

11 Safety and Security

INTRODUCTION

Federal law mandates that a Metropolitan Planning Organization (MPO) such as the Tyler Area MPO must address eight planning factors during the transportation planning process. The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), expanded the number of planning factors from seven to eight by splitting safety and security into two separate factors. The goal behind this change was to emphasize the importance of safety, and to acknowledge the special concerns regarding security in the wake of the events of September 11, 2001.

The 2030 MTP covers only the safety component. In this update, safety and security are included and are discussed separately in this chapter.

SAFETY

Safety has long been a primary concern of transportation system management, maintenance, and system expansion. SAFETEA-LU places a greater emphasis on safety at the planning level. One way this emphasis is reflected is in linkages to the Texas Strategic Highway Safety Plan (SHSP) produced in 2006 by the Texas Department of Transportation (TxDOT). In addition to satisfying federal requirements for highway safety planning, the SHSP served as an initial attempt to identify key safety needs and guide investment decisions intended to lead to significant reductions in highway fatalities and serious injuries on all public roads in Texas.

The "4-Es" of traffic safety: Engineering, Enforcement, Emergency services, and Education are key to improving safety for the traveling public.

- ❑ Engineering involves the built roadway and transportation infrastructure and encapsulates design standards, warrants, materials and construction practices, and signage, striping and signalization policies.
- ❑ Enforcement is aimed at modifying or influencing human behavior. Enforcement affects drivers in the following way: a law will be enforced, an offender will be detected, the adjudicatory process will be swift and certain, and punishment will follow conviction.
- ❑ Emergency services include the assemblage of ambulance companies, fire rescue services, and third party emergency response units and emergency rooms/trauma centers. Obtaining accurate post-crash diagnosis and high quality post-crash care is a critical factor in transportation safety.
- ❑ Finally, education encompasses driver licensing programs, driver remediation programs (e.g. traffic school), advanced driving courses, educational campaigns and school education programs aimed at K-12 and college level students.

Combined, the 4-Es capture the range of transportation safety related investments that are needed to improve safety within any jurisdiction.

Texas Strategic Highway Safety Plan

The Texas Strategic Highway Safety Plan (SHSP) mission is to reduce the human and societal costs of highway traffic crashes, deaths, and injuries by most effectively implementing the “4 E’s” of traffic safety - engineering improvements, traffic law enforcement, public education, and emergency medical services (EMS). The SHSP calls for a multi-perspective approach to identify problems in two emphasis areas: **Serious Crash Types** and **High Risk Drivers**. A third group of safety issues referred to as **Areas of Concern** were identified from the consultation process and the review of practices from other states and other documents. **Figure 11-1** presents a summary of traffic safety issues in each of the three emphasis areas. Details of the emphasis areas and safety concerns are discussed in the Plan along with the crash reduction objectives for each area and countermeasures, where available, that can help to meet those objectives.

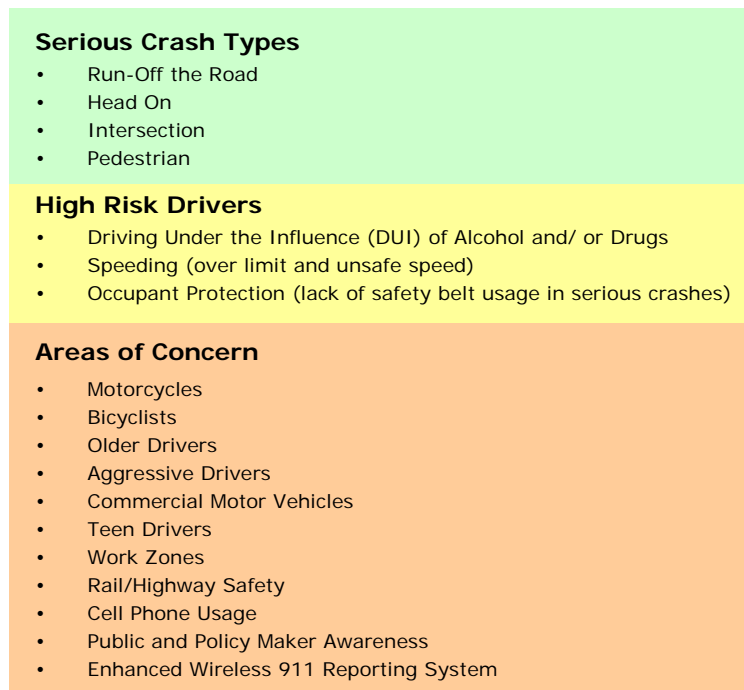
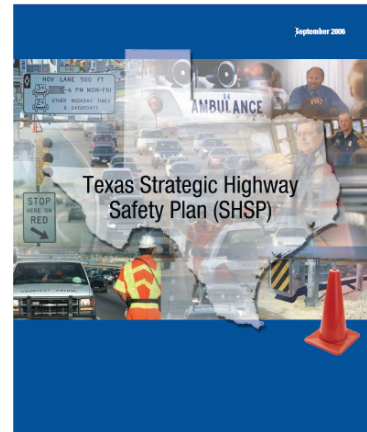


FIGURE 11-1 EMPHASIS AREAS

Transportation Safety Planning in the Tyler Area MPO will be coordinated with TxDOT to implement the recommendations of the SHSP. Such an approach will improve the level of transportation safety planning in the region and fund projects through the Transportation Improvement Program.

As a stakeholder in the SHSP, the Tyler Area MPO is committed to implementing the appropriate strategies and funding for projects that will reduce crashes in the MPO Area. One particular area of focus should be intersections. There are a number of countermeasures identified in the SHSP to help reduce intersection crashes. A few of these have been implemented or will be considered are:

- ❑ Implement engineering solutions to reduce red-light running, such as changes in signal timing.
- ❑ More strictly regulate the number and placement of driveways.
- ❑ Eliminate more blind spots on high-speed rural roads.
- ❑ Add more turn bays and acceleration lanes on high-speed rural roads.
- ❑ Enhance advanced warning at intersections.
- ❑ Improve signal coordination and timing to control speeds through intersections.
- ❑ Expand the use of red-light cameras by municipalities.
- ❑ Educate consultants and developers on driveway regulation.
- ❑ Add information on gap acceptance and intersection crash frequency to a standardized driver education curriculum.
- ❑ Encourage the use of EMS signal preemption.

The safety of the traveling public is a top priority for the Tyler Area MPO, Tyler Transit, KDOT, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), Smith County, and the cities in the planning area. Incorporating these strategies and other appropriate elements of the SHSP throughout the stages of the Tyler Area MPO transportation planning and programming processes will give safety issues higher visibility and greater understanding among stakeholders, elected officials and the public.

Crash Data Analysis for City of Tyler and Smith County

To help identify safety issues, traffic safety data must be analyzed. Trend analysis based upon multiple-years worth of data will give a more accurate reflection of the safety condition of a city or of a specific road segment or intersection. This helps to weed out data that may not be representative of the true safety condition. Also, graphically depicting crash data on a map can help to identify trends that may not be as obvious in spreadsheet reports.

Analysis of crash data is the foundation of transportation safety and planning and is a key component of TxDOT's roadway safety programs. On October 1, 2007, the responsibility of collecting crash data was transferred from the Texas Department of Public Safety to TxDOT. The Traffic Operations Division is responsible for the management and maintenance of the Crash Records Information System (CRIS).

CRIS is a PC-based application that contains spatial and reporting components designed to be used by TxDOT personnel to obtain and analyze crash data. Each TxDOT district has personnel licensed to have access to CRIS.

TxDOT staff extracted crash data from the CRIS database for Smith County. **Figure 11-2** shows a map of motor vehicle crashes that occurred over a three-year period from 2006 to 2008. About 60 percent of total crashes occurred within the Tyler city limits while 76 per cent of fatal crashes occurred outside of the city limits.

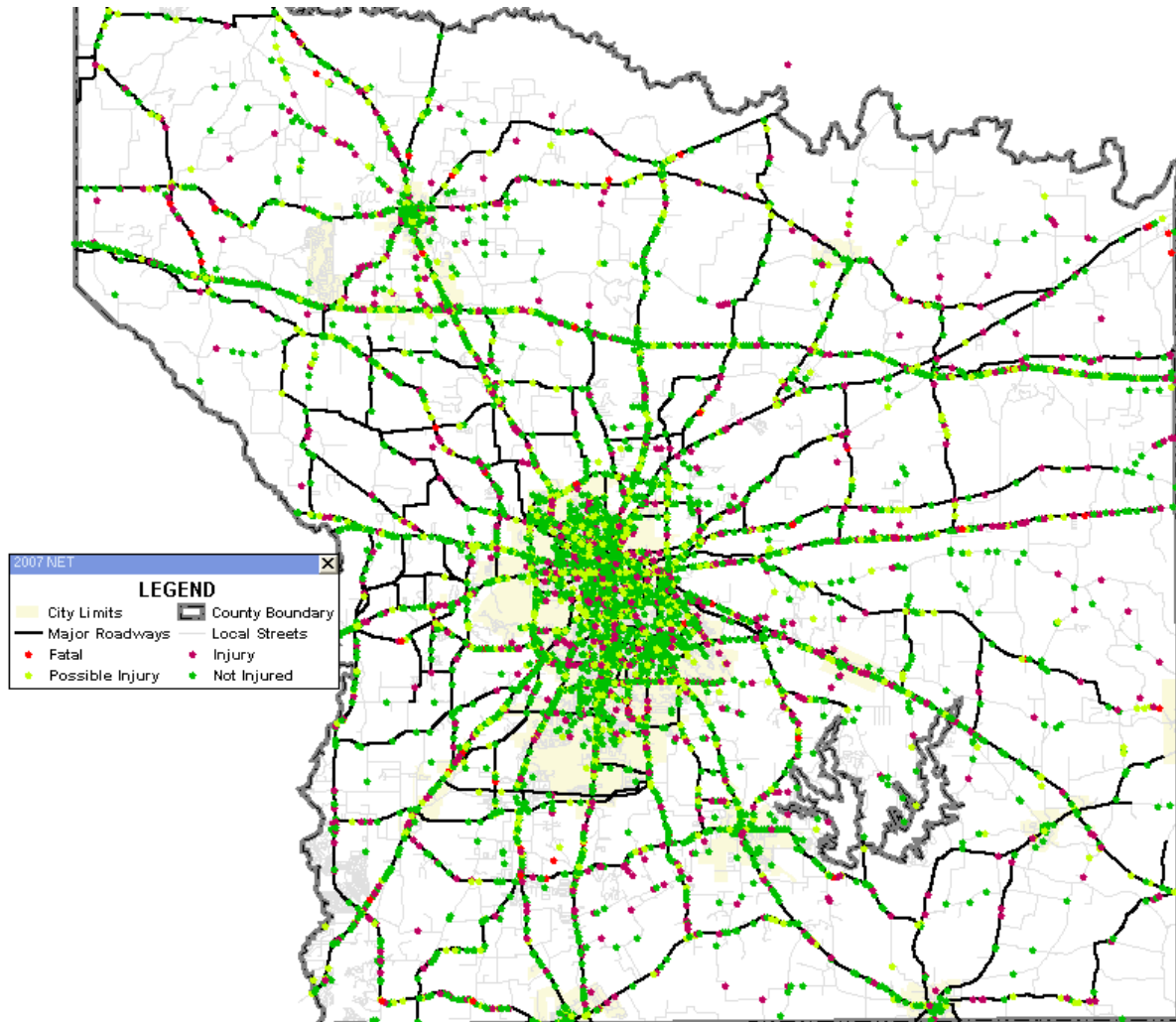


FIGURE 11-2 2006-2008 MOTOR VEHICLE CRASHES IN SMITH COUNTY

Accident Numbers and Severity

Figure 11-3 shows the total crashes that occurred during a three-year period in Tyler city limits and Smith County. It shows that during the three-year period from 2006-2008, 123 fatal crashes, 6,690 injury crashes, and 10,461 non-injury crashes occurred within Smith County. As expected, the majority of the accidents occur in the city of Tyler where the highest percentage of travel occurs. **Figure 11-4** depicts the percentage distribution of crash severity for Smith County. Nearly half of the crashes involved some injury with about 0.7 percent fatal.

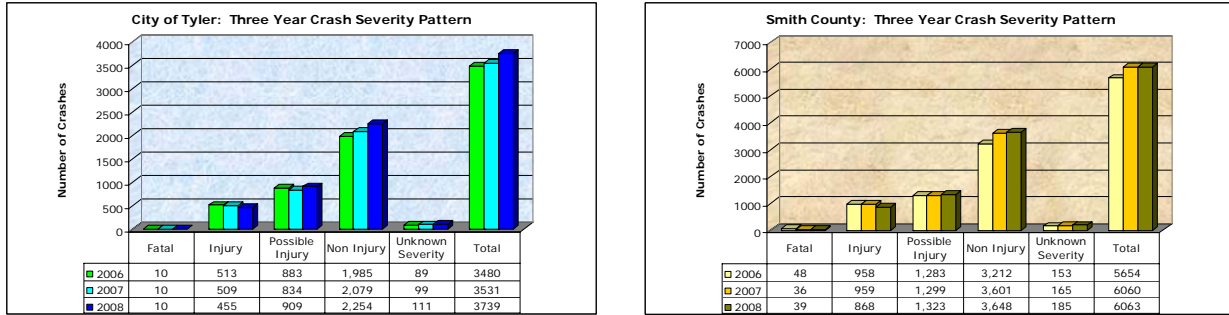


FIGURE 11-3 NUMBER AND SEVERITY OF MOTOR VEHICLE CRASHES

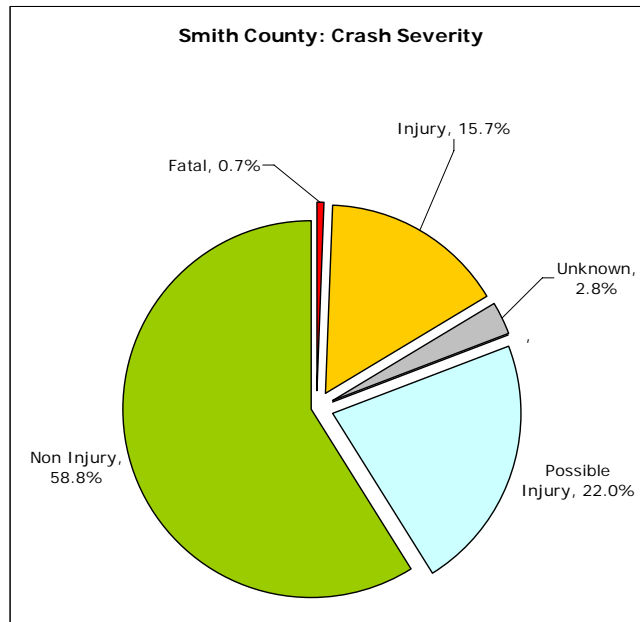


FIGURE 11-4 DISTRIBUTION OF MOTOR VEHICLE CRASH SEVERITY FOR SMITH COUNTY

SECURITY

Security is an important component of the metropolitan transportation planning process. The goal under SAFETEA-LU is to: *"Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users"*. Elevating the importance of security within the transportation planning process requires providing resources to identify and implement projects that directly improve security needs and mitigate imminent threat. Some security planning activities have been initiated within the Tyler metropolitan area and Smith County. Tyler Transit has an ongoing effort to develop a security plan for transit.

Potential Roles for the Tyler Area MPO

The role of the MPO is to focus on activities that can be incorporated into the continuing, comprehensive, and cooperative (3C) transportation planning process. These activities must be examined from a regional perspective, since no one agency is solely responsible for the security

of an area. Incorporating security considerations into the MPO planning process must go beyond the standard measures often considered such as, emergency preparedness and response planning, and think more towards capital planning. Considering work elements that allow the MPO to address security, as appropriate is a first step to integrating security into the planning process. These elements may include involving the Technical Advisory Committee (TAC) in determining emergency transportation routes, adding an emergency management position to the TAC, and enhancing communication between all agencies that plan and provide transportation services. These work elements should be in accordance with the following countermeasures: Prevention, Protection, Redundancy, and Recovery.

Prevention includes analyzing the vulnerability of key transportation infrastructure and services, as well as identifying strategies, technologies, and projects that can help prevent events. Protection measures, such as detection systems, fences, and locks, are often enacted to couple with prevention measures for highly vulnerable components of the transportation network such as bridges, tunnels, and transit facilities. Redundancy within the transportation network allows for easy alternative routes for traffic if an incident occurs. This idea of having a "backup plan" should also be considered with communications and information sources as well. Recovery primarily consists of short term or initial response activities during an emergency situation and long term response activities that consist of providing traveler information, re-routing of services, and reconstruction.

Disruption of the transportation system, due to manmade or natural causes, produces consequences ranging from inconvenience to economic loss to injury or death. As a medium for collaboration, and a financial and technical resource for planning and transportation system analysis, the MPO has a critical role to play in ensuring the security of transportation facilities and services.

In the MPO's role as a forum for cooperative decision-making, the actions that seem most appropriate for it in the context of security/disaster planning are to:

- ❑ Provide a forum for interagency coordination and cooperation with local, state and federal agencies that have a stake in Tyler metropolitan area security and safety to coordinate surveillance and prevention strategies; and,
- ❑ Provide a forum for discussions on coordinating emergency responses. Given the MPO's responsibilities for funding strategies and projects, potential actions could include: funding new strategies/technologies/projects that can help prevent events and/or protect key transportation facilities; funding communications systems and technology to speed response to incidents; and funding recovery activities.

Given the MPO's strengths in technical analysis and transportation planning, potential actions could include:

- ❑ Analyzing the transportation network for emergency route planning and identifying strategic gaps in the network.
- ❑ Develop a geographic information system (GIS) database of critical transportation facilities and infrastructure, including evacuation routes for incorporation into future MTP updates.