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Recent TxDOT Video Summary Reports

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Research and Technology Implementation Division

Item 1. Improving Testing Requirements in Item 300 of TxDOT Standard Specifications: Project 0-7073

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)
CTR 7073 VSR | 2025

"Researchers reviewed TxDOT's testing protocols and specifications for asphalts, oils and emulsions (Item 300), evaluated testing practices nationwide, then developed and validated an improved set of testing protocols both in the lab and with suppliers and other stakeholders. The new testing protocols are safer, more representative, and more repeatable. While some of these protocols, such as the revised method for determining polymer separation test and the new method for determining low temperature grade, have been already implemented, a few methods such as Poker Chip test, and the rotational viscosity test for emulsion, are under consideration for implementation."--from publisher

This video is available for free online (running time: 00:03:49): <https://youtu.be/lXa7havbs64>

More information about this publication available in the [TxDOT Research Library Catalog](#).

Item 2. Evaluate the Deployment of High Strength Reinforcing Steel in Texas: Project 0-7090

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)
CTR 7090 VSR | 2025

"Recent editions of the AASHTO LRFD Bridge Design Specifications contain updates that allow for reinforcing steels with yield strengths up to 100 ksi. TxDOT has not adopted these higher strength reinforcing steels in practice due to remaining questions around durability, cracking, and how best and when to implement the designs. Researchers conducted large scale testing in the lab to analyze the effectiveness of these higher-grade reinforcing steels in terms of cracking and strength-related issues. The testing results support the use of these materials in cases where they make sense. The project deliverables cover the best use cases of these materials."--from publisher

This video is available for free online (running time: 00:03:32): <https://youtu.be/kYS4ZwIOphU>

More information about this publication available in the [TxDOT Research Library Catalog](#).

Research and Technology Implementation Division

Item 3. Establish Performance-Based Acceptable Lab-Molded Density Range for Mix Design and QC/QA: Project 0-7104

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

TTI 7104 VSR | 2025

"Lab-molded density of asphalt mixes is a critical factor for laboratory mix design, plant production, and field performance. Current mix design and production quality control and quality assurance (QC/QA) are developed around a fixed lab-molded density of 96 percent. Yet various field test sections constructed in different areas of Texas have been designed with densities ranging from 96.5 to 98 percent and performed well in the field with no observed rutting problems. Thus, TTI researchers established an acceptable range of lab-molded densities for laboratory mix design and production QC/QA testing. The project reviewed the literature, conducted extensive laboratory performance tests, constructed test sections, and monitored their performance. Finally, researchers recommended an acceptable range of lab-molded density based on all the information and data collected."--from publisher

This video is available for free online (running time: 00:02:35):

<https://youtu.be/0VdTbP0xUNc>

More information available in the [TxDOT Research Library Catalog](#).

Item 4. Measuring Seal Coat Rate Field Adjustments: Project 0-7105

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

TTI 7105 VSR | 2025

"How does the Texas Department of Transportation determine the amount of seal coat that's needed on a roadway? Currently, experts in the field use their years of experience to come up with a solution. This research from TxDOT and the Texas A&M Transportation Institute looks to develop measurable criteria, based on traffic and real-world conditions. Building on information from project 0-6989 (Update Seal Coat Application Rate Design Method), this project used collected data to help construction crews prevent road bleeding during the heat of summer and rock loss in seal coat during winter months."--from publisher

This video is available for free online (running time: 00:03:50):

<https://youtu.be/oZrTmoxOeQ0>

More information available in the [TxDOT Research Library Catalog](#).

Item 5. Quantify Maximum Accumulated Seal Coat Layers for Stability: Project 0-7106

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)
TTI 7106 VSR | 2025

"Seal coats are used to protect roads from damage caused by water, oil, and other elements. This action leads to savings in time and money for taxpayers. Research from the Texas A&M Transportation Institute and the Texas Department of Transportation aim to determine how many seal coats can be applied before their impact becomes detrimental. Laboratory and field testing were used to create guidelines for evaluating currently accumulated seal coats and to determine if additional coats may or may not be ideal."--from publisher

This video is available for free online (running time 00:02:51):
https://youtu.be/_P8yZz3l6rs

More information available in the [TxDOT Research Library Catalog](#).

Item 6. Development of a Continuous for Live Load Prefabricated Steel Accelerated Bridge Construction (ABC) Unit for Texas Bridges: Project 0-7112

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)
TTI 7112 VSR | 2025

"Developing a steel prefabricated Accelerated Bridge Construction (ABC) process could save construction time and funding related to Texas Department of Transportation (TxDOT) projects, while keeping safety standards. Working with the Texas A&M Transportation Institute, TxDOT personnel reviewed current standards and practices and decided on which designs would be tested in a lab setting. A final design was chosen, with a guide of detailed plans that meet TxDOT substructure details to be distributed."--from publisher

This video is available for free online (running time 00:03:25):
https://youtu.be/hQa3jk5_HHo

More information available in the [TxDOT Research Library Catalog](#).

Research and Technology Implementation Division

Item 7. Examine Reconnaissance Scanning of Underground Utilities in the ROW: Project 0-7127

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

TTI 7127 VSR | 2025

"When not discovered before highway construction begins, unknown buried utilities (particularly related to oil and gas) in the right of way (ROW) may cause serious scheduling disruptions, as well as higher construction costs, safety issues, and environmental risks. Searching for a faster, less expensive method of scanning ROW for these unknown utilities, Texas A&M Transportation Institute researchers evaluated, selected, and tested the application of newly available geophysical measurement systems. They found two types of techniques that are financially and technically feasible to detect and map unknown pipelines or other utilities in the ROW."--from publisher

This video is available for free online (running time: 00:04:08):

<https://youtu.be/3Zv6LJwU-zU>

More information available in the [TxDOT Research Library Catalog](#).

Item 8. Develop Guidebook for Managing System Costs: Operational and Capital Cost Management at Rural and Small Urban Public Transit Systems: Project 0-7133

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

TTI 7133 VSR | 2025

"Rural and small urban transit systems across the United States face fiscal challenges caused by the growing gap between the cost of providing transit service and available federal, state, and local funding. Rural and small urban transit systems also often face high levels of staff turnover and a lack of knowledge management procedures to sustain cost management practices over time. The research team developed a guidebook to equip Texas' rural and small urban transit system agencies with a reliable go-to resource for cost management best practices."--from publisher

This video is available for free online (running time: 00:03:38):

<https://youtu.be/GNnvtHdm1s>

More information available in the [TxDOT Research Library Catalog](#).

Research and Technology Implementation Division

Item 9. Calibration of Bridge Performance Models Using Element Data: Project 0-7158

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

UTSA 7158 VSR | 2025

"The research team developed bridge deterioration models for all bridge and culvert elements known as National Bridge Elements (NBEs) or Bridge Management Elements (BMEs). The research team developed, tested, and validated Element Health Indices (EHIs) then aggregated EHIs into a Texas Bridge Health Index (TxBHI) that prioritizes at-risk structures while balancing overall maintenance needs. These products are easily implementable into AASHTOWare BrM software and/or other desired TxDOT software. The project used the deterioration forecasts and the historical inspection database to identify and recommend improvements to design and construction specifications."--from publisher

This video is available for free online (running time: 00:03:03):

<https://youtu.be/9GOQTMU9ipc>

More information available in the [TxDOT Research Library Catalog](#).

Item 10. Leveraging Probe-Based Data to Enhance Long-Term Planning Models: Project 0-7166

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

TTI 7166 VSR | 2025

"Improved long-range transportation plans (LRTPs) and travel demand models (TDMs) play an important role in the transportation planning process and can assist with prioritizing future transportation investments. Effective transportation planning and investment decision making depends on timely, comprehensive, and accurate data. However, traditional data collection methods only provide a "snapshot" of the travel information, limiting the performance of conventional LRTP and TDMs. Transportation planners at the state, metropolitan, and local levels are beginning to incorporate third-party traffic data into their planning processes. This project utilized probe-based data to improve the LRTP process and TDMs used by TxDOT, metropolitan planning organizations (MPOs), and other planning agencies in the state. Researchers examined how probe-based and location-based data may be leveraged to facilitate the validation and calibration of existing planning models, enhance existing modeling tools, and incorporate advanced modeling techniques."--from publisher

This video is available for free online (running time: 00:03:10):

<https://youtu.be/bGEPu4dZU8>

More information available in the [TxDOT Research Library Catalog](#).

Item 11. Determine Effectiveness of Construction Management Plans: Project 0-7182

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)
CTR 7182 VSR | 2025

"The Texas Department of Transportation requires a Construction Management Plan (CMP) for all projects with unclear certifications. The CMP defines the steps of construction developed in the PS&E that mitigate the risk of delays in construction due to unclear right of way, railroad and utilities. Prior to undertaking this research, the effectiveness of the CMPs had not been thoroughly evaluated. In collaboration with the Center for Transportation Research, TxDOT compiled historical CMP and change order data to determine the effectiveness of CMPs. Results were included in the production of a guidebook and training materials."--from publisher

This video is available for free online (running time 00:03:34):

<https://youtu.be/30dZvtRmBsU>

More information available in the [TxDOT Research Library Catalog](#).

Item 12. Develop Crash Modification Factors for Super 2 Highways: Project 0-7183

TEXAS A&M TRANSPORTATION (TxDOT)
TTI 7183 VSR | 2025

"Super 2 highways have been used across Texas for over 20 years, providing operational and safety benefits to rural two-lane highways at lower costs than widening entire corridors to four-lanes. TxDOT requested updated crash modification factors (CMFs) based on a rigorous review and analysis of more recent crash data from the state's many Super 2 highways. The research team used the existing database of Super 2 highways and site characteristics, combined with additional data on traffic volumes, crashes, and other relevant factors, to develop a comprehensive Super 2 dataset for analysis and identification of relationships between crashes and other characteristics. Using the results of this analysis, they confirmed the safety benefits of Super 2's, showing a 21% reduction in crashes when implemented. Researchers also defined more CMFs that TxDOT and other practitioners can use to make decisions on installing future Super 2 corridors."--from publisher

This video is available for free online (running time: 00:03:15):

<https://youtu.be/4AE2M8OOJOk>

More information available in the [TxDOT Research Library Catalog](#).

Item 13. Develop an Interactive Unit Price Estimation and Visualization Tool: Project 0-7184

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

UTA 7184 VSR | 2025

"For the Texas Department of Transportation, the cost of construction projects is an important subject. Unit prices statewide can vary due to location and weather conditions. Researchers at the University of Texas at Arlington looked to assist with identifying the factors that can impact these prices, by using historical knowledge and artificial intelligence to create a GIS-based visualization tool. With a color-coded map and automatic data updating, this tool is designed to give TxDOT staff a system to generate reliable unit price estimates in each district. The goal of this research is to improve efficiency on projects by saving time and money for Texas taxpayers."--from publisher

This video is available for free online (running time: 00:03:57):

<https://youtu.be/cRKPj6IckB0>

More information available in the [TxDOT Research Library Catalog](#).

Item 14. Exploring and Developing Innovative Methods for Estimating VMT on Local Roads in Texas: Project 0-7187

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

TTI 7187 VSR | 2025

"Vehicle miles traveled (VMT) data help transportation agencies plan roads, maintain pavements, and make policy decisions. In Texas, local roads make up 67% of the total roadway mileage, but collecting traffic data on every local road is costly and challenging. As a result, many DOTs rely on alternative or aggregated methods to estimate VMT. This project explored new, data-driven approaches for estimating VMT for local roads. Researchers from the Texas A&M Transportation Institute collaborated with TxDOT to develop, test, and compare new methods against TxDOT's existing VMT estimation approach. The results showed that certain statistical models provided the most accurate estimates while minimizing the number of field counts."--from publisher

This video is available for free online (running time: 00:03:25):

https://youtu.be/_4jner9dDU0

More information available in the [TxDOT Research Library Catalog](#).

Item 15. Workforce Development Lifecycle for Road and Bridge Agencies: Project 5-9055-01

TEXAS A&M TRANSPORTATION INSTITUTE (TTI)

UTA 9055-01 VSR | 2025

"A research implementation team at the University of Texas – Arlington developed and published a guide containing a “5-Stage Model to Attract and Retain Employees for Public Works and Road & Bridge Departments for Texas Cities.” Version 1 of the guide was published in February 2023. Version 2 was updated based on refinements and recommendations from the TxDOT project team, end users, and the SME Engagement team. The guide has been distributed at all relevant conferences, seminars, and educational workshops. All published resources are located on the TxLTAP website.”--from publisher

This video is available for free online (running time: 00:03:38):

<https://youtu.be/m-nyFK-b-sE>

More information available in the [TxDOT Research Library Catalog](#).



Research Digest

Research and Technology Implementation Division

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