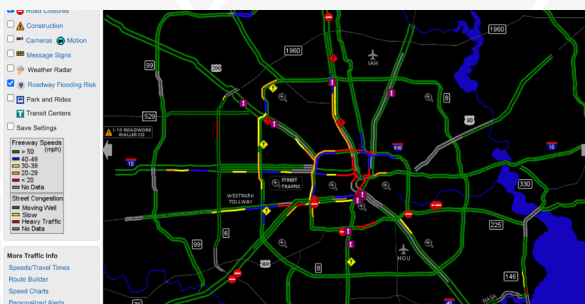


HOUSTON RESEARCH AND IMPLEMENTATION

In the greater Houston region, the Texas A&M Transportation Institute (TTI) is helping meet the transportation challenges presented by population growth and limited resources. TTI's research-based solutions are directed toward helping the Houston area's transportation system move people and goods safely, efficiently and cost-effectively. TTI's Houston Research and Implementation Program includes engineers, planners, field technicians, administrative staff, and students from area universities.



Houston TranStar

TTI plays a significant role in the design and development of the region's central source of traffic information, the Houston TranStar website (www.houstontranstar.org). Working with the Texas Department of Transportation (TxDOT) and other TranStar partner agencies, TTI has developed a wide array of software applications that support internal traffic management and public-facing traveler information functions by connecting traffic sensors, cameras, message signs, radio advisories, and incident and lane-closure information. The website has been recognized by the Federal Highway Administration and other organizations as a national model. Traffic information through Houston TranStar helps the region's travelers save hundreds of millions of dollars in delay and fuel costs each year.

Project Leads: [Darrell Borchardt](#), [Mike Vickich](#)

2022 Impact

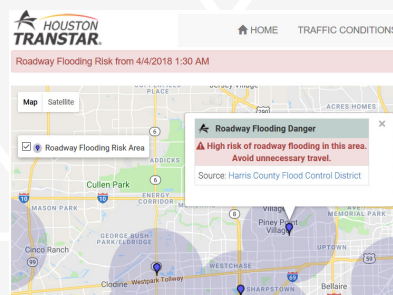
335K users per month



103M total visits

Features

- Traffic Map
- Road Construction
- Route Builder
- Traffic Cameras
- Personalized Alerts
- Rail Monitor
- Freeway Signs
- Incidents/Road Closures
- Ferry Information



Roadway Flood Warning System

TTI and the Houston TranStar partners, including TxDOT and the Harris County Flood Control District, developed and implemented an award-winning flood warning system. The system uses sensor and weather data from hundreds of locations covering the Houston region to highlight areas where flooding thresholds are triggered and warn travelers of potential danger.

Project Lead: [Mike Vickich](#)

Connected Vehicles

TTI is working with TxDOT and regional partners on innovative connected vehicle applications. Examples include using emergency vehicle preemption and notifications to improve response performance, testing prototype technologies at high-conflict traffic locations, and enhancing traffic and traveler information and safety/hazard warning systems.

Project Leads: [Tracy Zhou](#), [Mike Vickich](#)



Serving the Houston Region

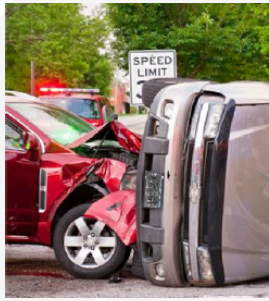
TTI's Houston Office was established in 1963. Since then, TTI has helped shape the region's transportation system through innovative research, testing, planning and implementation of practical and effective transportation solutions. TTI provided the expertise that helped:

- plan and develop the world's largest barrier-separated HOV lane system,
- develop and operate Houston TranStar,
- provide transportation safety outreach, and
- prepare the region's emergency evacuation plans.

Roadway Safety

TTI provides assistance to state, local and regional agencies to address traffic safety issues. TTI staff have extensive experience with regional crash data and have worked with Houston area partners to identify where, when and why crashes are happening, and how infrastructure can be improved to reduce crashes. TTI staff also assist metropolitan planning organizations with developing regional safety plans and documenting the status of safety initiatives through State-of-Safety Reports.

Project Lead: [Jeff Kaufman](#)



Hazardous Materials Transport

Working with the Texas Division of Emergency Management and local partners, TTI has conducted numerous hazardous materials transportation studies in the Houston region and across Texas. Research and engagement activities include:

- Emergency planning guides for communities and school districts.
- Chemical incident risk and response capabilities assessments.
- Commodity flows and network use.
- Response preparedness workshops.

Project Lead: [David Bierling](#)



Construction Project Analyses

TTI works with the TxDOT Houston District to estimate time and value of traveler delays from road construction projects. This helps TxDOT evaluate choke point locations, develop construction contract incentives and assess damages for schedule delays.

Project Lead: [Darrell Borchardt](#)

Traffic Sensors

TTI assists TxDOT and other local agencies with developing, testing and managing the traffic sensor systems infrastructure at Houston TranStar. TTI pioneered using automatic vehicle identification (AVI) toll tags as real-time freeway travel-time probes and has assisted in developing the largest AVI data collection and processing system in the world. The AVI system provides more than 25 years of historical data for traffic operations, planning and research, which TTI uses to measure performance and congestion on area roadways. TTI researchers have also developed other technologies, including those based on Bluetooth® technology, to enable travel-time monitoring on the region's arterial roadways. TTI has assisted partner agencies in developing travel-time monitoring capabilities on more than 800 directional miles of freeways, including from Houston to Dallas, and on more than 600 directional miles of arterials.

Project Leads: [Darrell Borchardt](#), [Mike Vickich](#), [Jonathan Tydlacka](#)



Overheight Truck Detection

TTI helped install, test and evaluate two overheight truck detection systems on I-10 in the Houston area. The wireless systems include infrared sensors, cameras, and integrated and dedicated dynamic messaging. TTI monitors alerts and assists TxDOT and the Texas Department of Motor Vehicles with bridge strike investigations.

Project Lead: [Jonathan Tydlacka](#)

Hurricane Evacuation Planning

TTI has worked with local communities, state partners and federal agencies to improve regional planning for hurricane evacuations along Texas' coastline. TTI has also played a significant role in helping the Houston area to prepare for the annual hurricane season, including assisting with evacuation route planning and extending video and operational monitoring capabilities beyond urban areas. TTI staff provide assistance during actual evacuations and help with assessment of operational conditions and technical decision support as requested.

Project Leads: [Darrell Borchardt](#), [David Bierling](#), [Jeff Kaufman](#)



Arterial Operations

From concept to funding to deployment, TTI assists local agencies with planning and expediting unique and prototype projects. TTI assisted the City of Houston in developing a successful TIGER Grant application for the Houston Intelligent Transportation Systems project, helping city staff with concept development, U.S. Department of Transportation grant application preparation, preliminary systems engineering and project evaluation. In addition, TTI's patented Anonymous Wireless Address Matching system (Bluetooth-based travel-time monitoring) has brought cost-effective travel-time monitoring to the region's arterial systems, including 650 sensors in Houston.

Project Leads: [Mike Vickich](#), [Darrell Borchardt](#)

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