

Highways and Byways to Stakeholder Involvement

Establishing a Network of Connections to Highway Research

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Involving local and regional transportation agencies and practitioners in highway research encounters two immediate challenges: the large numbers of agencies and practitioners; and the variety of agency types and sizes. Nevertheless, the active involvement of agencies and practitioners is important because agencies and practitioners implement transportation technologies and innovations. Involvement enables stakeholders to influence research program development at any of several stages.

In the United States, a multilevel system of federal, state, and local governments and agencies manages transportation. More than 39,000 government units exercise transportation responsibilities (Table 1, facing page).

Local and Regional

Local transportation agencies—at the county, city, town, and township levels—provide transportation infrastructure and, sometimes, transit services. Regional agencies include metropolitan planning organizations (MPOs), regional councils, and councils of governments responsible for specific transportation activities and planning. Regional agencies often are responsible for meeting state and federal regulations for transportation and environmental planning for metropolitan or other large geographic areas.

Local and regional transportation agencies differ in budgets and sources of funding, in responsibilities, and in staff size and expertise. These variations reflect the jurisdictions' land area, population and population density, relationship to the state government, natural resources, key industries, and transportation modes.

The extent of responsibility that local and regional agencies have for the highway system depends on the state, as well as on other factors, such as urbanization, road taxes, geography, weather, and economic base. On average, a state DOT is responsible for approxi-

mately 20 percent of the highways within its borders (Table 1); the range extends from 6 percent in New Jersey to 92 percent in West Virginia (1).

Some large counties have a public works or transportation department with traffic engineering, planning, and construction and maintenance divisions similar to those of state departments of transportation (DOTs). Many small and less populated counties, cities, towns, and townships have a single department with wide-ranging responsibilities, but limited resources and a small staff.

Local and regional agency staff have different levels of familiarity with highway R&T programs, with Federal Highway Administration (FHWA) and state DOT specialists, with technical assistance and information programs—such as the Local Technical Assistance Program (LTAP)—and with the services offered by technical and professional associations. For technical advice and information, local agencies and practitioners may rely on other agencies—at the state, larger county, and urban levels—and on consultants.

Attracting Input

In recent years, several of the nation's highway research programs have sought stakeholder input from local and regional agencies and practitioners. For example, the National Highway R&T Partnership—initiated by FHWA, the American Association of State Highway and Transportation Officials (AASHTO), and TRB in 1998 to identify highway R&T needs—provided opportunities for involving the entire highway stakeholder community. The partnership attracted hundreds of individuals from the federal, state, regional, and local levels, and from more than 170 organizations.

Five ad hoc working groups—covering safety; infrastructure renewal; operations and mobility; policy analysis, planning, and systems monitoring; and planning and environment—met several times in an 18-

month period to prepare comprehensive lists of research needs. The TRB website posted working documents and draft reports for comment, providing additional opportunities for participation.

Another example is the Surface Transportation Environmental Cooperative Research Program Advisory Board, a TRB committee requested by Congress to assess the need for a program and the research topics a program would address. Board members represented the spectrum of the transportation and environmental communities: academia, state DOTs, state environmental protection agencies, MPOs, transit agencies, environmental groups, and industry.

The board identified research needs through several mechanisms, including a public request, a conference, commissioned papers, and documentation of the research conducted in the 5 years since the previous national conference. Participants represented local and regional stakeholder groups, as well as national technical and professional associations.

Local and regional stakeholders can play key roles in research programs through individual participation or through organizations, such as technical or professional associations. Most members of national technical and professional associations work for either local or regional transportation agencies or for the private-sector entities that support them. The box on page 6 lists a sampling of these associations.

State Strategies

Local and regional stakeholder involvement in state DOT research programs reflects the different ways that states manage highway systems. For example, a state that is responsible for all or nearly all of its highways tends to address many research topics related to local issues; often the local or regional practitioners are state DOT employees.

According to members of AASHTO's Research Advisory Committee (RAC), several states conduct research for local agencies, particularly for transit and planning agencies. State-funded university research in several states also addresses local and regional issues.

Many state DOTs conduct an annual solicitation for research ideas from many sources, including local and regional agencies, MPOs, and LTAP centers. In several states, a local agency representative is a member of the DOT research advisory board that selects topics for funding. Many also tap local and regional practitioners for research project panels, particularly for topics that converge with local interests.

Direct Local Control

Two highway research programs are designed to meet local highway needs and are under the direct control

TABLE 1 Highway Miles and Expenditures Classified by Administrative Responsibility

Administration	Number of Agencies	Highway Miles (% of total) for Which Responsible	2001 Expenditures for Highways (% of total) by Expending Agency (\$ millions)
Federal agency	5	121,531 (3)	1,913 (1)
State agency	52	775,579 (20)	81,803 (63)
County agency	3,034 ^a	1,781,686 (45)	NA
Town and township	16,506 ^a	1,215,656 (31) ^{b,c}	NA
Municipal	19,431 ^a	— ^c	46,184 (36)
Other jurisdictions ^d	—	68,823 (2)	NA
Total	39,028	3,963,275	129,900 ^e

NOTE: NA = not available.

SOURCES: U.S. Department of Commerce (2002); FHWA (2002).

^a In addition to the agencies listed in the table, there are 537 regional councils and 334 metropolitan planning organizations.

^b Estimates based on census data.

^c Municipal mileage is combined with town and township mileage.

^d Includes state park, state toll, and other state agencies; other local agencies; and roadways not identified by ownership.

^e Differences due to funds placed in reserve.

of local agencies, which allocate the resources and establish research priorities: the Minnesota Local Road Research Board (LRRB) and the Iowa Highway Research Board (IHRB).

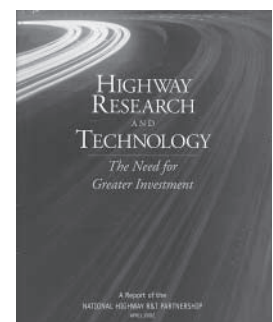
Minnesota: Sponsoring Projects

The state legislature established the Minnesota LRRB in 1959 to address local highway agency research needs. The board has programmatic control over an annual budget that derives from one-half of 1 percent of state highway funds for local systems—about \$2.3 million in 2003. The LRRB has sponsored more than 150 projects on a variety of topics, including materials and methods for constructing and maintaining pavement; drainage systems and other utilities under the pavement; management of the roadside environment; and bridge construction and maintenance.

The LRRB has 10 members: 1 city public works director, 1 city engineer, 3 county engineers, the director of the University of Minnesota Center for Transportation Studies (UMCTS); and 3 staff members from Minnesota DOT. County and city engineers submit research topics, and the LRRB selects and approves topics and prepares requests for proposals.

Minnesota DOT provides the administrative support and technical assistance for the program. Researchers from Minnesota DOT, universities, and consulting firms conduct the research, and the LRRB monitors research progress.

A Research Implementation Committee (RIC) transfers the research findings into practical applications. RIC informs engineers and others about new



The National Highway R&T Partnership enabled individuals from the federal, state, regional, and local levels, and from more than 170 organizations to provide input on research needs for safety; infrastructure renewal; operations and mobility; policy analysis, planning, and systems monitoring; and planning and environment.



The Circuit Training and Assistance Program (CTAP) distributes transportation research and innovations to local agency practitioners throughout Minnesota. CTAP receives a portion of its funding from the Minnesota Local Road Research Board (LRRB).

developments through a variety of methods, including slide presentations, videos, reports, pamphlets, seminars, workshops, field demonstrations, CD-ROMs, and site visits. RIC consists of four county engineers; one city engineer; one city public works director; four Minnesota DOT staff members; and a representative from UMCTS.

Iowa: Setting Priorities

The Iowa legislature established the IHRB in 1949 to advise Iowa DOT on research. The local highway research program now has an annual budget of \$2 million. Project funds come from three sources: the Iowa primary road fund, the state’s farm-to-market fund, or the state’s street research fund, depending on which road system will benefit.

The board has 15 members: 7 county engineers and 2 city engineers; 4 Iowa DOT engineers; 1 representative from Iowa State University; and 1 from the University of Iowa. The Iowa DOT division director

appoints the members to 3-year terms; Iowa DOT administers the research program.

Local and regional agencies submit research project ideas, and the IHRB establishes priorities and submits recommendations to Iowa DOT for approval. Projects benefitting more than one road system are jointly funded; projects that benefit the state system are eligible for state funds.

State Initiatives

Oregon’s transportation advisory committees provide opportunities for stakeholders to get involved in state DOT activities, including research and development (see box, page 8). Indiana and Washington DOTs also have established programs that connect with stakeholders.

Indiana’s Stakeholder Ties

Some state DOTs have longstanding ties with local and regional agencies. Through the Indiana Joint Transportation Research Program (JTTRP), a 70-year-old partnership with Purdue University, Indiana DOT sponsors the Purdue Road School, an annual conference that dates back to 1914. The conference attracts more than 1,500 local and state officials, agency practitioners, consultants, and suppliers to exchange information and ideas related to research results and needs.

Like JTTRP, the Indiana LTAP center is located on the Purdue University campus. The center provides technical assistance to county, city, and town officials through training programs, workshops, and seminars at the university and other in-state sites, as well as through newsletters and technical bulletins. The Indiana LTAP manager monitors and disseminates JTTRP research on topics of interest to local and regional agencies. The LTAP center advisory board consists of four association representatives; five county commis-

Sample Associations Representing Local and Regional Agencies and Practitioners

- American Concrete Pavement Association
- American Planning Association
- American Public Transportation Association
- American Public Works Association
- America WALKS
- Association of Metropolitan Planning Organizations
- Community Transportation Association of America
- Institute of Transportation Engineers
- International City–County Management Association
- National Asphalt Pavement Association
- National Association of City Transportation Officials
- National Association of Counties
- National Association of County Engineers
- National Association of Development Organizations
- National Association of Regional Councils
- National Association of Towns and Townships
- National League of Cities
- Public Technology, Inc.
- Surface Transportation Policy Project
- U. S. Conference of Mayors



The LRRB has sponsored several traffic calming studies that have provided strategies for the design of urban road projects.

sioners; four town officials and managers; eight ex officio representatives from industry and local associations; four university representatives; and one representative from Indiana DOT.

Washington CRAB

Local agencies interact with state DOTs and state research programs through organizations that administer state road funds for county highway agencies, especially when counties are responsible for the local road system. For example, the Washington state legislature created the County Road Administration Board (CRAB) in 1965 to oversee the state's 39 county road departments. CRAB's mission is to preserve and enhance the transportation infrastructure of Washington counties by providing standards of practice, administration of funding programs, leadership, and progressive and professional technical services.

The board is funded from a portion of the counties' fuel tax and from a small portion of two grant programs. CRAB performs research, prepares technical reports, presents testimony, and is custodian of the county road log, a database for more than 40,000 miles of roads. The research focuses on statutory and regulatory issues that affect county road and public works departments.

In 1985 the state legislature asked CRAB to distribute the counties' portion of the state motor vehicle fuel tax. The formula for the distribution of fuel tax revenues is updated biennially to reflect changes in population, costs, and mileage.

CRAB is governed by a nine-member board—six county commissioners or county council members and three county engineers—appointed by the board of directors of the Washington State Association of Counties. Meeting quarterly, CRAB establishes and maintains a document, *Standards of Good Practice*, to guide and ensure consistency and professional management in Washington county road departments. These standards

are based on state standards and specifications.

CRAB works with the Washington Association of County Engineers and the Washington State Association of Counties on transportation-related issues. Through these indirect connections, county road agencies can interact directly with the state DOT. As the primary representative of the county agencies, CRAB can approach the state DOT whenever local topics emerge—including topics for research.

Expanding Opportunities

These examples illustrate ways that many DOTs connect with local and regional agencies and practitioners. The examples also offer techniques for soliciting and exchanging information and technical advice through these connections.

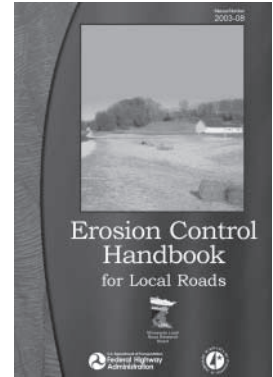
Although these connections are oriented to transportation program and technology transfer activities, some offer more direct mechanisms for involvement in research programs—for instance, through direct oversight of highway research programs and through membership on advisory boards of state DOT research programs. Some formal connections have yet to be exploited for research program stakeholder involvement—such as membership on LTAP center advisory boards.

Several informal settings also serve to connect local and regional stakeholders to research program managers and researchers, but with little or no expectation of research program involvement. Nevertheless, some of these mechanisms offer opportunities.

The list of opportunities presented is not exhaustive, and the effectiveness of many of the techniques has not yet been determined (see Table 2, page 9). The suggested approaches stem from discussions with RAC members, representatives of the LTAP



City and county engineers volunteer to serve on the Minnesota LRRB board and committees. John Rodeberg (*left*), city engineer for Hutchinson, chairs the LRRB Outreach Committee and serves on the board, and Tom Colbert (*right*), city engineer for Eagan, is chair of the LRRB Board. Here, they are participating in a tour of the lift bridge in Duluth, during a joint quarterly meeting of the LRRB and the Research Implementation Committee.



The *Erosion Control Handbook for Local Roads* offers guidelines and methods for erosion control practices on low-volume roads. The LRRB provided funds for this project, and LRRB members served on the project's technical advisory panel.

Oregon's Organized Outreach to Stakeholders

Oregon's structure of advisory committees for transportation illustrates the potential for involving local and regional stakeholders in highway research programs. For example, the Local Officials Advisory Committee provides input to the Oregon Transportation Commission (OTC) on policy and funding for the state transportation system. The committee consists of 12 elected and appointed local government officials selected by the Association of Oregon Counties and the League of Oregon Cities—6 county representatives and 6 city representatives.

In addition, the Oregon Department of Transportation (DOT) has 10 advisory committees on various transportation topics. Each has broad representation from stakeholders—primarily through associations that represent interested and affected groups. For example, the Oregon Bicycle and Pedestrian Advisory Committee advises Oregon DOT on the regulation of bicycle and pedestrian traffic and on the location and establishment of bikeways and walkways. The committee meets quarterly around the state to listen to the views and concerns of interested citizens, local officials, and Oregon DOT regional staff. The eight committee members, appointed by the governor to serve four-year terms, include a local government staff member employed in land-use plan-

ning; a representative of an environmental advocacy group; a bicycle shop owner; a member designated by the Oregon Recreation Trails Advisory Council; a member under the age of 21; and three members-at-large.

Other committees address drunk and drug-impaired driving; freight transportation; the Historic Columbia River Parkway; passenger rail; public transit; stakeholders in the State Transportation Improvement Program (STIP) process; and traffic control devices.

Like other states, the Oregon LTAP center has an advisory committee, including three county representatives, four city representatives, one member from the Association of Oregon Counties, one member from the U.S. Forest Service, and two from the Bureau of Land Management.

In 1996 OTC expanded opportunities for local citizen involvement in Oregon DOT's decision making. OTC authorized 11 regional advisory commissions to address regional and local transportation issues that affect the state system. Their primary role is to provide advice on the development of the STIP, which schedules transportation projects. Because these advisory groups interact with other local organizations dealing with transportation-related issues, they also have the potential to address research needs.



The Oregon Bicycle and Pedestrian Advisory Committee (OBPAC) holds a public meeting in Depoe Bay to listen to the concerns of interested citizens, local officials, and Oregon Department of Transportation regional staff.

centers, and staff of many of the associations listed in the box on page 6. A recent study of stakeholder involvement in agricultural research outlines some additional approaches that may be instructive and applicable (see box, page 10).

Responding to Challenges

Stakeholder involvement in research programs faces substantial challenges (2):

◆ *Making contact, generating interest, and getting a response.* Respondents to a questionnaire sent out by the Research and Technology Coordinating Committee noted that connecting with local and regional agencies and practitioners through professional and technical associations and through LTAP centers is more likely to generate a response than a cold call or a letter. Local agencies often are struggling to keep up with assignments and with day-to-day concerns and therefore are more likely to be interested in information and technical assistance aimed at new or persistent problems than in identifying research needs.

◆ *Time and resources.* Getting sufficient information about local problems and translating the data into a statement of research needs can be difficult, time consuming, and expensive. Nevertheless, costs can decrease over time as information is exchanged, as agencies and practitioners find ways to interact more efficiently, and as evidence develops to support the value of exchanging information.

◆ *Continuity.* Staff turnover can affect institutional memory and interest, especially when the replacements are less familiar with the activity or are unable to participate at the established technical level. Maintaining continuity—in terms of people, effort, issues, and participation—is a challenge, particularly with volunteers.

◆ *Variations among agencies and practices.* Transportation agencies and practitioners differ, and problems vary from locality to locality. Inquiries on specific issues therefore must be focused to maintain interest and produce a useful exchange of information.

◆ *Communication among practitioners and researchers.* Even when practitioners and researchers talk about the same topics or problems, their needs, interests, and purposes may differ, hampering effective communication. Other barriers are the different types, sizes, and kinds of agencies; jurisdictional and functional boundaries; past interactions that were not productive; funding limitations; agency priorities; and the agency's technology choices. Although the local agency representatives may not be as technically astute as the researchers, the agency representatives are often more knowledge-

TABLE 2 Mechanisms for Research Program Involvement

Road show	A conference, sometimes repeated in several locations, that disseminates information about new processes, materials, and techniques. Researchers can exchange information and interact directly with practitioners and can solicit information on current problems and research needs.
Questionnaire	A call for response via paper, fax, or e-mail. Response rate often is low, but responses tend to be detailed.
Open meeting	Workshops, open houses, listening sessions, and joint planning and prioritization meetings—often part of other meetings—that provide opportunity for open and voluntary exchanges of ideas.
Advisory boards, working groups, task forces, or technical councils	Established groups concerned with research and technology transfer. For example, Local Technical Assistance Program (LTAP) center advisory boards include representatives of local and regional agencies. A technical task force of a national association representing local or regional agencies or practitioners could provide information about problem areas and research needs.
Secondary contacts	Organizations such as LTAP centers or professional or technical organizations that can solicit and compile information on problem areas and research needs from constituent target groups.
Websites	Internet postings via FHWA, LTAP centers, and technical and professional associations can solicit problem areas and research suggestions.
Annual meetings	Organizational programs and gatherings offer opportunity to solicit information about problem areas and research suggestions from representatives of states, counties, municipalities, regional councils, towns, county engineers, transit operators, and others.

able about the political and budgetary issues that affect implementation.

◆ *Technology preferences.* Operating agencies prefer proven technologies. Agencies, consultants, and contractors often rely on state DOT standards and specifications for guidance. These agencies, however, understand the limitations of some standards and specifications in meeting their needs.

◆ *Feedback.* Agencies and practitioners want their contribution to research program development to make a difference. When they are asked to participate, they expect feedback indicating that their views have been considered. Failure to provide feedback can damage the relationship.

◆ *Reliance on others for information and technical assistance.* Because resources are limited, local and regional agencies often rely on other state, regional, and local agencies and on other sources—including colleagues, professional and technical organizations, LTAP centers, and industry representatives—for information and technical assistance. Contact with

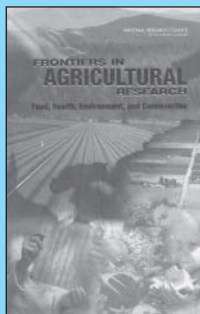
these sources is often informal, and the purpose is to find solutions to immediate problems.

References

1. Highway Statistics. Federal Highway Administration, 2002.
2. Brach, A. *Stakeholder Involvement in FHWA's Research and Technology Program*. Prepared for the Research and Technology Coordinating Committee, TRB, Washington, D.C., May 2002.

Agricultural Research Taps into the Grass Roots

A recent National Research Council (NRC) report on stakeholder involvement in the research program of the U.S. Department of Agriculture (USDA) offers some models for highway research programs.* Like highway research and technology, agricultural research and technology transfer have a long history of federal support. Federal funding for agricultural research began in 1862, and federal legislation launched the Cooperative State Research, Education, and Extension Service in 1887. The USDA research budget today is approximately \$2.1 billion.



Many crosscutting, complementary, and contradictory forces are shaping priorities and resource allocations for agricultural research and education, the NRC study notes. Federal funding includes congressional earmarks for projects, facilities, instruments, and other academic or research-related items. USDA strives for stakeholder input into priority-setting at all levels, through quality assurance mechanisms—such as external peer review of proposals and of ongoing and completed research—to improve the scientific quality of all research activities.

USDA defines stakeholders as the customers, clients, or constituents of agricultural research—the people and organizations using or affected by the research activities. Historically, the most visible stakeholders of agricultural research have been producers, processors, and commodity groups. With changes in perceptions, the scope of agricultural research now includes public health and nutrition, environmental stewardship, and the social and economic well-being of rural communities.

This has expanded the range of stakeholders, and the new stakeholders have their own ideas and insights for research endeavors. Involving all stakeholders increases the challenge of combining diverse concerns into a cohesive, feasible research program.

USDA uses several mechanisms to integrate stake-

holder input into the research process, including formally appointed, national advisory boards and cooperative extension, county-level meetings. The agency recognizes the value of informal working relationships between scientists and users of research findings. Issues have arisen about how to ensure balanced input and how to translate overwhelming amounts of information and diverse perspectives into focused research priorities.

An advisory board draws members from 30 constituencies identified in legislation. Other mechanisms include public workshops and listening sessions; state-level stakeholder input from field offices and universities; stakeholder participation in research and extension grants; informal or ad hoc communications between USDA research offices and USDA regulatory and program offices; and program office staff serving as full-time liaisons at research offices.

In addition, USDA uses solicitations through the *Federal Register*; targeted requests to underrepresented constituencies; informal contacts at scientific and professional meetings, science forums, and user workshops; and communication with other federal agencies, user organizations, trade organizations, peer reviewers, and panel managers. Many contract and agency researchers have informal networks for their own stakeholder input.

The NRC study committee recommended convening a national summit every 2 to 3 years to engage USDA researchers and a broad representation of stakeholders at the local, national, and regional levels. The summit would assess national research needs and apprise stakeholders of how their input is being used in decision making.

A preparatory series of open workshops is under consideration, to be conducted by USDA research offices at local, state, and regional levels. The workshops would tap the national network of cooperative extension and other mechanisms at all levels to develop information on research needs. The NRC study committee also suggested using the Internet to solicit input from stakeholders and to disseminate summit results to stakeholders and the research community.

**Frontiers in Agricultural Research: Food, Health, Environment, and Communities*. National Academies Press, Washington, D.C., 2003. (To order or to view online, www.nap.edu/.)