SOLUTIONS FOR SAVING LIVES ON TEXAS ROADS

Carol T. Rawson, P.E.
Traffic Operations Division Director
Texas Traffic Safety Task Force was created almost a year ago with the goal of finding solutions to save lives on Texas roads.
<table>
<thead>
<tr>
<th>AAA Texas</th>
<th>Move Texas Forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alamo Area Metropolitan Planning Organization</td>
<td>National Association of County Engineers (NACE)</td>
</tr>
<tr>
<td>Association of General Contractors</td>
<td>National Highway Traffic Safety Administration</td>
</tr>
<tr>
<td>Beaumont-Port Arthur Metropolitan Planning Organization</td>
<td>North Central Texas Council of Governments</td>
</tr>
<tr>
<td>Bicycle Advisory Committee</td>
<td>RideScout</td>
</tr>
<tr>
<td>Capital Area Metropolitan Planning Organization</td>
<td>Texans Standing Tall</td>
</tr>
<tr>
<td>Car2Go</td>
<td>Texas County and Municipal Law</td>
</tr>
<tr>
<td>Clear Channel Outdoor</td>
<td>Enforcement Agencies</td>
</tr>
<tr>
<td>Corpus Christi Metropolitan Planning Organization</td>
<td>Texas Department of Public Safety</td>
</tr>
<tr>
<td>Federal Highway Administration - Texas Division</td>
<td>Texas Department of Transportation</td>
</tr>
<tr>
<td>Hidalgo County Metropolitan Planning Organization</td>
<td>Texas Good Roads Association</td>
</tr>
<tr>
<td>Houston-Galveston Area Council (HGAC)</td>
<td>Texas Local Technical Assistance Program</td>
</tr>
<tr>
<td>Injury Prevention Center of Greater Dallas</td>
<td>Texas Motorcycle Safety Coalition</td>
</tr>
<tr>
<td>Lamar Outdoor</td>
<td>Texas Oil and Gas Association</td>
</tr>
<tr>
<td>Longview Metropolitan Planning Organization</td>
<td>Texas A&amp;M Transportation Institute</td>
</tr>
<tr>
<td>MADD</td>
<td>Texas Trucking Association</td>
</tr>
<tr>
<td>Midland Odessa Transportation Alliance (MOTRAN)</td>
<td>Uber</td>
</tr>
<tr>
<td></td>
<td>University of Texas Center for Transportation Research</td>
</tr>
</tbody>
</table>
Factors contribute to crashes. Crashes are no accident.

• Accident: an event that happens by chance or that is without apparent or deliberate cause

• Crash: a violent collision, typically of one vehicle with another or with an obstacle
Fatalities on Texas Roads

Current Projected Growth and Historic Data

Crash Data available as of June 23, 2016
Dedicated 20% of highway improvement bonds to highway safety improvement projects

Solutions for Saving Lives on Texas Roads builds on a legacy established during the 78th Texas Legislative Session in 2003 with the Highway Safety Bond Program when hundreds of lives were saved.

2005 & 2009 Safety Bond Program = $1.2 billion
Quantifiable success based on crash reduction factors

<table>
<thead>
<tr>
<th>Crash Emphasis Areas</th>
<th>Type of Safety Bond Work</th>
<th>Crash Reduction Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run-off-the-road</td>
<td>Highway widening</td>
<td>30%</td>
</tr>
<tr>
<td>Head-on</td>
<td>Concrete or cable median barrier</td>
<td>55%</td>
</tr>
<tr>
<td>Intersection</td>
<td>Left-turn lanes</td>
<td>25%</td>
</tr>
<tr>
<td>Intersection</td>
<td>Continuous left-turn lanes</td>
<td>50%</td>
</tr>
<tr>
<td>Intersection</td>
<td>Grade separations</td>
<td>80%</td>
</tr>
</tbody>
</table>
Fatalities on Texas Roads 2006 - 2015

Fatalities

3,600
3,500
3,400
3,300
3,200
3,100
3,000
2,900
2,800


Fatalities
Fatalities on Texas Roads and Population

Population in Millions

28
27
26
25
24
23
22
21

Fatalities

3,600
3,500
3,400
3,300
3,200
3,100
3,000
2,900
2,800

Solutions for Saving Lives on Texas Roads

June 2016
Fatalities on Texas Roads and Gas Prices

![Graph showing the relationship between average gas price and fatalities from 2006 to 2015. The graph indicates a correlation between higher gas prices and lower fatalities, and vice versa.]
Fatalities on Texas Roads and Oil Wells Completed

![Graph showing the relationship between fatalities and oil wells completed from 2006 to 2015.](chart.png)
Solutions for Saving Lives on Texas Roads

- Provides a detailed analysis of proven traffic safety improvements.
- Recognizes that installing more highway safety engineering improvements and conducting driver behavior education and enforcement will save lives.
- Potential cumulative benefit and return on investment are based on 2013 estimates by National Safety Council.
A Plan for Saving Lives on Texas Roads

• Five year plan
• The plan includes a multi-pronged approach to address the factors that contribute to traffic crashes – Engineering, Education and Enforcement.
• Implementation of the plan will be a collaboration of TxDOT and other safety-minded stakeholders and organizations throughout the state.
<table>
<thead>
<tr>
<th>Emphasis Areas</th>
<th>Fatal &amp; Serious Injury Crashes</th>
<th>% of Total</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>16,788</td>
<td>40%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Intersection</td>
<td>5,952</td>
<td>35%</td>
<td>27%</td>
<td>73%</td>
</tr>
<tr>
<td>Run Off the Road</td>
<td>5,274</td>
<td>31%</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>Driving Under the Influence</td>
<td>3,010</td>
<td>18%</td>
<td>48%</td>
<td>52%</td>
</tr>
<tr>
<td>Distracted Driving</td>
<td>2,927</td>
<td>17%</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Young Drivers</td>
<td>2,816</td>
<td>17%</td>
<td>39%</td>
<td>61%</td>
</tr>
<tr>
<td>Lack of Restraint Use</td>
<td>2,694</td>
<td>16%</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>Speed Related</td>
<td>2,308</td>
<td>14%</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>Motorcyclist</td>
<td>2,217</td>
<td>13%</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>Older Drivers</td>
<td>2,256</td>
<td>13%</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>1,602</td>
<td>10%</td>
<td>21%</td>
<td>79%</td>
</tr>
<tr>
<td>Large Trucks</td>
<td>1,144</td>
<td>7%</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>Head-On</td>
<td>1,108</td>
<td>7%</td>
<td>66%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Crash data available as of June 23, 2016
Highway Safety Engineering – Crash Types

- Intersection
- Run-Off-the-Road
- Head-On
RUMBLE STRIPS

• Up to 20,000 miles

• $360 million over 5 years

• Potential Lives Saved 170-180 per year

• Potential Crashes Prevented 2,800–2,900 per year

• Potential Serious Injuries Prevented 265–280 per year
Highway Safety Engineering

URBAN INTERSECTION IMPROVEMENTS

- Up to 6,250 intersections
- $313 million over 5 years
- Potential Lives Saved 5–10 per year
- Potential Crashes Prevented 2,700–5,700 per year
- Potential Serious Injuries Prevented 80–170 per year
HIGH-FRICTION SURFACE TREATMENT

• Up to 1,000 curves
• $100 million over 5 years
• Potential Lives Saved 5–10 per year
• Potential Crashes Prevented 220–310 per year
• Potential Serious Injuries Prevented 20–25 per year
CONCRETE AND CABLE MEDIAN BARRIERS

• Up to 1,150 miles
• $590 million over 5 years
• Potential Lives Saved 20-35 per year
• Potential Crashes Prevented 380-600 per year
• Potential Serious Injuries Prevented 40–65 per year
MODERNIZE RAIL AND APPROACH GUARDRAIL

- Up to 350 bridges
- $70 million over 5 years
- Potential Lives Saved 1–5 per year
- Potential Serious Injuries Prevented 1–5 per year
WIDEN NARROW HIGHWAYS AND BRIDGES

- Up to 2,000 miles
- $636 million over 5 years
- Potential Lives Saved 10-15 per year
- Potential Crashes Prevented 500–600 per year
- Potential Serious Injuries Prevented 55–65 per year
TRAFFIC MANAGEMENT SYSTEM IMPROVEMENTS

• Up to Statewide
• $300 million over 5 years
• Potential Lives Saved 50–90 per year
• Potential Crashes Prevented 11,000–21,000 per year
• Potential Serious Injuries Prevented 4,700-9,600 per year
Driver Behavior - Crash Types

- Driving Under the Influence
- Distracted Drivers
- Lack of Restraint Use
- Teen Driver
- Speed Related
- Pedestrian
- Motorcycle
Driver Behavior Education and Enforcement

SAFETY BELT EDUCATION AND ENFORCEMENT

• Up to $156 million over 5 years
• Potential Lives Saved 35-130 per year
• Potential Serious Injuries Prevented 110–575
Driver Behavior Education and Enforcement

IMPAIRED DRIVING EDUCATION AND ENFORCEMENT

• Up to $49 million over 5 years
• Potential Lives Saved 60-90 per year
• Potential Crashes Prevented 1,545–2,300 per year
• Potential Serious Injuries Prevented 120–180 per year
Driver Behavior Education and Enforcement

NEW TRAFFIC SAFETY EDUCATION AND ENFORCEMENT

• Up to $116 million over 5 years
• Potential Lives Saved 20-55 per year
• Potential Crashes Prevented 4,195–9,800 per year
• Potential Serious Injuries Prevented 120–290 per year
MOTORCYCLE SAFETY EDUCATION AND ENFORCEMENT

• Up to $38 million over 5 years
• Potential Lives Saved 15-25 per year
• Potential Crashes Prevented 145–315 per year
• Potential Serious Injuries Prevented 40–80 per year
TEXAS HIGH SCHOOL TRAFFIC SAFETY EDUCATION

- Up to $15 million over 5 years
- Potential Lives Saved 10-25 per year
- Potential Crashes Prevented 2,585–6,000 per year
- Potential Serious Injuries Prevented 70–165 per year
## A Plan for Saving Lives on Texas Roads

<table>
<thead>
<tr>
<th>5-Year Safety Improvement Plan</th>
<th>Potential lives Saved Over Service Life</th>
<th>Investment (millions)</th>
<th>Potential Cumulative Benefit (billions)</th>
<th>Potential Return per $1 spent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGHWAY SAFETY ENGINEERING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumble Strips</td>
<td>850 – 900</td>
<td>$360</td>
<td>$4.3</td>
<td>$12</td>
</tr>
<tr>
<td>Urban Intersections</td>
<td>50 – 100</td>
<td>$313</td>
<td>$1.3</td>
<td>$4</td>
</tr>
<tr>
<td>High-friction Surface Treatments</td>
<td>25 – 50</td>
<td>$100</td>
<td>$0.2</td>
<td>$2</td>
</tr>
<tr>
<td>Median Barriers</td>
<td>400 – 700</td>
<td>$590</td>
<td>$2.3</td>
<td>$4</td>
</tr>
<tr>
<td>Modernize Bridge Rail</td>
<td>10 – 50</td>
<td>$70</td>
<td>$0.2</td>
<td>$2</td>
</tr>
<tr>
<td>Widen Narrow Highways and Bridges</td>
<td>200 – 300</td>
<td>$636</td>
<td>$1.3</td>
<td>$2</td>
</tr>
<tr>
<td>Traffic Management Systems</td>
<td>500 – 900</td>
<td>$300</td>
<td>$17.1</td>
<td>$57</td>
</tr>
<tr>
<td><strong>DRIVER BEHAVIOR EDUCATION AND ENFORCEMENT</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Belt Campaign</td>
<td>175 – 650</td>
<td>$156</td>
<td>$2.1</td>
<td>$13</td>
</tr>
<tr>
<td>Impaired Driving Safety Campaign</td>
<td>300 – 450</td>
<td>$49</td>
<td>$1.7</td>
<td>$35</td>
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<tr>
<td>New Traffic Safety Campaign</td>
<td>100 – 275</td>
<td>$116</td>
<td>$1.0</td>
<td>$9</td>
</tr>
<tr>
<td>Motorcycle Safety Campaign</td>
<td>75 – 125</td>
<td>$38</td>
<td>$0.4</td>
<td>$11</td>
</tr>
<tr>
<td>High School Education Campaign</td>
<td>50 – 125</td>
<td>$15</td>
<td>$0.6</td>
<td>$37</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,735 – 4,625</strong></td>
<td><strong>$2.7 B</strong></td>
<td><strong>$32.5 B</strong></td>
<td><strong>$12</strong></td>
</tr>
</tbody>
</table>
More than 540 lives could be saved and thousands of crashes prevented every year at an annual investment of $540 million.
Fatalities on Texas Roadways

Current Projected Growth
Historic Data
Estimated with Safety Measures and VMT Growth
Targeted Level with Safety Measures and VMT Growth
Current Projected Growth

Crash Data available as of June 23, 2016

Solutions for Saving Lives on Texas Roads

June 2016