

Transportation Research Program Overview and Coordination with External Research Partners

SENATE TRANSPORTATION COMMITTEE, FEB. 26, 2021

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OVERVIEW

- When Research was part of the Materials Lab, there was more staff and more field and internal research.
- Now, two staff and greater emphasis on research management
 - External research projects led by VTrans
 - Maximizing utilization of external payments
 - Pooled funds including NETC
 - National Cooperative Highway Research Program/TRB
 - Regional University Transportation Center (U of Maine)

EXTERNAL RESEARCH PROCESS (VTRANS-LED)

- Solicit research ideas by December each year
- Match with VTrans technical Champions by early January
- Champions prepare Research Project Statements in January
- Solicit Letters of Interest from Qualified Researcher List in February
- Qualified Researchers responded to RFP in January
 - 7 selected: 5 universities and 2 consultants
- Champions select research teams
- Proposals due March 11
- Champions present to Bureau Directors (March 31) who decide on projects to fund

CURRENT EXTERNAL RESEARCH PROJECTS

- 19-1 Reclaimed Stabilized Base
- 19-2 Erosion Mitigation
- 19-3 HIVE 2 (Culvert Crawler)
- 20-1 Asphalt Stripping Potential
- 20-2 Snow and Ice Performance
- 20-3 Rectangular Rapid Flashing Beacons



TECHNICAL ADVISORY COMMITTEE (TAC)

- All VTrans led projects have TACs
- Technical Champion
- Research Staff
- AOT staff from different Bureaus, Divisions
- Technical staff from other Agencies
- RPC Staff
- More participation, more project guidance, more implementation potential



EXPECTING THESE EXTERNAL RESEARCH PROPOSALS ON MARCH 11

- Traffic Safety Toolbox – Addressing Speeds (UVM)
- Development of a Predictive Methodology to Apply the Systemic Safety Approach to Highway Safety in Vermont (CS)
- Development of Cost-Effective Rapid-Setting Concrete for Improved Bridge Joint Performance (UNH)
- Study of the Use of Coffee or Other Similar Substances and/or Bi-Products to Reduce Metal Corrosion (UM)
- Radio Frequency Identification (RFID) and Similar Technologies for Transportation Asset Management (UVM)
- Wildlife Vehicle Collision Mapping (UVM)

ADDITIONAL VTRANS RESEARCH ACTIVITIES –Slide 1

- Annual Research and Innovation Symposium (September)
- Quarterly Newsletter
- Research Evaluation (Quantitative and Qualitative)



2020 VIRTUAL RESEARCH & INNOVATION
Poster Symposium



AOT
RESEARCH & INNOVATION

 **VERMONT**
AGENCY OF TRANSPORTATION

ADDITIONAL VTRANS RESEARCH ACTIVITIES –Slide 2

- Internal Projects
 - FHWA Experimental Features
 - Pavement Life
 - Shadowing Cavendish-Weathersfield



NEW ENGLAND TRANSPORTATION CONSORTIUM (NETC)

Fund three research
projects/year, webinars,
Symposium

Example Projects

18-3 Integrating Unmanned
Aerial Systems

19-1 Curved Integral Abutment
Bridges

20-4 Connected and Automated
Vehicle Legal and Regulatory
Issues



NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

- FFY21 Contribution \$240,000
- All states vote on 120-150 potential projects a year
- 60 new projects are funded
- VTrans staff on the following project panels (examples):
 - Workforce 2030: Recruiting and Training the Next Gen Trans Construction Workforce
 - Quantifying the Impacts of Corridor Management
 - Practices for Ensuring Bridge Surface Smoothness
 - Incorporating Maintenance Costs into a Transportation Asset Management Plan
 - Design Guide for Rural Deviated Fixed Route Transit Systems
 - Innovations Deserving Exploratory Analysis (IDEA)





TRANSPORTATION RESEARCH BOARD (TRB)

- All State DOTs are TRB Sponsors
- Many Technical Committees, webinars all year, TRB Annual Meeting in January
- 80 VTrans staff participated in Virtual TRB Annual Meeting (January 2021)
- VTrans Technical Committee membership includes:
 - Research Implementation Innovation Management
 - Winter Maintenance
 - Transportation Earthworks
 - Environmental Analysis and Ecology

REGIONAL UNIVERSITY TRANSPORTATION CENTER (U OF MAINE)

- Transportation Infrastructure Durability Center (TIDC UTC)
- UVM is one of five partner universities
- VTrans Technical Advisors on all UVM-led projects
- Active in TIDC UTC Advisory Board (meets twice a year)
- New sand borrow project



A consortium of the following New England Universities:



AASHTO RESEARCH ACTIVITIES COMMITTEE (RAC)



- State DOT Research Managers
- Region 1 is Northeast (11 States and DC)
- Vermont Chairs Region 1; National Chair is at Maine DOT
- Facilitates peer exchanges, mentoring, information sharing
- Vermont hosted Virtual Summer RAC 2020

VTRANS RESEARCH ACCOMPLISHMENTS

- Project Champions from across the Agency
- Variety of projects: materials, structures, snow and ice, environmental, etc.—directly and indirectly research funded, other
- Annual Symposium
- Virtual AASHTO RAC
- Thriving during the pandemic—lots of virtual learning opportunities