Texas A&M Transportation Institute

PROJECT SUMMARY

Texas Department of Transportation

0-6985: Perform Feasibility Study on Use of Innovative Tools and Techniques to Accelerate Pavement Construction

Background

The Texas Department of Transportation is facing an increase in pavement reconstruction projects over the next several years. However, many roadways needing reconstruction and widening are in metro areas where traffic handling and user delay costs are a major expense. This project investigated innovative tools and techniques to accelerate pavement construction.

What the Researchers Did

The researchers identified four roadway projects scheduled for reconstruction as case studies. The case studies involved extensive evaluation of the pavement condition, pavement design, and traffic control options. Innovative tools and technologies, along with the advanced traffic control planning tool Construction Analysis for Pavement Rehabilitation Strategies (CA4PRS), were used in the evaluation. Figure 1 shows some of the tools, such as the falling weight deflectometer (FWD), portable weigh in motion (p-WIM), light detection and ranging equipment (LiDAR), ground-penetrating radar (GPR), electrical resistivity tomography (ERT), and total pavement acceptance device (TPAD). CA4PRS was used to estimate and document the optimal construction scheduling and identify time and cost savings. The researchers developed training materials and guidance that included the methodology, testing procedures, and tools used in the selection and design of pavements. Recommendations on innovative approaches for pavement design and traffic control were presented for district consideration.

What They Found

There is potential for significant time and money savings when the existing pavement, proposed pavement design, and traffic control scenarios are evaluated and optimized. The reuse and incorporation of the existing pavement structure into the new pavement structure can save time, natural resources, and money.

What This Means

The training materials developed in this study are intended to provide guidance to designers on project evaluation. Evaluating the existing pavement and incorporating it into the new pavement design alongside traffic control scenarios can lead to time and money savings.

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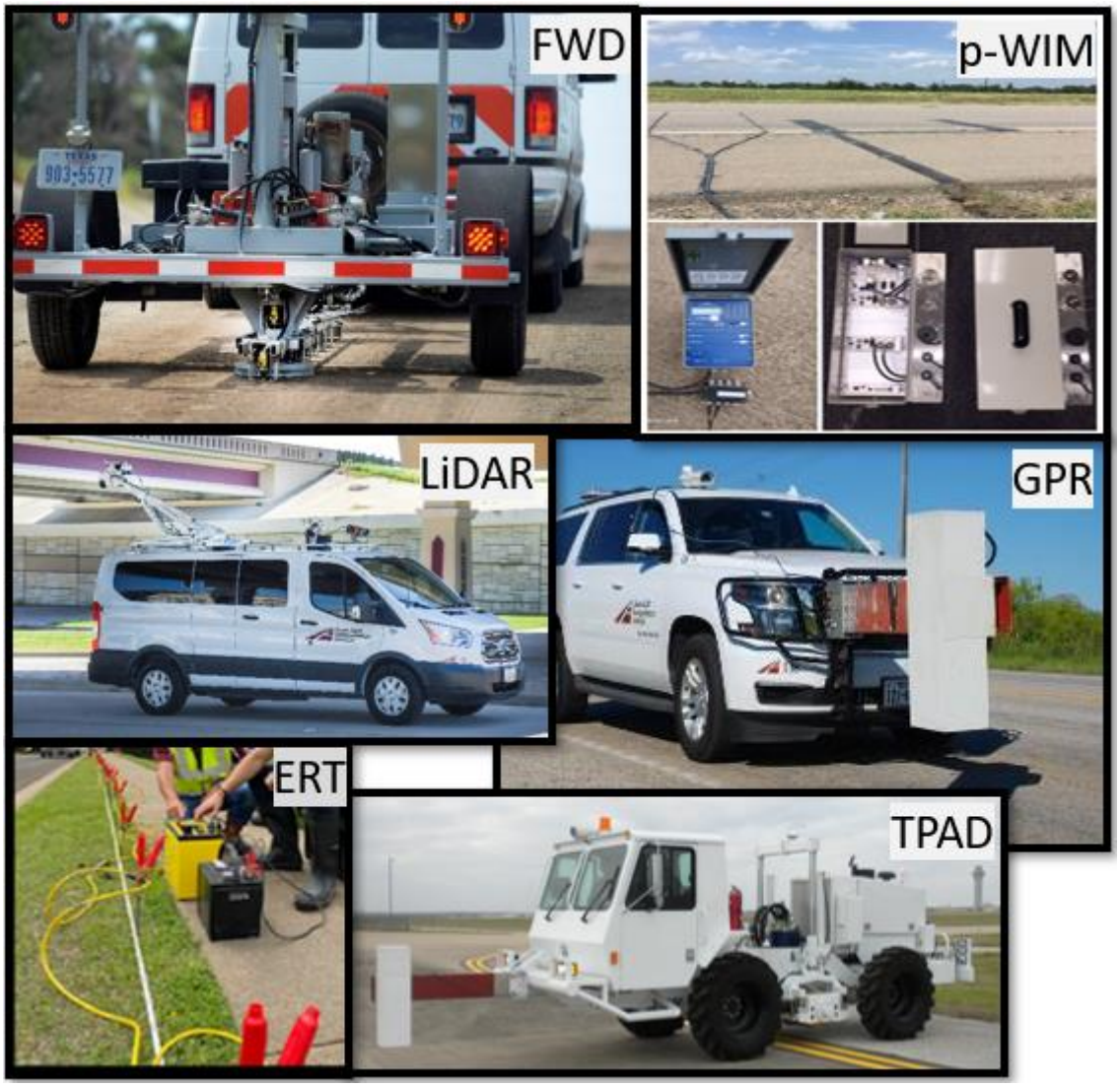

Figure 1. Innovative Testing Tools.

For More Information

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