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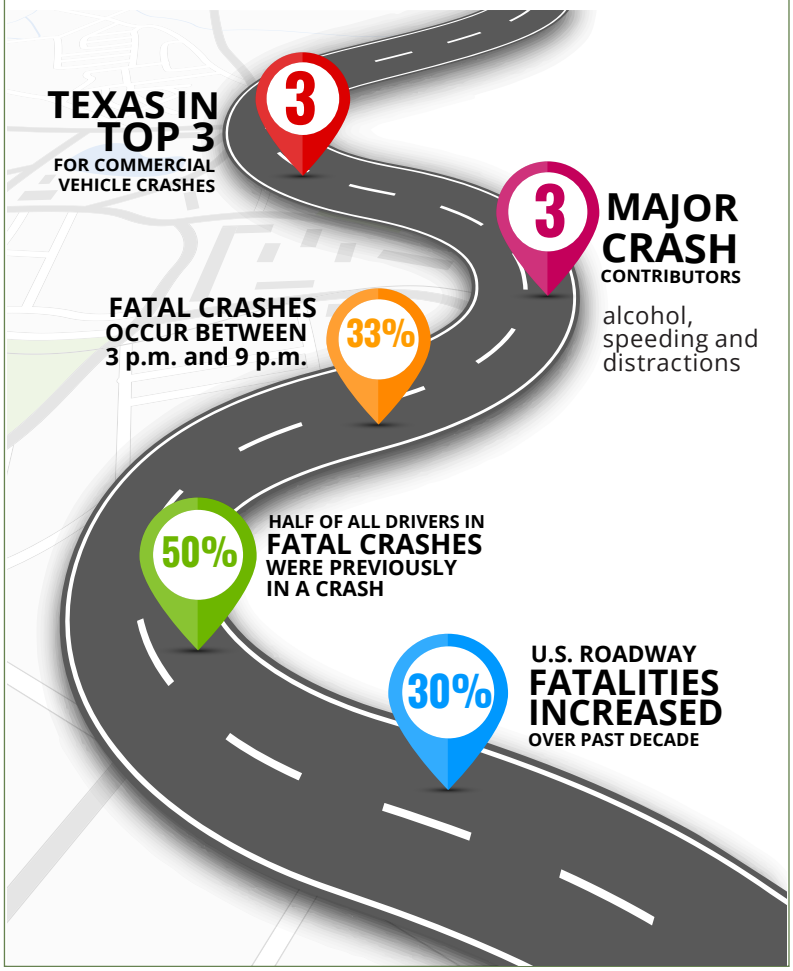
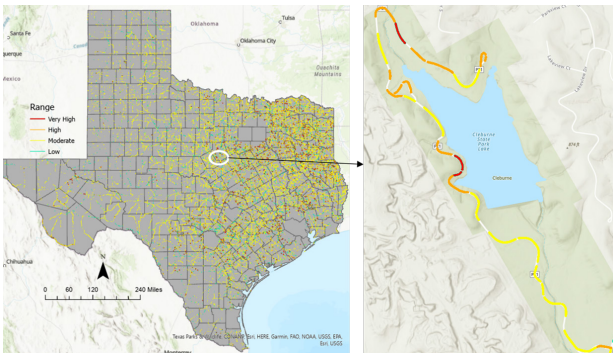
Traffic Crash Analytics

To prevent vehicle crashes, we must first understand the causes and conditions under which they happen. By knowing the time, location, driver condition and myriad other factors involved in collisions, safety experts are far more able to design appropriate countermeasures.

WHAT WE KNOW

Discerning the nature of collision patterns.





WHAT WE DO

Converting data to actionable knowledge

Our team uses data from a variety of sources, including state crash records and massive vehicle data sets, to create robust models and statistical analysis. The team specializes in linking crash data with important contextual information (e.g. weather data, roadway characteristics, citations and driver behaviors) and outcome data (e.g. EMS and hospital records for those involved in crashes) to better understand crash circumstances and outcomes. From those raw statistics, we distill evidence and create insight in the form of usable maps, screening and systemic tools, and educational materials for drivers, engineers, fleet operators, law enforcement officers and other stakeholders to make safety-driven decisions.

WHAT WE DELIVER

Exposing clues and unlocking mysteries

Making Every Day Count: Applying Data-Driven Safety Analyses in a TxDOT District

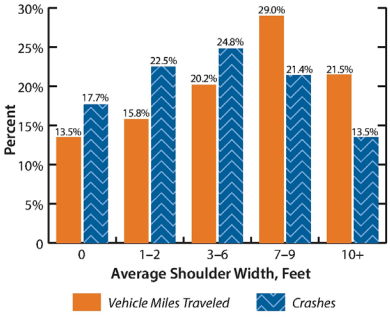
Using a data-driven approach to analyze safety issues and projects will help Texas Department of Transportation (TxDOT) districts target safety investments with more confidence and reduce crashes on Texas highways. Many predictive and systemic analysis tools are now available that provide the means to quantify safety impacts in a similar way so that roadway capacity and operations, environmental impacts, drainage, and pavement life can be quantified. TTI developed a logical, practical, and data-driven framework for integrating these tools into practice within the TxDOT Beaumont District.

Statewide Motorist Awareness and Motorcyclist Safety Outreach and Support

Motorcyclists represent about 14 percent of all motor vehicle fatalities but only 1–2 percent of all vehicles. Crash contributors include both motorcyclist factors (e.g. alcohol use and excessive speed) and car/truck driver factors (e.g. turning left in front of motorcyclists). This project brings together stakeholders from across Texas — including motorcyclists, dealers, instructors, researchers, law enforcement, legislative staff and EMS — to pursue appropriate countermeasures.

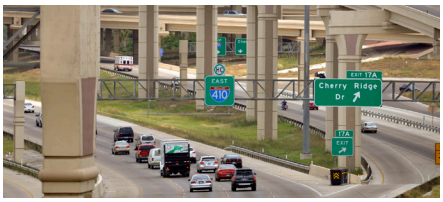
Employer-Based Behavioral Traffic Safety Programs

An interactive web-based tool incorporates previous research, state-of-the-practice, and theory, along with planning aids such as an introduction to behavioral change theory, an overview of measures of program effectiveness, and a logic model template to aid program development and implementation.



Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States

This research provided a multidisciplinary analysis of the relative influence of the types of factors that contributed to national decline in the number of highway fatalities and rates in the United States from 2005 to 2011. This research assisted transportation agencies and other safety stakeholders in optimizing resource allocation and strategic decision making to improve safety.



Calibrating the Highway Safety Manual Predictive Methods for Texas Highways

The *Highway Safety Manual* (HSM) contains safety performance functions (SPFs) that are used in project-level decision making for estimating the average crash frequency by severity level for existing conditions, alternatives to existing conditions, or proposed new roadways. However, SPF calibration is needed because most of the existing HSM SPFs were developed for states other than Texas. In addition, the HSM does not contain predictive models for frontage roads. Researchers derived reliable local calibration factors to apply to Texas roadways for most of the SPFs in the HSM. Researchers also developed an analysis spreadsheet tool to help practitioners implement the new models to facilitate analysis of all rural and urban roadway segments and intersections.

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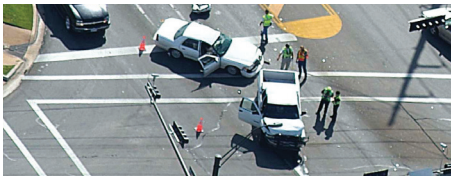
Crash-Reporting Resources for Law Enforcement Officers

The Crash Analytics team provides law enforcement roll-call videos, tip cards, and other resources that provide guidance on complete and accurate crash reporting in Texas.



Texas Traffic Records Coordinating Committee

The Crash Analytics team provides technical assistance to the Texas Traffic Records Coordinating Committee, a partnership of representatives from the transportation, law enforcement, criminal justice and health professions. This statewide group of stakeholders uses the committee as a forum for improving the state's traffic records system.

Improving Commercial Motor Vehicle Safety on Rural Roadways in Texas

To address large truck tractor and heavy truck/pick-up crashes on rural roadways in Texas, this project involved developing data-driven tools for drivers/fleet operators and law enforcement officers. These tools include information on risk factors for higher-severity crashes, an interactive data dashboard, and visualizations designed to identify rural roadways that are more prone to crashes involving trucks.

FOR MORE INFORMATION

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