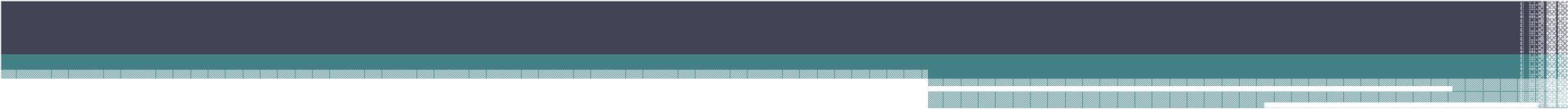




Overview of Vehicle Safety Research

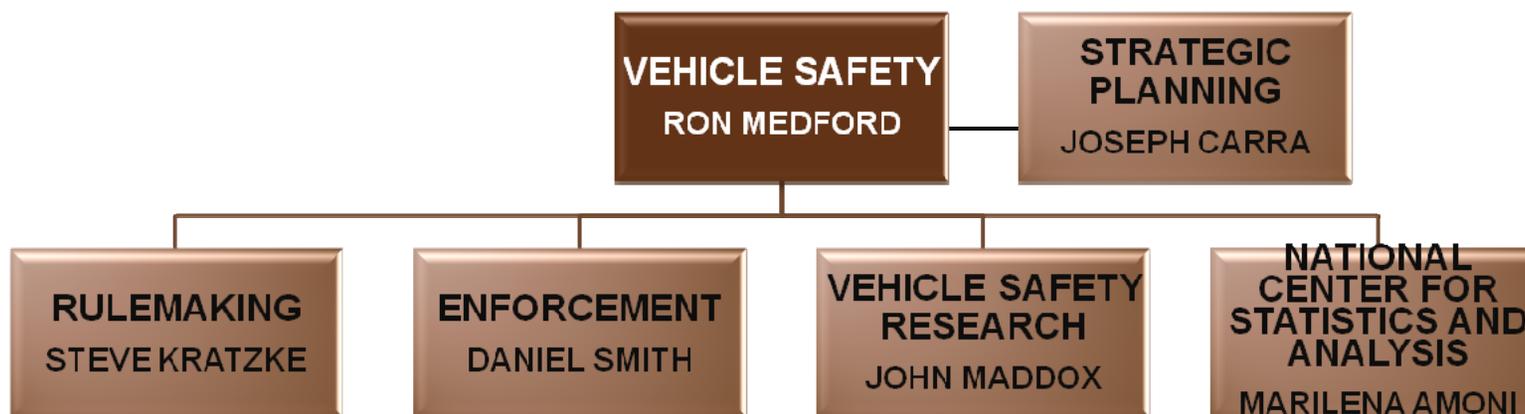
National Highway Traffic Safety Administration
U.S. Department of Transportation



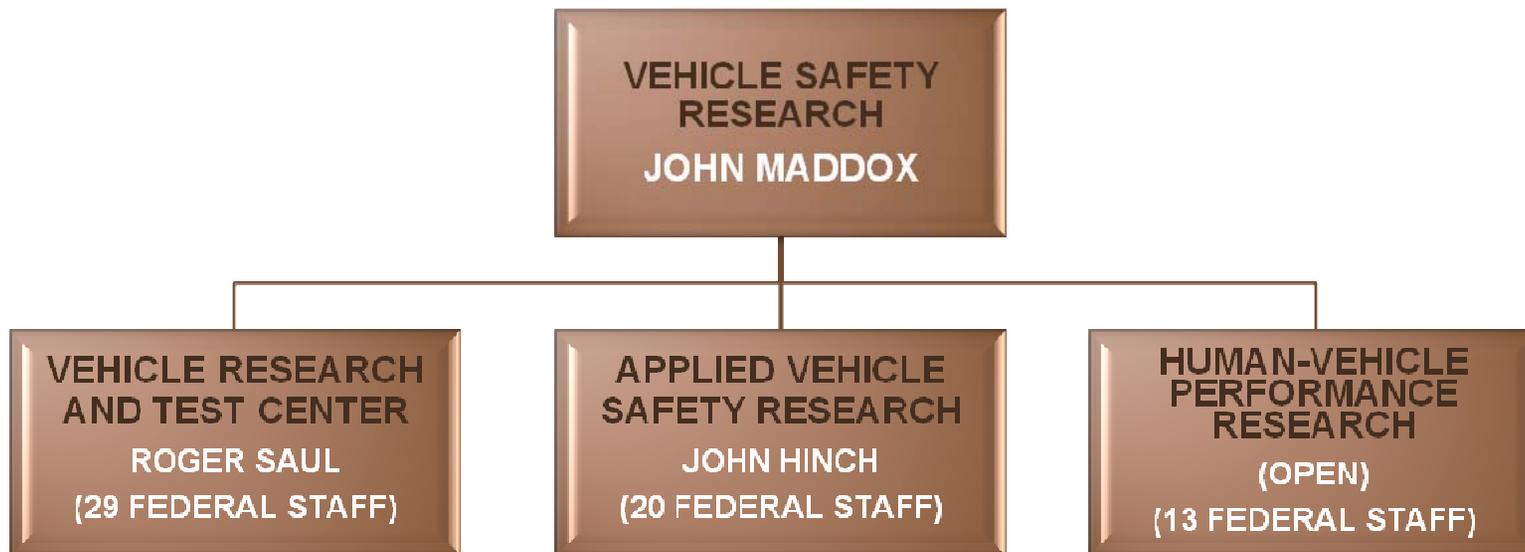
Agenda

- NVS & VSR Organization
- Fatality Trends
- NHTSA Research Programs
 - Crashworthiness
 - Biomechanics
 - Crash Avoidance
 - Trucks
 - Tires
- ITS Research Programs

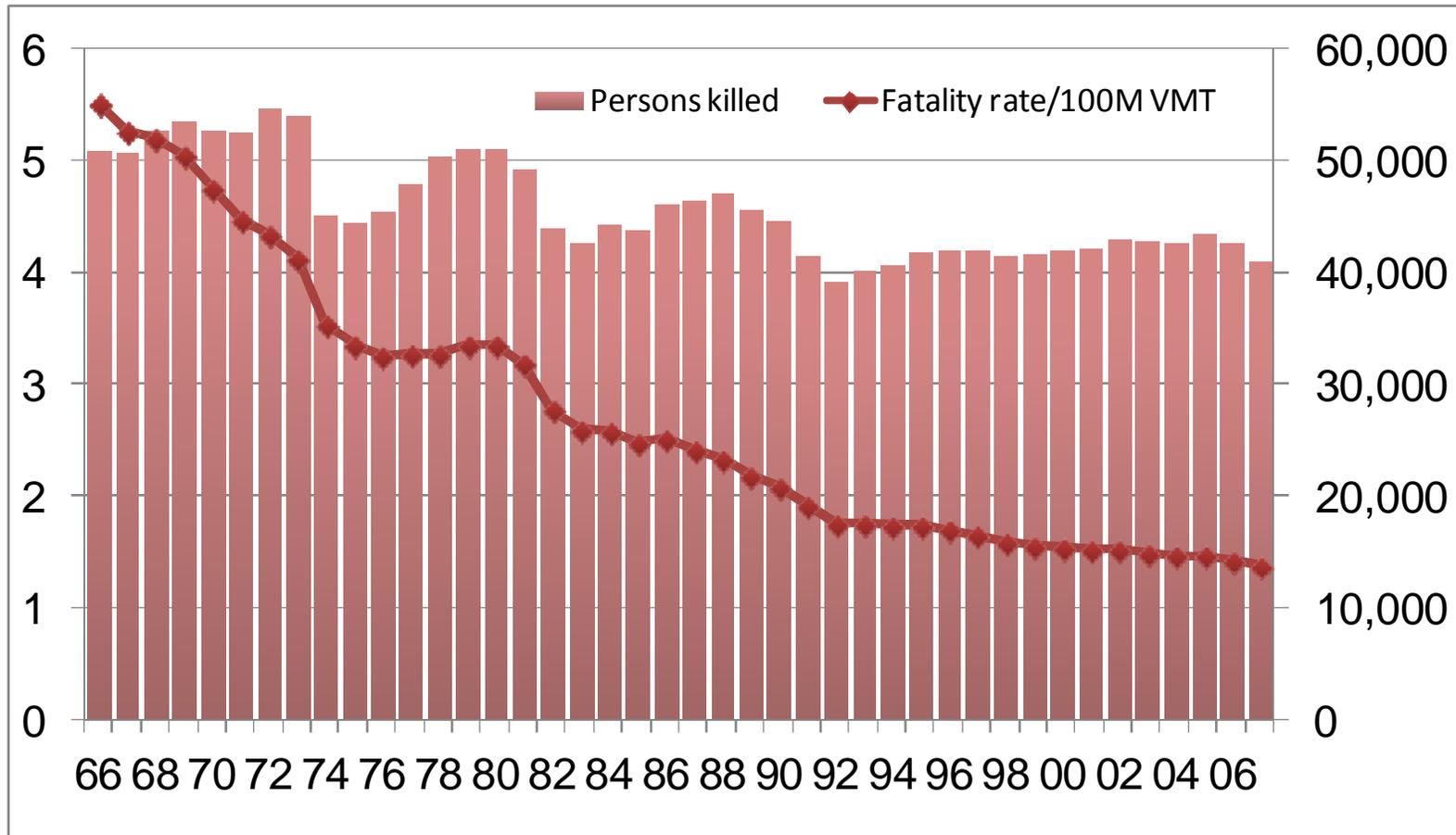
Vehicle Safety (NVS) Organization



Research (VSR) Organization

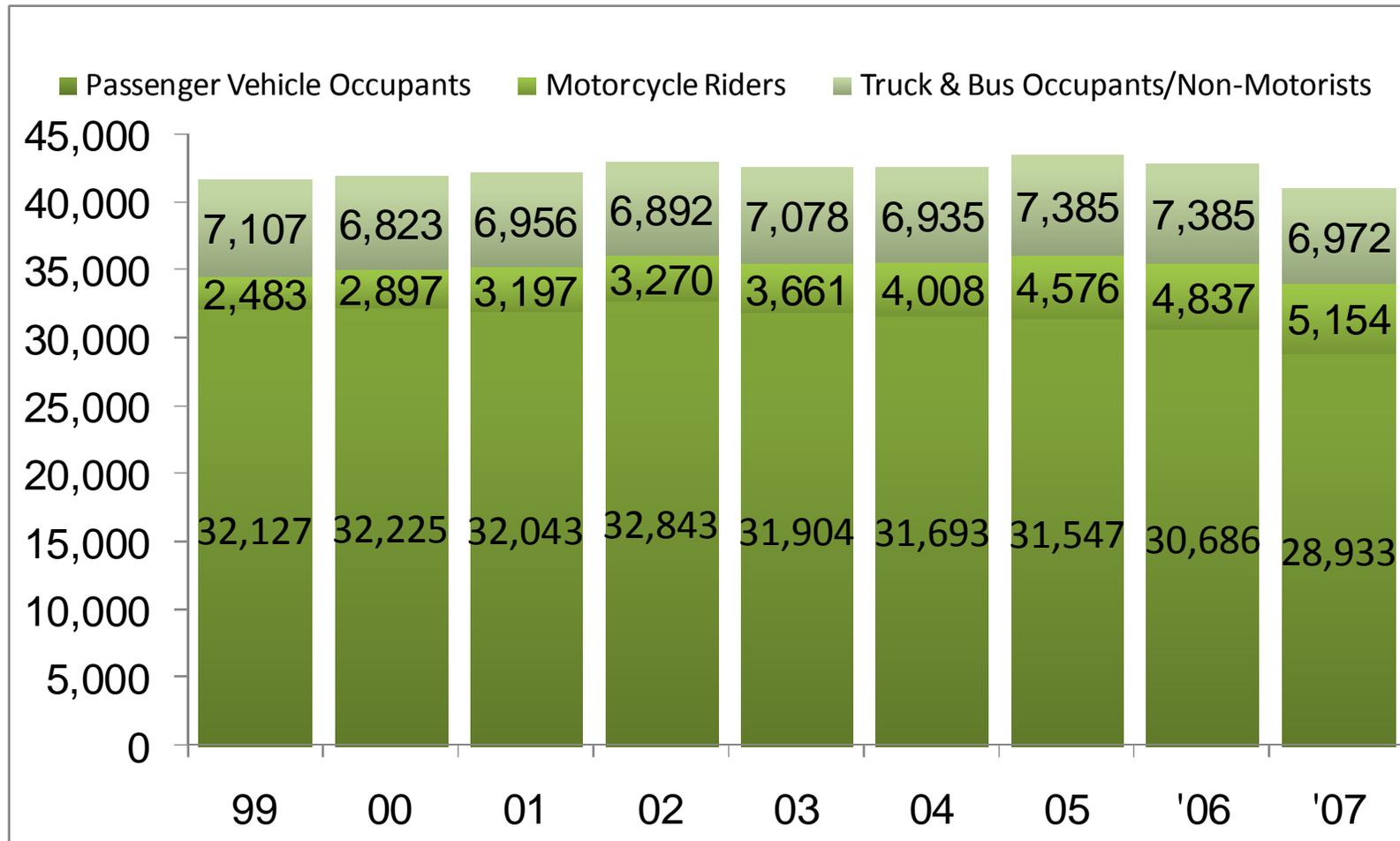


Persons Killed & Rate 100M VMT



Source: 2006 FARS

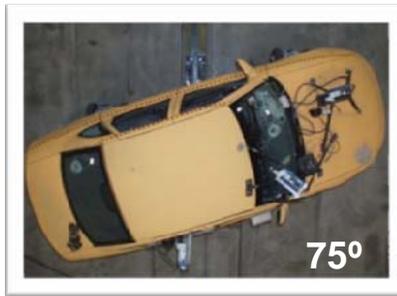
Motor Vehicle Fatalities



Frontal & Side Impact Crashworthiness



- Reviewing why people die in frontal crashes
- Align research program to address major problem areas



- Side impact rule adds head protection
- Anticipates over 300 lives saved
- New dummies

Ejection Mitigation Research

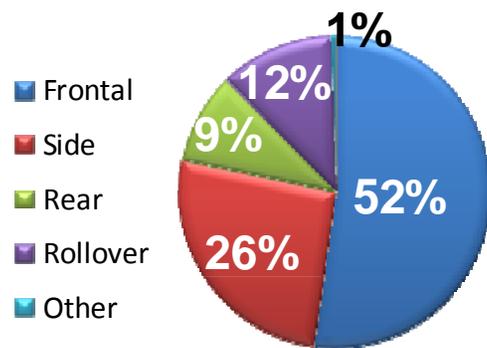
- Analyzed the Safety Problem
- Developed Hardware and Test Procedures
- Evaluated Countermeasure Effectiveness and Feasibility
- Evaluating Current Fleet Performance

Ejection Mitigation



Child Safety Crashworthiness

How are kids injured?



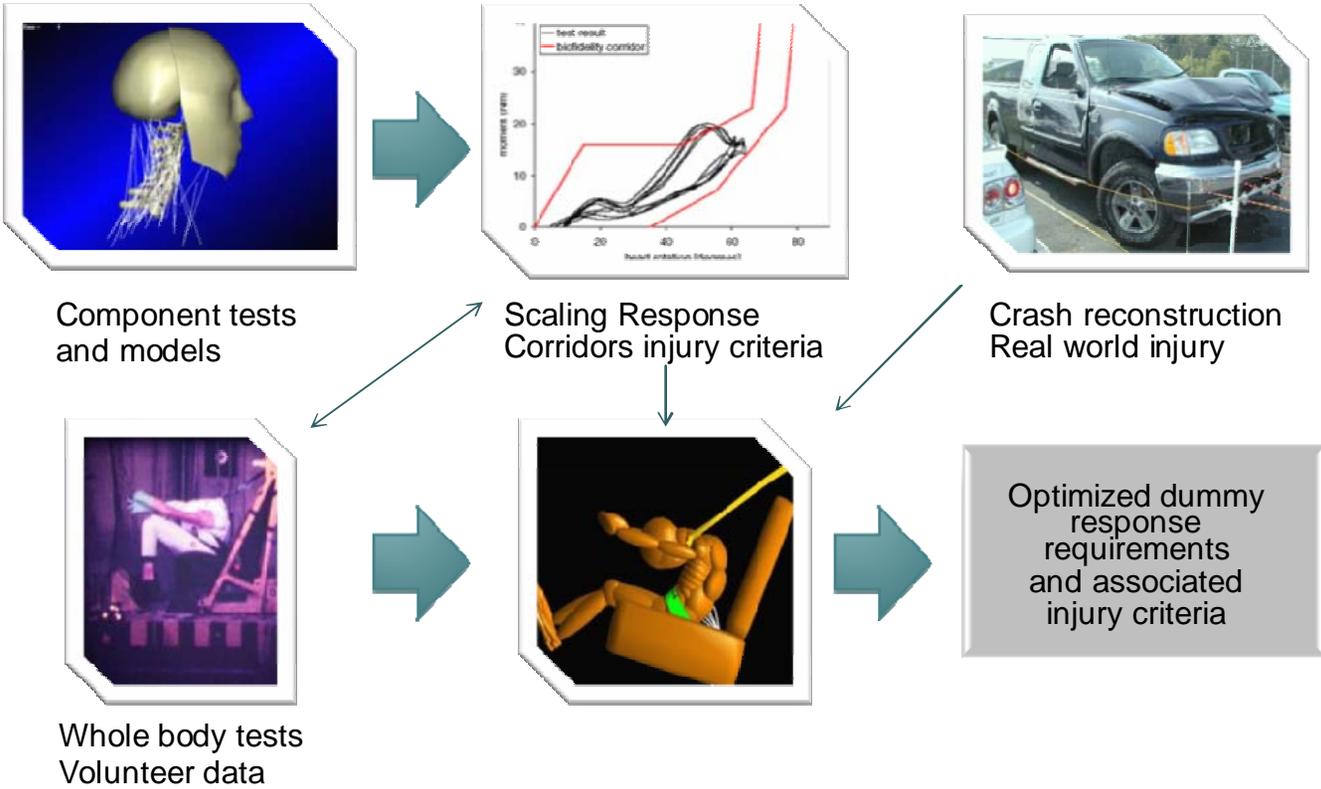
3 YO side impact test



10 YO front sled test

- Research Efforts Underway:
 - Evaluating test procedures for 10 yr old Hybrid III dummy in booster seats
 - Developing side impact test procedure and dummy for child seat evaluation
 - Coordinating research for response requirements of 6 yr. old frontal and side dummies

Dummy and Injury Criteria Development

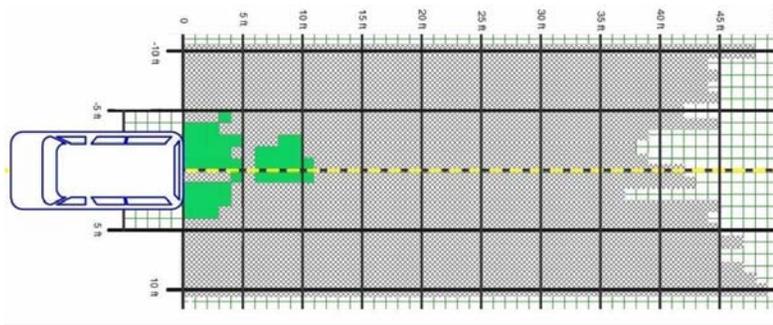


Advanced Technologies



- Recent Technologies
 - ESC, LDW, FCW
 - Incorporated into NCAP
- Technologies for future consideration
 - Crash Imminent Braking (CIB)
 - Lane Keeping Assist (LKA)
 - Dynamic Brake Support (DBS)

Backover Avoidance Research



- Testing systems on medium straight trucks.
- Recently released human factors research regarding rear-view video.
- Recently released NiTS data which includes new estimates on non-traffic backover fatalities and injuries
- <http://www.nhtsa.gov/staticfiles/DOT/NHTSA/NCSA/Content/NiTS/811085.pdf>

- Tested OE and aftermarket systems for mandated report to Congress.



Electronic Stability Control Research

- Researching Heavy Truck ESC and RSC systems.
- Developing requirements for future consideration



Vehicle Lighting

Forward Lighting

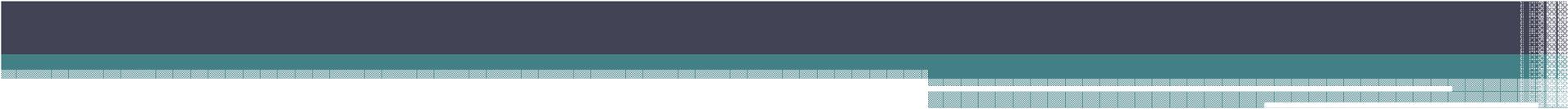


Conspicuity



Rear Lighting



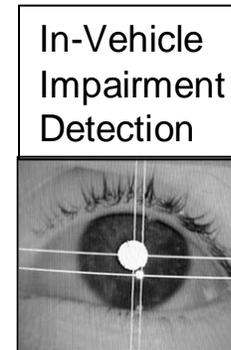
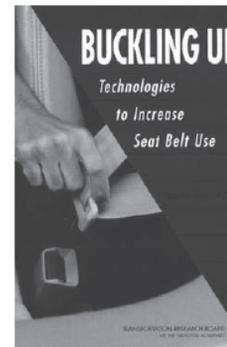


Development of Advanced Alcohol Sensing Technology

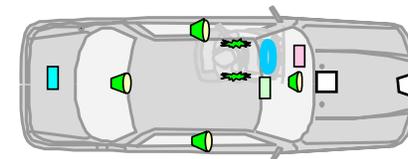
- A cooperative research and development effort
 - NHTSA and Automotive Coalition for Traffic Safety (ACTS)
 - 5 Year Effort
- Concept: In-vehicle capability to detect impairment before vehicle can be operated
- Significant technical as well as public acceptance challenges
- Status
 - Technical contractor selected
 - RFI completed
 - RFP process underway

Driver Monitoring Systems

- Safety Belt Reminder Systems
- Distraction Monitoring System
- Teen Driver Monitoring
- Alcohol Impairment Monitoring



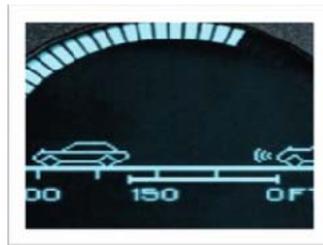
SAVE-IT



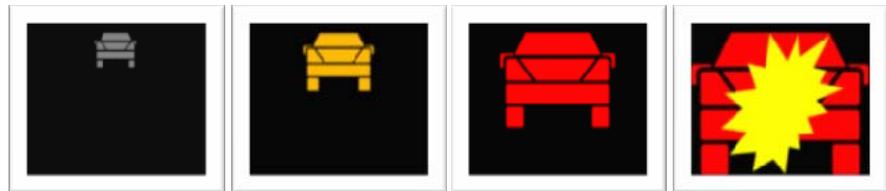
Driver Assistance Systems

Forward Collision, Lane Change, Road Departure, Adaptive Cruise Control, Night Vision

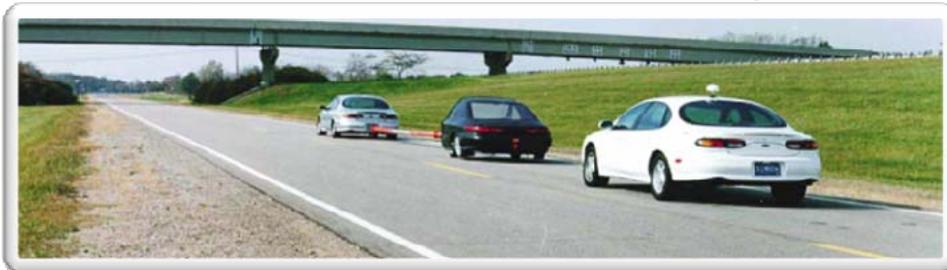
Systems



Driver Warning Interface Research



Driver response time to collision warnings



Intelligent Transportation Systems (ITS)

- Application of advanced technologies to improve transportation safety and mobility



NHTSA ITS Activities

- **IVBSS**
 - Rear-end, run-off-the-road, and lane-change crash countermeasure systems
 - Phase 2 underway
- **CICAS**
 - Stop sign & signal violation warning
 - Completed Phase 1
- **VII**
 - Deployment of an integrated communications infrastructure
 - NHTSA working on safety applications
- **NG911 (NTI)**
 - Foundation for public emergency services in a wireless mobile society

