

AASHTO STANDING COMMITTEE ON RESEARCH
STRATEGIC PLAN 2015-2020

Prepared for:

AASHTO Standing Committee on Research

July 1, 2015

Acknowledgments

This document was prepared for the AASHTO Standing Committee on Research by the SCOR Strategic Plan Update Task Force, with support from the National Cooperative Highway Research Program (NCHRP).

Members:

John Halikowski (co-Chair), Arizona Department of Transportation
Skip Paul (co-Chair), Louisiana Department of Transportation and Development
Darryll Dockstader, Florida Department of Transportation
Jim McDonnell, AASHTO
Anne Ellis, Arizona Department of Transportation
Jack Jernigan, FHWA
Calvin Leggett, North Carolina Department of Transportation
Tommy Nantung, Indiana Department of Transportation
Leni Oman, Washington State Department of Transportation
Bob Sack, New York Department of Transportation
Steve Takigawa, California Department of Transportation
Michael Trentacoste, FHWA

With support from Christopher Hedges and Christopher Jenks, NCHRP/TRB staff.

Disclaimer:

The opinions and conclusions expressed or implied are those of the Task Force members and are not necessarily those of the Transportation Research Board or its sponsoring agencies. The report has not been reviewed or accepted by the Transportation Research Board Executive Committee of the Governing Board of the National Academies.

Plan Overview

The AASHTO Standing Committee on Research had its origins as the Highway Research Activities Committee in 1927. The responsibilities of the committee were to: 1) keep apprised of research activities of the DOT member departments and the Bureau of Public Roads; 2) develop a list of active research projects; 3) report the results to the Association (AASHO); and 4) to make recommendations for (but not to carry out) needed future research. One of the driving forces behind the formation of this committee was the discovery that there was a great deal of duplication in the research being conducted at the state level. In the mid-1930's, the committee's role was expanded to monitor ongoing research at universities, colleges, and the private sector. In the late 1950s, AASHO leadership requested the development of a plan whereby these research needs could be funded without having to go to each state on a case by case basis. In 1962 the National Cooperative Highway Research Program (NCHRP) began operation, using essentially the same funding formula that exists to this day.

The role of SCOR and its antecedents evolved over time. Much of the monitoring and reporting role fell to the Transportation Research Board, through their state visit program and eventually the development of the TRID and Research in Progress databases. The focus of SCOR gradually narrowed to a specific emphasis on the formulation of NCHRP. Over the past two decades, SCOR and its Research Advisory Committee have taken on a larger role in promoting the value of research, access to research information, and sound research practices. AASHTO turns to SCOR when formulating its research recommendations for highway bill reauthorizations. In 1987, the Research Advisory Committee was formed, to provide SCOR with representation from all states and to provide a body of transportation research specialists to support and conduct SCOR's activities. This role expanded dramatically when RAC formed Task Forces that resulted in much greater activity in research administration, collaboration and coordination, program management and quality, transportation knowledge networks, and the value of research.

Implementation has become a much greater emphasis area for SCOR. There has always been recognition that research has little or no value until it is deployed. While the NCHRP cannot implement research on its own, it is channeling resources to make sure that NCHRP products are getting to the right people in the right format at the right time. Efforts are continuing to enhance the dissemination and facilitate the deployment of NCHRP products.

SCOR has initiated a number of activities in the past several years that further expanded their scope of interest. In 2009, SCOR funded a series of projects looking at long-range strategic issues that would face transportation agencies over a 50 year timespan. In 2013, SCOR commissioned several projects dealing with information and knowledge management, and supported the development of enhanced tools for research performance measures. In March 2014, SCOR provided funding for a TRB Policy Study to follow up on TRB Special Report 313: *Framing Surface Transportation Research for the Nation's Future*.

Finally, SCOR's parent organization AASHTO completed an update of its own strategic plan in 2014. In order to address SCOR's evolving role, and to ensure compliance with AASHTO's overall goals and objectives, it was time to initiate a review and update of the SCOR strategic plan. The plan should be consistent with AASHTO's overall *Vision, Mission, and Values (2014-2019)*, which is provided in Appendix A.

The draft strategic plan for SCOR that follows was developed by a Task Force of SCOR members. It is based on a review of the new AASHTO Strategic Plan 2014-2019, previous editions of the SCOR Strategic Plan, and input from members of SCOR, RAC, other AASHTO committees and staff, and additional stakeholders. Each element of the plan is consistent with provisions in the AASHTO Strategic Plan 2014-2019.

VISION STATEMENT:

A national multi-modal transportation system where the safety and mobility of people and goods is optimized by state-of-the-art research, technology, and innovation.

MISSION STATEMENT: SCOR will serve as AASHTO's foremost proponent for high-value transportation research, technology, and innovation to provide a safe and efficient transportation system to improve the nation's mobility of people and goods. SCOR and its Research Advisory Committee (RAC) will support AASHTO and the transportation community in identifying, conducting, delivering, and facilitating deployment of high-value research results. SCOR and RAC will ensure that transportation research addresses critical short-term and long-term national needs through its own activities and by consulting and advising other transportation programs at the national, regional, state, and local levels.

GOALS:

1. **Advocate** for the importance of research, development, and innovation.
2. Champion and facilitate the **dissemination and deployment** of effective, high-priority research results.
3. Facilitate **collaboration and partnerships** with other local, state, federal, private, university, and international research programs.
4. Ensure that the NCHRP produces research that is of high **quality and relevance**, addresses the needs of AASHTO members and the nation, and provides a **high return on investment**.
5. Continuously **review and improve** committee functions and activities.

Strategies have been identified for each of these five goals.

STRATEGIES

1. **Advocate** for the importance of research, development, and innovation.
 - Effectively communicate the overall potential and value of research so that research is recognized as integral to delivering improved transportation services.
 - Assist AASHTO with the development of recommendations for the research component of highway bill reauthorizations.
 - Facilitate the identification and recognition of high-value research projects conducted by the AASHTO member departments.
 - Encourage and support the use of sound knowledge management practices to ensure that future transportation professionals will have ready access to the knowledge they need.
2. Champion and facilitate the **dissemination and deployment** of effective, high-priority research results.
 - Develop strategies and guidance for the efficient and effective implementation of research results.
 - Develop mechanisms to track the impacts and benefits of completed research.
 - Encourage and support the reporting of research and published reports to the RiP and TRID databases.
 - Pursue joint activities with AASHTO and FHWA on the targeted deployment of high quality, ready-to-implement research results.
 - Review research agendas and activities to support deployment and implementation of new technologies and innovations.
3. Facilitate **collaboration and partnerships** with other local, state, federal, private, university, and international research programs.
 - Participate in a national, ongoing dialog to define and maintain a framework for strategic transportation research that meets the challenges of today, tomorrow and the distant future, promoting the role of innovative technologies to support improvement of system performance.

- Ensure regular and effective communication and liaison with national partners at the U.S. DOT and AASHTO and with relevant AASHTO Standing and Subcommittees.
 - Support the research needs of the AASHTO member states through the NCHRP and through the dissemination of information on other research funding programs.
 - Maintain an awareness of issues and research activities in the AASHTO member state DOTs.
 - Represent AASHTO in a coordination role with other national and international research initiatives.
 - Support the dissemination of research problem submittals that are not addressed in the NCHRP to other appropriate research organizations.
 - Seek opportunities to improve communications and partnerships.
4. Ensure that the NCHRP produces research that is of high **quality and relevance** that addresses the needs of AASHTO members and the nation, and provides a **high return on investment**.
- Ensure that DOT staff and AASHTO committee members have the tools they need to develop and submit high-quality research problem statements to the NCHRP.
 - Ensure adequate participation by state DOT stakeholders, FHWA, and other appropriate subject experts at all stages of the program, from development and submission of problem statements, review of proposals, selection of contractors, management of research, approval of interim and final reports, and implementation of results.
 - Support a core program of practical, focused research topics.
 - Identify high level, national strategic needs and encouraging activities to address them.
 - Ensure that effective NCHRP procedures and National Academies' policies and agreements are followed to ensure the objectivity and credibility of the program.
 - Emphasize the selection of problem statements that have a high probability of producing practical, implementable solutions to current pressing needs.

- Put an increased focus on the development and implementation of products and strategies to facilitate deployment of NCHRP results.
 - Develop more effective communication strategies to disseminate information about SCOR activities and the NCHRP program.
 - Conduct business in alignment with the ten facets of knowledge management to optimize the distribution, retention, value, and availability of the information created in the NCHRP.
5. Continuously **review and improve** Committee functions and activities.
- On an ongoing basis, review the relevance of SCOR and RAC activities with respect to the strategic plan.
 - Periodically report to the AASHTO Board of Directors and other AASHTO committees the activity of SCOR in support of AASHTO and its members.

Appendix A: Extract from AASHTO Strategic Plan 2014-2019

AASHTO's Vision, Mission, and Values

The AASHTO Strategic Plan Update Committee reframed AASHTO's vision, mission and values as part of the 2014-2019 Strategic Plan.

Vision Statement

The American Association of State Highway and Transportation Officials supports members in the development of transportation solutions that create economic prosperity, enhance quality of life, and improve transportation safety in our communities, states, and the nation as a whole.

Mission Statement

The American Association of State Highway and Transportation Officials supports its members through policy development, advocacy, technical services, and leadership development and through advancing partnerships and promoting innovation.

Values

AASHTO has several core values that govern its day-to-day decision-making. AASHTO is:

- Safety-Focused** (*in operations and through relentless pursuit of safer transportation*);

- Innovative** and Adaptable (*forward-looking and willing to explore new solutions and adapt to evolving member needs*);

- Collaborative** (*active in partnership and inclusive to those with shared vision and values*);

- Accountable** (*open and transparent, responsive to stakeholder needs, operating with integrity*);

- Service-Oriented** (*activities and initiatives are aimed at supporting member departments and their interests*).

AASHTO's goals and strategies were identified by the AASHTO Strategic Plan Update Committee. They are based on input from surveys and discussions with AASHTO leaders, staff, and membership, and an assessment of the strengths, weaknesses, opportunities, and threats of AASHTO. The Plan focuses on four key goals:

1. Provide Value to Members
2. Provide Innovative Technical and Professional Services and Products
3. Be a Leader in National Transportation Policy Development
4. Communicate the Value of Transportation

Goals 1 and 2 are more internally focused on AASHTO while Goals 3 and 4 are more externally focused. For each Goal, action-oriented strategies and potential implementation actions are identified. It is recognized that additional work will need to be done on a select list of the implementation actions to develop a focused, practical and implementable action program to guide AASHTO activities.

1. Provide Value to Members

AASHTO is dedicated to providing the highest possible value to its members. Members provide the backbone of AASHTO's policy development, advocacy and strong technical services.

Strategies to accomplish this goal include:

1.1. Regularly self-assess AASHTO value to members

AASHTO will regularly reach out to members to understand how members perceive the value AASHTO is providing them and how AASHTO can improve its member service.

Implementable actions include:

- Create a process to periodically review AASHTO value to members

1.2. Identify and address the needs of all members

AASHTO will focus on identifying and addressing the diverse needs of the organization's members.

Implementable actions include:

- Improve communication opportunities with/for membership
- Educate members and CEOs about available AASHTO services and resources
- Tailor member service strategies to accommodate differing state DOT needs

1.3. Promote awareness of AASHTO resources, including its technical services

AASHTO will promote awareness of available resources to improve the value of existing programs for members.

Implementable actions include:

- Define and communicate the AASHTO brand
- Expand new member education and initiation on-boarding programs
- Document AASHTO staff roles and responsibilities and make that information broadly available
- Explain the AASHTO budget, pricing policies and value to members

1.4. Develop and cultivate future leaders and core competencies within member agencies

AASHTO will support the long-term health of the transportation industry, including development of future generations of leaders and future core competency needs.

Implementable actions include:

- Provide/support leadership and technical training
- Identify core competency needs and how AASHTO programs can help address gaps (such as back-office support programming)

1.5. Ensure alignment of organizational activities to the strategic plan

AASHTO will work to ensure the alignment of committee activities and technical services and products to the strategic plan. AASHTO will work to improve the adaptability of committees and help committees coordinate and collaborate on cross-cutting transportation issues.

Implementable actions include:

- Review committee structure and expectations
- Review research agenda and activities to ensure support for innovation and implementation of innovative strategies
- Align AASHTO president's focus areas with the strategic plan

2. Provide Innovative Technical and Professional Services and Products

AASHTO will maintain and build on its well-recognized and highly-regarded technical services and products that are widely used by members and the larger domestic and international transportation community. AASHTO will continue providing state of the art technical services and products to members in the face of mounting challenges, which include a thinly stretched staff, reliance on volunteer services of members, and demands for

affordable products and electronic access to technical products.

Strategies to accomplish this goal include:

2.1. Make technical service and product areas financially self-supporting

AASHTO will strengthen its technical services by focusing investment on products and services that meet the organization's mission and can be financially self-supporting or generate revenue.

Implementable actions include:

- Establish principles for evaluation of technical services and products (such as competitiveness with other service providers)
- Assess issues and trends at state DOTs to identify gaps in technical service and product offerings

2.2. Identify improvements to technical service delivery

AASHTO will improve technical service delivery and increase the value of existing and future products and services for their members.

Implementable actions include:

- Explore platforms and innovative approaches for technical services and service issues
- Make technical products more affordable and available

2.3. Identify and support high priority research

AASHTO will continue to identify national research priorities that help member agencies develop and implement effective transportation solutions. Among other items, research should explore the proper role of innovative technologies to support improvements to transportation system performance.

Implementable actions include:

- Conduct a critical review of technical service and product areas
- Identify research gaps
- Work with AASHTO committees and partners to develop and implement effective research efforts addressing national priorities

3. Be a Leader in National Transportation Policy Development

AASHTO seeks to advance the interests of its membership by playing a leadership role in transportation policy development. One of AASHTO's great strengths is its access to and

influence on national decision-makers. AASHTO is committed to working with partners in transportation policy development.

Strategies to accomplish this goal include:

3.1. Monitor and share national and state policy and legislation

AASHTO members have an important stake in national transportation policy. AASHTO will monitor national and state policy and legislative activities.

Implementable actions include:

- Regularly monitor policy and legislative activities and inform membership of opportunities and threats
- Engage membership in presentation of national and regional transportation needs to Congress

3.2. Explore innovative policy areas and challenges

AASHTO will be forward-thinking in the policy development area, proactively identifying opportunities and challenges.

Implementable actions include:

- Develop a strategy for encouragement of innovation, such as innovation forums
- Focus attention on the steps required to support the implementation of research results and best practices
- Pursue opportunities to improve system performance by accommodating and encouraging innovative technologies in construction, maintenance, operations, and management processes

3.3. Enhance AASHTO's policy effectiveness through collaborative partnerships

AASHTO has a successful track record of working collaboratively with many partners. Partnerships with external organizations can be an effective way to leverage AASHTO resources and to extend the Association's reach.

Implementable actions include:

- Develop a plan for enhancing beneficial partnerships
- Develop tool kit for the engagement of partners (including private sector partners)
- Convene meetings/summits around key transportation issues to collaboratively set priorities

3.4. Support members in developing practical, cost-effective multimodal transportation solutions

AASHTO recognizes that its members have diverse needs and concerns and that solutions utilizing one or more transportation modes must be considered. AASHTO will work internally and with partners to address these multimodal needs.

Implementable actions include:

- Recognize and support national performance measures to move towards zero fatalities for all transportation system users
- Strengthen partnerships that support a multimodal focus
- Recognize and support the development of a full range of transportation solutions that meet the needs of a diverse set of states and communities

4. Communicate the Value of Transportation

AASHTO will work with members to develop the tools to communicate state and local transportation needs and priorities. AASHTO will continue to help communicate the value of transportation at the national level.

Strategies to accomplish this goal include:

4.1. Provide members with the tools to tell the transportation story

AASHTO will support the efforts of its members to make transportation needs resonate with decision-makers and transportation users.

Implementable actions include:

- Identify audiences and opportunity areas for telling the transportation story
- Partner with members and other organizations in communication the value of transportation

4.2. Facilitate broad understanding of the link between transportation investment and economic prosperity, quality of life, and safety

AASHTO will continue to advance the national dialogue on transportation and draw a clear link between investment in transportation and benefits in economic prosperity, quality of life, and improved transportation safety for America's citizens.

Implementable actions include:

- Develop strong transportation narratives and tools that have broad impact on the transportation dialogue

Appendix B: The Ten Facets of Knowledge Management

<http://trbkm.org/2014/07/10-facets-of-knowledge-management/>

Knowledge Technologies	KM Technologies focuses primarily on the hard aspects of knowledge work. This includes building applications, delivering technology solutions, the seamless integration of knowledge technologies into the business context, the configuration of virtual environments and applications to support knowledge workers wherever they are working, and the development of technologies to support knowledge creation, capture, exchange, discovery and preservation.
Knowledge Asset Management	Knowledge Asset Management includes capabilities related to knowledge retention and loss, mapping, diffusion and mobilization, transfer, knowledge organization systems, information governance, quality, disclosure, policy, content and records management, and preservation.
Knowledge Assessment and Evaluation	Knowledge Assessment includes capabilities related to organizational management, knowledge audits, knowledge metrics, benchmarking, and overall evaluation methods.
Intellectual Capital Management	Capability to manage an organizations intellectual capital, including its human capital, structural capital and relational capital. Human capital management includes understanding the theory of knowledge and expertise, the economic view of knowledge and knowledge assets, managing and investing in knowledge workers, talent and competencies, the skills required to manage a global workforce, a virtual workforce, and international workforces.
Communities and Collaboration	Collaboration and Communities has both hard and soft competencies. The soft aspects include fostering inter- and intra-organizational collaboration, intra-unit collaboration, encouragement of professional, knowledge and social networking, developing facilitation and resolutionary skills among team members. The hard aspects include designing and implementing environments and technologies that foster collaboration – whether in physical or virtual spaces.

Culture and Communication

Culture and Communications requires primarily soft competencies such as fostering a knowledge sharing culture, ensuring that the institutional ethics, reward systems, and cultural artifacts all reinforce the value of knowledge.

Knowledge Operations

Knowledge Operations also has both soft and hard competencies. The soft competencies include ensuring that knowledge processing is aligned with the organizations business goals and objectives, and is integrated into the organization's everyday business and work. It also includes decisions sciences and systems, business architecture and workflow management. The hard competencies include elicitation and representation of human capital (tacit knowledge and skills) as structural knowledge (business rules, business process applications), business process optimization, operations compliance, and business analytics

Organizational Learning

Organizational Learning includes capabilities that support a learning organization, including organizational learning, group learning, individual learning, situational learning, lifelong learning, learning in virtual environments, instructional design, and problem solving methodologies.

Knowledge Leadership and Strategy

Leadership and Strategy focuses on the capability to develop and promote a knowledge vision, to develop a strategy to realize that vision, to communicate the organization's commitment to the vision and strategy, leading by example, identifying opportunities for knowledge interventions, acting as a transformation agent in shifting the organization's thinking from industrial and financial capital to intellectual capital, and knowledge and intellectual policy guidance and formulation.

Knowledge Architecture

Knowledge Architecture includes the capability to elicit requirements, prepare functional specifications and design solutions to challenges found in knowledge work. Includes an understanding of data and information architecture but primarily focuses on people, how they work, how they think, how they create and test ideas, and on knowledge as an entity in the semantic grid. Knowledge architecture includes the capability to apply general architectural principles to the knowledge environment and problems.

Appendix C: SCOR STRATEGIC PLAN, March 27, 2013

VISION STATEMENT: Act as AASHTO's driving force for high-value transportation research and innovation to provide a safe and efficient transportation system to improve the nation's mobility of people and goods.

MISSION STATEMENT: Support AASHTO and the transportation community in identifying, conducting, delivering, and facilitating implementation of strategic, high-value research results. SCOR will facilitate access to accurate information and the deployment of new products and procedures for developing and operating transportation systems. SCOR will ensure that transportation research addresses critical short-term and long-term national needs and complements and supplements federal, state, local, and other programs.

STRATEGIES:

1. Champion, optimize, and enhance the quality and value of research and innovation to AASHTO, the transportation community, and the public.

- Effectively communicate the overall potential and value of research so that research is recognized as integral to delivering improved transportation services.
- Advocate research as a priority for authorization.
- Facilitate implementation of research results.

2. Partner with the U.S. DOT and other stakeholders from academia, the private sector, and other organizations to create and sustain strategic national transportation research programs.

- Participate in a national, ongoing dialog to define and maintain a framework for strategic transportation research that meets the challenges of today, tomorrow and the distant future.
- Through NCHRP (and in coordination with and joint funding by other CRPs, etc.), address strategic national transportation research efforts.
- Through RAC and other AASHTO committees and subcommittees, coordinate aspects of individual state DOT research agendas that support national programs while recognizing the need for flexibility in state programs to meet their needs.

3. Lead research planning and programming.

- Advance plans that identify and prioritize both immediate and long-term research needs.
- Influence and coordinate with other national and international transportation research agendas.

4. Ensure the development and application of successful research of the National Cooperative Highway Research Program (NCHRP).

- Formulate the annual NCHRP program.

- Emphasize and improve the awareness and deployment of NCHRP research products and processes.
- Continue to improve management practices for NCHRP processes and research.

5. Continuously review and improve Committee functions and activities.

- At each meeting of SCOR, review the relevance of the current strategies as providing direction to the work of SCOR and as guidance to RAC.
- Periodically report to the AASHTO Board of Directors and other AASHTO committees the activity of SCOR in support of AASHTO and its members, the state departments of transportation.