



RESEARCH NEED STATEMENT

Call for Projects 2015

Project Research Title: Transportation Dashboarding Metrics with Safety Focused Prototype

TDOT Sponsor Director: Steve Allen and recommended by Paul Degges

List TDOT Research Team Lead: Brian Hurst

List TDOT Research Team Members: Jim Waters, Jason Oldham, Michelle Powell, Van Colebank, Jeff Murphy

1. Define the problem or research requested. What is the goal/objective of the research?

TDOT is looking to identify strategies and technology to create executive level and public level intranet/internet transportation dashboard solutions. These dashboard strategies should provide clear and consistent methods to visualize transportation metrics such as safety, road surface condition, performance, finance, project status, citizen surveys and TDOT agency performance. Technology and solutions proposed should ensure the goals and missions of the Tennessee Department of Transportation are met and include a demonstration prototype focused on Tennessee's Strategic Highway Safety Plan initiatives. A primary goal is to promote data the Department of Transportation has in relationship to key strategic initiatives in dashboard format that is easily interpreted by intranet/internet audiences. One of the objectives is to research best practices used by other Transportation agencies and to determine what components of these would work best for Tennessee in a comprehensive dashboard console. Another objective is to have the researcher identify technology solutions consistent with the State of Tennessee's IT architecture and meet the State requirements for intranet/internet applications for developing comprehensive dashboard solutions. This research should also deliver recommendations for priorities of content and implementation strategy for TDOT to develop these comprehensive dashboard resources. Geospatial visualization components should also be considered. Finally, a Safety dashboard prototype should be delivered demonstrating the methods and technology discovered through this research program.

2. Is this research a continuation of a past or present project?

☒ No ☐ Yes

If yes, provide current research project title, RES # and reason for the project continuation.

3. Describe anticipated benefits/expected deliverables.

The research benefits are multipurpose and are provided to TDOT executive leadership, internal staff, external stakeholders and the traveling public. Executive level staff will be able to use the dashboard to communicate with the elected officials, local municipalities and citizens. Internal stakeholders will use the dashboard to help identify areas or locations that need attention.

4. What is your timeline for completion of the research?

The project would have a 12 - 18 month duration.

5. List the anticipated tasks for this research.

1. Perform a best practices analysis of other Transportation agencies' dashboards. 2. Coordinate with TDOT staff to determine items to include on Dashboards. 3. Identify technology solution options for implementing the Dashboard. 4. Coordinate with TDOT staff on design scenarios for executive internal and public external dashboards. 5. Implement the safety focused dashboard prototype.

6. Describe how the project results will be implemented?

The project will be developed with coordination between the TDOT Information Technology Division, Traffic Operation Division and the Strategic Transportation Investments Division providing input and guidance along the way. Delivering the the Safety Dashboard Prototype should be coordinated with TDOT IT to determine how it can be implemented on State IT infrastructure. Once the software/application is up and running, the software/application will be adapted to a more comprehensive TDOT dashboard solution by TDOT IT Division staff.

7. Will this study produce software, web page or other technology that will involve the Information Technology Division?

☐ No ☒ Yes, please describe:

The Safety Dashboard prototype will require either off the shelf software or researcher developed software/web pages consistent with TDOT Information Technology Division architecture standards. It will need to integrate data including, but not limited to, E-TRIMS and TITAN to obtain crash data and other information. Other components in comprehensive dashboard solutions will be developed by TDOT Information Technology staff using research best practices as guiding reference so the prototype should be extendable.

8. Will training be provided to employees as a result of this research?

☐ No ☒ Yes, please describe:

Staff from the Information Technology Division, Traffic Operation Division and the Strategic Transportation Investments Division will need to know how to update and maintain the Safety Dashboard prototype and other dashboard metrics identified through this research.

9. Will this research involve equipment or materials purchase?

☐ No ☒ Yes, please describe:

Possibly, depending on what software will be proposed for purchase or developed by the researcher and then turned over to TDOT for continued maintenance and enhancement. Where possible this research should

focus around TDOT Information Technology architecture standards. If other technology outside of existing TDOT standards is deemed necessary then recommendations can be considered on a case by case basis.

10. Research must support the Long Range Transportation Plan Policy Recommendations **and/or** TDOT Operational Goals and/or Strategic Initiative. *(See attachments for additional information)*

Please indicate which categories the research will support:

Transportation Long Range Plan Policy Recommendations

- ☒ (A) Accessibility
- ☒ (B) Safety, Security, and Transportation Resilience
- ☒ (C) Coordination, Cooperation, and Consultation
- ☐ (D) Demographic and Employment Changes and Trends
- ☒ (E) Freight Logistics and Planning
- ☒ (F) Financial
- ☒ (G) Mobility
- ☒ (H) Travel Trends and System Performance

TDOT Operational Goals and/or Strategic Initiative

- ☒ (A) Deliver transportation projects on schedule and within budget
- ☒ (B) Maintain the state transportation system to protect the long term investment in our infrastructure assets
- ☒ (C) Operate and manage Tennessee's transportation system to provide a high level of safety and service to our customers and workers

☐ (D) Expanding mobility choices to maximize access

☒ (E) Dramatically change the paradigm for delivery of transportation products and service to improve the efficiency and effectiveness of Tennessee's transportation network

11. Please explain how the research supports the Long Range Transportation Plan Policy Recommendations **and/or** TDOT Operational Goals and/or Strategic Initiative selected above:

This research supports the Long Range Transportation Plan Policy Recommendations, TDOT Operational Goals, and TDOT Strategic Initiatives through providing transportation information to all stakeholders which ultimately leads to improving the safety of transportation facilities for Tennessee's traveling public.

For additional information, please contact:

Stephanie Vincent

TDOT Research Program Administrator

Telephone: (615) 741-2203

Email: Stephanie.Vincent@tn.gov