA's R&T program should be more responsive to and influenced by the major stakeholders in highway innovation. Stakeholders should be involved in needs identification, decision making, priority setting, and resource allocation for the R&T program.**

### **Program Management and Stakeholder Involvement in Advanced Research**

Discussions at the meeting about FHWA's advanced research program addressed issues associated with both program management and stakeholder involvement. A task force composed of Forrest Council, Irwin Feller, and Dennis Christiansen reported on its review of a draft document that outlines a proposed process for managing and conducting advanced research (SAIC 2002). After reviewing the report of the task force and conducting considerable discussion, the committee concluded that the proposed process does not adequately recognize the unique characteristics of advanced research or the need to include external experts in the identification and prioritization of advanced research projects. Indeed, the approach is more suitable to the development of an applied research program. As a result, it does not address the need—noted previously by the RTCC—to balance the identification of problems by stakeholders with external technical review by experts regarding which research areas and specific research directions hold promise for significant breakthroughs (TRB 2001a).

External experts—from other federal agencies, public and private research laboratories, and universities—should be directly involved in identifying advanced research opportunities. These experts can provide ideas and approaches that are more out-of-the-box than those likely to emerge from the proposed process. The approach of employing panels comprising predominantly members of the user/implementation community is appropriate for research designed to produce near-term results for immediate application, such as the research undertaken by the National Cooperative Highway Research Program, but not for an advanced research program.

**Recommendation: FHWA should continue to develop a process for managing and conducting advanced research for managing and conducting advanced research aimed at improving surface transportation. This process should encompass how FHWA will (a) rely on stakeholders for problem identification and assessment of strategic needs and (b) utilize external experts to identify research areas and specific research directions that hold promise for significant breakthroughs.**

Dennis Judycki, Director of FHWA's Office of Research, Development and Technology, reported that FHWA is taking steps to refocus and reorganize the agency's R&T program in response to previous RTCC recommendations (TRB 2001a). The agency has begun to address the issue of stakeholder involvement in its advanced research program, which is currently funded at about \$1 million per year and recommended by the RTCC to increase to as much as 25 percent of the total R&T program, or \$50 million per year. The process under development for stakeholder involvement in the advanced research program is a pilot effort that will expand as necessary as the agency moves to adopt the committee's recommendation to enlarge the program. The committee believes the key to success will be identifying a range of technical experts capable of bringing new knowledge to the highway transportation field. The committee also believes that the transition to a larger advanced research program will require time and considerable cultural change for an agency that is focused on short-term, problem-solving research.

The committee has concluded that the management of FHWA's advanced research program must reside within the agency; FHWA cannot depend on an oversight panel or a support contractor to manage the program. The program requires a manager who understands the potential of advanced research, has addressed advanced research topics, and can manage researchers examining such topics. Those currently involved in advanced research at Turner-Fairbank Highway Research Center (TFHRC) can form the basis for the advanced research team. If the agency's program increases in size as recommended previously by the RTCC, more researchers will be needed, and additional external experts will have to be involved. Moreover, the committee believes that an expanded advanced research program, as well as effective stakeholder involvement in the program, will require the cooperation and support of all FHWA office directors involved in R&T decision making. The RTCC plans to invite these managers to its next meeting to review the full range of agency efforts aimed at expanding the advanced research program and improving stakeholder involvement.

### **Laboratory Assessment Procedures**

FHWA is planning to organize independent, objective, senior-level assessments of the laboratories at TFHRC. The purpose of these assessments is to review the quality, relevance, and cost-effectiveness of the laboratories' activities in meeting national highway research needs. The assessments will address programs, staff, research processes, and outcomes. At the meeting, Marci Kenney, Director of the Office of Program Development and Evaluation, described preliminary assessment procedures prepared for

use by FHWA staff and the expert panels that will conduct the assessments. While the committee believes that FHWA can manage these assessments and achieve credible results without the assistance of a third party, the following safeguards will be necessary.

First, the external technical experts that make up each assessment panel should be well qualified and must operate independently of FHWA control once the assessment has begun. While FHWA staff can use their knowledge, experience, and professional contacts to provide suggestions for qualified panel members, senior TFHRC management should evaluate these suggestions with assistance from independent external sources. Several committee members pointed out that professional associations and consultants could assist in this process. In light of FHWA's plans to undertake a pilot assessment of the Human-Centered Systems Laboratory in the near future, the RTCC agreed to assist the agency in evaluating the proposed panel roster for that assessment.

Second, the assessment process should include a specific reporting mechanism that focuses first on senior-level management and then on laboratory managers and staff. The committee suggests that each assessment panel present an executive-level oral briefing to the administrator or executive director at the conclusion of its assessment. Such a briefing would serve as a signal to the panel and agency staff that FHWA management values and supports such assessments. Each panel should then brief the laboratory managers and key staff on its findings and recommendations and present the agency with a draft written report before leaving the site. To complete the laboratory assessment, the panel should send the agency a final written report within 10 days of completion of the laboratory assessment.

Many TFHRC laboratories have already been certified by national and international standards organizations on the basis of the type and condition of their test equipment, their test procedures, and their ability to generate technically valid test results. Organizations such as the AASHTO Materials Reference Laboratory and the International Standards Organization conduct such certifications for various kinds of test laboratories. Several committee members noted that certification of the TFHRC laboratories by an appropriate national and international standards organization would help ensure that the laboratories are capable of producing technically valid test results.

## **Plans for a Symposium on the National Highway R&T Program**

The RTCC decided to begin planning a symposium that will explore various aspects of the national highway research enterprise. This enterprise—which is complex and highly fragmented—has a wide range of federal, state, pooled-fund, university-based, and private-sector components. The symposium will examine the roles and responsibilities of the various research programs and partners associated with this enterprise, and explore the opportunities for greater stakeholder involvement and collaboration in highway research. Key members of the National Highway R&T Partnership, especially representatives of the major highway research programs, will be asked to participate. The symposium will build on the work of the partnership and the Committee for the Study of a Future Strategic Highway Research Program, as well as recent reports of the RTCC and GAO on federal highway R&T activities (TRB 2001b; TRB 2001a; GAO 2002).

As an initial step, the RTCC will organize a symposium steering committee meeting prior to its November 2002 meeting. The symposium will take place some time in March–April 2003. We look forward to working with you and your staff in planning this symposium.

### **Meeting Plans**

The committee's next meeting is scheduled for November 7 and 8, 2002, in Washington, D.C. On behalf of the committee, I would be delighted if you could join us at this meeting.

Sincerely,



C. Michael Walton  
Chair  
Research and Technology Coordinating Committee (FHWA)

Enclosure

## References

### Abbreviations

GAO	General Accounting Office
Partnership	National Highway R&T Partnership
SAIC	Science Applications International Corporation
TRB	Transportation Research Board

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TRB. 2001a. *The Federal Role in Highway Research and Technology*. TRB Special Report 261. National Research Council. Washington, D.C.

TRB. 2001b. *Strategic Highway Research: Saving Lives, Reducing Congestion, Improving Quality of Life*. TRB Special Report 260. National Research Council. Washington, D.C.

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**Meeting Attendance: Committee, Liaisons, Guests, and Staff  
June 17–18, 2002**

**Committee**

C. Michael Walton (NAE), Chairman	Leon Kenison
Joel Anderson	Karen Miller
Dwight Bower	Sandra Rosenbloom
John Breen (NAE)	James Roberts (NAE)
Forrest Council	Michael Ryan
Frank Danchetz	David Spivey

**Liaisons and Guests**

Thomas Bryer, Pennsylvania DOT (retired)	Dennis Judyki, FHWA
Sally Gilley, GAO	Peter Markle, FHWA
Marci Kenney, FHWA	Kate Siggerud, GAO
Byron Lord, FHWA	Kevin Womack, U.S. Senate Staff

**TRB Staff**

Ann Brach  
Walter Diewald  
Stephen Godwin  
Robert Skinner