



AOT Staff at TRB Annual Meeting

PRESENTATION TO EXECUTIVE STAFF

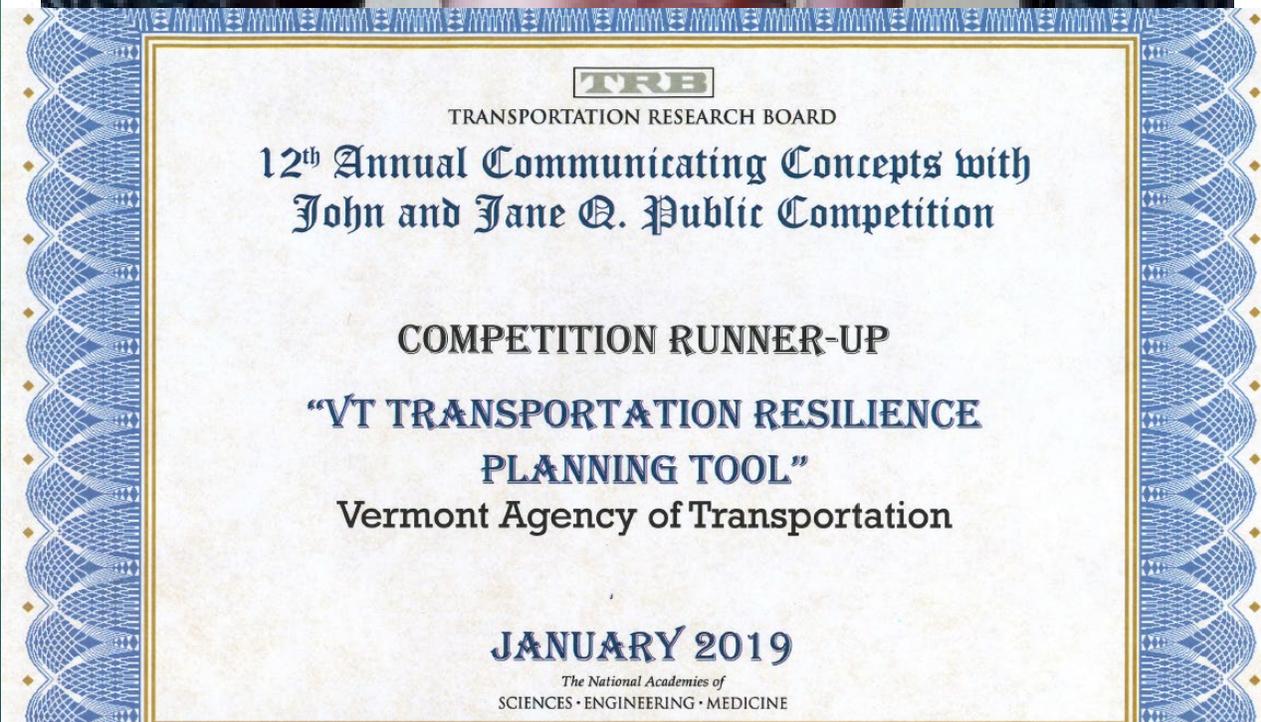
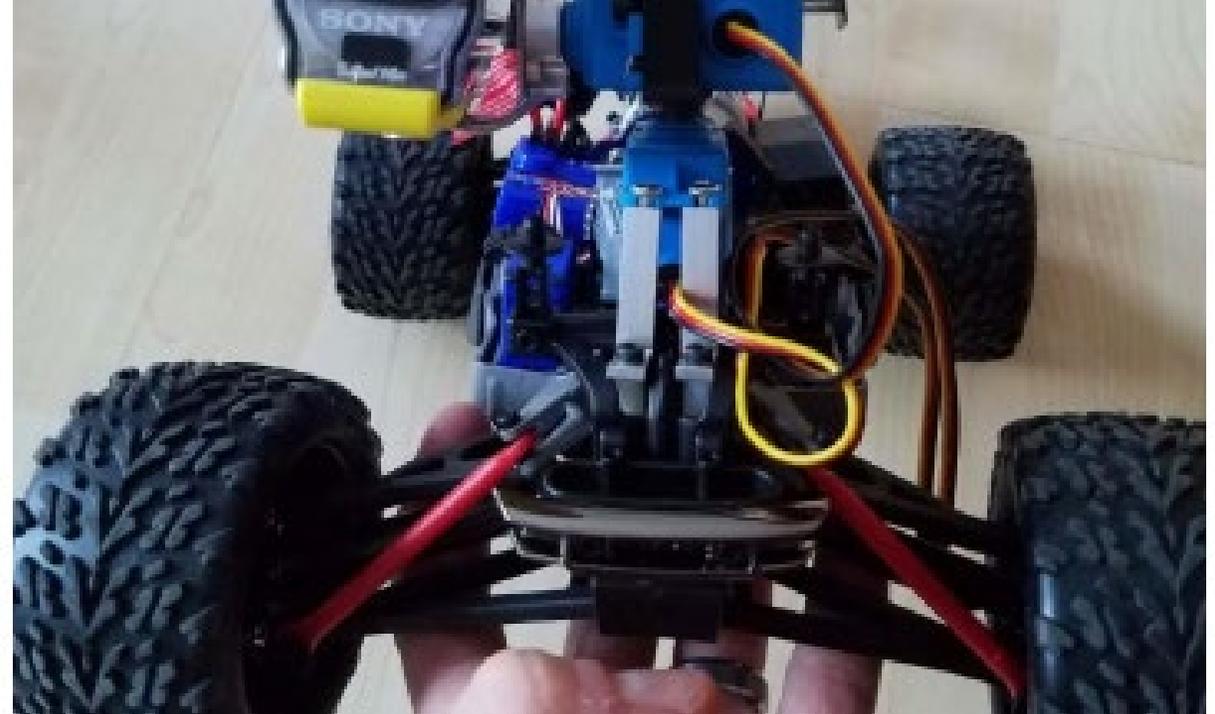
MARCH 18, 2019

Transportation Research Board Annual Meeting

- ▶ Every January in DC
- ▶ Workshops Sunday morning, Sunday afternoon, Thursday morning
- ▶ Sessions, committee meetings, posters Monday-Weds
- ▶ Exhibits Sunday-Tuesday
- ▶ 13,000+ attendees (1/3 government, 1/3 academic; 15% international)
- ▶ 2019 Research Work Program Includes (based on SPR-B allotment)
 - ▶ \$80,000 TRB support
 - ▶ \$235,000 NCHRP support

Who Attended and Why (1/2)

- ▶ **Emily Parkany**, Research Manager, TRB State Representative, AASHTO RAC Winter Meeting, member of two TRB committees and several subcommittees, organized two sessions, etc., SPR-B funded
- ▶ **Ian Anderson**, Research Engineer, AASHTO RAC meeting, exposure to peers and research trends, SPR-B funded, TSD Pooled Fund kickoff meeting
- ▶ **Jon Griffin**, now Structures formerly Asset Management, presented paper, "VAOT's Technical Transfer Adaptation of MnDOT's Hydraulic Inspection Vehicle Explorer", SPR-B funded
- ▶ **Joe Segale**, Policy, Planning, and Research Bureau Director, poster and oral presentation of Transportation Resilience Planning Tool (& Receipt of John and Jane Q Public Award), SPR funded
- ▶ **Toni Clithero**, Legal, attended to participate in committee meetings and share information concerning current legal issues impacting DOTs, TRB funded



Who Attended and Why (2/2)

- ▶ **Nick Wark**, Hydraulics Manager, supported the research strategic plan of his AASHTO committee by coordinating with three TRB committees
- ▶ **Kristin Higgins**, Structures Program Manager. Voting member on AASHTO's Committee on Bridges and Structures. Recently assigned to the COBS technical Committee on Research (T-11). This committee reviews applications for research and makes recommendations for AASHTO endorsement. Provides opportunity for endorsed research to better benefit Vermont. T-11 met during TRB and will hold mid year meetings in the future at TRB
- ▶ **Shaun Corbett**, Utilities/ROW, at TRB that week because NCHRP panel also met that week; attended two sessions related to utilities
- ▶ **Kevin Viani**, formerly Chief of Performance, workshop presentation on Tri State Performance Benchmarking, session presentation on Partner Collaboration through VTransparency. Partial funding support through I95 coalition

Major Takeaways



Important to have a seat “at the table”.

By participating in committee meetings and NCHRP panels we can get more than Vermont's share in projects, influencing projects and activities, etc.



Easier for small state to learn and implement (make a change to a process, influence selection, incorporate a new technique, etc.)



TRB is an important face to face venue for interacting with our AASHTO peers and interactions beyond State peers



Staff should attend TRB with a purpose (not just as a reward). Need for Executive Staff guidance about which TRB and AASHTO Committees we should/can focus on



Worthwhile professional development and peer networking

Examples of Other Things that we want to share (1/8) Research Management

- ▶ NCHRP 20-44 Implementation funding—NCHRP is eager to provide money for consulting services related to a NCHRP project
 - ▶ Learned that domestic scan 17-01 about UAS was released so VAOT can apply for funding related to a UAS program
- ▶ FHWA Non-Destructive Evaluation Website
<https://fhwaapps.fhwa.dot.gov/ndep/>
- ▶ Other states are anxious about the SPR-B guidance issued in Oct 2018 and some states have had their Division Offices reject potential research projects but there is limited interest in asking for too much clarification
- ▶ We should check Clear Roads website for work on using agricultural byproducts for deicing
- ▶ Research to implementation is not a linear process
- ▶ LTAP 10 minute Tailgate Talks
(<http://www.montana.edu/ltap/tailgatetalks/> for example)

Examples of Other Things that we want to share (2/8) Research

- ▶ Learned of efforts for Innovation at other State DOT's.
 - ▶ Maintenance Lead Innovation Database: [MaintainRoads.org/innovation-database](https://www.maintainroads.org/innovation-database)
 - ▶ Innovation competitions conducted at the district level, incentivizing and encoring employees to innovate and improve processes at their work level.
 - ▶ Can we create a culture of innovation by first introducing/allowing it at each individuals job. Thus creating a critical mass of innovators, so it influences everything we do.
- ▶ Advances in Network Level Pavement Evaluation
 - ▶ Traffic Speed Deflectometer (TSD) has the ability to rapidly assess the current condition and structural capacity of our roadways, both on the network and project level.
 - ▶ Implementation of this technology could advance our ability to plan and maintain our highway network.
 - ▶ The combination of a number of technologies into one system, TSD, allows for complete assesment of the pavement surface and subsurface

Examples of Other Things that we want to share (3/8) Structures (1/3)

▶ **TRB Joint Subcommittee on Accelerated Bridge Construction – AFF00 (2)**

- ▶ supports research, technology transfer, and implementation to advance ABC technologies related to policy, planning, procurement, design, materials, construction, and contracting
- ▶ Functions under the TRB AFF00 Structures Section and AFH00 Construction Section of the Design and Construction Group
- ▶ Vermont's affiliation with this committee is essential to the advancement of ABC in Vermont. As an early adopter of ABC Vermont is a respected partner and participates in National research.
- ▶ ABC Websites:
 - ▶ <https://sites.google.com/view/trb-aff00-2/home>
 - ▶ <https://abc-utc.fiu.edu/resources/project-research-databases/>

Examples of Other Things that we want to share (4/8) Structures (2/3)

▶ **Building Information Modeling (BIM) –**

- ▶ New technology changing the design and delivery of projects across the nation.
- ▶ Utah and Iowa are leaders in the deployment of modeling and visualization.
- ▶ Need for collaboration with industry – currently fabricators enter data obtained from project plans.
- ▶ Challenges with developing software – Shared experiences from other countries.
- ▶ Vermont has participated in PEER exchanges and is working to adopt this technology.
 - ▶ North Hero/Grand Isle drawbridge – Developing a maintenance plan through BIM
 - ▶ Readsboro – Consultant tasked with producing a model design as a deliverable
- ▶ Met off line with Cheryl Hersh Simmons from Utah DOT and discussed challenges for implementation. Utah will be an important contact as we move forward.

Examples of Other Things that we want to share (5/8) Structures (3/3)

- ▶ **Fiber Reinforced Polymer (FRP) Deployment in Bridge Construction –**
 - ▶ Overview workshop on deployment of FRP in bridge construction
 - ▶ Most common application is its use in concrete repairs/strengthening
 - ▶ Research on using FRP fabric to strengthen steel members
 - ▶ Structures will use GFRP reinforcing as an option for Level 3 reinforcing.
 - ▶ In past practice Vermont excluded GFRP from the overhangs as the material did not meet design requirements. As the code is updated these restrictions will be eliminated allowing GFRP to be used exclusively.
 - ▶ Reached out to John Busel from American Composites Manufacturers Association for contacts regarding FRP use on steel structures. John gave the presentation and is in contact with states currently doing research.

Examples of Other Things that we want to share (6/8) Data/Performance

- ▶ Viani – Transportation is increasingly being seen as a mechanism to influence quality of life. Strategy and Performance need to continue to evolve do the same.
- ▶ Viani - Growing need for data centric skillsets and tools
 - ▶ Data Governance is an important area of future focus
 - ▶ Need to invest in data scientists today for future needs
- ▶ Viani - New Mobility Services (ie car services or bike shares)bring all new data sharing and integration challenges best structured through policy.

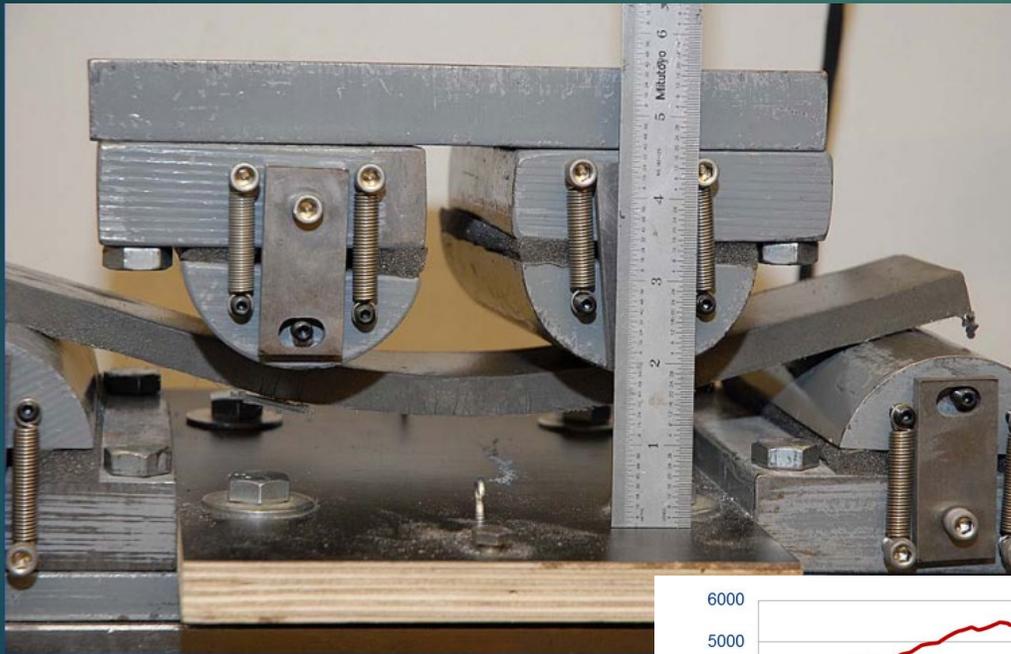
Examples of Other Things that we want to share (7/8) Utilities/SHRP 2 R15B

- ▶ Learned from Texas and Delaware implementation of SHRP2 R15B. VT is also implementing SHRP2 15B so this insight and one on one interactions was valuable.
- ▶ In response to an FHWA audit, we may be executing utility agreements on all projects so attended a session on utility agreements.

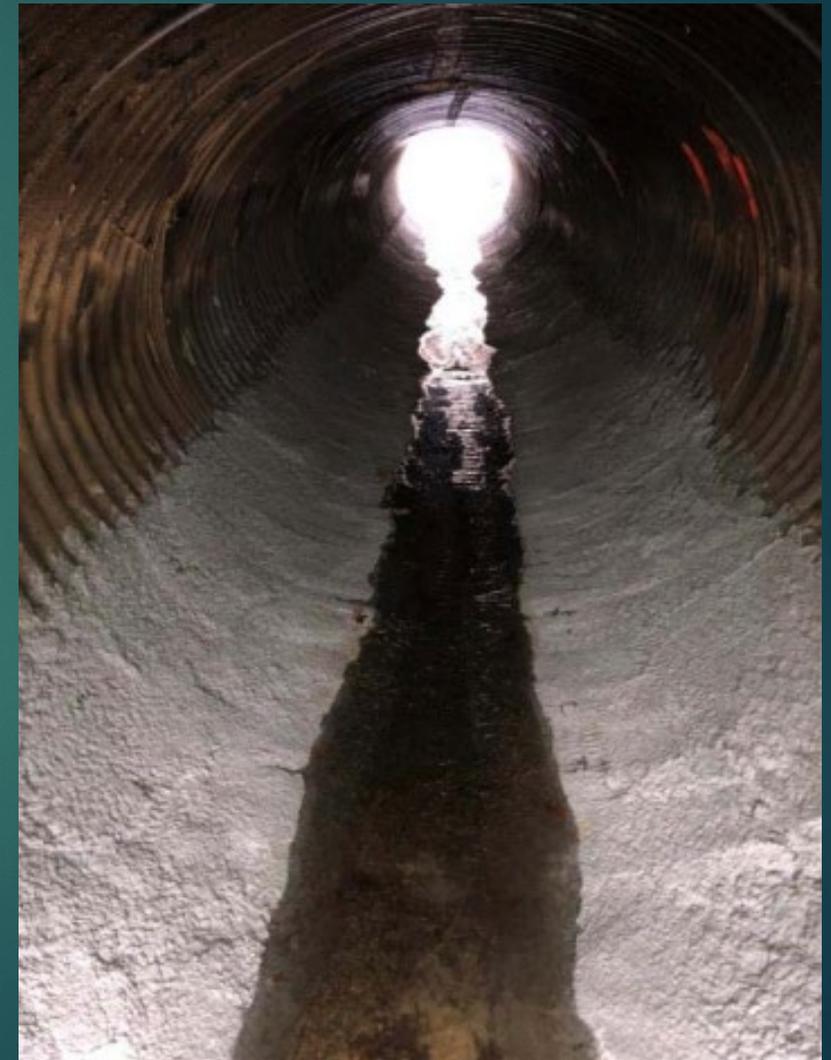
Examples of Other Things that we want to share (8/8) Hydraulics

- ▶ Leveraging AASHTO and TRB committee relationships to prioritize a \$500k Aquatic Organism Passage research project relating to culvert liners and retrofits. This RNS will be submitted in the fall of 2019.
- ▶ New culvert liner systems. Some are very low tech and tested with a “large hammer”. Others are very high tech with detailed calculations and lab testing. VTrans will continue to evaluate these products with a 5 year goal of an approved product list and/or performance spec.

Virginia ECC Culvert Repair “Bendable Concrete”

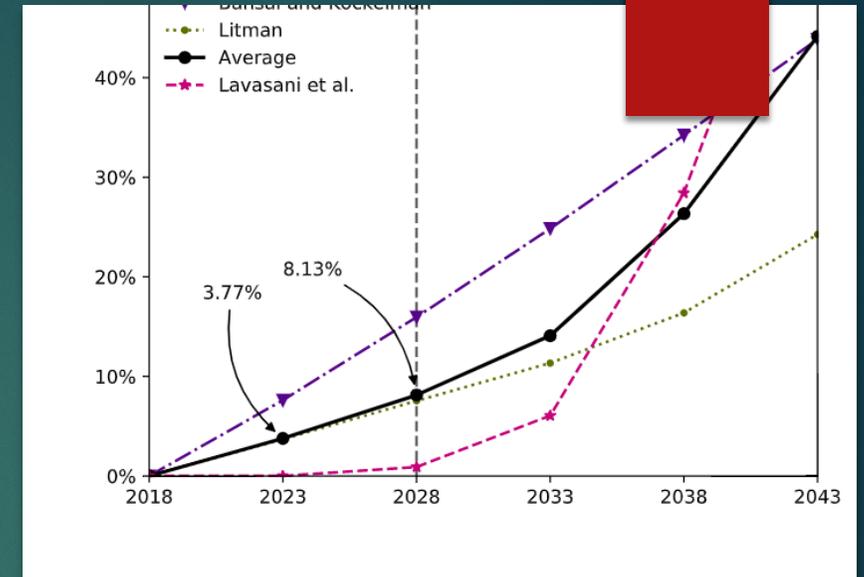


Source:
http://www.virginiadot.org/business/resources/Materials/Virginia_Concrete_Presentations/2018/Bridge/Pres_7_Repair_of_Metal_Culverts_Using_ECC_%E2%80%9CBendable_Concrete%E2%80%9D.pdf



Policy & Planning Take-Aways

- ▶ Connected and Automated Vehicles
 - ▶ Do outreach with municipalities on CAVs
 - ▶ Automated vehicle likely to increase VMT
 - ▶ Adoption rates 4% in 5 years, 8% in ten
 - ▶ Expected to reduce transportation revenue by 2-4%
- ▶ Consider HOV Lane in I-89 Corridor Plan
- ▶ Automated commercial vehicle enforcement as a revenue source
- ▶ CO-DOT Using an on-line, residential permit process for highways closed during construction



Scenario	VMT
Increase Highway Capacity (100%)	4%
Reduce Value of Drive Time (25%)	3%
Reduce Operating Vehicle Costs (20%)	3%
New Drivers	2%
Combined Effects	11%
Road Pricing and Combined Effects	-7%

Testimonials

- ▶ *At this TRB, I finally understood the importance of linking TRB Committees with AASHTO Committees in terms of getting national research projects selected and funded—Emily Parkany*
- ▶ *I spent a lot of my time in committee meetings. I attended the ABC joint subcommittee meeting, the Concrete Bridges Committee, The structures collaboration subcommittee and the construction committee. These meetings were informative and drove home the need for continued research and collaboration between AASHTO and TRB. - Kristin Higgins*
- ▶ *TRB can be overwhelming. Significant effort is required before and after the meeting to make the most of it. If you spend the time to prepare it is “like drinking from a firehose”. -Nick Wark*

Next Steps/Actions

- ▶ Each of us will continue to share what we have learned in our Sections
- ▶ Seeking guidance from Exec Staff about which TRB and AASHTO Committees to focus on
 - ▶ One strategy: concentrate on links to TRB committees in areas where we have AASHTO leaders
- ▶ Leverage our engaged and passionate employees to participate and advocate for Vermont's interests