



Outline

1. Introduction & Background
2. Safety Problem Trends & Overview
3. Major Safety Regulations
4. Advanced Technologies & Safety
5. Connectivity & Safety
6. Feasibility Issues & Conclusions

NHTSA's Safety Responsibilities

- Safety Research
- National Safety Data Collection & Maintenance
- Safety Regulations
- Safety Enforcement – Compliance, Defects
- Consumer Information & Ratings
- Traffic Injury Control
- Regional Operations
- Safety Information Dissemination

NHTSA's Statutes

National Traffic and Motor Vehicle Safety Act

- Authorizes NHTSA to issue safety standards
- Rules Must be Practicable, Meet the Need for Motor Vehicle Safety, and Stated in Objective Terms
- Requires Consideration of Available Motor Vehicle Safety Information
- Mandates May be Included in the Safety Act or as Reauthorization Legislation

NHTSA'S Rulemaking Process

Decision to Begin Rulemaking Based on:

- Congressional Mandate
- Research Showing a Safety Problem
- Need for Amendment of Current Rules
- Petition from Public
- Information Collected from Other Sources

Regulatory Requirements

- Must Meet Safety Needs
- Technically Feasible
- Performance Based on Full System Tests
- Need Objective Tests and Criteria
- Must be Cost – Beneficial
- Rules Appropriate for Vehicle Type
- Use Transparent Process

Safety Improvement Strategies

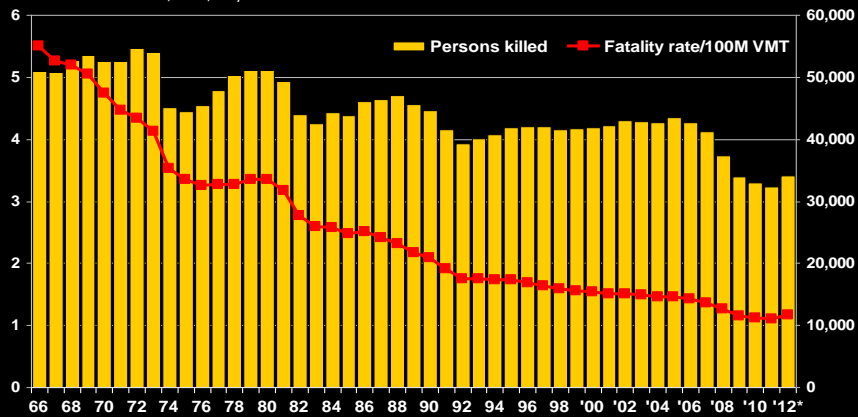
- **Regulatory Approach**
 - Self Certification vs. Type Approval
 - Global Technical Regulations
- **Consumer Information**
 - New Car Assessment Program (NCAP)
 - Information Labels
 - Safety Campaigns
 - Ease of Use – Example - Child Seats

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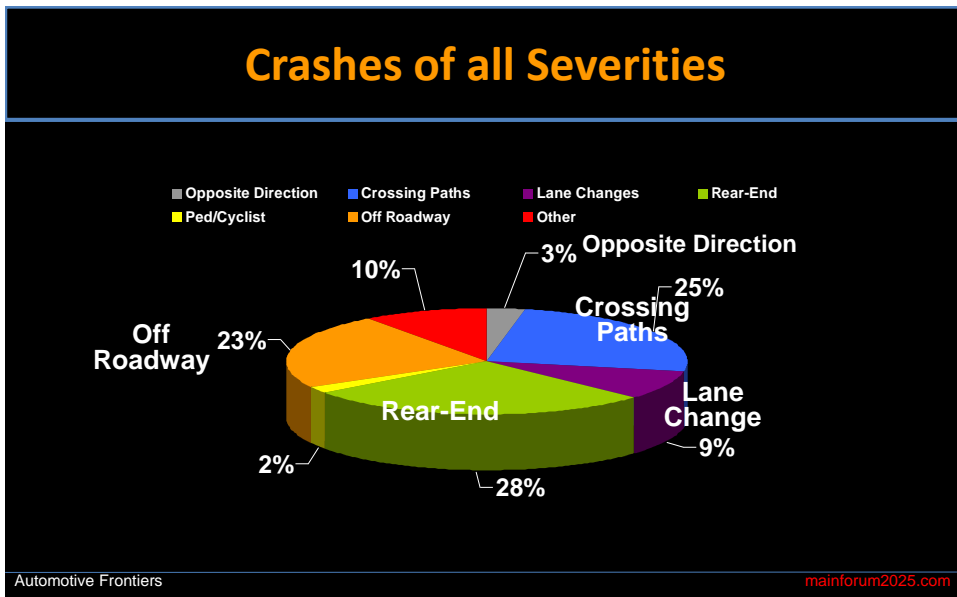
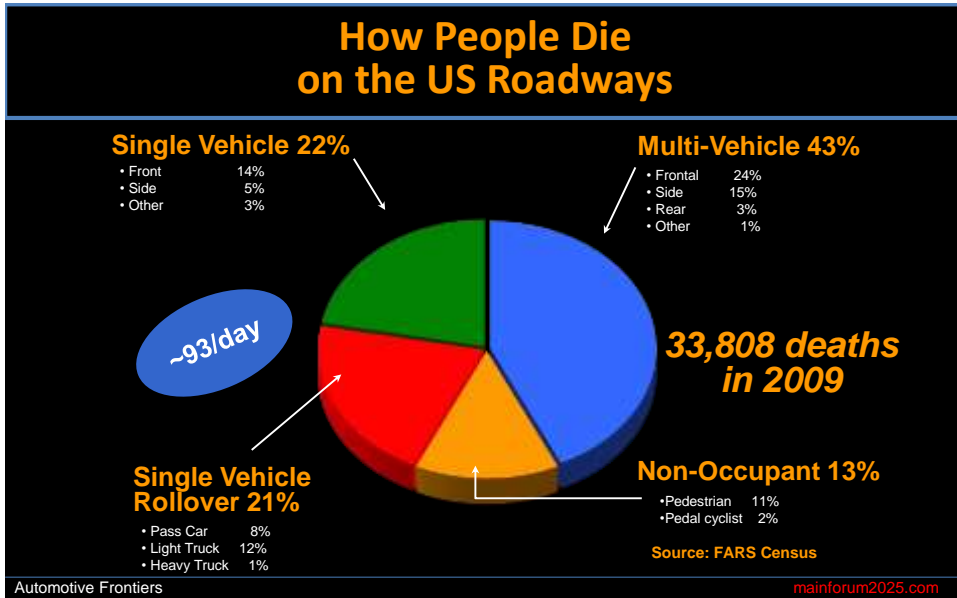
Fatalities and Fatality Rate

Source: NHTSA FARS Data; 2012, Early Estimates

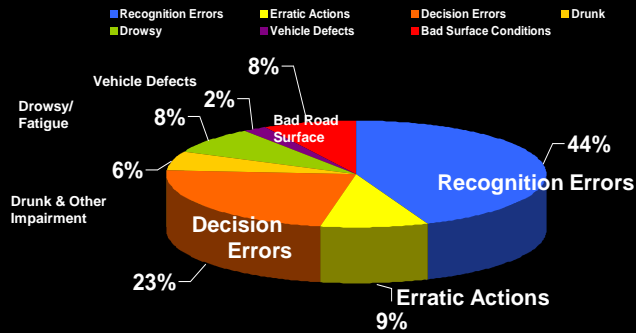


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Crash Causal Factors



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Major Regulations

- **Frontal Crash Safety**
 - Passive Restraint Standard
 - Air Bag Standard (unrestrained 30 mph)
 - Depowering (Sled test, low accel. pulse)
 - Advanced Air Bag
- **Side Crash safety**
 - Static Door Beam Test
 - Dynamic MDB Test 33.5 mph
 - Upper Interior Head protection
 - Pole Test

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Major Regulations (Cont.)

➤ Rollover Safety

- Roof Strength (1.5 weight), Door Latch
- Door Latch Strength Upgrade
- Side Glazing Ejection Mitigation
- Roof Strength Upgrade (2.5 weight)

➤ Crash avoidance

- Passenger Car Stopping Distance
- Heavy Vehicle Stopping Distance(stability)
- Roll Stability Control (NCAP)
- Electronic Stability Control
- Back Over Protection

Major Regulations (Cont.)

➤ Others

- Ejection Mitigation thru Side Glazing
- Upper Interior Head Protection
- Controls and Displays
- Rear Visibility - Mirrors
- Event Data Recorders

NHTSA NCAP

- **Frontal – FRB 35 mph**
- **Side – MDB at 38 mph**
 - Addition of Pole Test & 5th Percentile Dummy
- **Rollover – maneuver up to 50 mph**
- **Credit for advanced technology**
 - Lane Departure Warning
 - Forward Collision Warning

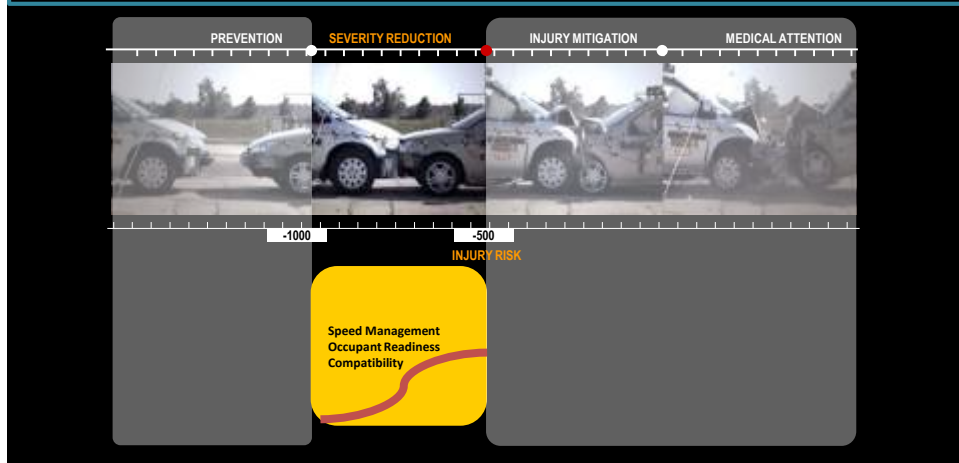
Future Safety

- **What are the Viable Paths for Improving Safety?**
 - Use of Advanced Safety Technologies
 - Integrated Safety Approach
 - Use of Limited Autonomous Technologies
 - Safety Augmentation With Ancillary Technologies

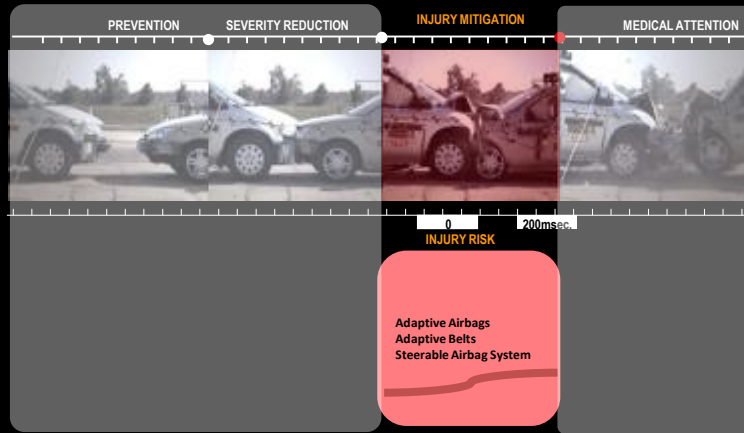
The Crash Phases -Timeline Crash Prevention



Act.Saf.Tech. → Severity Reduction



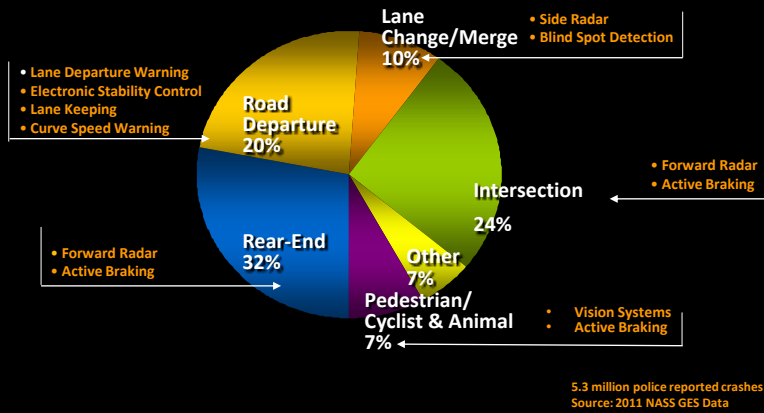
Act.Saf.Tech. → Injury Mitigation



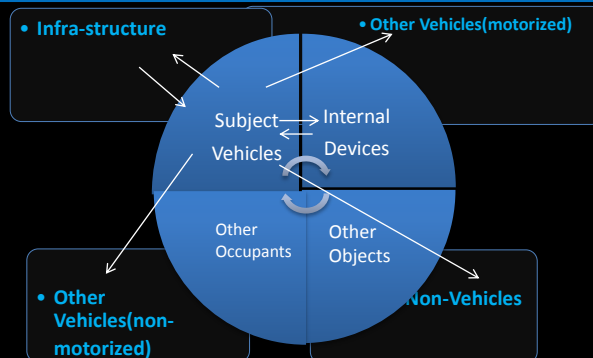
Act.Saf.Tech. → Medical Attention



Safety Enhancement Possibilities With Technologies



Connectivity



Likely Consumer Preferences for Active Safety Technologies

- Credible Safety Assurance
- No Unintended Consequences
- Affordable Cost (Initial, Repair, Maintenance)
- Close to Normal Driving as Possible (Minimally Intrusive)
- Low False Alarm Rates
- High Reliability
- Availability in Average Cars
- Incentivized Offerings (OEM, Insurance, Tax Relief etc.)
- Dissemination of Safety Information

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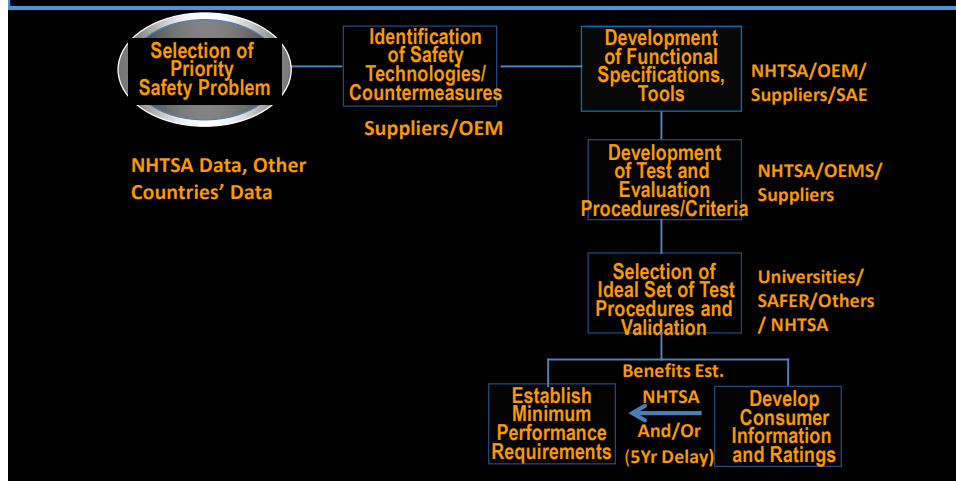
Accelerating Deployment

- Need Collaborative Efforts Between Regulators and Suppliers, OEMs and Others
- Make Changes in Governing Statutes if Necessary
- Select 1 or 2 Predominant Pre-crash Scenarios for Testing & Effectiveness Evaluations
- Use Market Incentives to Deploy Initially
- Use Innovative Approaches to Provide Relief From Non-Compliance, Defects etc., Initially
- Allow Technologies to Proliferate and Mature Before Moving to Regulations
- Conduct Educational Campaigns for Technologies

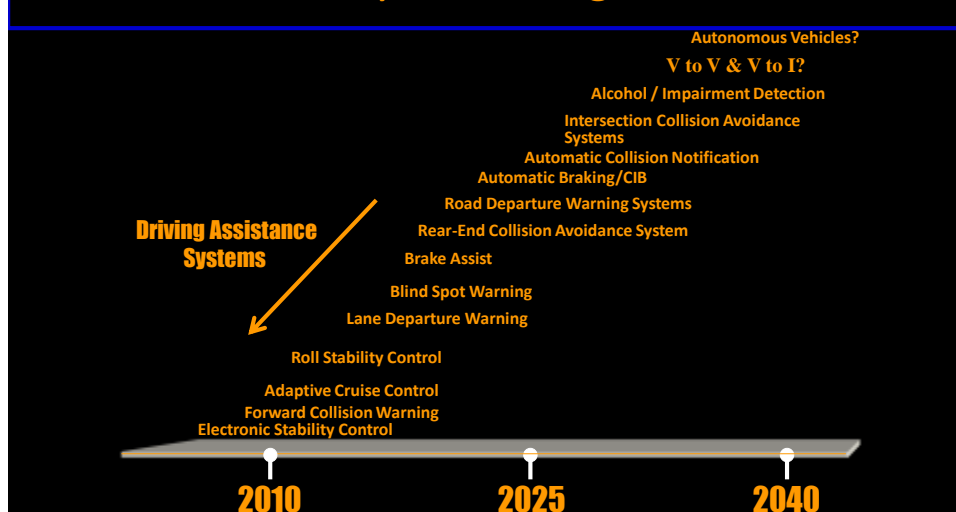
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Strategies For Deployment of Advanced Safety Technologies



Active Safety Technologies Timeline



Conclusions

- **Near-Term Active Safety Technologies Hold Great Promise**
- **Focus on Near-Term Technologies Before Moving to More Complex Items**
- **Safety Evolved in Small Steps. Giant Leaps Not Likely In Active Safety Technologies Either**
- **Regulations May Need to Wait for Technologies to Mature**
- **Use Market Incentives for Deployment**