



New England Transportation Consortium

Transportation Pooled Fund Project #TPF-5(373)
Lead state Maine DOT

MEETING REGIONAL NEEDS

NETC Overview and Goals

The New England Transportation Consortium (NETC) is a research cooperative among the state departments of transportation of **Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont** together with the **Federal Highway Administration (FHWA)**. Maine DOT serves as the lead state for the consortium.

NETC is a valuable partnership for the identification, conduct, and dissemination of transportation research of common regional interest. NETC strives for:

- Financial leveraging opportunities and regional partnerships
- Stronger partnerships between university faculty and state DOTs
- User-defined, diverse research topics
- Opportunities for research dissemination and training to practitioners in the field

Partnerships

Each of the member state transportation agencies has designated a state university partner to participate in developing and conducting the transportation research program: **University of Connecticut (UConn), University of Maine (UMaine), University of Massachusetts System (UMass), University of New Hampshire System (UNH), University of Rhode Island (URI), and University of Vermont (UVM)**.

History

NETC is going strong in its fourth decade.

The Massachusetts Institute of Technology and the American Association of State Highway and Transportation Officials originally managed the program in 1983. FHWA next managed NETC until the member states developed a permanent management structure for the program in 1995.

Between 1995 and 2018, program management and coordination was provided by UConn, UMass-Dartmouth, and the UVM Transportation Research Center.

Currently, CTC & Associates, a technical communications consulting firm specializing in the transportation sector, is providing project management and coordination services for NETC.

STAKEHOLDER OUTREACH

2019 Symposium

The 2019 NETC Symposium, held in June in Concord, New Hampshire, was a day for learning, sharing, and discussion among members of the New England transportation research community.

Transportation subject matter experts and university representatives from the New England states convened to address transportation research needs and opportunities. Discussions covered a wide range of topics—materials, bridges, the environment—all driven by the needs and interests of participants.

The full-day event included:

- Opening and closing plenary sessions
- Mini peer exchange sessions
- Roundtable discussions
- Poster presentations
- Networking opportunities
- Discussions on research ideas to solve New England's most pressing transportation issues

NETC aims to initiate new research projects to serve and advance the New England transportation network based on the documented outcomes of the 2019 NETC Symposium.



Transportation stakeholders drove the discussion at the 2019 NETC Symposium.

HIGH-IMPACT RESEARCH RESULTS

These four projects are a sampling of NETC research and illustrate the scope and reach of the program. Learn more about these and other completed and in-progress research projects at newenglandtransportationconsortium.org.

Unified Regional QA Processes for Precast and Prestressed Concrete Elements

Project 13-3



The use of quality assurance (QA) systems in highway infrastructure is critical to ensure durable, safe, and economical transportation operations.

In New England, state DOTs can realize a significant cost savings if uniform QA processes for manufacturing and construction are used across states. This enables sharing of QA resources and streamlines producer and contractor operations.

In a multiphase study, researchers first conducted an in-depth evaluation of the current acceptance standards for precast/prestressed concrete elements among New England DOTs. This formed the basis for recommended unified QA processes for these agencies.

In the follow-up phase, researchers examined transportation agency cost-sharing mechanisms, developed uniform QA inspection paperwork, and selected projects for pilot testing. This project also led to inter-agency agreements to allow for sharing of QA inspection resources.

Connected and Automated Vehicles Across New England's Borders

Quick-Response Project 17-1

Regional coordination in anticipation of the widespread use of connected and automated vehicles (CAVs) will better educate New England's population, influence policy, reduce costs, and provide safer and more efficient roadways for the traveling public.

This project, an example of NETC quick-response research, helped identify cross-border issues and developed a 2019-2023 road map for implementing regional initiatives.

The research yielded an ongoing benefit to all six NETC states by establishing a working group to promote discussions of regional CAV issues.



Research Benefit Estimation Tool

Quick-Response Project 17-2

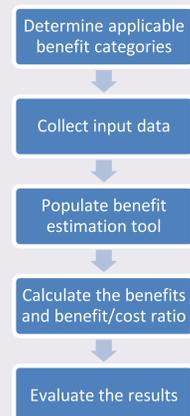
Quantifying the benefits and cost-effectiveness of research projects helps agencies justify their research investment and better direct research efforts in the future.

This NETC quick-response research project began with an existing benefit estimation framework and updated and enhanced it for use by consortium members.

The resulting benefit estimation tool's quantification guidelines are structured as a five-step process with several potential benefit categories, including:

- Engineering/administrative
- Construction/installation
- Operation/maintenance
- Road user
- Environmental
- Life cycle
- Insurance/risk management

The tool provides the NETC program and its members with a consistent way of evaluating and financially justifying research projects. The output of the tool can also be used to assess the effectiveness of an agency's research program as a whole and can inform decisions about whether to implement specific research findings.



Computer Simulation of MASH-Compliant Steel Bridge Rail and Transitions

Project 18-1 (in progress)

The objective of this project is to aid with Manual for Assessing Safety Hardware (MASH) compliance by developing computer simulations of guardrail configurations for New England steel bridge rail and transitions.

Researchers are using Load and Resistance Factor Design strength calculations and finite element analysis computer simulation to evaluate the crash performance of three NETC bridge rail and approach guardrail transition designs.

The impact conditions and assessment procedures will conform to the specifications for MASH test levels (TLs) associated with selected trucks (TL-3 or TL-4, as appropriate) and will include evaluations of structural capacity of the railing, risk of occupant injury, and vehicle stability during impact and redirection.

The anticipated completion date of this work is June 2020.



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