

IMPLEMENTING NCHRP RESEARCH

Proven Practices, Avenues for Improvement

A 2012 SURVEY OF MORE THAN 500 NCHRP PROJECT PANEL MEMBERS AND INVESTIGATORS SHOWED THAT research results from this state-driven program are being used extensively to improve practice around the country. However, there is still room for improvement in how results are shared and applied. To better understand the structures and processes that have led to current successes and opportunities to further stimulate the implementation of results, NCHRP conducted in-depth interviews with a cross section of more than 60 project panel members; TRB, AASHTO, and FHWA leaders; and state DOT research directors. This folio presents the high-level findings from NCHRP 20-44(P), Evaluating Implementation of NCHRP Products. The final report is available online, along with 10 *Paths to Practice* case studies that highlight a range of successful approaches to putting NCHRP research to use.



Elements of Successful Implementation



Implementation leaders have clear roles

Effective implementation of NCHRP research results requires strong leadership by designated individuals at the national and state levels. The roles and responsibilities for these leaders need to be clear, and their efforts need to be tracked and supported.

See pages 2 and 3 for a description of the implementation leadership provided by TRB staff, AASHTO committee members, NCHRP project panelists, FHWA technical experts, and state DOT practitioners.



Research products are ready to use

Research results are not always “field ready,” or easily understood and applied, without additional assistance. Implementable deliverables go beyond final reports to include demonstration software, websites, policy guidance, and training manuals.

The project investigator provides some of these products, but the project panel members and implementation leaders from TRB, FHWA, and AASHTO must provide additional support and guidance to make these products possible.



Research users are consulted before, during, and after the project

The interviewees for this project repeatedly mentioned the importance of getting support for implementation from the beginning of the project. Support needs to come from those who will lead the implementation efforts, those who will be affected by the research, and those who will provide the channels for presenting the findings.

This means communicating the project goals and interim results to stakeholders in an understandable way, gaining and leveraging the support of AASHTO and FHWA for upcoming changes, and addressing stakeholder concerns before the project is complete.



Institutional structures support rapid dissemination and assimilation of results

It's not enough to produce a tool or specification. The research results need to be distributed broadly to those who can use them. The committees, task forces, and working groups of TRB, FHWA, and AASHTO provide critical channels for disseminating the results to end users and offering technical support and guidance for effective application.

State DOT technical teams and oversight committees also play key roles in facilitating implementation, initiating changes to policy and practice documents, and partnering with industry and universities to train staff on new approaches and techniques.

IMPLEMENTATION LEADERS PUT RESULTS INTO PRACTICE

NO SINGLE PERSON OR ORGANIZATION IS SOLELY responsible for implementing the results of an NCHRP research project. Instead, putting results into practice requires an extensive, coordinated effort by national and state leaders. Identifying these implementation champions, assigning them clear responsibilities, and tracking their implementation efforts as they unfold will encourage wider use of NCHRP research findings.

NCHRP Project Panelists



Since no national standards existed for using flowable fill, NCHRP panel members led efforts to customize their state specifications using NCHRP research results.

Every NCHRP project is guided by a panel of individuals nominated to serve because of their subject area expertise and their ability to provide effective project guidance. Volunteer panelists from state DOTs, universities, and industry provide crucial connections to the organizations and individuals who will benefit from the research. Because of their strong ties to end users, the project panelists are expected to take on prominent leadership roles in implementation, including:

- Help scope the research project to address a pressing need; the results are more likely to be used.
- Incorporate implementation planning in the project scope.

- Require an implementation plan from the project investigator.
- Invite stakeholder feedback on the project scope, research progress, and preliminary deliverables—and suggest changes as needed to address potential implementation roadblocks.
- Present project findings and implementation opportunities to peers around the country.
- Help customize the research products to encourage implementation.
- Lead implementation efforts within their own departments, regionally and among local transportation agencies.
- Participate in pilot implementation projects and share their experiences with other agencies.

State DOT Practitioners



Traffic engineers at the Missouri DOT are leading implementation of the J-turn intersection, an innovative median treatment highlighted in NCHRP Report 650.

NCHRP is the states' research program, funded by state DOTs and designed to respond to the significant transportation challenges identified by them. As the front line in designing, building, operating, and maintaining the transportation system, state DOTs are ultimately responsible for making changes to practice that are prompted by NCHRP research results. DOT managers and staff should lead implementation activities in a variety of ways:

- Participate in AASHTO committees that propose and prioritize research projects, focusing on those that states will be eager and ready to implement.
- Serve on NCHRP project panels, guiding both the research and implementation.

- Distribute and promote research results to practitioners at the state and local levels.
- Customize the findings and products from NCHRP projects for application within their own agencies and states. Develop guidance documents, conduct follow-up state research, and lead pilot implementation projects.
- Monitor the progress and outcomes of NCHRP projects across topic areas. Prepare to make state practice and policy changes based on the research findings.
- Initiate implementation projects through State Transportation Innovation Councils using competitive funding available through FHWA.

TRB Senior Staff

TRB senior staff play a critical role in coordinating the implementation of NCHRP research. As the facilitators for NCHRP project panels, they guide many of the key decisions that impact implementation success, from the selection of engaged project panelists to the scoping of relevant research plans. They serve as the go-to source for information on project goals and progress, making them key leaders in implementation planning and coordination:

- Work with the project panels to ensure that implementation planning is incorporated into the scoping of the research project.
- Communicate project status, expected results, and implementation goals within TRB, to AASHTO committees, and to relevant FHWA offices.
- Help task forces plan implementation support materials and follow-up activities.
- Ensure stakeholders are aware of implementation opportunities and pilot efforts underway at state agencies.
- Track the steps being taken to implement results, and monitor the need for assistance.
- Identify project funds or other resources to support dissemination and technology transfer efforts, such as communication materials, webinars, peer exchanges, training courses, and pilot projects.

FHWA Executives and Staff

FHWA representatives participate on most NCHRP project panels, providing both subject area guidance and national context for the work being done. Their visible and vocal support for the research, both while it is underway and when the findings are ready to be shared, is critical for state acceptance and confidence in going forward with implementation. Additional implementation leadership provided by FHWA should include:

- Submit problem statements for funding consideration by NCHRP, as inspired by FHWA research roadmaps and a keen understanding of state DOT obligations, challenges, and goals.
- Develop and update guidance documents using NCHRP research results.
- Encourage research-driven changes to practice among state DOT practitioners and FHWA staff.
- Use NCHRP research as the technical basis for national initiatives.
- Lead marketing efforts to promote new products and practices resulting from NCHRP research, leveraging state connections with FHWA resource centers and division offices.
- Document and share implementation successes through lead state and pilot initiatives.
- Provide resources for state adoption of innovations through the State Transportation Innovation Council Incentive Program.

AASHTO Committee Members



NCHRP research informs many AASHTO products, from guidance on snow and ice control materials to AASHTOWare Bridge Management software.

AASHTO standing committees, subcommittees, and technical committees are integral to the successful implementation of NCHRP research. State DOT members of these groups have a vested interest in seeing the results of research applied at their agencies, have the technical expertise to oversee the research, and often make the final recommendation for official AASHTO specifications and guidance documents. Their leadership roles in implementation should include:

- Submit NCHRP problem statements based on committee members' experience and ongoing evaluation of current AASHTO specifications, standards, and guidance.
- Review interim and final project deliverables. Provide feedback to the NCHRP project panels and TRB staff liaisons.
- Plan ahead to incorporate NCHRP project findings into AASHTO documents. Work with NCHRP project panels to address potential challenges for state implementation.
- Work with TRB to develop implementation tools, such as websites and software, that will improve understanding of the research and use of the results.

MILESTONES FOR IMPLEMENTATION

IMPLEMENTATION ACTIVITIES SHOULD BE AN INTEGRAL part of every step in the life cycle of a research project. Coordinated efforts by multiple national and state leaders from the beginning to the end of the project will enhance the likelihood of successful application of NCHRP research results. These milestones are key checkpoints for tracking implementation progress and anticipating related resource needs.



Implementation Focus for Project Milestones

Project selection

Fund projects that are in broad demand and ensure the research plans address pressing needs. States will be more eager to implement the results.

Panel formation

Select a mix of subject area experts—some to provide technical guidance and others to provide real-world grounding—to ensure the results are implementable. Make sure that panel members understand their leadership role in implementation and are willing and able to help disseminate the findings.

Scoping the work plan

Include deliverables that will support use of the results, such as specification language, software tools, training materials, and dissemination assistance. Identify potential institutional, financial, and technical challenges to implementing the findings and make plans to address them.

Research in progress

Involve potential end users well before the project concludes by sharing preliminary results with state DOT subject area experts and inviting feedback about potential changes to practice from industry representatives. Work with AASHTO and FHWA to plan for updates to national guidance documents. Establish user liaison groups and implementation task forces when needed.

Final deliverables

Develop an implementation plan for distributing final results, supporting state customization efforts, and responding to requests for technical assistance. Work with investigators to translate findings for use by state and national organizations. Develop a range of communication materials to promote the findings and educate end users.

Dissemination and technology transfer

Provide technical guidance and support for communicating project results and encouraging implementation at the state and local levels. Consider follow-up projects to aid technology transfer.

Paths to Practice Case Studies

These two-page case studies, available online, describe in detail a range of specific steps that NCHRP implementation leaders have taken to apply research results.

- National Partners Drive NCHRP Implementation
- States Spur Effective Use of NCHRP Products
- A Revolution in Highway Safety Planning
- Updating the Authoritative Guide on Capacity
- Standards and Training for Scour Prevention
- Optimizing AASHTO's Bridge Software
- How to Minimize Deicing's Environmental Impact
- Putting Flowable Fill Guidance to Work
- Research Makes the Case for Roundabouts
- Safer Intersections for Rural Highways



ACKNOWLEDGEMENT OF SPONSORSHIP Work was sponsored by the American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration, and was conducted in the National Cooperative Highway Research Program, which is administered by the Transportation Research Board of the National Academies.

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