

TTI SAN ANTONIO OFFICE



Diversified, Multidisciplinary Research

Texas A&M Transportation Institute (TTI) researchers in San Antonio conduct leading-edge research, technology transfer, and knowledge transfer in a number of critical areas in transportation, including project delivery, utility engineering, operations, asset management, and shale energy developments. For 25 years, TTI researchers in San Antonio have worked with transportation agencies nationwide to conduct applied research and transfer research findings to actual practice.

TTI San Antonio includes two office locations. One office is located at the One Castle Hills Building (1100 NW Loop 410, Suite 400) and one is located at the TransGuide Traffic Management Center (3500 NW Loop 410, Suite 315).

- \$6.1 million in contract research
- \$2.0 million in FY17 expenditures

Expertise

Human talent provides a strong foundation for the program's research and technology transfer capabilities. Areas of expertise include the following:

Project Delivery

- Project delivery process optimization and acceleration
- Alternative assessment and evaluation
- Right-of-way acquisition
- Access management techniques and strategies
- Road user costs

Utility Engineering

- Utility investigations and utility conflict management (UCM)
- Utility coordination
- Design and relocation management
- Utility construction specifications and cost analysis
- Utility inventory and permitting

Information Technology

- Data modeling and database design and optimization
- Business process modeling
- Geospatial data technologies
- Multi-source data integration

System Management and Operations

- Traffic simulation and visualization
- Intelligent transportation systems (ITS)
- Freeway and arterial corridor operational analyses
- Driver safety
- System performance optimization and evaluation
- Commercial vehicle routing

Shale Energy Developments

- Collection and analysis of shale energy developments and system performance data
- Analysis of truck traffic patterns
- Traffic safety patterns and impacts
- Forecasting of shale energy truck routes, truck traffic, and axle loads
- Temporary saltwater pipelines

Cooperative Relationships/ Sponsors

The TTI San Antonio Office has developed strong relationships with many agencies in Texas, throughout the United States and abroad, as well as with other groups and agencies within The Texas A&M University System. Examples of local, regional and national partnerships include the following:

- American Association of State Highway and Transportation Officials (AASHTO)
- American Society of Civil Engineers (ASCE)
- Federal Highway Administration (FHWA)
- Texas Department of Transportation (TxDOT)
- Transportation Research Board (TRB)
- University of Texas at San Antonio
- VIA Metropolitan Transit

Featured Projects

At any given time, TTI San Antonio Office researchers are involved in some 20 research and technology transfer projects. Examples of recently completed or active projects include the following



Utility Conflict Management (UCM)

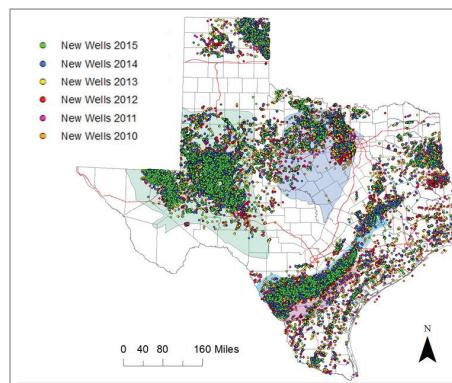
One of the projects funded by the Second Strategic Highway Research Program (SHRP2) dealt with the identification of utility conflicts and solutions during project delivery. The purpose of the research was to develop a set of UCM tools to help identify and resolve utility conflicts during project delivery. Research products were:

- Product 1: standalone utility conflict list, a standardized template to analyze utility conflict resolution strategies.
- Product 2: utility conflict data model and database, a scalable UCM data model and database framework that facilitates the management of utility conflicts in an automated database environment.
- Product 3: hands-on UCM training course, a 1-day training course on the principles and application of UCM techniques.

At the conclusion of the SHRP2 research phase, FHWA and AASHTO started a joint program to facilitate implementation of the SHRP2 research products. TTI researchers are providing key technical support to all the state DOTs that are participating in the SHRP2 implementation program.

Impact of Shale Energy Developments

TTI has worked with divisions and districts of TxDOT to understand the patterns and impacts associated with heavy loads on roadway structures. The Institute is also providing recommendations on how to design and maintain roadways into the future. A more proactive approach — before construction starts on an oil or gas well — is ideal as it builds more lead time into a project to allow all parties involved prepare for the upcoming demand on roads. This need has spurred a number of initiatives that take a multidimensional, multidisciplinary approach for the analysis of impacts and strategies. An example is a forecasting tool that uses a geographic information system (GIS) approach that uses data from a variety of sources (e.g., existing and anticipated oil and gas well locations, energy supply chain locations, weigh-in-motion (WIM) data, and truck traffic data) to estimate future truck traffic volumes and axle loads.



Roadway Data Extraction Technical Assistance Program

TTI is supporting the FHWA Roadway Data Extraction Technical Assistance Program (RDETAP). As part of FHWA's Roadway Safety Data Program, RDETAP provides technical assistance to state and local agencies to identify, extract, and maintain roadway data needed to conduct an effective safety program and to meet federal requirements for roadway data detailed in the Model Inventory of Roadway Elements (MIRE). As part of this process, TTI researchers are assisting state and local agencies with the improvement and expansion of their roadway data inventories, including intersections, roadway segments, and ramps/interchanges.

Interagency Cooperation Agreements with TxDOT Districts in South Texas

For many years, the TTI San Antonio Office has had interagency cooperation agreements with TxDOT districts in South Texas. Agreements currently in place include the Corpus Christi, Laredo, Pharr, and San Antonio Districts. As part of these agreements, TTI experts in San Antonio and other offices throughout the Institute provide TxDOT districts with critical support in areas related to technology and knowledge transfer, strategic planning and operations analysis support, safety analysis support, and asset management technical support.



TTI's Mission

To solve transportation problems through research, to transfer technology and to develop diverse human resources to meet the transportation challenges of tomorrow.

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