

The following Research Problem Statements were discussed during the Advisory Committee meeting on April 15th, 2014. The scores listed at the end of the discussion notes reflect where it was ranked among all the research ideas. If the score is a “0”, the project was removed from consideration during a preliminary “yes/no” vote by the Advisory Committee. The maximum score is 18, reflecting six states at 3 points each.

- NI4VT1: Feasibility Study of Bridge Deck Deicing Using Geothermal Energy in New England Region. The Problem Statement should not include the PIs name. There is a TRB Study looking into this problem. Research already exists so this project is not necessary. The future of bridge deck deicing will likely include solar, wind, steel erosion, green technology. If there is enough interest, this Problem Statement could be redeveloped by the DOT (not the PI). (0)
- NI4VT2: Mitigation of Adverse Impacts from Flooding on Transportation Infrastructure in New England. There have been recent changes nationally in stormwater effects on transportation due to climate change. National models do not work in Vermont because of the mountainous geography and intense rains. Local regulations are trying to require 100 year flood designs. The topography in New England is unique, and there is a lack of good hydrologic models for small basins like what we see in Vermont. (0)
- NI4VT3: Defining Livability Performance Metrics for Transportation in New England. The Advisory Committee is not sure what we would get out of this project. Livability in Vermont could be used as a part of funding decisions, policy, and prioritization. There is pressure from the executive staff at DOTs to make decisions considering livability. It’s in USDOT strategic pln. There’s not a great definition of livability at the national level, and we need to figure out what livability means to us in New England. It was recommended that the scope include metrics with monetary and qualitative considerations. The scope might be underpriced. The Scope of Work is vague and should focus on implementable research. The NETC would rather wait until livability is formally defined on a national level before looking at this on a regional level, to ensure that our definition does not conflict with the national definition. Also, it might be difficult to get all six states to agree to one definition. (8)
- NI4VT4: Assessing the Relative Levels of Interstate and International Travel in New England as a Factor in Support of Regional Transportation Financing Systems (0)
- NI4VT5: Simulator training for variable New England weather conditions (0)
- NI4VT6: Advancing Soil Stabilization by In-situ Measurement. It would be nice to check and make sure that what we are designing is working properly. Would the Scope include Corrugated Metal Pipes (CMP) only? Vermont averages 4 closures a year due to CMP failures that seem to include damage from both deterioration and voids simultaneously. Sometimes rusted pipes are repaired, but not the voids. There are not enough resources at the state level to perform inspections as it is, nevermind if the inspections are to include voids. The Scope of Work might be difficult to write, and the budget seems low compared to how much work would be involved. (9)
- NI4CT1: A Comparison of Safety Performance between Flashing Yellow Arrow Signals (FYA) and other Left-Turn Control Treatments in New England. Lots of work being done nationally with FYAs. CT currently doesn’t have any and would like to look at feasibility. Since we have regionally unique driving behavior, do FYAs make sense here? Are they safe in New England? National studies do not use New England data or case studies. FYAs exist in very few places in NE, but should we be using them more often? MA and NH already include FYAs in their design process, so this is a low priority for them. Data for this project might take a long time to collect if safety observations are to be made. NH has approximately 6 FYAs in state, with a number more planned in the coming years. CT asked if MA or NH were monitoring safety after the installation, but the answer was “not likely”. (7)
- NI4CT2: Expansion Joint Movement Measurement and condition Monitoring for New England Bridges (0)
- NI4NH1: Developing an Index Parameter for Cracking in Asphalt Pavements (0)
- NI4NH2: Secondary Compression of New England Seacoast Marine Deposits. Currently, the first settlement is approx. 90%, and the second settlement is approx. 10%... Can we improve on that? CT

thinks this project is too locally specific and not regional enough. CT has 1st and 2nd generation projects that seem to be performing well, so this research is not a priority for them. RI agrees with CT. MA likes the research idea, but agrees that it is too specific to NH, and notes that it might require more budget. (8)

- NI4NH3: Development of Future Climate Data Products for Infrastructure Design in the Northeast. There is a lot of research being done nationally that says the existing climate change models are not perfect. The Advisory Committee seems to want to see the models improved on a national level before we look at this regionally. The second object of the research problem statement is good. We might not be able to predict climate change, but we still need guidance on how to mitigate climate change events. This may be more of a synthesis project. The scope may be too high level. The scope suggests a long term project. It might be more feasible to wait for improvements to the NOAA, FEMA models and in the meantime determine what data we need to input into the models for New England. RI would like to know exactly what climate change impacts will affect transportation (i.e. temperature pavement cracks, sea level rise, etc.). In Vermont, the changes will be vary based on location. This topic is quite robust. How long are climate change predictions good for? (7)
- NI4MA1: BOD Impact of Nonchloride Based Anti-icing and Prewetting Agents on Surface Water Quality. There is some concern that this isn't totally practical. Phase 1 might be useful, though. Executives at ConnDOT are pressing to study corrosion effects, but BOD isn't high on their radar. Vermont has discharge permit requirements, and they have found that low flow water locations are not good for deicing because of the effects on water quality. (8)
- NI4MA2: Bridge Expansion Joint Deterioration and Repair. MA sees this as an important issue and thinks it might be suitable for a synthesis project. The budget seems low and will likely only cover a literature search. NH liked the idea, but did not think it was robust enough. CT bridge engineers were on the fence about it. There is some overlap with an upcoming report from the NE Bridge Preservation Partnership. (12)
- NI4MA3: GRS-IBS Full Scale Performance Test (0)
- NI4MA4: Protecting Critical Bridges in New England against Multi-Hazard Events: Integrating a Reliability Based Analysis Approach into Next Generation of Load and Resistance Factor Design and Assessment. The consensus is that this is a national issue, not a regional one. (9)
- NI4MA5: Use of RBB to Improve Railroad Track Performance. Resiliently Bound Ballast is a new engineered aggregate material. Some states have already had training on design and maintenance. Other states weren't really interested because it is expensive. Also, it was noted that train crews are already familiar with and trained to use existing practices. It would be cumbersome to train on a new design standard, and they are already understaffed. Also, "UMass" should be removed from the Research Problem Statement. (6)
- NI4MA6: The impact of pedestrians on operations and air pollutant emissions at roundabouts vs signalized intersections. Recommendations include increasing locations in other states, increase budget, increase regional focus. The scope of work might be too broad. NH's traffic guy commented that there is already a lot of work done in this area. An NCHRP project exists with tools to track emissions on foot. (9)
- NI4MA7: Effect of Travel Time Reliability at Work Zones on Route Choice and Trip Scheduling (0)
- NI4MA8: Optimizing future work zones in New England for safety. Vermont asked if the project would include a minimization component? Looking at the length of the work zone as a way to optimize safety. Highlight attachment A. Are there issues with going against the MUTCD? (10)
- NI4ME1: Measuring the Effectiveness of Competency Models for Job-Specific Professional Development of Engineers & Engineering Technicians. CT wondered if this was specific to our region? VT was supporting of the project. The Advisory Committee wonders if AASHTO will define competency. If so, some local initiatives will become nationally competitive. What does that do to our New England certification? When considering training and metrics, does NE want to use the national model? RI supports the project because we need to ensure basic competencies are in place. (14)

- NI4ME2: Understanding and Preventing Moisture Damage of New England Hot Mix Asphalt (HMA). CT didn't see this as a regional issue. The Research Problem Statement is too vague. Vermont wondered if the project is targeted as a possibility or probability. (7)
- NI4ME3: Investigation of Northern Long-Eared Bat Roosting Sites on Bridges. Connecticut liked this research idea. (12)
- NI4ME4: Low Cost Road Weather Warning Systems for Weather-Related High Crash Locations. There is a safety group in NE that has monthly phone calls. NH had a hard time understanding what was being proposed. The Research Problem Statement is too vague. Will the warning system alert the public? Alert maintenance crews? Does this make more sense as a synthesis project? Vermont would be interested in warning systems designed to alter driving behavior. Treatments are likely site specific, though. (8)
- NI4RI1: A Study on the Deformation Behavior of an MSE Wall on a mixed Foundation System. With all the ongoing bridge work, there have been lots of issues with subgrade conditions, footings, walls, etc. Vermont would rather the Research Problem Statement identify what is defined as failure. RI would like to see case studies of different failure types (soils, hydro, etc.). How exactly do they fail under different situations? The research idea only lists one location, but it should include more sites. This would increase the budget. (6)
- NI4RI2: Reducing Single Occupancy Vehicles and Vehicle Miles traveled among State Employees. MA commented that the idea sounded specific to RI and recommends the Research Problem Statement be revised to sound more regional. The scope of work is about identifying incentives, so it can be applied in all states. Also, the idea should clarify that this problem is specific to commuting, not during-work-hours travel. (7)
- NI4RI3: Automated Sidewalk Quality and ADA Compliance Assessment within State ROWs (0)

The four projects chosen to move forward are for the 2014 NETC Research Program:

- *NI4ME1: Measuring the Effectiveness of Competency Models for Job-Specific Professional Development of Engineers & Engineering Technicians* (14)
- *NI4ME3: Investigation of Northern Long-Eared Bat Roosting Sites on Bridges.* (12)
- *NI4MA2: Bridge Expansion Joint Deterioration and Repair.* (12)
- *NI4MA8: Optimizing future work zones in New England for safety.* (10)

Request for Proposals solicitation is expected to occur in August 2014.