



Center for Transportation Safety

The Other Side of Safety

Investigating, Understanding,
Determining and Influencing
Driver/User Behavior

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Components of Road Safety

- Driver / User
- Vehicle
- Roadway



Affecting the Roadway and the Driver

- Traffic Engineering
 - Roadway design and operation
 - Influencing the Individual Driver
 - Signs, Signals and Markings
 - At a specific point along the road
- What if? It's not a localized problem?
- Like...



An epidemic of teen crash fatalities

- 12 over 3 years
- What:
 - A speed hump on every block?
 - 25 MPH speed limits?
- Or...



A Program such as Teens in the Driver Seat

- Based on science
- Risk Factors
- Peer-to-Peer
- Can reach a wider audience





The Center for Transportation Safety

- Established by State Legislation in 2001
- Mission:
 - Reduce traffic deaths and injuries through research, education and technology transfer
 - Serve as the focal point for traffic safety initiatives in the State of Texas.



Traffic deaths & death rates in Texas

COMPARISON OF MOTOR VEHICLE TRAFFIC DEATHS AND
DEATH RATES, 2002-2011

YEAR	DEATHS	% INCREASE OR DECREASE	DEATHS PER 100 MILLION VEHICLE MILES TRAVELED
2002	3823	2.32%	1.73
2003	3822	-0.03%	1.75
2004	3700	-3.19%	1.61
2005	3558	-3.84%	1.52
2006	3521	-1.04%	1.49
2007	3462	-1.68%	1.43
2008	3479	0.49%	1.48
2009	3118	-10.38%	1.34
2010	3050	-2.18%	1.30
2011	3015	-1.15%	1.28



First Step towards understanding — Crash Analysis

- Accumulate, synthesize and analyze crash data
- Identify
 - Causes
 - Locations
 - Countermeasures





TxDOT Safety Bonds

- 2003 Legislature - \$6 Billion – 20% to safety
- TTI helped identify 600 Locations
 - Widening narrow rural highways
 - Median Barriers
 - Left Turn Lanes
 - Grade Separations
- TxDOT built the improvements



TxDOT Safety Bonds

- Widening results released
- 1,159 miles of narrow, 2-lane roadways
- Crash reductions
 - 44 lives annually
 - 298 injuries
- Analysis of others continues



Data-Driven Safety Improvements

- Real returns on investments
- Systematic vs. Reactive approach
- Local, Regional, State levels
- Nominal vs. Substantive
 - Design “Standards”
 - Highway Safety Manual
 - CSS



Other Non-Point Issues

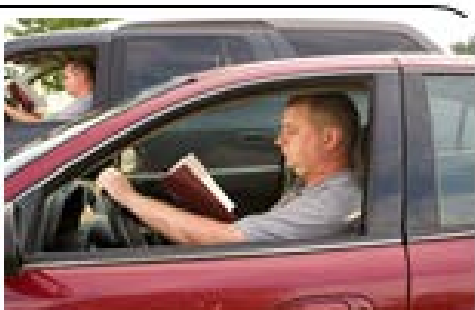
- Distracted driving
- Impaired driving
- Latino traffic safety
- Military traffic safety





Distracted driving

- Rapidly growing problem
 - Distraction causes 1 in 4 crashes in Texas
 - 1,259 DWI deaths; 408 distraction deaths
- Persistent public policy issue





Distracted driving studies

- Teen Passenger Simulator Study
- In-Vehicle DVD Players
- Driver Perceptions of Risks of Distraction
- Distraction due to in-vehicle information and warning systems
- Effects of texting



Distracted driving studies

Eye glance position

Reaction time light
and
Hand position

Left side view

Right side view

Experiment





In-Vehicle Texting Study

- Reaction times $\sim 2X$ slower
- Missed response events \uparrow
- Speed variation \uparrow
- Lane position variation \uparrow
- Overall speed \downarrow
- Forward glances \downarrow
- Reading vs. writing difference **NONE**
 - Exception: Response to light
- Next: Study Voice to Text effects



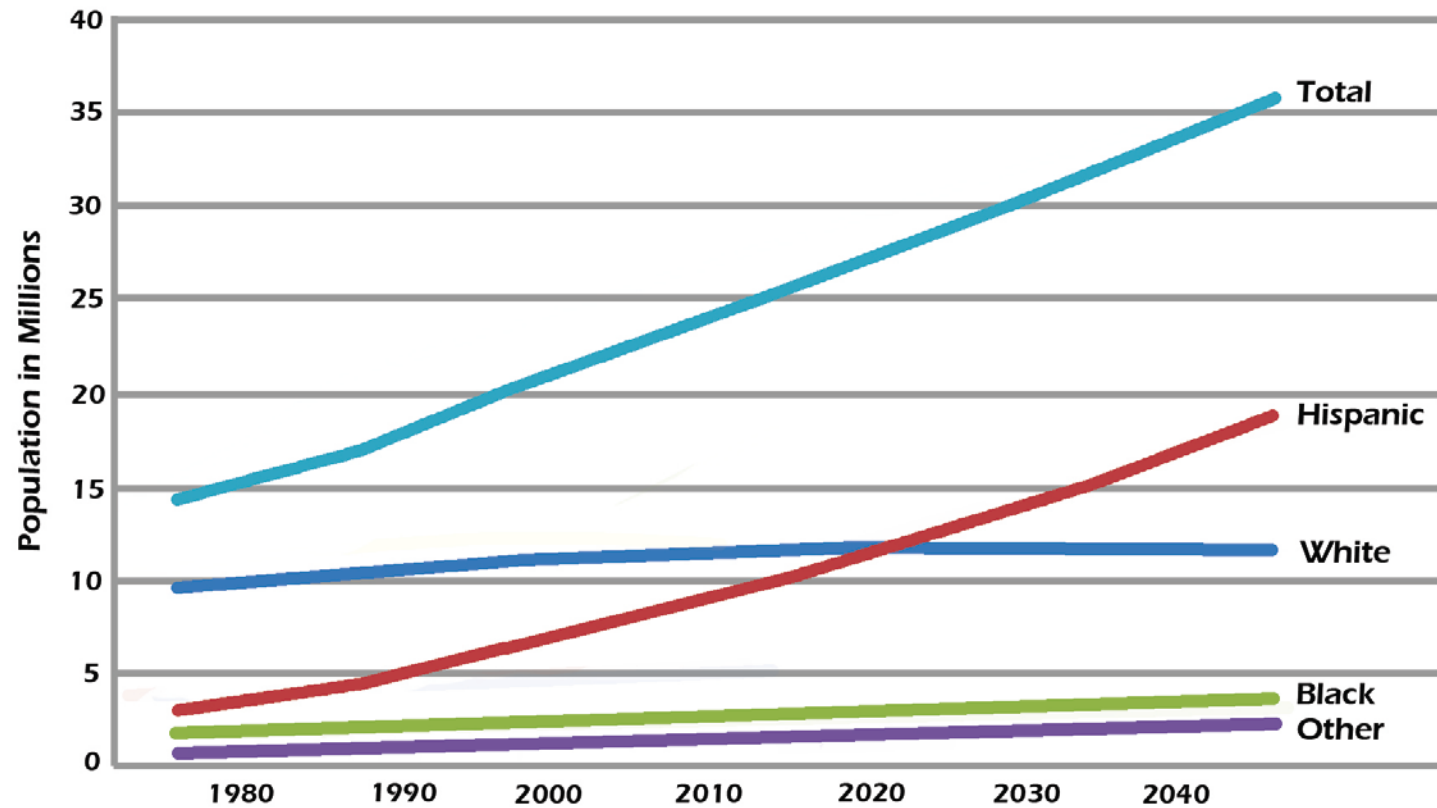
Impaired driving

- Evaluate and improve processes
 - Administrative license revocation
 - No-refusal initiatives
 - Evidence-based countermeasures
- Examine effects of alcohol on driving task
 - Raise public awareness
 - Help change the driving culture
 - Support other safety efforts



The changing face of Texas

Demographic Change in Texas





Latino traffic safety

- Fast-growing population segment
- 2010: 9.1 million -- 2030: 15.1 million
- High-risk group
 - Less likely to have driver license
 - Less likely to wear motorcycle helmet
 - More likely to drive impaired
 - Children less likely to be restrained
 - Children 72% more likely to die in crash



Military traffic safety

- After 9-11: more soldiers killed in traffic crashes than in combat
- Under-25 soldiers over-represented: 61 % of all vehicle crash deaths
- 24% of all crash deaths on motorcycles
- CTS initiative involves former and current military personnel



- It will take a village to save lives
- We need to work together
- No silos
- More interaction

SAVING LIVES:
Nothing's more
important

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