



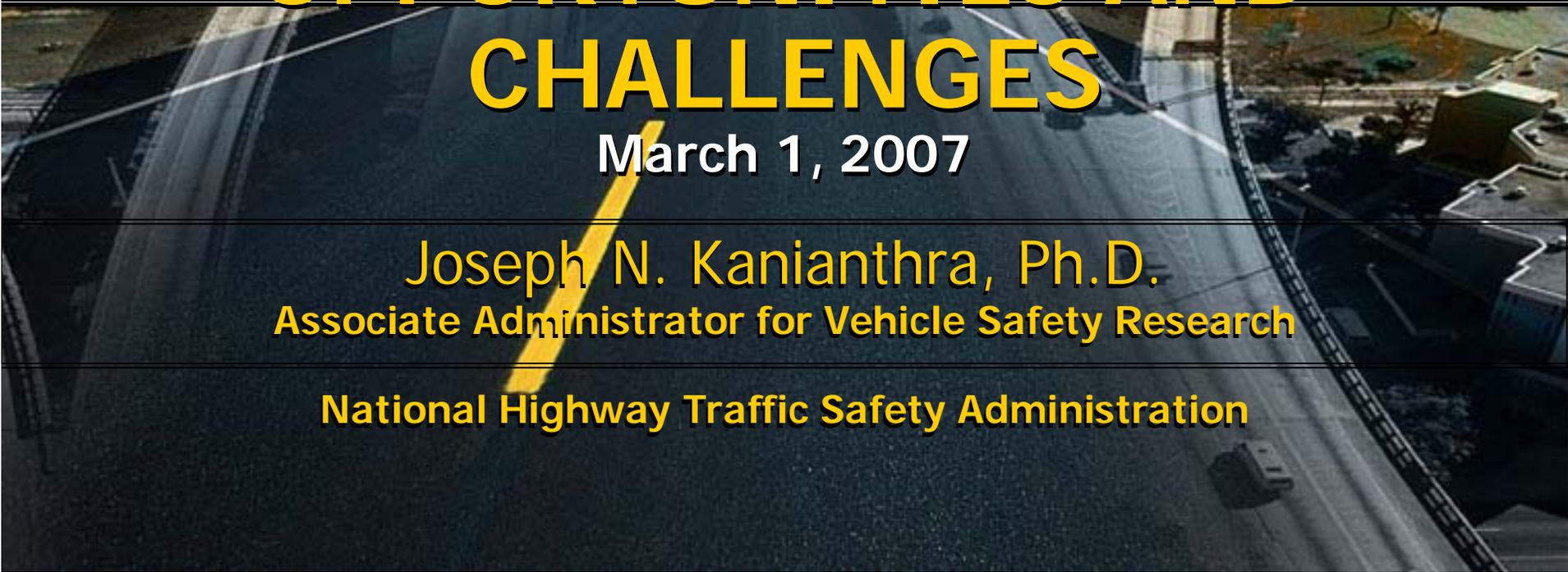
Paving the Road to Accident-Free Driving Telephone/Webcast"

OPPORTUNITIES AND CHALLENGES

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Joseph N. Kaniyanthra, Ph.D.
Associate Administrator for Vehicle Safety Research

National Highway Traffic Safety Administration





Outline

1. Safety Problems

2. Role of Technologies in Safety

3. Current and Future Technologies

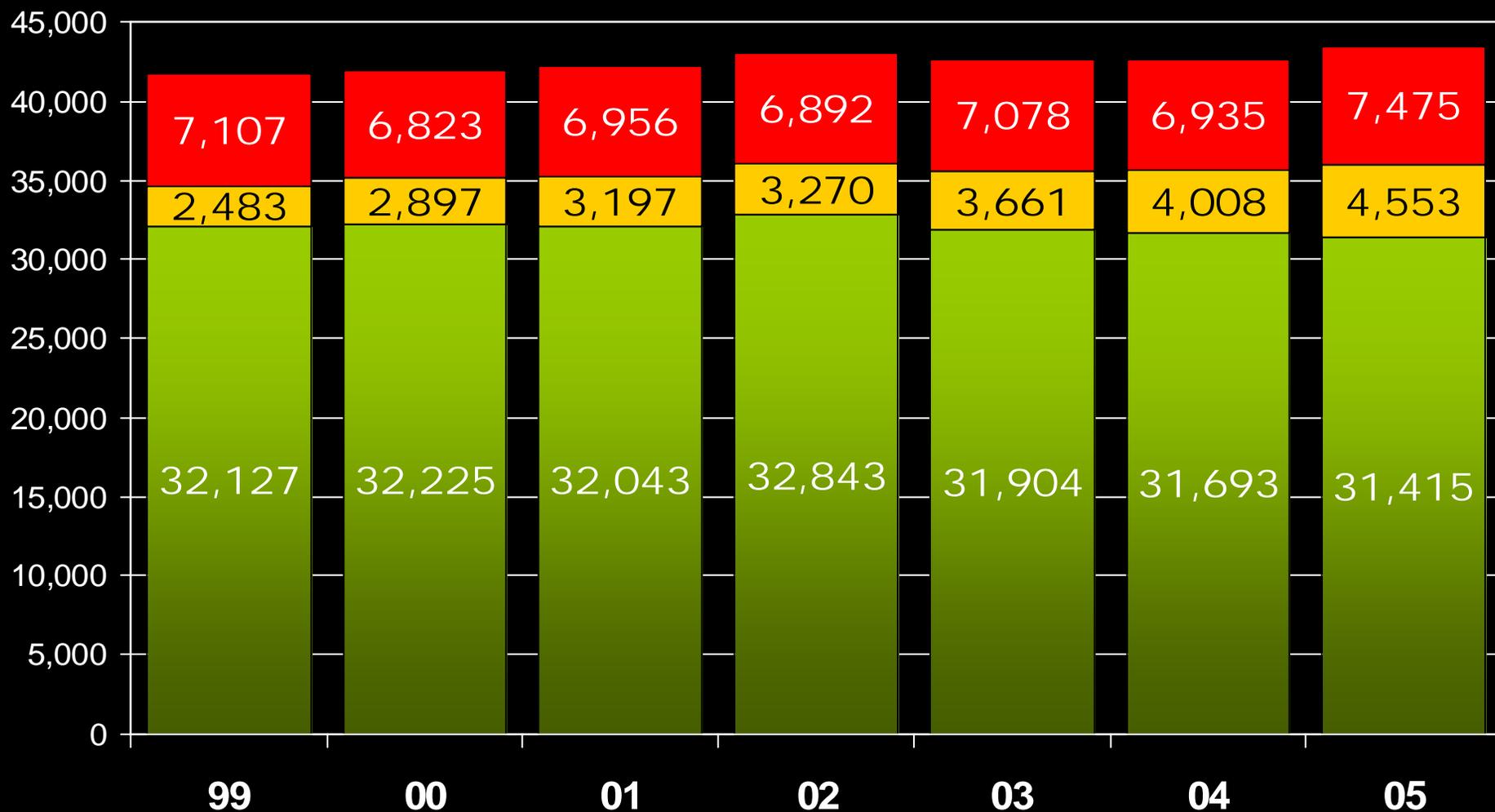
4. Accelerating Innovative Technologies

5. Conclusions



Motor Vehicle Fatalities

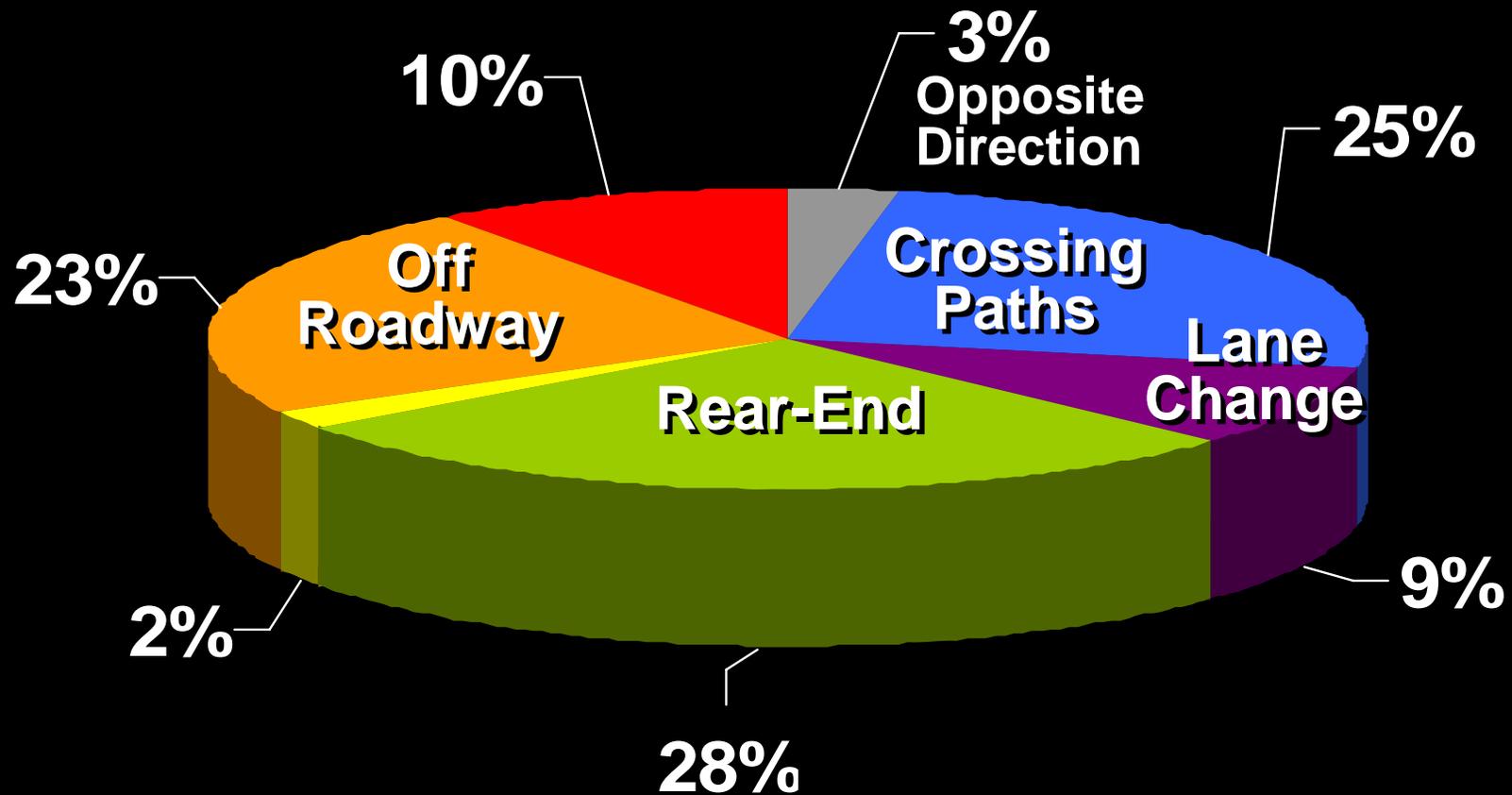
■ Passenger Vehicle Occupants ■ Motorcycle Riders ■ Truck & Bus Occupants/Non-Motorists





Crashes of all Severities

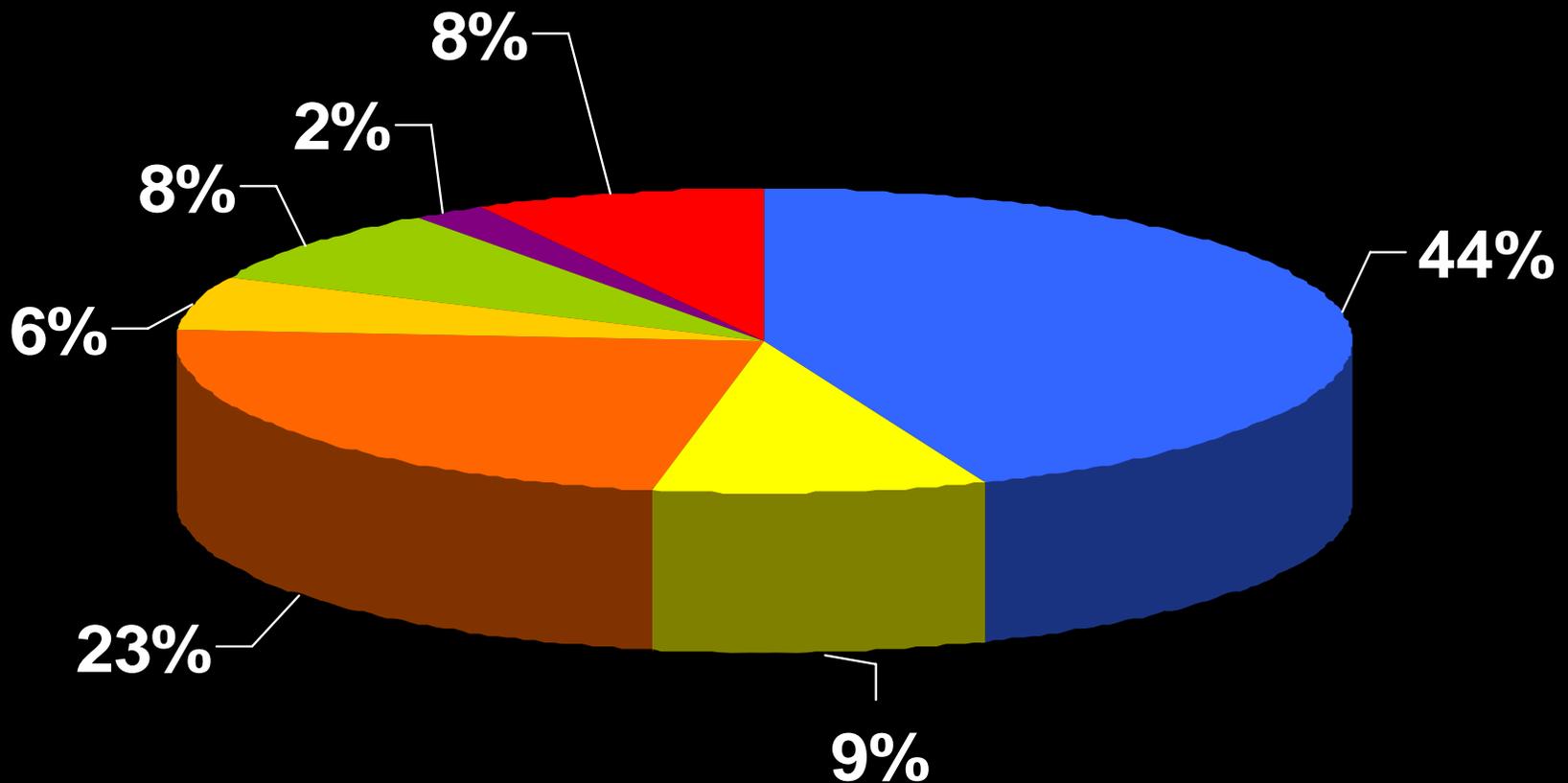
- Opposite Direction
- Crossing Paths
- Lane Changes
- Rear-End
- Ped/Cyclist
- Off Roadway
- Other





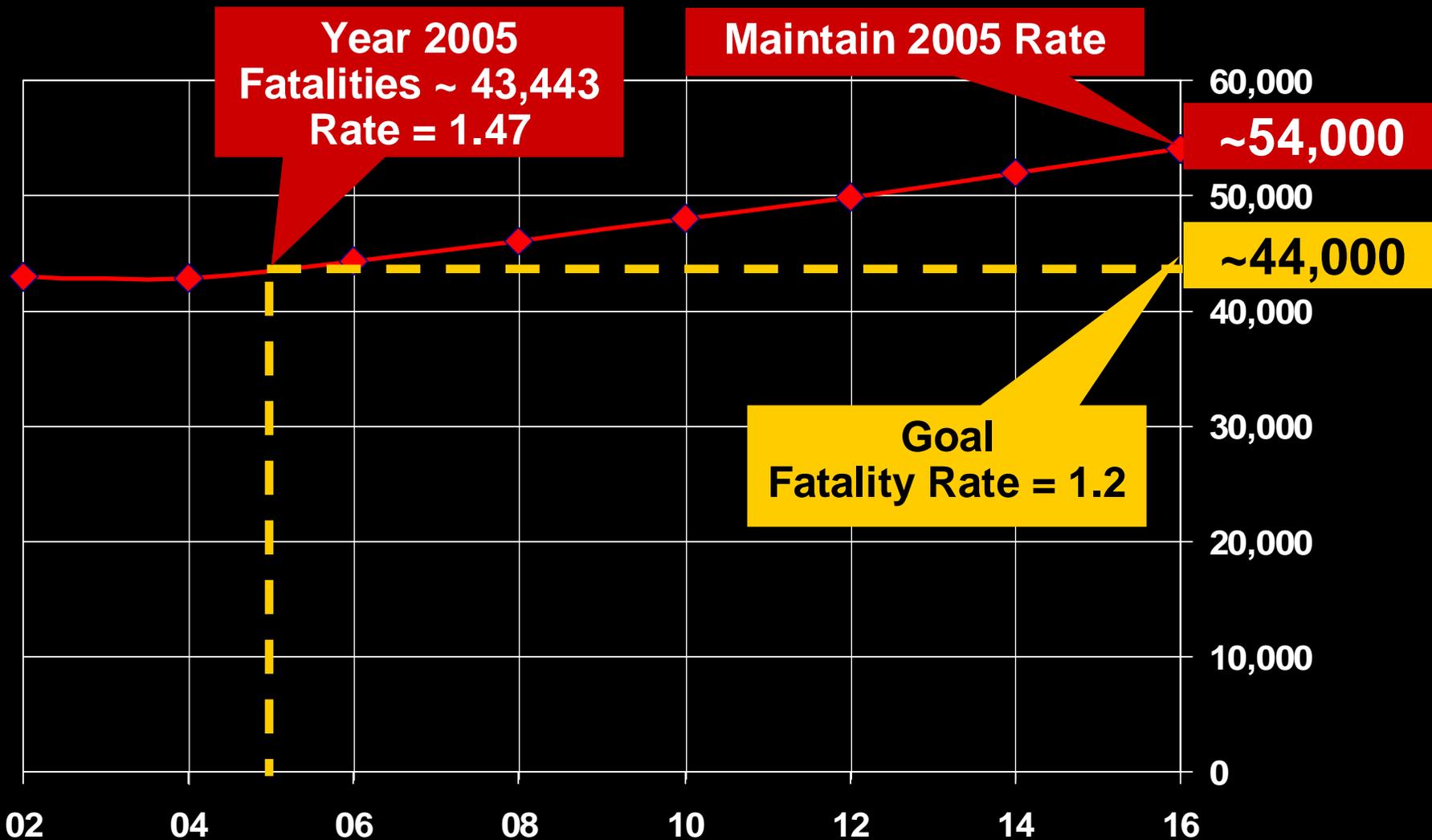
Crash Causal Factors

- Recognition Errors
- Erratic Actions
- Decision Errors
- Drunk
- Drowsy
- Vehicle Defects
- Bad Surface Conditions





Fatality Reduction Goal is Challenging





Integrated Safety Concept

Crash Time Line



Prevention

**Severity
Reduction**

**Injury
Mitigation**

**Medical
Attention**

Warn



Intervene



Protect



Notify

- . Pre-activated Restraints
- . Pedestrian Protection
- . Adaptive Structures
- . Adaptive Restraints

- . Enhanced Crash Notification
- . Tailored Medical Attention



Automotive Technologies Timeline

Occupant Protection Systems

Adaptive Restraint System

Whip-Lash Protection

Reversible Belt Tensioners & Load Limiters

Occupant Readiness Monitoring

Belt Minders

Child Seat Mounting Systems

Comprehensive Restraint Systems (belts & airbags)

Energy Absorbing Structures

2006

2010



Automotive Technologies Timeline

Driver Warning & Driving Assistance Systems



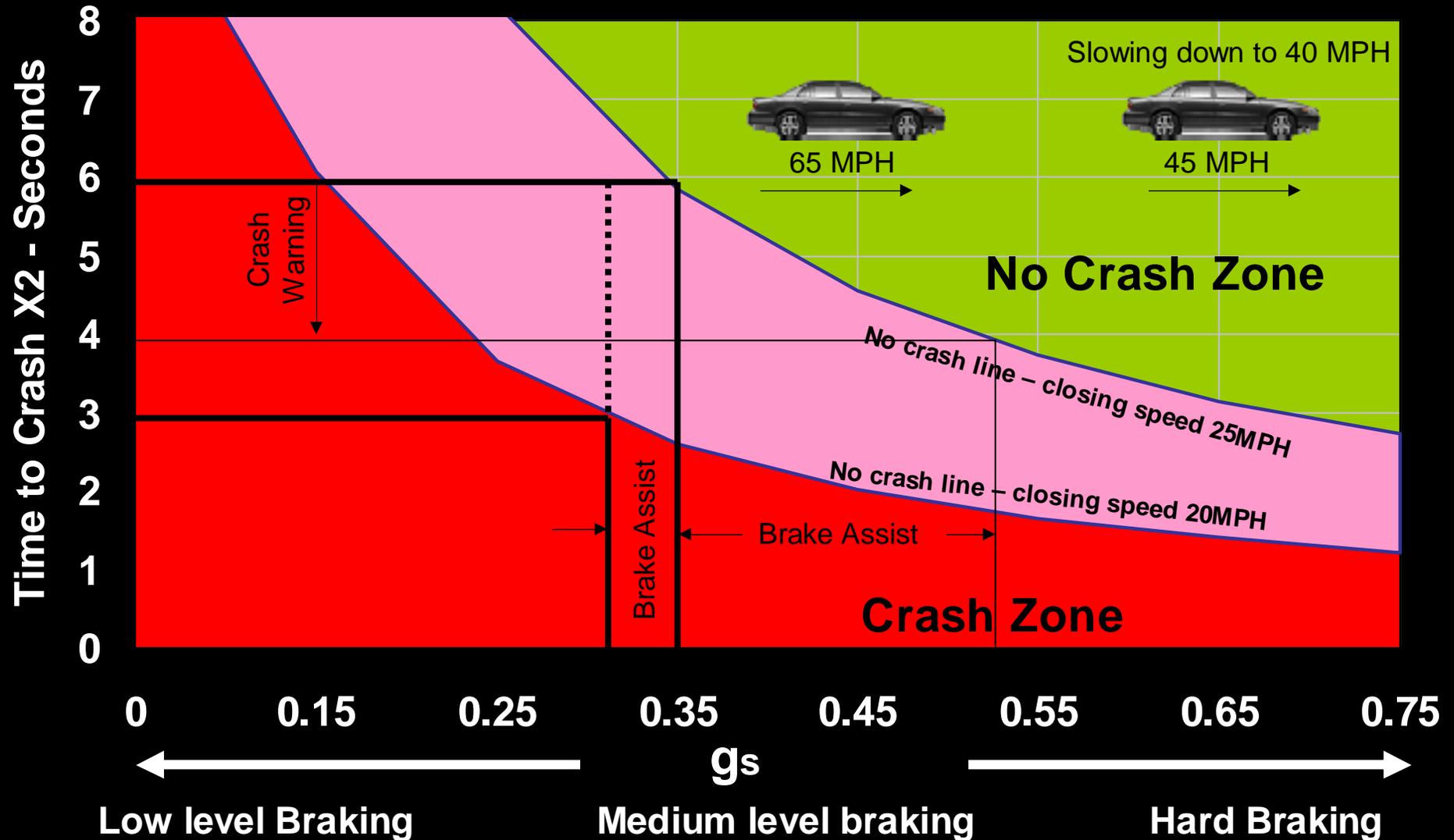


The Challenge

How do we know if these systems, and others, improve or degrade safety?



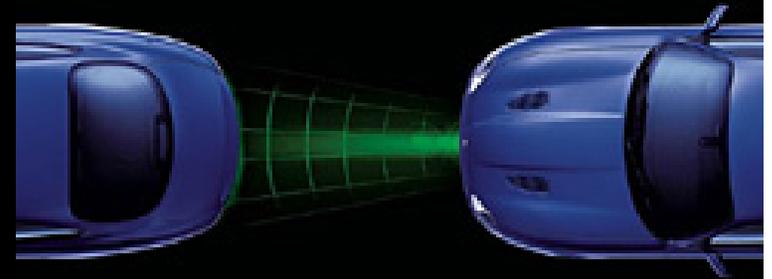
Effect of Rear-End Collision Avoidance Technologies





Advanced Collision Avoidance Technologies (ACAT)

- **Determine the safety impact of new and emerging technologies**
- **This information may be used to help consumers understand:**
 - What advanced safety features are available?
 - Any unintended consequences?
 - How effective are they?
- **Emerging Technologies**
 - Electronic Stability Control
 - Adaptive Cruise Control
 - Night Vision Systems
 - Curve Speed Warning
 - Lane Departure Warning
 - Alcohol Monitoring
 - Brake Assist Systems
 - Pre-crash sensing



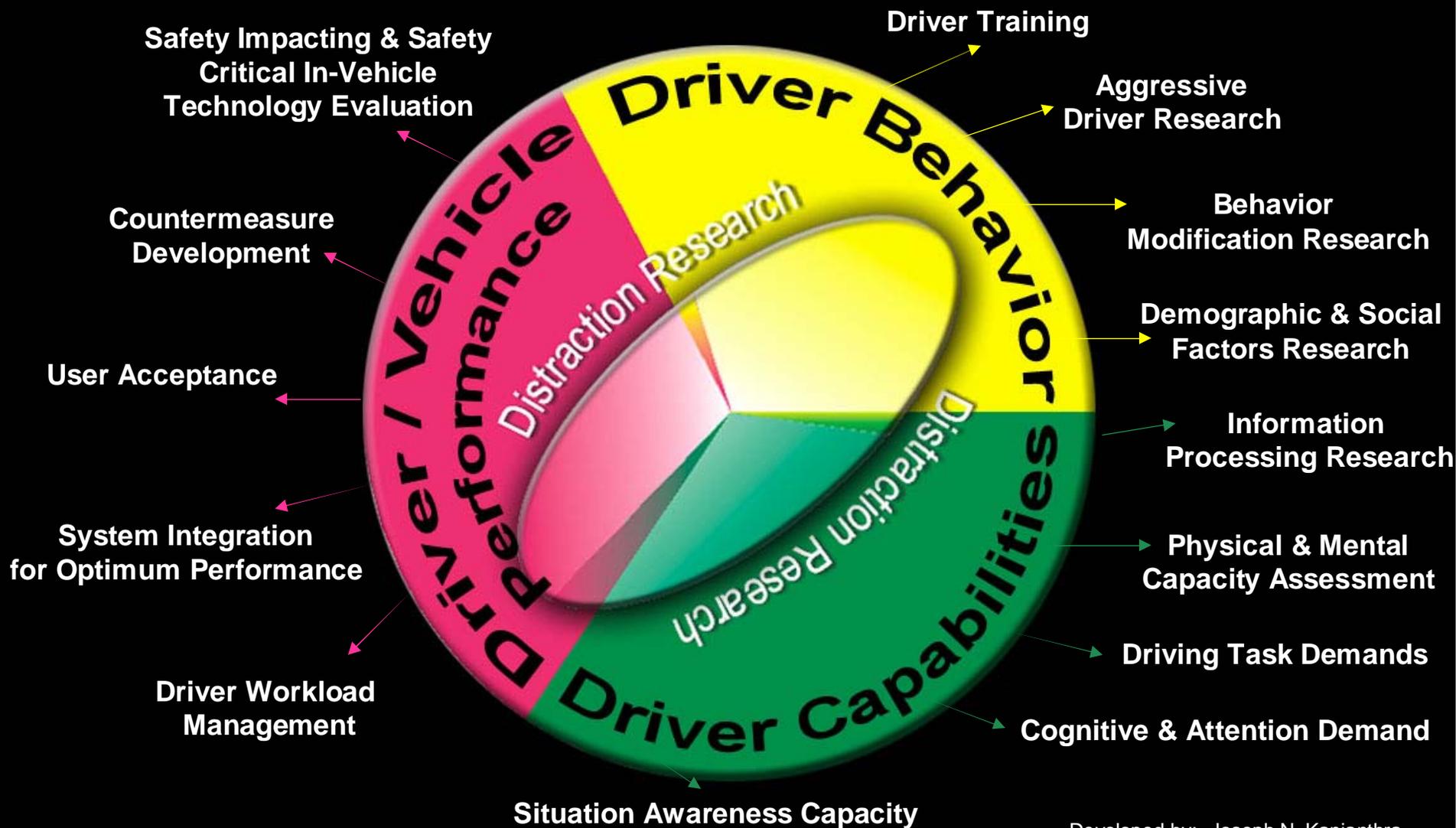


Total Safety





Driver Vehicle Safety Research





Acceleration of Safety Technologies

- **Safety Needs Novel Approaches**
 - Crash Scenario Based Test Procedures
 - Use of Market Forces
 - Innovative regulatory approaches
 - Consumer information and education
 - Closer cooperation between Government and Industry