



SOLUTIONS FOR SAVING LIVES ON TEXAS ROADS

TEXAS TRAFFIC SAFETY TASK FORCE REPORT

Commissioner Jeff Moseley, Texas Transportation Commission





Texas Transportation Commission

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June 30, 2016

Every year more than 3,500 people die on Texas roads. That is equivalent to ten fully loaded 747s crashing with every passenger on board dying. When it comes to the horrific number of fatalities on Texas roadways, everyone agrees with the statement, "WE CAN DO BETTER!"

I am proud to serve as a member of the Texas Transportation Commission, overseeing one of the finest transportation systems in the world. Commission Chairman Tryon Lewis asked me to develop a plan to reduce serious injuries and deaths on Texas roadways. To identify solutions, I called upon Texas Department of Transportation professionals, as well as representatives from a wide variety of transportation-related organizations, including the Texas Department of Public Safety and the Texas A&M Transportation Institute to create the Texas Traffic Safety Task Force.

We have reams of data about deaths and crashes on our roadway system. We know the causes of these deaths and crashes, and you do too — speeding, running off the road, driving under the influence, distracted driving or not wearing safety belts.

The good news is that we also have data proving how to reduce deaths and crashes. We know this, because in the past 50 years, safer roads, safer cars and better educated drivers have resulted in a 35 percent reduction in traffic fatalities in the United States, even with more vehicles on the roads.

Highway safety engineering improvements include rumble strips, median barriers and improvements at intersections, to name a few. Awareness campaigns and increased enforcement can address the many choices drivers make — like buckling up, putting down cell phones, using the left lane for passing only, and stopping the stupid choice of drinking and driving.

Simply put: highway safety engineering improvements combined with altering driver behavior can reduce crashes and save lives.

More life-saving highway safety engineering, driver education and enforcement programs require more investment in our transportation system. This report directly speaks to the cost of these measures and the benefit of reducing death and injuries as a "RETURN ON INVESTMENT".

Please imagine thousands of Texans, including our own family members and friends, who, as a result of spending money on these safety tools, will no longer be crash or death statistics, but will arrive at their destinations safely. These results are, indeed, a magnificent "RETURN ON INVESTMENT".

Please take time to review **Solutions for Saving Lives on Texas Roads** and see if you agree that it is time to fight for safer Texas roadways.

Sincerely,

Jeff Moseley
Commissioner
Texas Transportation Commission

OUR VALUES: *People • Accountability • Trust • Honesty*

OUR MISSION: *Through collaboration and leadership, we deliver a safe, reliable, and integrated transportation system that enables the movement of people and goods.*

An Equal Opportunity Employer

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SECTION I

TEXAS TRAFFIC SAFETY TASK FORCE EXECUTIVE SUMMARY



THE TEXAS TRAFFIC SAFETY TASK FORCE

The list includes all organizations invited to become members of the Texas Traffic Safety Task Force, including those unable to attend the first sessions. TxDOT appreciates the input and guidance provided by these organizations. The results and recommendations of this report are a product of the Texas Department of Transportation.

- AAA Texas
- Alamo Area Metropolitan Planning Organization
- Association of General Contractors
- Beaumont-Port Arthur Metropolitan Planning Organization
- Bicycle Advisory Committee
- Capital Area Metropolitan Planning Organization
- Car2Go
- Clear Channel Outdoor
- Corpus Christi Metropolitan Planning Organization
- Federal Highway Administration - Texas Division
- Hidalgo County Metropolitan Planning Organization
- Houston-Galveston Area Council (HGAC)
- Injury Prevention Center of Greater Dallas
- Lamar Outdoor
- Longview Metropolitan Planning Organization
- MADD
- Midland Odessa Transportation Alliance (MOTRAN)
- Move Texas Forward
- National Association of County Engineers (NACE)
- National Highway Traffic Safety Administration
- North Central Texas Council of Governments
- Numerous County and Municipal Law Enforcement Agencies
- RideScout
- Texans Standing Tall
- Texarkana Metropolitan Planning Organization
- Texas A&M Engineering Extension Service
- Texas A&M Transportation Institute (TTI)
- Texas Association of County Engineers and Road Administrators
- Texas Center for the Judiciary
- Texas County and Municipal Law Enforcement Agencies
- Texas Department of Public Safety
- Texas Department of Transportation
- Texas Good Roads Association
- Texas Local Technical Assistance Program
- Texas Motorcycle Safety Coalition
- Texas Oil and Gas Association
- Texas Operation Life Saver
- Texas Trucking Association
- U.S. Department of Transportation
- Uber
- University of Texas Center for Transportation Research

EXECUTIVE SUMMARY - JUNE 2016

The Texas Department of Transportation's (TxDOT) Crash Records Information System, known as CRIS, generates detailed crash data used to determine crash emphasis areas, which are the factors that contribute to traffic crashes. Law enforcement agencies across Texas submit crash reports to CRIS. With nearly 90 percent of crash reports now submitted electronically, TxDOT delivers accurate, timely and comprehensive data.

TxDOT focuses on crash emphasis areas and works to reduce the number of crashes with highway safety engineering and driver behavior education and enforcement. Based on past successes, transportation professionals know that these traffic safety improvements can reduce serious crashes and deaths on Texas roadways.

crashes, 5,274 run-off-the-road crashes, and 3,010 crashes involving driving under the influence. Sixty percent of crashes causing death or serious injuries occurred in urban areas and 40 percent in rural areas.

Fatal and Serious Injury Crashes

Urban 60%

Rural 40%

The 3 Es of Traffic Safety:

Engineering

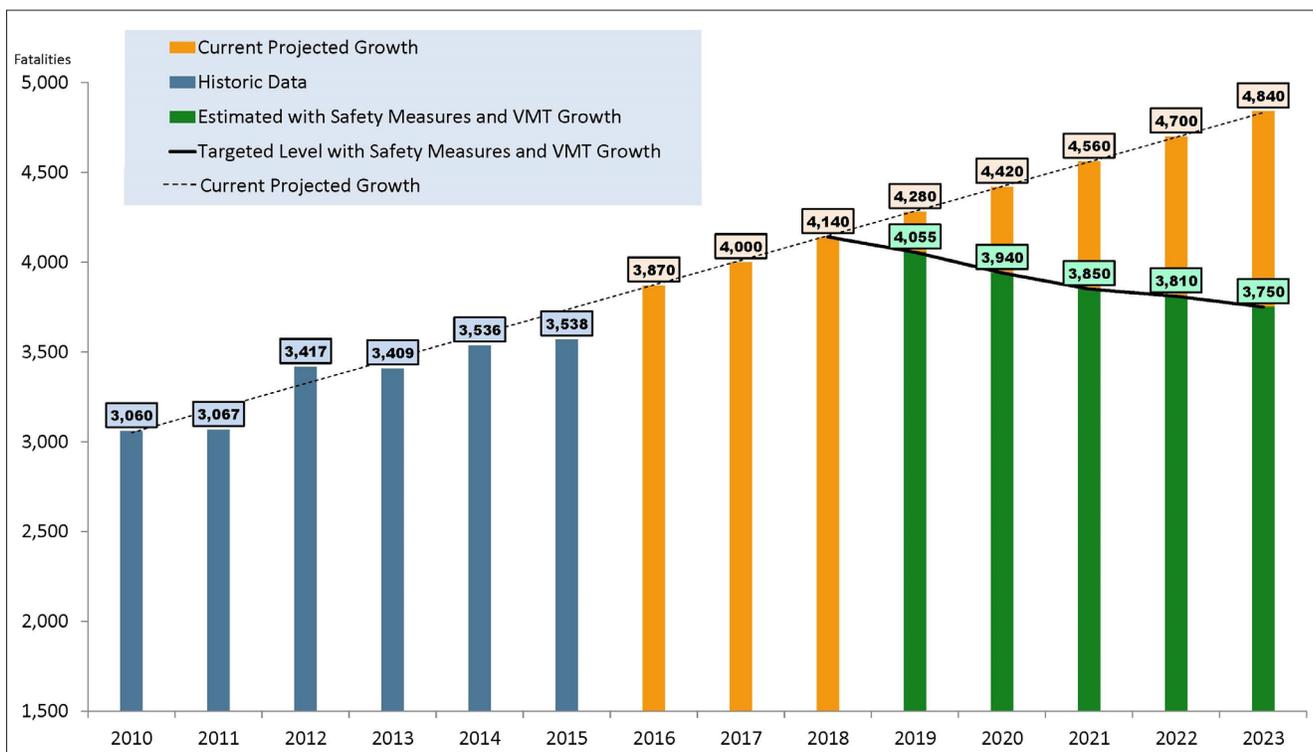
Education

Enforcement

In 2015, Texas recorded 16,788 fatal and serious injury crashes that resulted in 3,538 deaths. These fatal and serious injury crashes included 5,952 intersection-related

“Fatalities on Texas Roadways” [Figure 1] shows fatalities are projected to increase to 4,840 by 2023. An integrated effort using proven highway safety engineering and driver behavior education and enforcement is needed to reverse this trend. If TxDOT, in cooperation with other state and local stakeholders, installs the recommended safety improvements and implements the driver behavior education and enforcement included in this report, the anticipated number of fatalities on Texas roadways could be reduced to a targeted level of 3,800 fatalities or fewer in 2023. [Figure 1] Thousands of lives could be saved, despite expected increases in population and vehicle miles traveled (VMT).

Figure 1. Fatalities on Texas Roadways



TEXAS TRAFFIC SAFETY TASK FORCE EXECUTIVE SUMMARY

The Texas Transportation Commission is committed to traffic safety and reducing the number of deaths and crashes on Texas roadways. The Commission established the Texas Traffic Safety Task Force, which includes Texas transportation and law enforcement professionals representing a wide variety of transportation-related organizations. The Texas Traffic Safety Task Force worked to identify best practices recommendations and new ideas in an effort to reduce Texas highway fatalities, injuries and crashes.

More than 540 lives could be saved and thousands of crashes prevented every year at an average annual investment of \$540 million.

The Texas Traffic Safety Task Force builds on a legacy established during the 78th Texas Legislative Session in 2003 to prioritize traffic safety when considering funding of highway improvement projects through the Highway Safety Bond Program. Senator Steve Ogden sponsored HB 3588, which gave Texas voters the opportunity to pass a constitutional amendment to issue \$3 billion in revenue bonds for the construction of highway improvement projects. Senator Ogden championed the concept of prioritizing traffic safety by specifying that 20 percent of the \$3 billion in bonds would be dedicated to traffic safety improvement projects. Before and after crash data determined that hundreds of lives were saved as a result of the Highway Safety Bond Program, despite increases in population and vehicle miles traveled. [Figure 2] As we continue to seek ways to reduce crashes and injuries and to save lives, the quantifiable reductions in fatalities on Texas roadways resulting from the installed safety improvements during the Highway Safety Bond Program serve as a guide for these recommendations.

The Texas Traffic Safety Task Force recommendations, which focus on highway safety engineering, include installation of concrete and cable median barriers, rumble strips, urban intersection improvements, high-friction surface treatment on curves, highway and bridge widenings, and Traffic Management Systems. In addition,

Texas could potentially reap up to \$12 for every \$1 spent on these safety strategies, which can continue preventing crashes and deaths for up to 20 years.

the number of Texas crashes with driver behavior as a contributing factor remains very high. The Texas Traffic Safety Task Force recommendations for driver behavior education and enforcement include expanding Texas driver safety education and outreach campaigns geared toward impaired driving, teen drivers, safety belt use, distracted driving, motorcyclists, pedestrians and work zone safety.

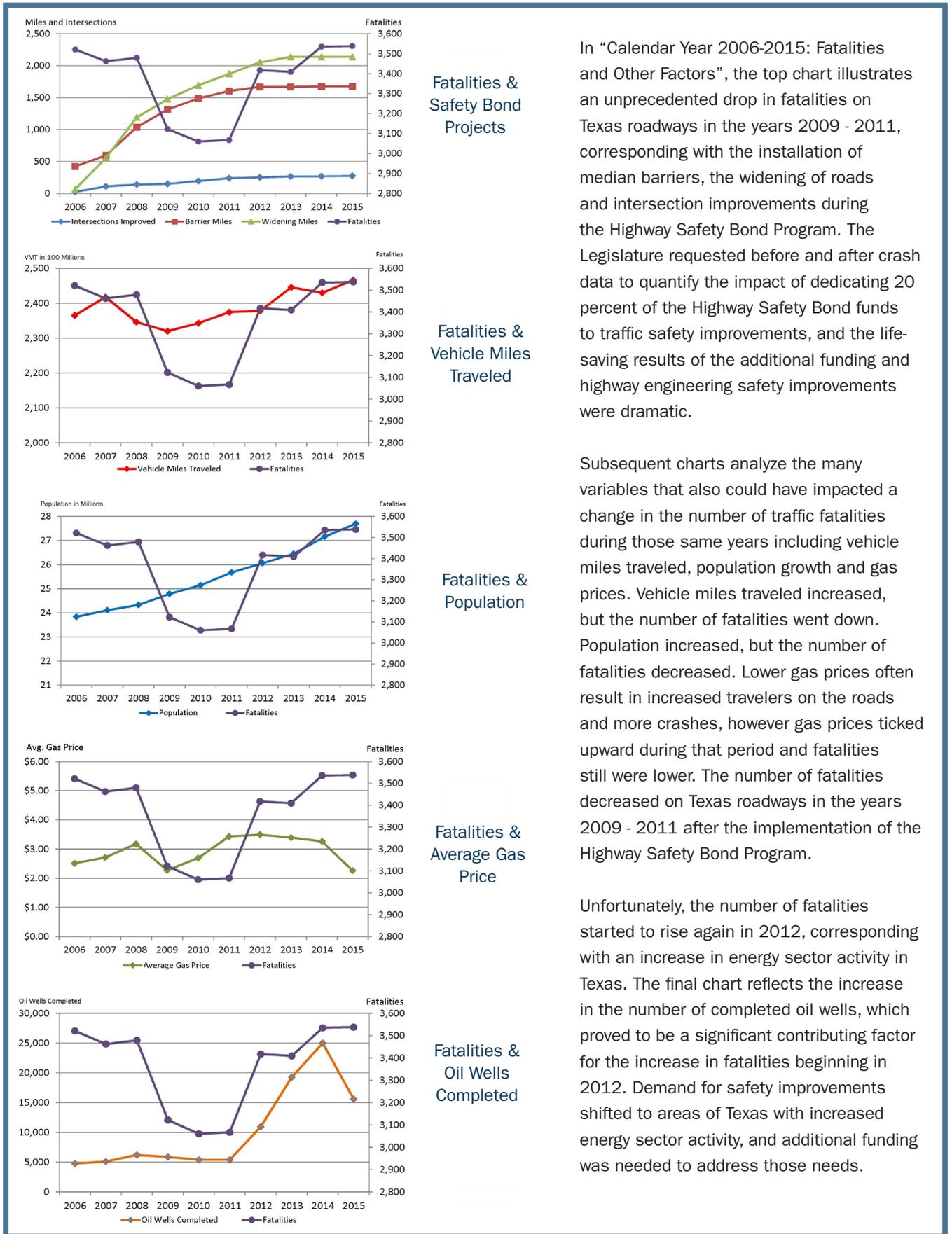
Based on quantifiable results of the Highway Safety Bond Program, further investment in these traffic safety improvements could reduce the anticipated number of deaths on Texas roadways to below 3,800 lives in 2023. That goal represents more than 540 lives saved each year, and hundreds of families spared immeasurable grief. In terms of the financial loss to society, these lives lost represent more than \$2.5 billion a year, according to the National Safety Council. This is a far greater number than the \$540 million average annual cost over five years of implementing many of these highway safety engineering improvements and driver behavior education and enforcement programs. Texas could reap up to \$12 for every \$1 spent for these improvements in five years, and many of these traffic safety improvements will continue preventing deaths and serious injuries for up to 20 years.

The Texas Traffic Safety Task Force has developed a five-year proposal for achieving a significant reduction in fatalities on Texas roadways. A Plan for Saving Lives on Texas Roads utilizes the traffic safety improvements detailed in this report and includes the investment amounts and potential number of lives saved over the five-year plan.

The Texas Traffic Safety Task Force recognizes the Texas Transportation Commission for its multi-pronged approach to reducing crashes and saving lives. The task force presents its initial findings in this report as we aspire toward the ultimate goal of zero deaths on Texas roadways.

TEXAS TRAFFIC SAFETY TASK FORCE EXECUTIVE SUMMARY

Figure 2. Calendar Year 2006–2015: Fatalities and Other Factors



SECTION II

A PLAN FOR SAVING LIVES ON TEXAS ROADS



A PLAN FOR SAVING LIVES ON TEXAS ROADS

Utilizing the traffic safety improvements included in this report, the Texas Traffic Safety Task Force developed the following five-year plan to reduce fatalities and crashes on Texas roadways. Cumulative potential lives saved are based on the five-year to 20-year service life of highway safety engineering improvements and the estimated impact of five years of driver behavior education and enforcement campaigns.

5-Year Safety Improvement Plan	Potential Lives Saved Over Service Life	Investment (millions)	Potential Cumulative Benefit (billions)	Potential Return per \$1 spent	Safety Improvement Detail (page)
HIGHWAY SAFETY ENGINEERING					
Rumble Strips	850-900	\$360	\$4.3	\$12	14
Urban Intersections	50-100	\$313	\$1.3	\$4	15
High-friction Surface Treatments	25-50	\$100	\$0.2	\$2	16
Median Barriers	400-700	\$590	\$2.3	\$4	17
Modernize Bridge Rail	10-50	\$70	\$0.2	\$2	18
Widen Narrow Highways and Bridges	200-300	\$636	\$1.3	\$2	19
Traffic Management Systems	500-900	\$300	\$17.1	\$57	20
DRIVER BEHAVIOR EDUCATION AND ENFORCEMENT					
Safety Belt Campaign	175-650	\$156	\$2.1	\$13	22
Impaired Driving Safety Campaign	300-450	\$49	\$1.7	\$35	23
New Traffic Safety Campaign	100-275	\$116	\$1.0	\$9	24
Motorcycle Safety Campaign	75-125	\$38	\$0.4	\$11	25
High School Education Campaign	50-125	\$15	\$0.6	\$37	26
TOTAL	2,735-4,625	\$2.7 B	\$32.5 B	\$12	

Funding and implementation of the safety measures recommended in this report involve a multi-pronged approach. TxDOT can support this initiative through additional safety program funding, coordination with other TxDOT program sources, and collaboration with other safety-minded stakeholders and organizations throughout the state.

The potential cumulative benefit is calculated using the comprehensive cost of motor vehicle crashes from the National Safety Council in 2013. Comprehensive cost includes economic components such as lost productivity and medical expenses. In addition to economic components, comprehensive cost is a measure of the value of lost quality of life associated with deaths and injuries.

SECTION III

HIGHWAY SAFETY ENGINEERING



RUMBLE STRIPS

Up to 20,000 miles · \$360 million over 5 years

POTENTIAL \$12 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$4.3 billion
Potential Crashes Prevented	2,800–2,900 crashes per year
Potential Serious Injuries Prevented	265–280 serious injuries per year
Potential Lives Saved Over Service Life	850–900 lives

Potential Lives Saved	170 – 180 lives per year
Service Life of Rumble Strips	5 years profile, 10 years milled
Potential Inventory	20,000 miles of rural undivided highways with adequate pavement width for edgeline and centerline rumble strips
Crash Type Prevented	Run-off-the-road and head-on



In 2015, run-off-the-road and head-on crashes accounted for 5,274 and 1,108 fatal and serious injury crashes respectively, which combined is approximately 38 percent of all fatal and serious injury crashes in Texas. Edgeline and centerline rumble strips alert drivers with sound and vibration and are effective engineering improvements to prevent run-off-the-road and head-on crashes. Edgeline rumble strips were installed on all rural four-lane divided highways starting in 1999. There are currently 20,000 miles of rural undivided highways with adequate pavement width for edgeline and centerline rumble strips. The average cost to install edgeline and centerline rumble strips is approximately \$18,000 per mile, so the total investment for 20,000 miles of rumble strips is estimated at \$360 million.

The Texas Traffic Safety Task Force recommends installing edgeline and centerline rumble strips on rural undivided highways with adequate lane and shoulder widths. Installation of rumble strips on additional highways would be implemented through collaboration between TxDOT districts and the Maintenance and Traffic Operations Divisions.

URBAN INTERSECTION IMPROVEMENTS

Up to 6,250 intersections · \$313 million over 5 years

POTENTIAL \$4 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$1.3 billion
Potential Crashes Prevented	2,700–5,700 crashes per year
Potential Serious Injuries Prevented	80–170 serious injuries per year
Potential Lives Saved Over Service Life	50–100 lives

Potential Lives Saved	5–10 lives per year
Service Life of Intersection Improvements	10 years
Potential Inventory	25,000 traffic signals
Crash Type Prevented	Intersection



In 2015, intersection crashes accounted for 5,952 fatal and serious injury crashes, which is approximately 35 percent of all fatal and serious injury crashes in Texas. The North Central Texas Council of Governments conducted the first Intersection Safety Implementation Plan in Texas, which identified low-cost traffic safety improvements at urban signalized intersections in the Dallas-Fort Worth region. The low-cost traffic safety improvements include retiming of traffic signals, additional signal heads, protected left-turn signal phases, pavement markings, signing improvements and signal-ahead warning signs. TxDOT is currently working with the Federal Highway Administration to expand the Intersection Safety Implementation Plan to other urban regions in Texas to improve urban intersections and save lives. The plan has identified 19,000 off-system traffic signals in Austin, Dallas-Fort Worth, El Paso, Houston and San Antonio. TxDOT has also identified more than 6,000 traffic signals on state highways. The average cost to improve a signalized intersection is approximately \$50,000, so the total investment for 6,250 urban intersections is estimated at \$313 million over the next five years.

The Texas Traffic Safety Task Force recommends traffic signal improvements on up to 25 percent of urban intersections, ranked by crash threshold for urban intersections with two or more fatal or serious injury crashes. Implementation will be achieved through collaboration among TxDOT districts, Metropolitan Planning Organizations, cities and the Traffic Operations Division.

HIGH-FRICTION SURFACE TREATMENT

Up to 1,000 curves · \$100 million over 5 years

POTENTIAL \$2 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$0.2 billion
Potential Crashes Prevented	220–310 crashes per year
Potential Serious Injuries Prevented	20–25 serious injuries per year
Potential Lives Saved Over Service Life	25–50 lives

Potential Lives Saved	5–10 lives per year
Service Life of Surface Treatment	5 years
Potential Inventory	34,000 curves
Crash Type Prevented	Run-off-the-road



From 2013 to 2015, there were approximately 7,037 fatal and serious injury crashes on curves located on the state highway system. High-Friction Surface Treatments are pavement surface overlay systems with exceptional skid-resistant properties that are not typically acquired by conventional materials. Curves retain the higher friction properties for a much longer period, because the surface does not polish. The treatment is applied in short sections to improve spot locations where friction demand is critical. High-Friction Surface Treatment is especially beneficial in reducing wet weather crashes. TxDOT has implemented a Wet Surface Crash Reduction Program that identifies locations having a wet surface to total crash ratio higher than the statewide ratio. One-thousand curves have been identified with a wet weather crash ratio higher than the statewide ratio. The average cost to install surface treatment on a curve is approximately \$100,000 per curve, so the total investment for 1,000 curves is estimated at \$100 million.

The Texas Traffic Safety Task Force recommends the installation of High-Friction Surface Treatment on up to 1,000 curves over the next five years with a wet weather crash ratio higher than the statewide ratio. Implementation will be a coordinated effort between TxDOT districts and the Maintenance and Traffic Operations Divisions.

CONCRETE AND CABLE MEDIAN BARRIERS

Up to 1,150 miles · \$590 million over 5 years

POTENTIAL \$4 RETURN FOR EVERY \$1 SPENT

- Estimated Cumulative Benefit \$2.3 billion
- Potential Crashes Prevented 380–600 crashes per year
- Potential Serious Injuries Prevented 40–65 serious injuries per year
- Potential Lives Saved Over Service Life 400–700 lives

Potential Lives Saved	20–35 lives per year
Service Life of Median Barriers	20 years
Potential Inventory	4,600 miles
Crash Type Prevented	Head-on



In 2015, head-on crashes accounted for 1,108 fatal and serious injury crashes, which represent approximately seven percent of all fatal and serious injury crashes in Texas. Cross-median crashes are relatively rare, but more than half of the head-on collisions resulted in fatal crashes. Installing concrete and cable median barrier on divided highways make highways safer and result in fewer fatalities and injuries by preventing head-on crashes. The average cost to install a concrete median barrier is \$800,000 per mile, and the average cost to install a cable median barrier is \$250,000 per mile, so the total investment for 1,150 miles of concrete and cable median barrier on divided highways is estimated at \$590 million.

The Texas Traffic Safety Task Force recommends targeting the installation of additional concrete and cable median barriers on up to 25 percent of divided highways ranked by crash risk factors. Implementation will involve collaboration among TxDOT districts and the Maintenance and Traffic Operations Divisions to identify and implement the installation of additional feasible locations.

MODERNIZE RAIL AND APPROACH GUARDRAIL

Up to 350 bridges · \$70 million over 5 years

POTENTIAL \$2 RETURN FOR EVERY \$1 SPENT

- Estimated Cumulative Benefit \$0.2 billion
- Potential Serious Injuries Prevented 1-5 serious injuries per year
- Potential Lives Saved Over Service Life 10-50 lives

Potential Lives Saved	1-5 lives per year
Service Life of Bridge Rail	10 years
Potential Inventory	13,680 on-system deficient bridge rails
Crash Type Prevented	Run-off-the-road



The Bridge Rail Replacement Program replaces bridge railing by upgrading the rail to current design, safety, and crashed tested standards and adds safety end treatments. Increased funding would allow for expedited replacement of bridge rail to meet current design and safety standards. Projects are ranked between one and five, with one as the highest priority. There are 3,269 bridges that have rankings between one and four and have an annual average daily traffic greater than 10,000 vehicles per day. The average cost to modernize bridge rail and approach guardrail is approximately \$200,000 per location, so the total investment for 350 bridges is estimated at \$70 million.

The Texas Traffic Safety Task Force recommends collaboration among TxDOT's Bridge, Maintenance and Traffic Operations Divisions to identify opportunities to fund and implement the Bridge Rail Replacement Program to modernize bridge rail and approach guardrail at up to 10 percent of the bridges with a ranking between 1 and 4 and an annual average daily traffic greater than 10,000 vehicles per day.

WIDEN NARROW HIGHWAYS AND BRIDGES

Up to 2,000 miles · \$636 million over 5 years

POTENTIAL \$2 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$1.3 billion
Potential Crashes Prevented	500 – 600 crashes per year
Potential Serious Injuries Prevented	55 – 65 serious injuries per year
Potential Lives Saved Over Service Life	200 – 300 lives

Potential Lives Saved	10 – 15 lives per year
Service Life of Widening Shoulders	20 years
Potential Inventory	7,955 miles with average daily traffic \geq 400 vehicles per day and paved surface width < 24 ft.
Crash Type Prevented	Run-off-the-road and head-on



In 2015, run-off-the-road and head-on crashes accounted for 5,274 and 1,108 fatal and serious injury crashes respectively, which combined is approximately 38 percent of all fatal and serious injury crashes in Texas. Narrow highways are a maintenance and safety concern. Also, edgeline rumble strips cannot be installed due to the narrow width. TxDOT has a legislative performance measure that evaluates the number of centerline miles of two-lane highways equal to or greater than 26 ft. pavement width (includes shoulders) as a percent of total two-lane highway centerline miles in the state. Statewide, there are approximately 29,532 centerline miles of two-lane highways less than 26 ft. wide. Of those narrow highways, there are 7,955 miles of on-system rural two-lane, two-way undivided highways with a paved surface width less than 24 ft. and at least 400 vehicles per day. The average cost is approximately \$318,000 per centerline mile to widen a highway to 26 ft. or 28 ft. and add rumble strips, so the total investment to widen 2,000 miles of narrow highways is estimated at \$636 million.

The Texas Traffic Safety Task Force recommends widening up to 25 percent of the top narrow highways ranked by crash risk factors. Implementation will involve collaboration among TxDOT districts, along with the Maintenance and Traffic Operations Divisions to identify and implement widening measures.

TRAFFIC MANAGEMENT SYSTEM IMPROVEMENTS

Up to Statewide · \$300 million over 5 years

POTENTIAL \$57 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$17.1 billion
Potential Crashes Prevented	11,000–21,000 crashes per year
Potential Serious Injuries Prevented	4,700–9,600 serious injuries per year
Potential Lives Saved Over Service Life	500–900 lives

Potential Lives Saved	50–90 lives per year
Service Life of Traffic Management Systems	10 years
Potential Inventory	Statewide Texas traffic management systems
Crash Type Prevented	All crash types



Traffic Management Systems (TMS) can reduce congestion and save lives. The physical systems include dynamic message signs, closed-circuit television cameras, vehicle detectors, weather sensors, enhanced networking and the software required to communicate and operate the system.

These enhanced systems will improve operations in TxDOT traffic management centers and with local partners, including emergency operations centers. TMS will allow TxDOT to provide alternate travel times to the public to make their own best decisions for alternate routes. Other TMS implementations include overheight detection for commercial trucks approaching low bridges and wrong-way driver detection.

The TMS plan proposes improving Traffic Incident Management (TIM) operations, multi-disciplinary training with police, fire, EMS, tow operators and TxDOT maintenance staff, and safety service patrols in the five metropolitan areas. Improved incident management and safety service patrols will reduce incident times as well as the resulting congestion and secondary crashes. Improvements to TMS could prevent up to 21,000 crashes per year and reduce congestion. The total cost to upgrade TMS in Texas is estimated at \$300 million.

The Texas Traffic Safety Force recommends improving and expanding TMS through investment and collaboration among TxDOT and local stakeholders in major urban areas.

SECTION IV

DRIVER BEHAVIOR EDUCATION AND ENFORCEMENT



SAFETY BELT EDUCATION AND ENFORCEMENT

Up to \$156 million over 5 years

POTENTIAL \$13 RETURN FOR EVERY \$1 SPENT

- Estimated Cumulative Benefit \$2.1 billion
- Potential Serious Injuries Prevented 110–575 serious injuries per year
- Potential Lives Saved Over 5-year Campaign 175–650 lives

Potential Lives Saved	35–130 lives per year
Proposed Focus Area	Click-it-or-Ticket campaign (\$24M/year) STEP enforcement (\$7.2M/year)
Crash Type Prevented	Lack of restraint use



Click It or Ticket or worse. 

TxDOT will continue to promote the use of safety belts and child safety seats to increase usage rates. Safety belt use in Texas was 90.47 percent in 2015. This was the 10th consecutive year for Texas to achieve 90 percent or higher usage. TxDOT partners with law enforcement to promote safety belt enforcement, with an increased emphasis on the importance of nighttime enforcement.

A study conducted by the Texas A&M Transportation Institute in 2014 in 18 cities indicated daytime safety belt usage at 90.4 percent. Nighttime usage in those same 18 cities was only 85.2 percent. The number of unbelted drivers and passengers involved in crashes is higher at night. The child safety seat usage rate in Texas was 87.2 percent in 2015. However, the National Highway Traffic Safety Administration estimates that roughly three out of four child safety seats are not used correctly. Additional funding is needed to increase the availability of child safety seats across the state, to increase the number of child safety seat technicians to inspect safety seats, and to expand the locations where safety seats can be checked to make sure they are installed and used correctly.

The Texas Traffic Safety Task Force recommends working with law enforcement agencies and other stakeholders to expand the current safety belt education and enforcement campaign to increase statewide safety belt usage rates.

IMPAIRED DRIVING EDUCATION AND ENFORCEMENT

Up to \$49 million over 5 years

POTENTIAL \$35 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$1.7 billion
Potential Crashes Prevented	1,545–2,300 crashes per year
Potential Serious Injuries Prevented	120–180 serious injuries per year
Potential Lives Saved Over 5-year Campaign	300–450 lives

Potential Lives Saved	60–90 lives per year
Proposed Focus Area	Drink. Drive. Go to Jail. campaign (\$4M/year)
	Safe Ride Vouchers (\$1M/year)
	STEP enforcement (\$4.8M/year)
Crash Type Prevented	Driving under the influence



The increased funding could expand TxDOT’s current Impaired Driving education and enforcement campaigns from limited seasonal times during the year to year-round. The public could benefit all year from increased traffic safety messages through additional paid and earned media, social media and other education efforts.

The expanded impaired driving effort can provide the public with safe ride vouchers for cabs or rideshare companies, which offer private transportation alternatives to reduce impaired driving. TxDOT could partner with anti-drinking and driving organizations such as Mothers Against Drunk Driving (MADD), which has produced Public Service Announcements (PSAs) promoting private transportation alternatives. The safe ride vouchers could be valued at \$50.

The Texas Traffic Safety Task Force recommends working with stakeholders and potential private-sector partners to expand the Impaired Driving education campaign, increase traffic enforcement and potentially utilize safe ride vouchers to prevent impaired driving.

NEW TRAFFIC SAFETY EDUCATION AND ENFORCEMENT

Up to \$116 million over 5 years

POTENTIAL \$9 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$1 billion
Potential Crashes Prevented	4,195 – 9,800 crashes per year
Potential Serious Injuries Prevented	120 – 290 serious injuries per year
Potential Lives Saved Over 5-year Campaign	100 – 275 lives

Potential Lives Saved	20 – 55 lives per year
Proposed Focus Area	Zero Excuses Campaign: - Distracted Driving (\$4M/year) - Speed-related (\$4M/year) - Work Zone (\$4M/year) - Pedestrian Safety (\$4M/year) STEP enforcement (\$7.2M/year)
Crash Type Prevented	Distracted driving Speed-related Work zone Pedestrian



By providing funding for a new hard-hitting traffic safety campaign, TxDOT will support the national Towards Zero Deaths initiative. Funds would be used to develop and reinforce new and existing TxDOT traffic safety campaigns which target distracted driving, work zone safety, speed and pedestrian safety.

The education would develop and implement supporting activities, create new outreach materials such as promotional items, billboards, gas pump toppers, online promotions, social media, and plan special outreach efforts. Media events and the creation of radio and television public service announcements also would be components of the campaign. “Zero Excuses. Save a Life.” The media events would run throughout the year and will require a larger investment than short-term, limited-time frame campaigns conducted in the past.

This education and enforcement effort also will target existing laws such as left lane for passing only and moving your vehicle after a minor crash.

The Texas Traffic Safety Task Force recommends working toward potential implementation of a year-round traffic safety campaign addressing all driver behavior safety issues. Piloting and testing these initiatives could be an initial step. Sponsorships and partnerships with other stakeholders could help implement a full program.

MOTORCYCLE SAFETY EDUCATION AND ENFORCEMENT

Up to \$38 million over 5 years

POTENTIAL \$11 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$0.4 billion
Potential Crashes Prevented	145–315 crashes per year
Potential Serious Injuries Prevented	40–80 serious injuries per year
Potential Lives Saved Over 5-year Campaign	75–125 lives

Potential Lives Saved	15–25 lives per year
Proposed Focus Area	<p>Campaigns:</p> <ul style="list-style-type: none"> - Look Twice for Motorcycles (\$2M/year) - Helmet Safety (\$2M/year) - Impaired Motorcycle Riding (\$2M/year) <p>STEP enforcement (\$1.6M/year)</p>
Crash Type Prevented	Motorcycle



Public, private and nonprofit groups must coordinate efforts to encourage the use of proper protective gear by motorcyclists, as well as develop materials and messages to riders about the importance of lane positioning and following distance in order to see and be seen. Motorcyclists also must be informed about strategies to prevent involvement in left-turn collisions with other vehicles.

Impaired motorcycle riding results in serious injuries and deaths on Texas roadways. Crash data can be used to identify locations that are overrepresented in alcohol-related motorcycle crashes, and law enforcement operations can focus on those crash locations. Funds would support a focused and concentrated impaired motorcycle-riding campaign during Texas Motorcycle Safety Awareness Month and during national mobilizations. These recommendations were made by the 2014 Motorcycle Safety Program Assessment Team organized by the National Highway Traffic Safety Administration, which included safety experts from around the country to develop traffic safety improvement recommendations for Texas.

The Texas Traffic Safety Task Force recommends working with motorcycle and safety advocates to expand the Motorcycle Safety Campaign.

TEXAS HIGH SCHOOL TRAFFIC SAFETY EDUCATION

Up to \$15 million over 5 years

POTENTIAL \$37 RETURN FOR EVERY \$1 SPENT

Estimated Cumulative Benefit	\$0.6 billion
Potential Crashes Prevented	2,585 – 6,000 crashes per year
Potential Serious Injuries Prevented	70 – 165 serious injuries per year
Potential Lives Saved Over 5-year Campaign	50 – 125 lives

Potential Lives Saved	10 – 25 lives per year
Proposed Focus Area	Texas High School campaign (\$600K/year) Friday Night Lights campaign (\$400K/year) Teens in the Driver Seat programs (\$500K/year) Project Celebration (\$1.5M/year)
Crash Type Prevented	Young drivers



TxDOT proposes creating public service announcements on safe driving for teens and making them available to all 1,500 Texas high schools for use in classrooms and at sporting events. In addition, the campaign would also include posters, banners and educational materials aimed at teen drivers. TxDOT will provide support with Project Celebration Mini-grants during the prom/graduation season to sponsor alcohol-free and other drug-free events to save teen lives.

The Texas Traffic Safety Task Force recommends pursuing opportunities to work with other stakeholders to maintain and expand Texas High School Traffic Safety Education efforts.

SECTION V

TRAFFIC SAFETY SOLUTIONS USED IN OTHER STATES



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The Texas Traffic Safety Task Force noted that other states have a variety of traffic laws that have proved successful in reducing crashes and fatalities.

Based on research by the Texas A&M Transportation Institute, when comparing Texas to California, a state of similar size, 38 percent of the total fatalities that occurred on Texas roadways involved alcohol-impaired driving, compared with 28 percent of total roadway fatalities related to alcohol in California. In 2012, distraction and inattention including cell phone talking and texting caused 472 fatalities in Texas, compared with 126 fatalities in California.

California utilizes high visibility enforcement, sobriety checkpoints, intensive supervision of DUI probationers, a ban on the use of cellphones while driving, required motorcycle training and a strict universal motorcycle helmet law. The following traffic safety solutions used in other states address impaired driving, drink excise taxes, motorcycle safety, speeding, distracted driving, driver education and safety belts on school buses.

SAFETY BELTS ON SCHOOL BUSES

Approximately four school age children (5–18 years old) who are occupants of large school buses are killed annually in the United States. According to National Highway Traffic Safety Administration 2011 data, assuming 100 percent safety belt use nationally, a Federal mandate for lap/shoulder belts could save two lives annually.

Safety belts on buses further enhance protection already provided by compartmentalization. The National Highway Traffic Safety Administration recommends providing training to drivers and students on proper safety belt use for buses that have them. Reported school bus miles driven in Texas during the 2013–2014 school year was 446 million. Based on the number of Texas school buses, if the focus was on retrofitting school buses 10 years old or newer with safety belts, approximately 12,481 buses need safety belts installed. The National Highway Traffic Safety Administration indicates the average cost of equipping a large school bus with lap/shoulder belts without loss in capacity ranges from \$7,400 to \$10,300.

TEEN DRIVER EDUCATION

Texas is one of three states with statutes allowing parent-taught driver education. *Texas Transportation Code*, Section 521.205 allows a parent, step-parent, legal guardian, step-grandparent or grandparent to provide a driver education course to eligible minors 16–18 years of age. The law was passed in 1995, and several attempts to repeal this legislation have been unsuccessful.

In Texas, there are approximately 300,000 teens eligible to get driver licenses each year. Of those, about one-third of teens wait until they are 18 years old to get their licenses, after which age, driver education is not required. In FY 2013, the number of driver education completion certificates issued to driving schools shows that 13 percent of the driver education students were taught in public schools, 34 percent were parent-taught, and 53 percent received instruction through commercial driving schools.

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A study conducted by the Texas A&M Transportation Institute, and published by the National Highway Traffic Safety Administration in 2007, indicated that parent-taught drivers demonstrated lower driving knowledge early in their training, poorer driving skills, and a lower rate of passing the state-administered driving test on the first attempt. In addition, parent-taught novice drivers committed more traffic offenses and were involved in more crashes.

MOTORCYCLE HELMET LAW

The reinstatement of Texas' mandatory universal motorcycle helmet law for all operators and passengers could prevent 438 serious injuries a year and save 109 lives. This recommendation was made by the 2014 Motorcycle Safety Program Assessment Team, sponsored by the National Highway Traffic Safety Administration.

MOTORCYCLE LICENSE PENALTIES AND FINES

Penalties and fines could be increased for operating a motorcycle without a Class M license. In 2013, approximately 46 percent of the motorcycle operators involved in fatal crashes did not have motorcycle licenses. This recommendation was made by the 2014 Motorcycle Safety Program Assessment Team, sponsored by the National Highway Traffic Safety Administration.



VARIABLE SPEED LIMITS

The Texas Legislature gave TxDOT the authority to implement an 18-month pilot program to test variable speed limit systems to improve safety during construction, congestion, and inclement weather. The variable speed limits were activated in 2014 on I-35 in Temple, Loop 1604 in San Antonio, and on I-20 in Eastland County. The new system alerted drivers of upcoming road conditions related to traffic congestion, work zone activity and weather events. The variable speed limit system appropriately adjusted speed limits to road conditions by using sensors and electronic signs.

The Texas A&M Transportation Institute, assisted TxDOT in the data collection and determined that variable speed limits would be beneficial if implemented to address inclement weather, congestion or road construction. Variable speed limits had a safety benefit at each location, and motorists had a clear understanding of the purpose of the variable speed limit.

AUTOMATED SPEED ENFORCEMENT

In 2015, speed-related crashes accounted for 2,308 fatal and serious injury crashes, which are approximately 14 percent of all fatal and serious injury crashes in Texas. Automated Speed Enforcement systems in other states have proven to be effective tools for managing speed and reducing speed-related crashes, when used correctly and in appropriate circumstances.

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Several types of Automated Safety Enforcement systems are available and used in multiple states and countries. The National Center for Highway Research Program estimates that Automated Safety Enforcement systems can reduce crashes by 20 percent. In a 2010 national poll, 64 percent of the public supported an Automated Safety Enforcement system with 87 percent supporting the use of Automated Safety Enforcement systems near schools. Texas Traffic Laws currently prohibit automated speed enforcement by cities, counties and the Texas Department of Public Safety.

DISTRACTED DRIVING LAW

Approximately one in five crashes in Texas involves driver distraction, and Texas is one of only a few states in the nation without a statewide text messaging ban applicable to all drivers. Texas law only applies to certain locations and age groups. Forty-six states, Washington D.C., Puerto Rico, Guam and the U.S. Virgin Islands ban text messaging for all drivers.

Fourteen states, Washington D.C., Puerto Rico, Guam and the U.S. Virgin Islands prohibit all drivers from using handheld cell phones while driving. More than 50 Texas cities have ordinances prohibiting texting while driving.

ALCOHOL EXCISE TAX

A 10 cent per drink alcohol excise tax could generate new revenue to reduce alcohol abuse and support impaired driving prevention and treatment. A 2015 report issued by Texans Standing Tall indicates a 10 cent per drink increase in alcohol excise taxes could generate funds to save 402 lives in Texas, prevent 66 babies from being



born with fetal alcohol syndrome, reduce 359 teenage pregnancies and prevent 112 alcohol-impaired driving fatalities in Texas.

The Texans Standing Tall report is available to provide more information. A 10 cent per drink increase in alcohol excise taxes would raise \$708 million in new revenue for the State of Texas and would result in an 8.6 percent reduction in alcohol consumption. Such a tax was recommended by the 2015 Impaired Driving Assessment Team.

DUI/DWI TRACKING SYSTEM

Other states have established driving under the influence/driving while intoxicated (DUI/DWI) tracking systems that link criminal justice agency databases, in order to create a network containing DUI/DWI offender criminal history, arrests, warrants, photographs, and fingerprints, to ensure access to offenders' previous and/or current DUI/DWI history. The Impaired Driving Offender Tracking System is a priority recommendation made by the 2015 Impaired Driving Assessment Team, sponsored by the National Highway Traffic Safety Administration.

DWI/DRUG COURT PROGRAM

Driving while intoxicated statutes in other states enable DWI/Drug Court judges to reward those who successfully complete a DWI/Drug Court program of one year or longer in duration, waiving surcharges/fines. The DWI/Drug Court Program is a priority recommendation made by the 2015 Impaired Driving Assessment Team, sponsored by the National Highway Traffic Safety Administration.

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IMPAIRED DRIVING TASK FORCE

By creating the Impaired Driving Task Force, Texas government officials at the highest levels can work together to address transportation safety challenges in Texas. Chaired by a Texas Transportation Commissioner appointed by the Governor, other members could include the Texas Attorney General; six members of the Texas Senate, appointed by the Lieutenant Governor; and six members of the Texas House of Representatives, appointed by the Speaker of the House. This priority recommendation was made by the 2015 Impaired Driving Assessment Team, organized by the National Highway Traffic Safety Administration.

The task force could receive administrative support from the TxDOT Traffic Operations Division. The mission of the task force could be expanded to include action items on other key driver behavior safety issues such as distracted driving, safety belt and child safety seat use, drowsy driving, work zone safety and motorcycle safety.

SOBRIETY CHECKPOINTS

Based on numerous studies, states that have implemented sobriety checkpoints as a tool for impaired driving enforcement have seen an estimated 20–24 percent reduction in alcohol-related fatalities. Based on Texas' 1,111 alcohol-related fatalities in 2015 and the effectiveness of sobriety checkpoints in other states, Texas could anticipate reducing total traffic fatalities by an estimated 220–260 people. Texas is one of only 12 states without sobriety checkpoints. This recommendation was made by the 2015 Impaired Driving Assessment Team, organized by the National Highway Traffic Safety Administration.

SAFETY CORRIDORS

The states of New Mexico and Arizona have established safety corridors, identifying particular sections of roadways with an overrepresentation of traffic crashes, fatalities and injuries. Those states focus on those areas for higher levels of law enforcement, media outreach and education.

RETREAD TIRES

Owners of trucking fleets and commercial vehicles utilize retread tires primarily for the cost advantage they provide over similar new tires. Public perception is that retread tires are less safe than new tires as evidenced by the amount of tire debris frequently found on the sides of roadways. The University of Michigan Transportation Research Institute collected and studied truck tire debris and discarded tire casings from five sites in the United States to determine the probable cause of failure and its original equipment or retread status.

Approximately 68 percent of tire fragments were from retread tires and 18 percent were from original tread tires. The research also showed that truck crash involvements with tire defects were associated with road hazards, warmer weather and high-speed roads. Proper inflation and maintenance of tires is crucial to safety.

