Texas A&M Transportation Institute

Saving Lives, Time and Resources

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NORTH TEXAS AREA INITIATIVES

With growing populations and limited resources, our state's urban areas face unprecedented transportation challenges. In North Texas, the Texas A&M Transportation Institute (TTI) has been helping meet those challenges through technology transfer and the implementation of practical, problem-solving research for almost 50 years. TTI's efforts, led by its 28 area employees, are focused on improving the safety, efficiency and cost-effectiveness of the area's transportation system.

Improving Safety for Teen Drivers

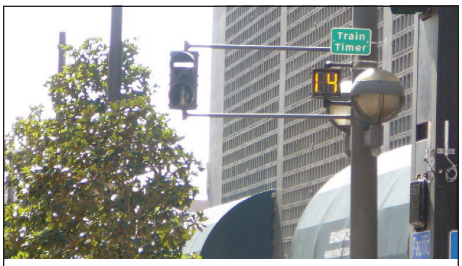
North Texas area schools continue to represent one of the strongest concentrations of the Teens in the Driver Seat (TDS) initiative in Texas. TDS is different from other teen driver safety initiatives in two ways. First, it focuses on the most common dangers for young drivers: distractions, such as cell phones; texting and other teen passengers; driving at night; speeding; low seat belt use; and impaired driving. Second, it is the first peer-to-peer program for teens that focuses solely on traffic safety. TTI provides the science, guidance and project resources for students to develop and deliver safety messages to their peers. Similarly, U in the Driver Seat is a peer-led program for college students. Over 60 colleges, high schools and middle schools in the North Texas region actively participate in the program.

HOV, Managed and TEXpress Lane Evaluation

As the Dallas-Fort Worth region continues to see unprecedented growth, providing an alternative to traveling on the often-congested highways is critical. The TEXpress Lanes System is a network of managed lanes built within an existing highway to add capacity and enhance mobility by providing an efficient, safe and reliable alternative to travelers. TTI is performing an evaluation of the TEXpress corridors located within DFW using key performance indicators, including passenger vehicle occupancy, speed and travel time information, vehicle volumes, and safety analyses of the managed lanes and the general-purpose lanes for each of the TEXpress corridors, where the corresponding data are available.

Construction Project Community Liaisons

TTI staff serve as liaisons during construction of high-profile projects such as the I-30/SH 360 interchange in Arlington and the Trinity River Vision bridges in Fort Worth. In this role, TTI helps facilitate prompt and effective communication with affected businesses and key project stakeholders.



Transit Signal Priority

Dallas Area Rapid Transit and the City of Dallas are in the midst of two major initiatives impacting the current traffic signal priority (TSP) for the light-rail system in downtown Dallas: upgrade of the traffic signal controllers at every intersection and extension of the station platforms to accommodate three-car trains on the red, orange and blue rail lines. TTI has provided support for the TSP system since 2009. The Institute is assisting in upgrading the new signal controllers and simulating the downtown network to measure the impact of longer trains on vehicular and train networks. Researchers are also leading the independent testing, verification and validation of the new controllers to ensure the TSP system remains compliant.

Wrong-Way Driving Mitigation

TTI researchers are assisting in planning and evaluating countermeasures for wrong-way driving (WWD) in the metroplex. A technology-focused pilot project in Tarrant County deployed cameras and LED flashing signs on 24 exit ramps on I-30. The results have been overwhelmingly positive with a 58 percent reduction in WWD crashes and in more than 100 drivers not entering freeways in the wrong direction due to the flashing warning signs.

Incident Impact Visualization Tool

TTI developed a web-based visualization tool that can be used by the Texas Department of Transportation (TxDOT) Dallas and Fort Worth Districts to review the impacts of incidents/crashes on the freeway system. The tool allows the districts to query incidents or crashes for their respective road networks. Users can filter the query by incident type, affected lanes and severity over a defined time period. The tool can be used to evaluate the impacts of crashes, construction/maintenance activities or special events. The tool uses various data sources, including each district's incident and sensor data from the traffic management centers. The tool has a playback mode that shows the impacts, such as queues, delay and secondary incidents, due to the primary incident.

Pedestrian Safety Evaluation

This analysis provides the TxDOT Dallas District with a foundational understanding of the demographics, geographic areas, roadway facilities, and causal and risk factors associated with pedestrian crashes. Through data mining and direct demand modeling, researchers were able to estimate pedestrian exposure and ultimately identify freeway and non-freeway hot spots. The non-freeway hot spots were derived by using a comprehensive examination that identified high-risk intersections by their control type (signals or stops).

Carpool Promotion and Compliance

The North Central Council of Governments (NCTCOG) and the Federal Highway Administration's Cooperative Automation Research Mobility Applications platform are deploying an innovative technology to allow users of the DFW area's TEXpress lane system to automatically verify travelers in a carpool and receive a discount for using high-occupancy vehicle lanes. The technology uses Bluetooth® technology and a smartphone app. TTI is assisting by conducting a before and after study to measure the impacts, including changes in the carpool lane compliance rates.

Noise Wall Evaluation

The 84th Texas Legislature passed a bill (HB 790) directing TTI to study the implementation and effectiveness of sound mitigation measures on the state highway system and certain toll roads and turnpikes. TTI researchers conducted an analysis of how sound mitigation measures are selected and implemented. As part of this effort, TTI investigated whether agencies conducted live testing to determine noise levels for neighboring properties and evaluated the effectiveness of sound mitigation measures at reducing traffic noise levels.

Transportation Planning

Researchers lead and assist in various transportation planning activities, such as developing and delivering professional development. TTI provides technical assistance and technology transfer, and conducts applied research in the areas of air quality, access management and traffic monitoring.

E-Commerce Growth Impacts to Transportation

North Texas is a hub for e-commerce with Amazon leading the way with the most fulfillment centers and delivery stations in Texas. TTI researched the impacts of the growth of online retailing/e-commerce on the transportation system, including challenges for transportation planners, operating agencies and policy makers. The research helps increase understanding of how e-commerce services operate, how they are regulated, and how they affect the transportation system.

TTI's Mission

TTI delivers practical and sustainable solutions to improve the movement of people, data and goods through research, education, and technology transfer.

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