

INSIDE THIS ISSUE:

Welcome..... 1
 2018 Second Call..... 1
 2018 TRB Participants 1-2
 2018 AASHTO Sweet Sixteen 3
 2018 Call for Research Proposals..... 3
 Research Office 4

Welcome

We are glad you have taken some time out of your busy day to read the latest of what is happening with the TDOT Research Office. We are planning to send you this newsletter throughout the year, covering research project highlights and other interesting tidbits from our office. As always, if you have questions, feel free to reach out to one of us. Our contact information is on Page 4.

2018 Second Call for Research Proposals

Thank you all who have submitted proposals for our 2018 Second Call for Research Proposals. We hope to have decisions made later this fall. Stay Tuned!

2018 TRB Tennessee Participants



We are proud of all the research that Tennessee's research universities perform with TDOT and we want to have the opportunity to acknowledge all your wonderful efforts. We always welcome and encourage you to submit any publications, presentations, or examples of implementation of TDOT-sponsored research projects.

One of the best places to highlight implemented research is at the Transportation Research Board's (TRB) Annual Meetings held every January in Washington, DC. At TRB's Annual 2018 Conference this year, research partners from four Tennessee universities presented on eight research projects done in conjunction with TDOT. Examples of some of the projects highlighted include:

- Equality metrics for public transit
- Multi-resolution index for freight connectivity
- Short-term traffic speed prediction for a large-scale road network

Development of Safety Performance Functions: Incorporating Unobserved Heterogeneity and Functional Form Analysis

Background & Motivation

Methodology

Results & Conclusions - Better Crash Prediction

Functional Form	Model	Mean Absolute Error	Root Mean Square Error	Mean Prediction Bias
HSR SFFs	HSR-SFF (Model 1)	2.509	4.477	-2.710
	HSR-SFF (Model 2)	1.815	2.270	-0.649
First Four	TS-SFF (Model 3)	1.660	1.902	0.167
	TS-SFF (Model 4)	1.600	1.287	0.179
Second Four	TS-SFF (Model 5)	1.200	1.125	0.000
	TS-SFF (Model 6)	1.200	1.125	0.000
Third Four	TS-SFF (Model 7)	3.107	1.824	0.815
	TS-SFF (Model 8)	1.100	1.005	0.000
Fourth Four	TS-SFF (Model 9)	1.224	1.515	0.041
	TS-SFF (Model 10)	1.224	1.515	0.041

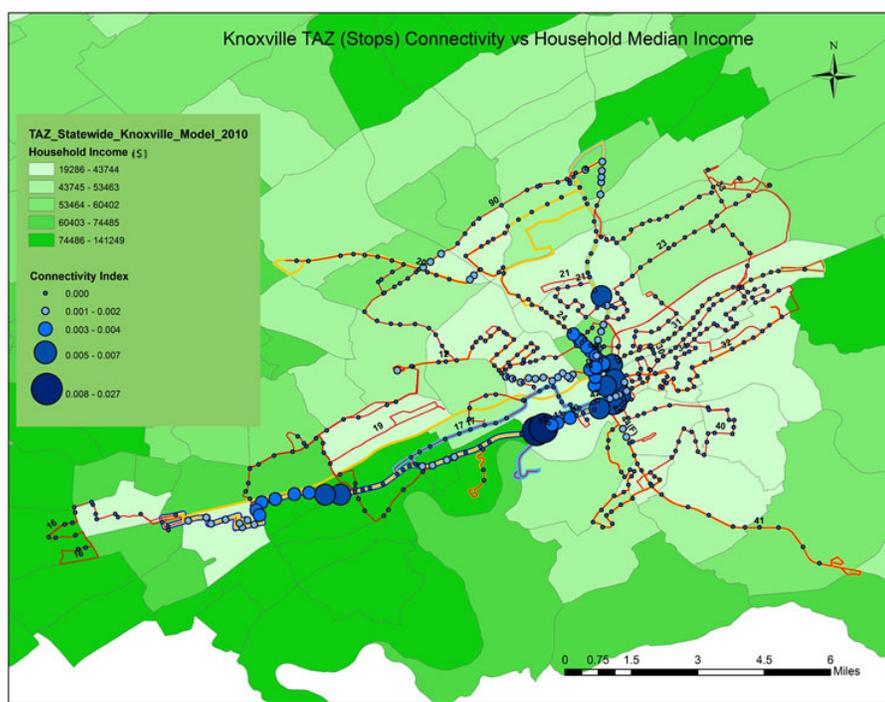
Dr. Asad Khattak's poster on TDOT research project RES2016-27, **Development of Safety Performance Functions: Incorporating Unobserved Heterogeneity and Functional Form Analysis**.

More TRB coverage can be found on Page 2.

2018 TRB Tennessee Participants (Continued)

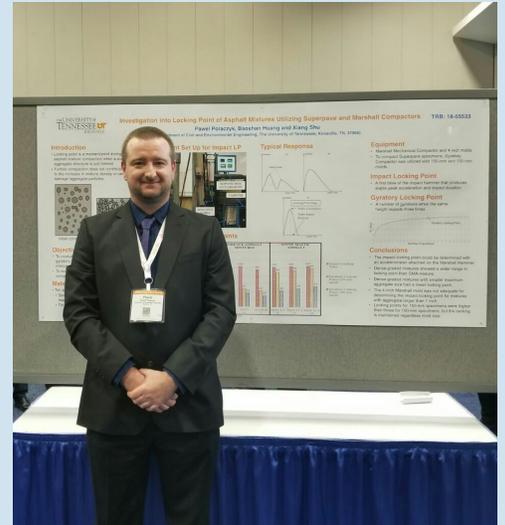
Below is a connectivity map from a presentation given by Dr. Sabya Mishra, Dr. Mihalis Golias, and graduate research assistant Samuel Jordan from the University of Memphis, Dr. Timothy Welch from Georgia Tech, and Dr. Chris Cherry from the University of Tennessee, Knoxville.

The research project, RES2016-16, sponsored by TDOT and entitled **Equity Metrics for Public Transit: Case Studies in Tennessee**, utilizes an approach that relies on available transit network characteristics and spatial demographic data to quantify multimodal transit connectivity and equity. The case studies show how this methodology can be used by public agencies to assess the performance of transit systems, and to enhance those systems to improve the equity of transit connectivity.

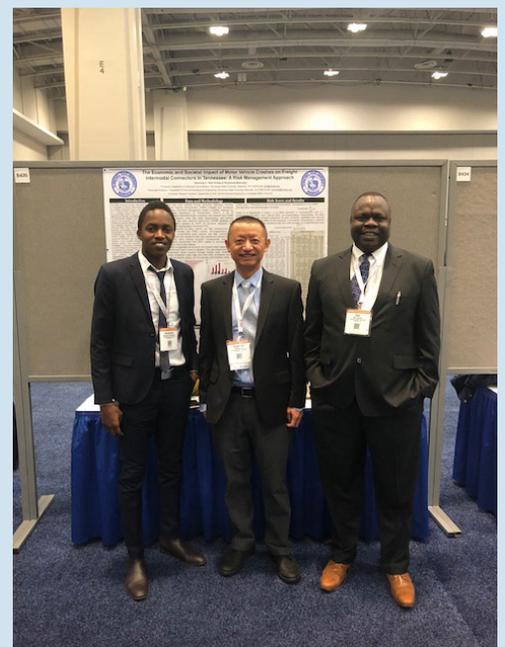


The above map shows the distribution of household median income and transit connectivity in Knoxville, Tennessee. It demonstrates that the stops with great connectivity are mostly located in low-income neighborhoods.

REMINDER - Please include a formal acknowledgement in any presentations made on TDOT sponsored projects and notify TDOT of any publications, papers, or media attention related to a TDOT sponsored project.



Pawel Polaczyk from the University of Tennessee, Knoxville in front of the team's poster for TDOT-sponsored research project RES2016-02, **Locking Points of Asphalt Mixtures**.



Dr. Deo Chimba and Team from Tennessee State University in front of their poster for TDOT-sponsored research project RES2016-35, **Freight Intermodal Connectors Study**.

TDOT Winner of AASHTO's Research 2018 Sweet Sixteen Award

Every year, the American Association of State Highway Transportation Officials' (AASHTO) Research Advisory Committee (RAC) holds a competition among state DOTs for **high-value research projects** and asks for submission of these projects. From these submittals, each of the four RAC regions selects its top four projects to form **AASHTO Research Sweet Sixteen Awards (see winners below)**. The winners are the subject of a poster session at TRB and winners present their winning research projects at the annual AASHTO/RAC/TRB Representatives meeting.

<p>REGION 1 WINNERS: Connecticut DOT, Maryland DOT, New Hampshire DOT, Pennsylvania DOT</p>
<p>REGION 2 WINNERS: Florida DOT, Kentucky Transportation Cabinet, South Carolina DOT, Tennessee DOT</p>
<p>REGION 3 WINNERS: Indiana DOT, Iowa DOT, Michigan DOT, Wisconsin DOT</p>
<p>REGION 4 WINNERS: Montana DOT, Nevada DOT, Utah DOT, Wyoming DOT</p>

This year, TDOT won this prestigious award for the research project entitled RES2013-47, **Innovative Strategies for Public Involvement for TDOT**. This project has helped to implement changes that has helped TDOT enhance their public participation efforts by identifying and putting into practice innovative, successful strategies that ensures future public participation efforts involve a diverse mix of stakeholders and yield significant public input.

The nominator of this project within TDOT states, "This has had a noticeable improvement in relationships between communities and TDOT (look at customer surveys). There are so many examples of positive things that have come from this but probably the biggest is the passage of IMPROVE Act last year (increase annualized around \$300 million per year when fully implemented) in increased fuel taxes to the state."



Above and below are pictures from many of the public involvement meetings that have been implemented as a result of this valuable research.



2018 Call for Research Proposals Winners Announced

Congratulations to all our winners of research projects from our first round of the 2018 Call for Research Proposals. Winners selected for this round came from Austin Peay University, Lipscomb University, Tennessee State University, University of Memphis, University of Tennessee, Chattanooga, University of Tennessee, Knoxville, and Vanderbilt University. We encourage ALL universities in Tennessee to submit proposals for this upcoming second call. We want to interact with research universities throughout the great state of Tennessee.



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Who We Are:

The Research Office is in the Long Range Planning Division of the Tennessee Department of Transportation (TDOT).

What We Do:

The office is responsible for managing TDOT's transportation research program and initiatives.

The three main tasks of the Research Office are:

- Coordinate research-related activities with FHWA, NCHRP, TRB, AASHTO, ATRI, and other transportation organizations
- Monitor and manage research projects and the research program
- Implement research findings and insights and blend into TDOT policy and practice

How We Are Funded:

The primary funding source for TDOT research is the federal State Planning and Research (SPR) program. FHWA provides SPR funds to TDOT on a Federal-State matching basis of 80% Federal and 20% State.

Research Projects:

The Research Office of the Long Range Planning Division oversees research projects that cover a wide range of transportation topics. Most projects fall into one of the following major categories:

- Pavement & Maintenance
- Planning & Environment
- Traffic & Safety
- Structures & Construction
- Administrative & Others

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