The New England Transportation Consortium

A Unique Example of Regional Cooperation

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New England's highway agencies share common challenges, including the age of their highways and bridges, similar weather conditions that can be more severe than elsewhere in the nation, and limited financial resources to investigate and solve problems on their systems. The New England Transportation Consortium (NETC) was established to help the states in this region meet their special research needs. Now entering its second decade, NETC has established itself as a multistate partnership whose approach may be applicable in other regions.

The Massachusetts Institute of Technology, through its Center for Transportation Studies and Center for Construction Research and Education, took the lead in establishing NETC. It launched an initiative in December 1983 to establish a highway infrastructure research and education program with New England's state universities and departments of transportation. MIT convened a meeting of the six New England DOTs, the states' six flagship universities, and the Federal Highway Administration. After considerable discussion and preliminary scoping work the program began in October 1986, with the funding of the first research contracts.

Five states participated: Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The program was administered by MIT, FHWA, and the American Association of State Highway and Transportation Officials. MIT and AASHTO jointly managed the program through December 1994. AASHTO's role was unique as described in the next section. In January 1994 the Region I office of FHWA began the transition to assume the management of the program. From 1994 through early 1995 the states developed a new permanent management structure for the program. The lessons of NETC's first 10 years are considered here.

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The New England Transportation Consortium was formed to pool the financial, professional, and academic resources of New England states to enable them to improve methods for addressing common problems in the planning, construction, maintenance, rehabilitation, reconstruction, and operation of the highway systems in the five participating states. The program was intended to supplement individual, ongoing state research programs and participation in the National Cooperative Highway Research Program (NCHRP). It should also be noted that the Region One (New England) University Transportation Center (UTC) program, formed in 1988, was designed to build on the success but not duplicate the activities of the NETC. The theme of the UTC program is the strategic management of transportation systems, including transit and highway systems, whereas NETC is focused on highway issues.

NETC was established to achieve the following goals:

- Implement a three-pronged program for New England to consist of research and development, technology transfer, and education and training.
- Develop improved methods for addressing common transportation problems.
- Make effective use of the results of completed and current research activities.
- Establish a source of trained transportation professionals for employment in New England.

Organization and Management

NETC's simple organizational structure eliminated unnecessary administrative complexities. Establishing the structure involved several innovations, including requesting the Executive Committee of AASHTO to designate that organization as

the overall sponsor and contractor for the consortium. This was the first time AASHTO had agreed to sponsor a regional research program, having previously sponsored only nationwide research efforts such as NCHRP. AASHTO had two conditions for its participation: that NETC allow other interested states to join the consortium and that any of AASHTO's member departments have access to the results of NETC-sponsored research. Although no states outside New England have asked to join the consortium, several have requested and received information concerning specific research projects.

Highlights of Organizational Structure

The participating states, MIT, and AASHTO operated under an informal agreement until a formal memorandum of understanding (MOU) was finalized in February 1988. This MOU, approved by FHWA, established the organizational structure of the consortium (Figure 1), to be guided by a policy committee composed of the chief administrative officers of the member state agencies, the MIT principal investigator, the FHWA Region I Administrator, and the AASHTO Executive Director. The policy committee had responsibility for the overall direction, budgets, and priorities for the program and monitored its progress. More frequent and continuing guidance was provided by a policy advisory committee and technical committees. The technical committees, composed of technical experts from each state and FHWA, were particularly important to the success of the research program. The committees worked very closely with the university investigators, and together they produced the results that were eventually implemented. MIT was responsible for the day-to-day management of the program, including contract administration.

Another factor that strengthened NETC was that the participating DOT chief administrative officers took a direct, hands-on interest in funding the program, setting priorities, and providing the leadership needed to influence the continuing participation of the states' technical personnel on specific projects. They insisted on and provided a high-quality, professional environment in which to undertake the program, and they showed appreciation for the results. This high level of interest and participation has transcended the changes in political leadership and high-level agency appointments during the last 10 years.

Funding

One of the typical challenges faced in the joint administration of a research program by a state DOT and a university or group of universities is contracting. AASHTO's agreement to participate in NETC created a mechanism for state funds or federal highway planning and research funds to be transferred to AASHTO and for a single contract to be established between AASHTO and MIT. As the states provided more funds for new research projects, the main contract was modified to add those resources to the program. MIT and the five state universities were selected to undertake research projects through a competitive process. When a state university was selected by the NETC policy committee, the funds were made available through a no-overhead contract between MIT and the state university. When MIT was selected for a project, a simple agreement was established within the main contract.

The pooled-fund approach, which AASHTO also uses for other projects such as its computer software joint development efforts, allows AASHTO to simplify program administration by acting as a third-party funding organization and prime contractor. All contract matters must be specifically authorized by the NETC policy committee, with decisions being transmitted to AASHTO and MIT.

Project Selection

Candidate projects were recommended by the participating states, state universities, and MIT. The NETC policy committee ranked the recommendations in priority order using criteria that included regional significance, common needs, and suitability for university research. The policy committee also determined the amount of funding for each project. A request for proposals was developed for each project by the assigned technical committee, and MIT and the state universities were given the opportunity to submit competing proposals. MIT removed itself from the process before the requests for proposals were issued. The technical committees evaluated the proposals and submitted recommendations to the policy committee, which then selected the university that would undertake the project.

In its first round of projects (October 1986 through June 1988), NETC funded two activities. The results were so encouraging that the second round was expanded to five projects (including two carryovers from the previous round). Five rounds were funded through calendar year 1994.

Technology Transfer

A comprehensive series of final reports was completed for each funding activity. The reports are an important output of the NETC program because its primary purpose is to provide new methods for addressing old as well as new problems and to share that information with the sponsors and others in the transportation profession.

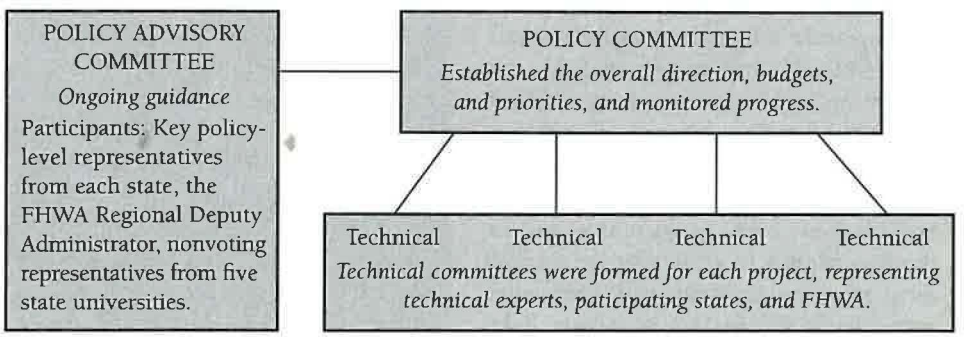

Figure 1 Organizational structure of the New England Transportation Consortium.

A number of workshops and seminars have been held during the past several years to describe the results of various NETC activities. The capping event reflecting the joint management of the program by MIT and AASHTO was the June 1993 conference at the New England Center in Durham, New Hampshire. The results and applications of NETC activities were summarized at the conference, which was attended by transportation professionals from the public and private sectors throughout New England.

All research does not necessarily result in new advances or breakthroughs in knowledge. However, an extraordinary amount of technology transfer has occurred through NETC. Participating states not only worked with universities in identifying projects, but they also participated throughout the life of each project as a technical committee of experts. Thus the states and universities established a vested interest in the conduct of the research and in using the results of each project. This close interaction occurred from the initial concept stage when a technical committee was formed for each project while the scope of work was being developed. This is similar to the procedures used by NCHRP, in which technical panels are formed. In the case of NETC, however, the technical committees met frequently and worked closely with the university principal investigator.

Education and Training

Education and training were integral elements of the NETC program. State and federal technical representatives participated in all projects, not only contributing their knowledge and experience, but also learning from the research. Graduate and undergraduate students participated in the research projects, gaining access to training and educational opportunities that would otherwise have been unavailable. The research and technology advances provided by each project also led to improvements in university courses. Finally, professional training was provided through workshops and seminars held throughout the program period. The university participants in NETC expressed gratitude for these learning opportunities.

Retrospective Look at Program

The NETC program has proven to be a cost-effective, simple, and fruitful way for a large number of participants to work together on cooperative regional efforts to address and solve transportation infrastructure problems of mutual concern. NETC projects have provided the states with cost-effective solutions to growing regional transportation problems, improved productivity, the integration of new technology applications, enhanced educational opportunities for staff, and the continuing development of a pool of professional talent. The participating universities have gained stable long-term transportation research funding, opportunities to improve and expand transportation-related educational programs, opportunities to make contributions to infrastructure rehabilitation, incentives to attract more students to civil engineering and transportation programs, and a pool of university research and education professionals.

MIT prepared a final report that summarizes the accomplishments realized over the past 10 years, but that final report does not mark the end of NETC. It is simply a milestone in the program. The Intermodal Surface Transportation Efficiency Act of 1991 provided unprecedented flexibility and opportunities for research programs to be expanded and administered more easily in the future. A new organizational structure was put in place in 1995 to respond to this turn of events. Connecticut DOT joined the program in 1994, making the program fully representative of the New England region. The funding contributions by each state have been increased, and a permanent organizational mechanism is currently being established. This regional approach to cooperative research might well be adapted by other consortia of highway agencies in the United States and other nations.

Summary of Accomplishments

Sixteen projects were funded by NETC during Rounds 1 through 5. The accomplishments of the past 10 years have included the following:

- Implementation of the first-in-the-nation common procedures for issuing permits for oversize/overweight trucks; FHWA eventually expanded this as a national initiative.
- Implementation of a nondestructive testing technique for determining the condition of asphalt-overlaid bridge decks.
- Agreement on a common regional bridge rail design, which has now been crash-tested.
- A definitive assessment of the need for collecting truck data, and a common data collection form for doing so.
- Development of a regional rail transportation plan aimed at assisting in the preservation of essential rail freight service, the first effort of its kind in New England in the recent past.
- A comprehensive and cooperative approach for evaluating federal environmental regulations and an assessment of environmental concerns in the region.
- Development of an analytical method for environmental analysis that included an unprecedented degree of cooperation among the U.S. Fish and Wildlife Service, the Environmental Protection Agency, the U.S. Army Corps of Engineers, the Region 1 office of FHWA, and state DOTs.
- A common, more cost-effective approach to collecting vehicle classification and truck weight data.
- An innovative method for recycling used tires.
- A common approach for evaluating the reason for the relatively high costs of constructing bridges in New England.