



## Research Summary

# Innovation to Implementation: Collaborative Forums to Boost Research-Based Solutions to Transformational Technologies and Innovation



### ***WHAT WAS THE RESEARCH NEED?***

TDOT recognizes the need to be at the forefront of utilizing technology and innovation to do more with less as budgets become tighter while embracing new approaches for transportation planning and infrastructure management. However, research historically supported by TDOT has only had limited opportunities for innovation. The collaborative team from Vanderbilt University (VU), the University

of Memphis (UofM), and Tennessee State University (TSU) was retained by TDOT to help the organization prepare for the future through this project.

### **Project Number:**

RES2019-20

### **TDOT Lead Staff:**

Lia Prince  
Long Range Planning

### **Principal Investigator:**

Dr. Janey Camp  
Vanderbilt University

### **Project Term:**

May 2019 to August 2021

### ***WHAT WERE THE RESEARCH OBJECTIVES?***

The primary objectives of this project were:

- Evaluate the current state-of-practice for emerging technologies and research innovations that may be opportunities to improve TDOT effectiveness in meeting transportation needs across the state.
- Identify new, innovative approaches to processes and workflows, etc. currently being employed by peer states, as well as needs for new research.
- Plan and help host a 2.5-day Research Forum.
- Develop a research framework to guide TDOT staff in identifying new areas for research needs.

### ***WHAT WAS THE RESEARCH APPROACH?***

The research team reviewed the current states of practice across Tennessee and beyond where new, innovative approaches are being used to address transportation planning, design, and operations activities. The team

reviewed peer exchange reports from 16 other states and prepared case studies to highlight states with exemplary research practices and projects that have led to successful implementation. Through an online survey, a review of other state Departments of Transportation (DOT) websites, and a peer exchange, the research team identified best practices for both managing research programs by other DOTs and for integrating innovation into the research program/processes. Lastly, the team facilitated sharing of information through a virtual forum, which included TDOT employees, state research partners, and other state DOT research program managers.

## ***WHAT WERE THE FINDINGS?***

Key findings include:

- TDOT is operating sufficiently in comparison to its peers in terms of research program management and administration; but there are opportunities for improvement.
- Successful research and implementation requires planning, communication, and ultimately financial resources.
- Successful research requires making available formal, consistent guidelines for all involved to follow (state DOT staff and project managers as well as researchers).
- Implementation should be considered from the beginning – even before funding a research project to ensure the project has real benefit to the state DOT as well as those performing the research.
- Improving a research program is a proactive process that requires gathering feedback from stakeholders (internal and external), can be iterative in nature, and requires a willingness to learn from others.

## ***IMPLEMENTATION AT TDOT***

Recommendations to TDOT include:

- **Improve transparency throughout the process:** There should be clear information available to all (researchers and state DOT staff) made available about when research can be proposed, the process (including review), awards, and expectations for reporting and deliverables.
- **Communication is critical:** Internally to the state DOT, research staff, project managers, and technical experts need to be engaged throughout the entire research process. Hosting a regular event, such as a forum, can bring researchers and state DOT staff together.
- **Implementation should be integrated throughout the process:** Implementation must be considered as the research is being performed and not exist simply as an afterthought at the end of the project. This applies to both the research community and the state DOT.
- **Continue proactively seeking out feedback from peers and researchers:** This is an evolving and iterative process where the stakeholders all have potential to benefit from improvements to aspects such as increased transparency and communication as well as integration of implementation considerations throughout the entire project lifecycle.

## ***MORE INFORMATION***

Find the final report here: [https://www.tn.gov/content/dam/tn/tdot/long-range-planning/research/final-reports/res2019-final-reports/RES2019-20\\_Final\\_Report\\_Approved.pdf](https://www.tn.gov/content/dam/tn/tdot/long-range-planning/research/final-reports/res2019-final-reports/RES2019-20_Final_Report_Approved.pdf).