

# Industry and Government: Solving the Safety Challenge

**Society of Automotive Engineers**

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**Vehicle Safety**

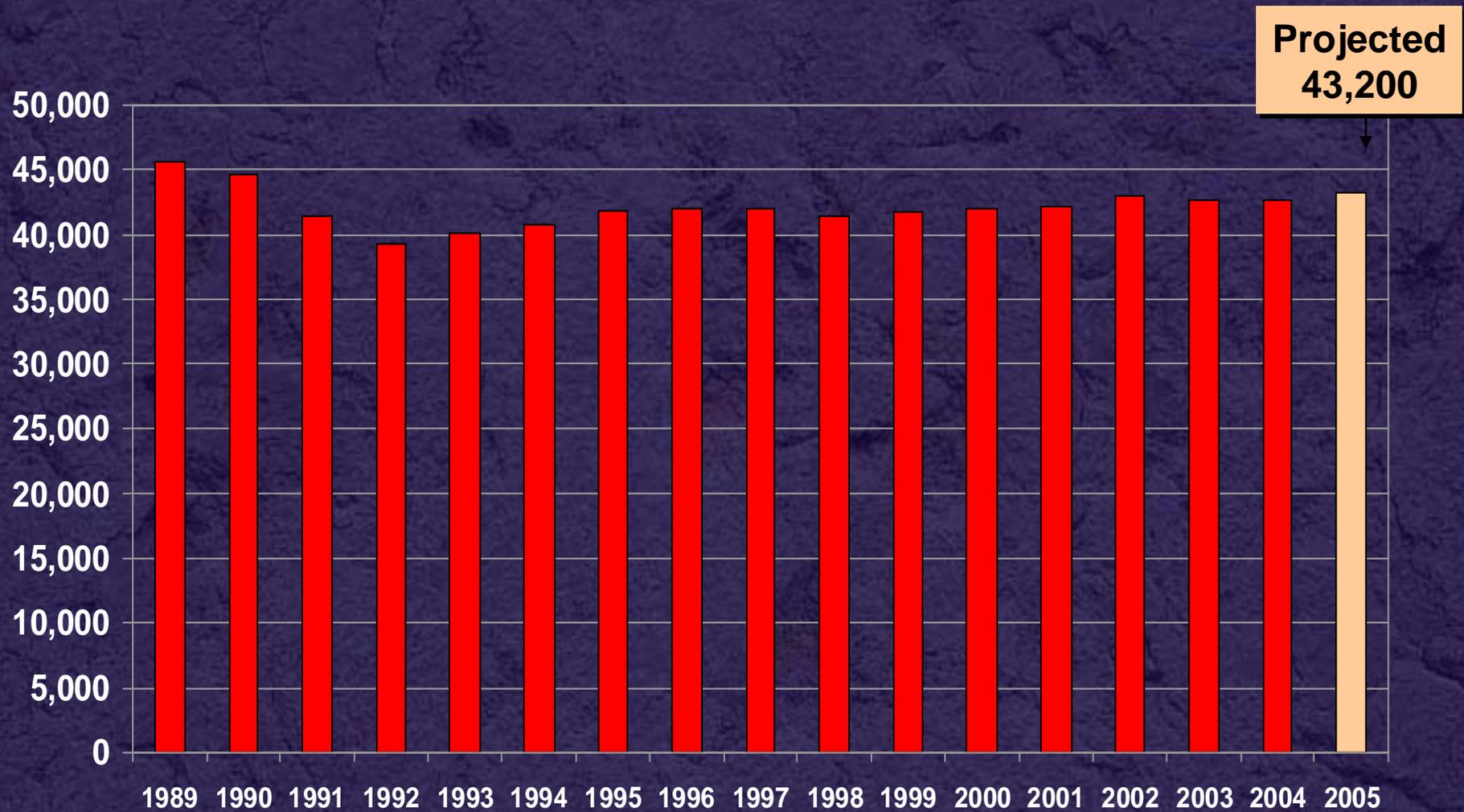
**National Highway Traffic Safety Administration**

**SAE** *International*

The premier society dedicated to advancing mobility engineering worldwide.

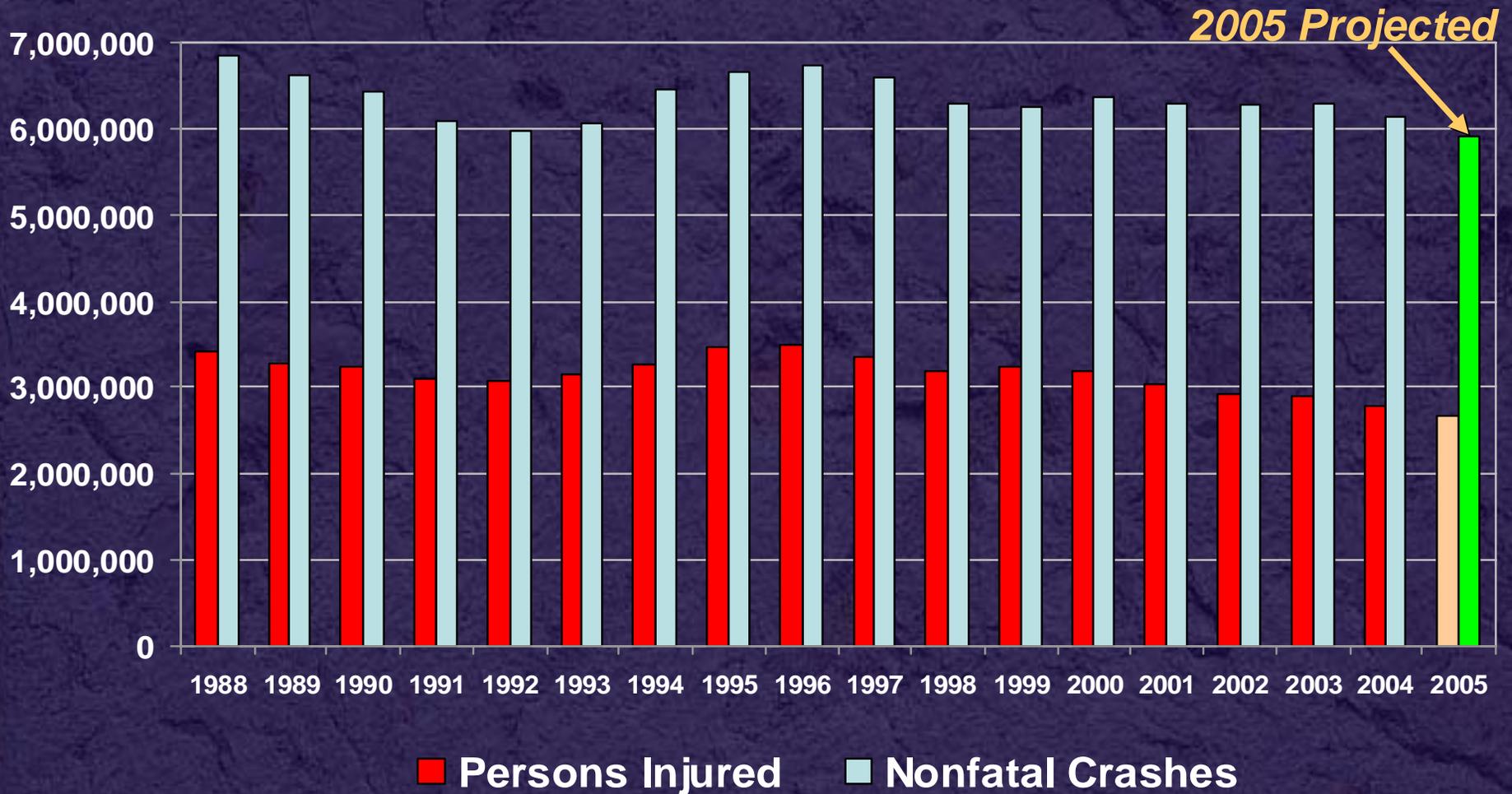
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# Number of Persons Killed in Motor Vehicle Crashes



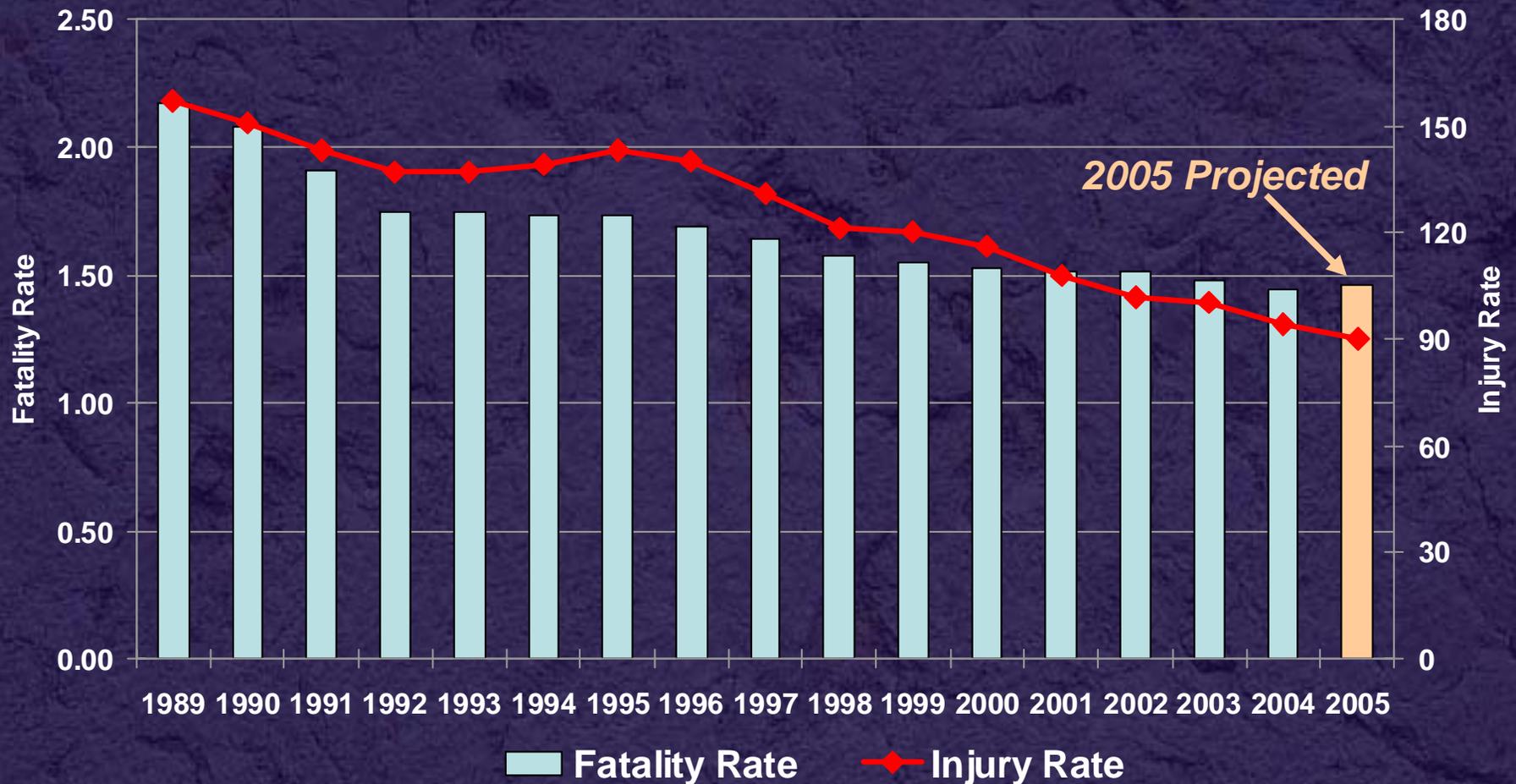
Source: FARS

# Nonfatal Crashes and Persons Injured, by Year



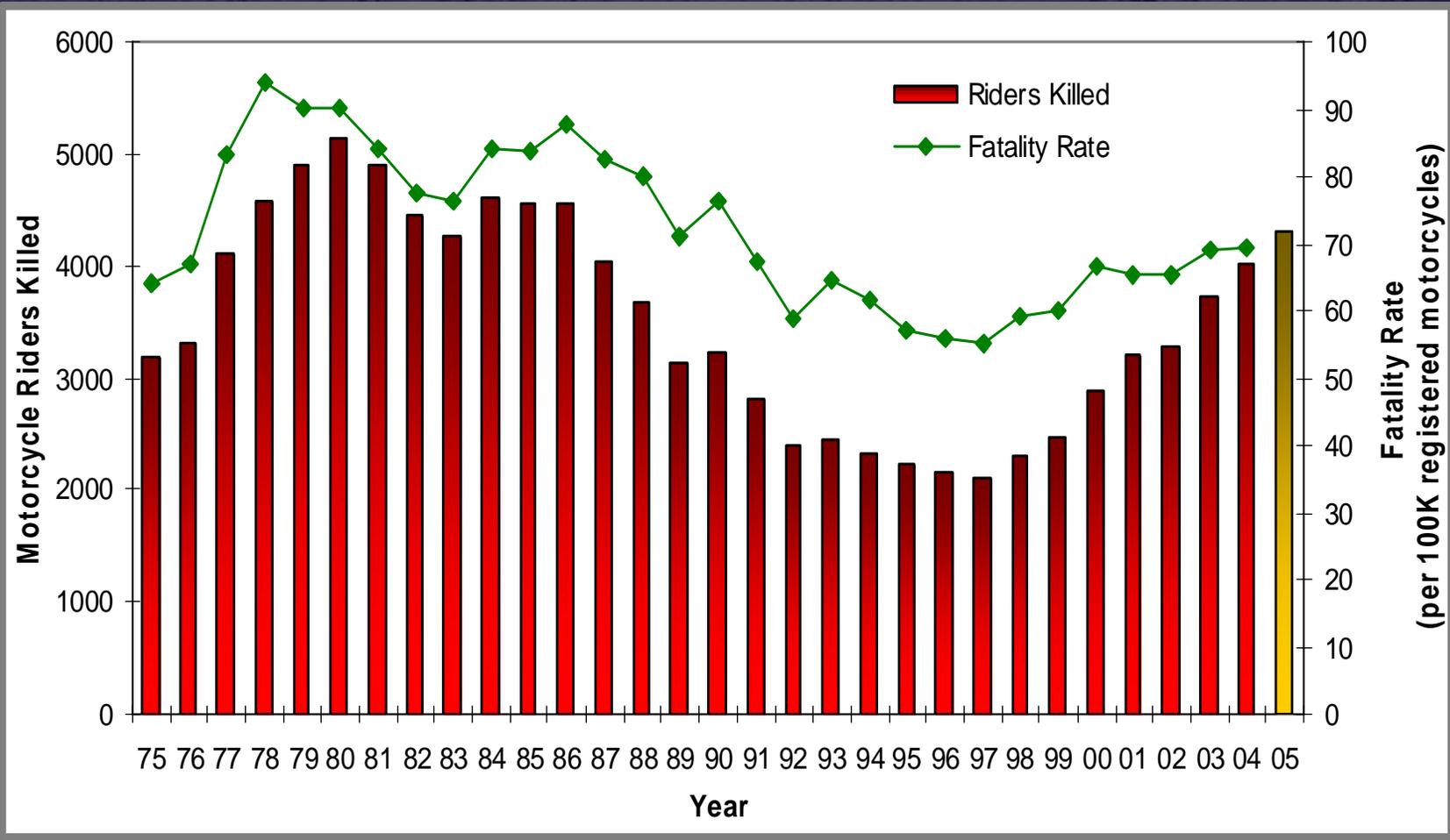
Sources: NASS GES

# Fatality and Injury Rates Per 100 Million VMT, by Year



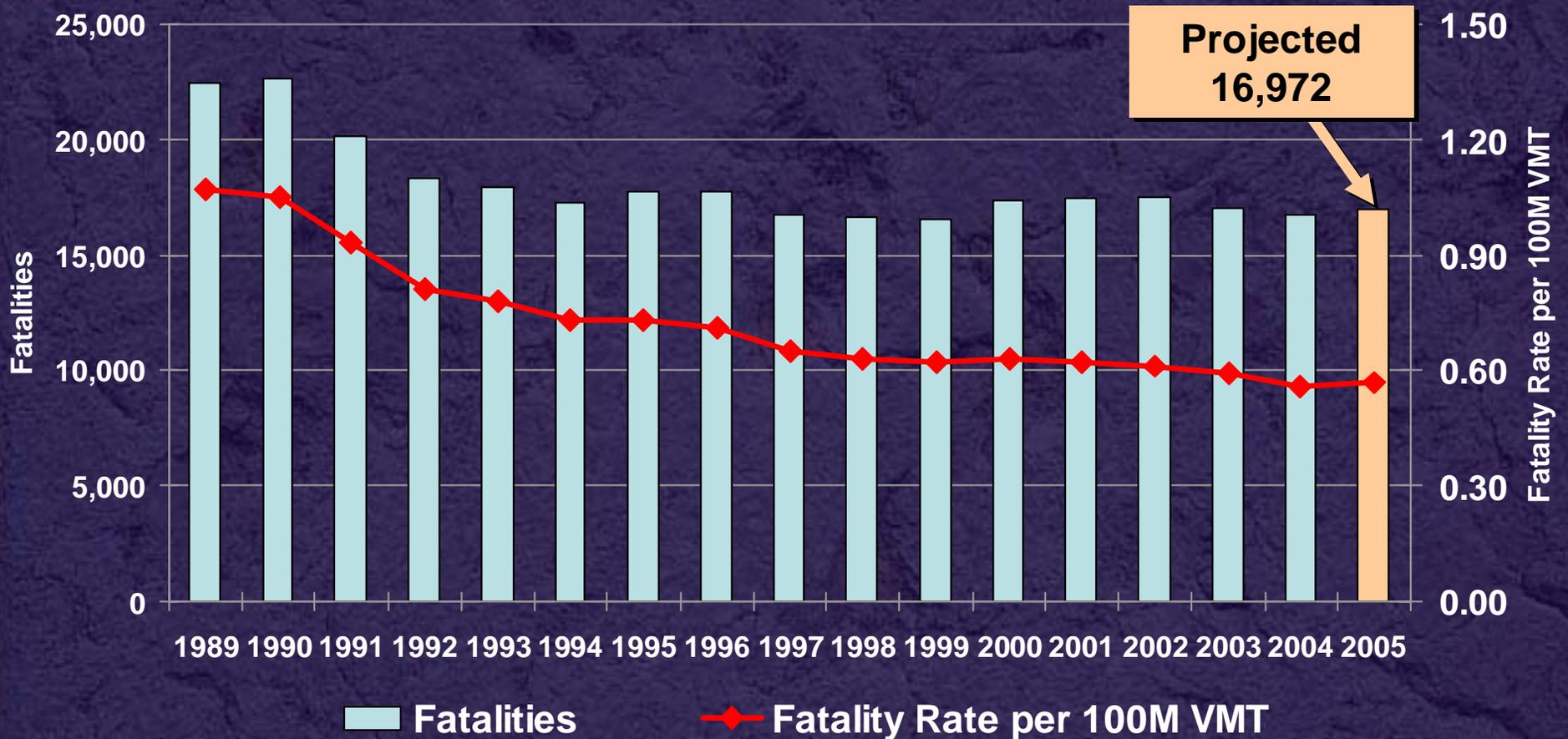
Source: FARS, NASS GES / FHWA

# Motorcycle Riders Killed and Fatality Rate



Source: DOT HS 809 919

# Alcohol-Related Fatalities and Fatality Rate, by Year

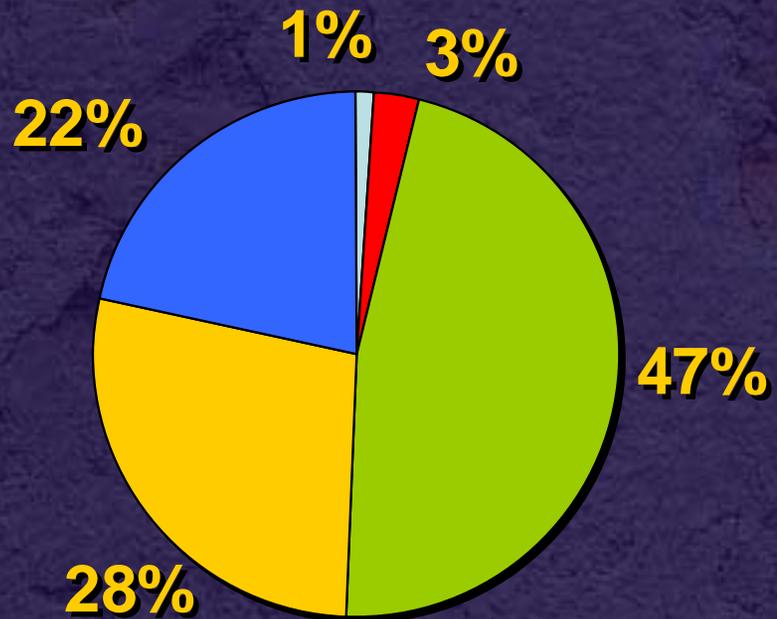


Source: FARS, FHWA

# Vehicles and Fatalities by Collision Type

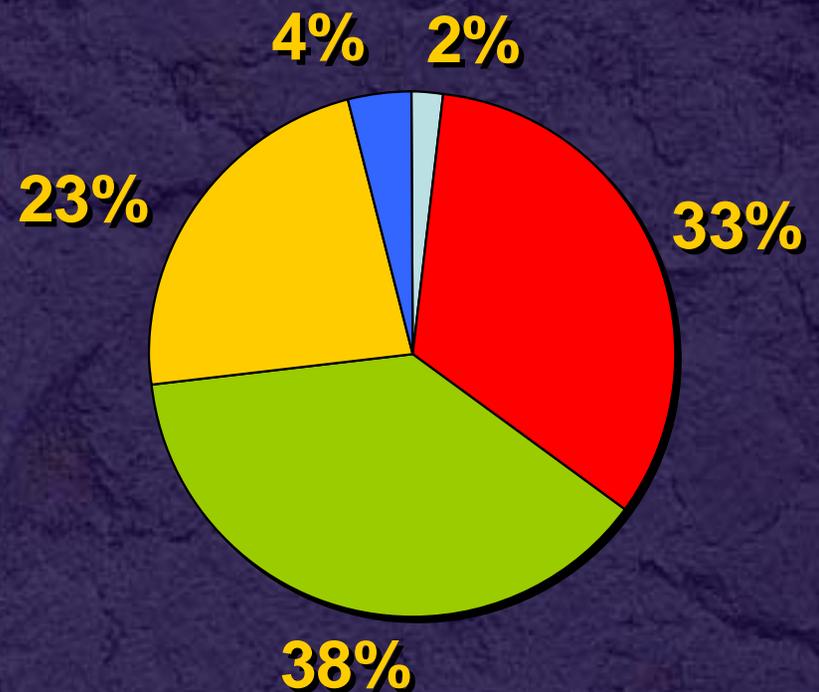
## Passenger Vehicles in Crashes

Approx. 10.6 million vehicles involved



## Passenger Vehicle Occupant Fatalities

31,904 total occupants killed



**Rollover** **Front** **Side** **Rear** **Other**

\* 2003 Data

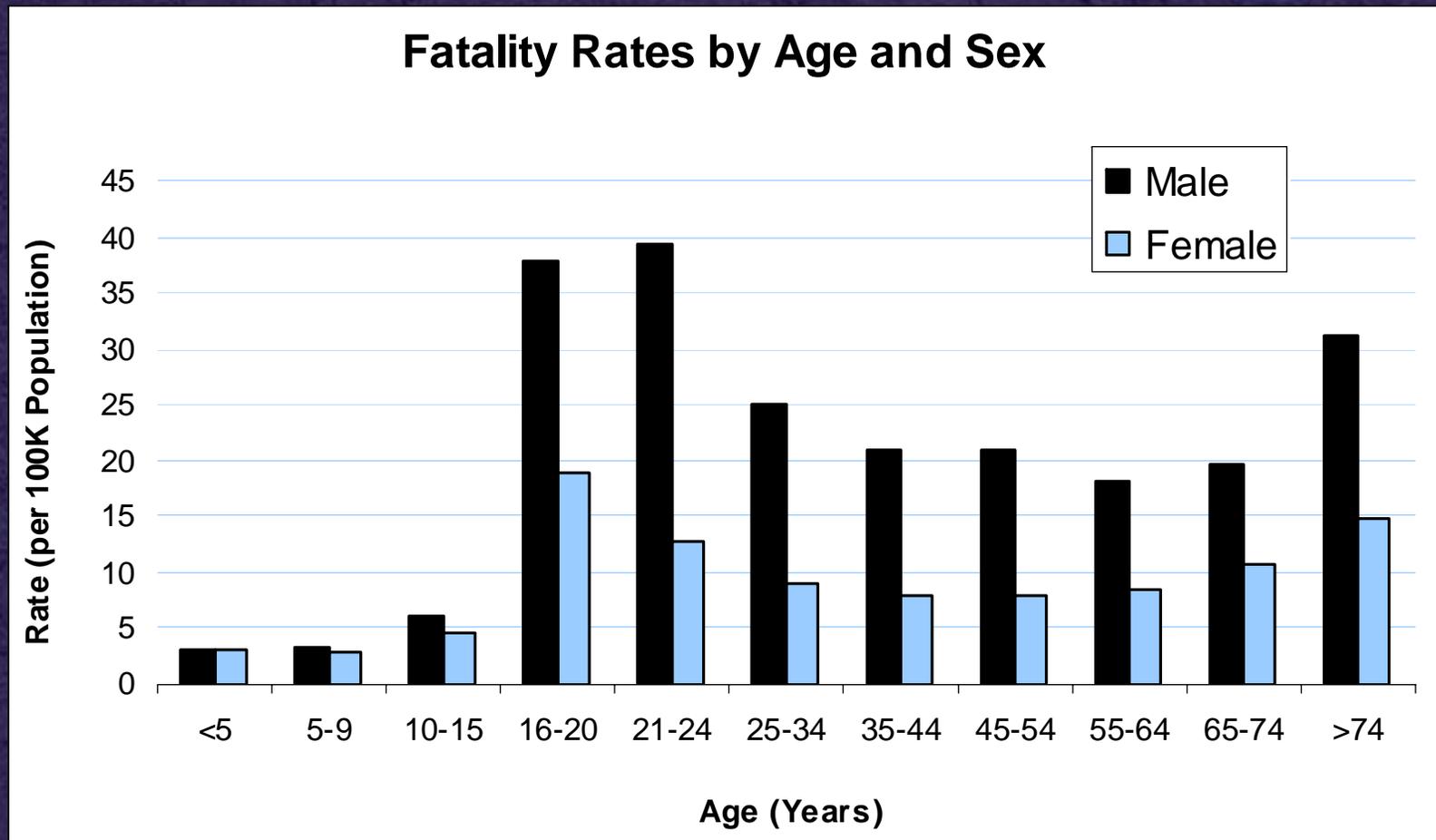
# Passenger Vehicle Occupant Fatalities, by Restraint Use

<b><i>Restraint Use</i></b>	<b><i>Year</i></b>	
	<b><i>2004</i></b>	<b><i>2005 Projected</i></b>
<b>Restraint Used*</b>	<b>45%</b>	<b>45%</b>
<b>Restraint Not Used</b>	<b>55%</b>	<b>55%</b>

•Restraint Used = Use of any type of restraint, e.g., lap belt, lap/shoulder belt, child safety seat, etc.

•Source: FARS

# Fatality Rates, by Age and Sex, 2004



# 100 Car Naturalistic Driving Study

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- **“Naturalistic” setting to obtain crash/pre-crash/near-crash/conflict data**
  - Own or leased, instrumented vehicle
  - Not coached or instructed
  - Instrumentation is unobtrusive and inconspicuous

# "100 Car" Study: Statistics

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- **42,300 hours of driving and 2 million VMT**
- **82 crashes and collisions**
- **761 near-crashes**
- **8,295 critical incidents**

# Primary Contributing Factor: Driver Inattention

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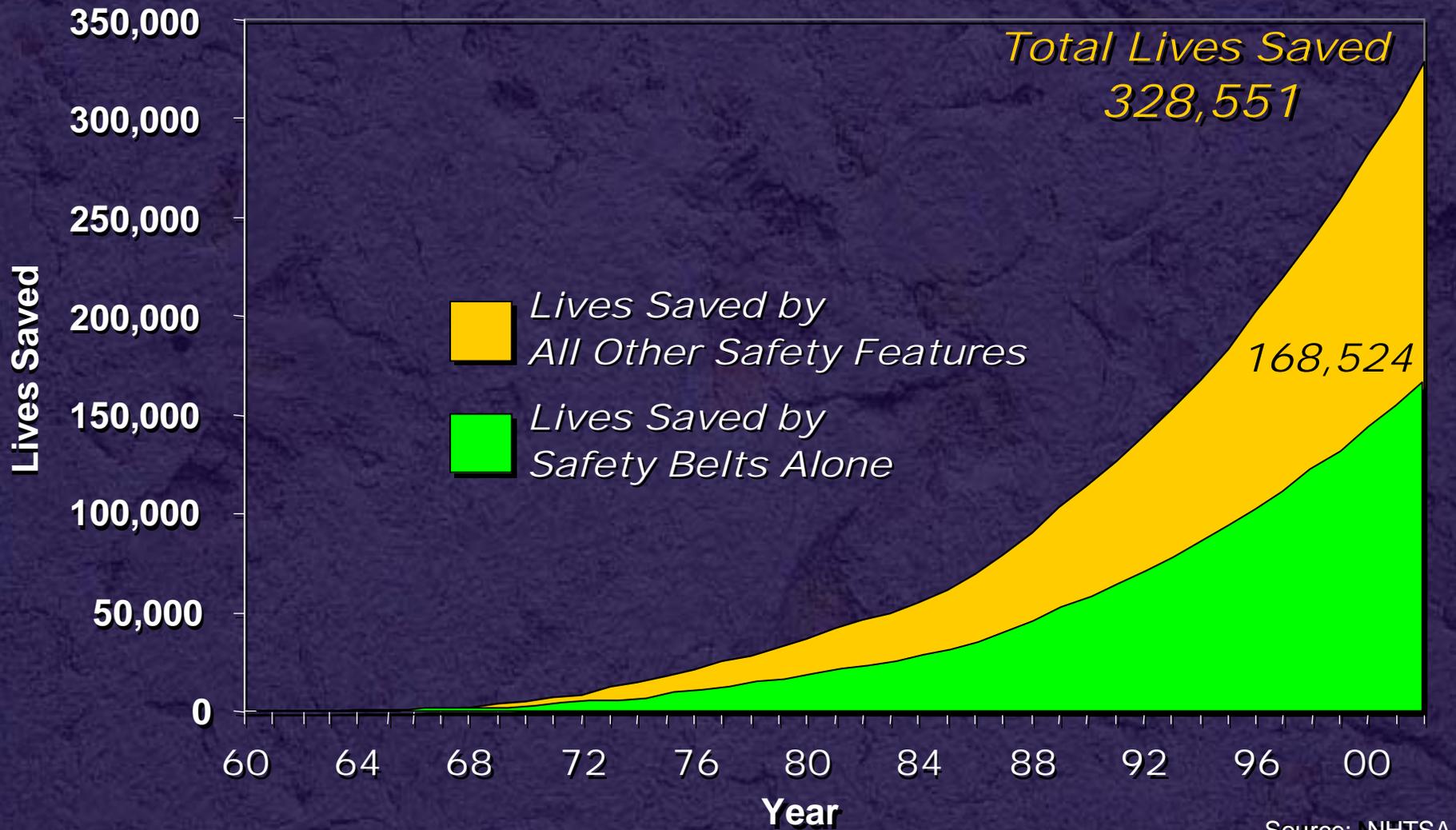
- **Almost 80% of crashes and 65% of near-crashes in study involved driver looking away from forward roadway just prior to onset of conflict**
  - Looking away for 2(+) seconds doubles risk that situation will turn into a crash/near-crash

# Primary Contributing Factor: Driver Inattention (cont.)

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- **In study, drowsiness increased driver's crash/near-crash risk by at least a factor of 4.**
- **Engaging in secondary tasks increased risk for drivers in study**
  - Talking/listening/dialing handheld device, inserting/retrieving CD, operating PDA, reading, applying make-up, eating: increase risk by factor of 2 to 3 times

# Lives Saved by Motor Vehicle Safety Technologies 1960 - 2002



Source: NHTSA

# Cost of Safety Technologies

Passenger Cars		Light Trucks	
Cost (2002USD)	Weight	Cost (2002USD)	Weight
<b>\$840</b>	<b>125 lbs</b>	<b>\$710</b>	<b>85 lbs</b>
Dual Frontal Air Bags	\$397	Dual Frontal Air Bags	\$383
Safety Belts	\$124	Safety Belts	\$138
Side Impact Dynamic Test	\$129		
Side Impact Static Test	\$51	Side Impact Static Test	\$29
Head Restraints	\$31	Head Restraints	\$31
Side Marker Lamps	\$29	Side Marker Lamps	\$29
Steering Control System	\$27	Steering Control System	\$27
Fuel System Integrity	\$17	Fuel System Integrity	\$17

Source: "Cost and Weight Added by the Federal Motor Vehicle Safety Standards for Model Years 1968-2001 in Passenger Cars and Light Trucks" DOT HS 809 834, Dec. 2004

# Current New Car Assessment Program (NCAP)

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- **Ratings**

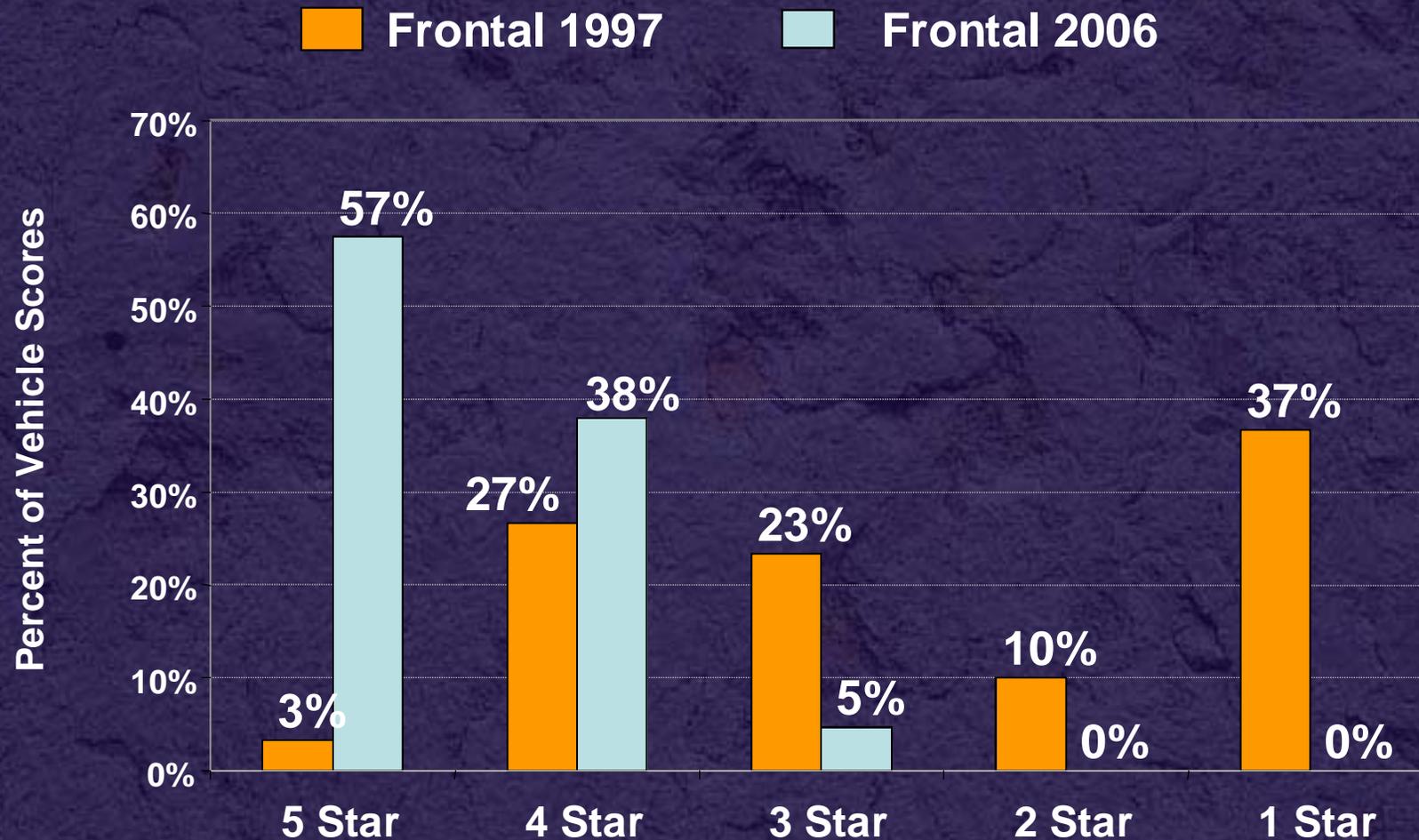
- Front
- Side
- Rollover
- Ease of use of Child Restraint System

- **Safety Features**

- Provided by manufacturer
- Approximately 28 listed

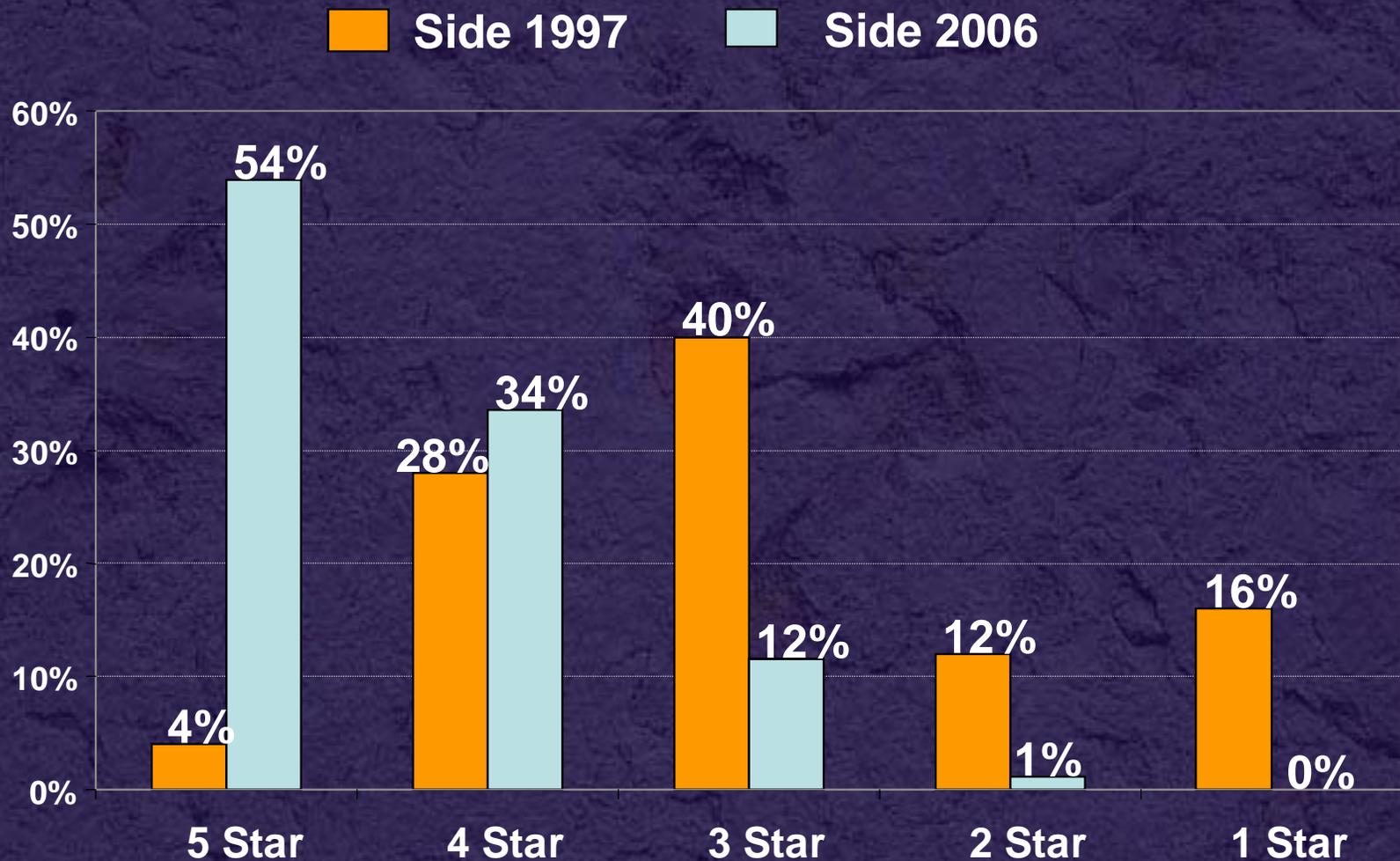
# Frontal NCAP: 1979 vs. 2006

*Frontal NCAP Trends Compared: 1979 v. 2006 Drivers*



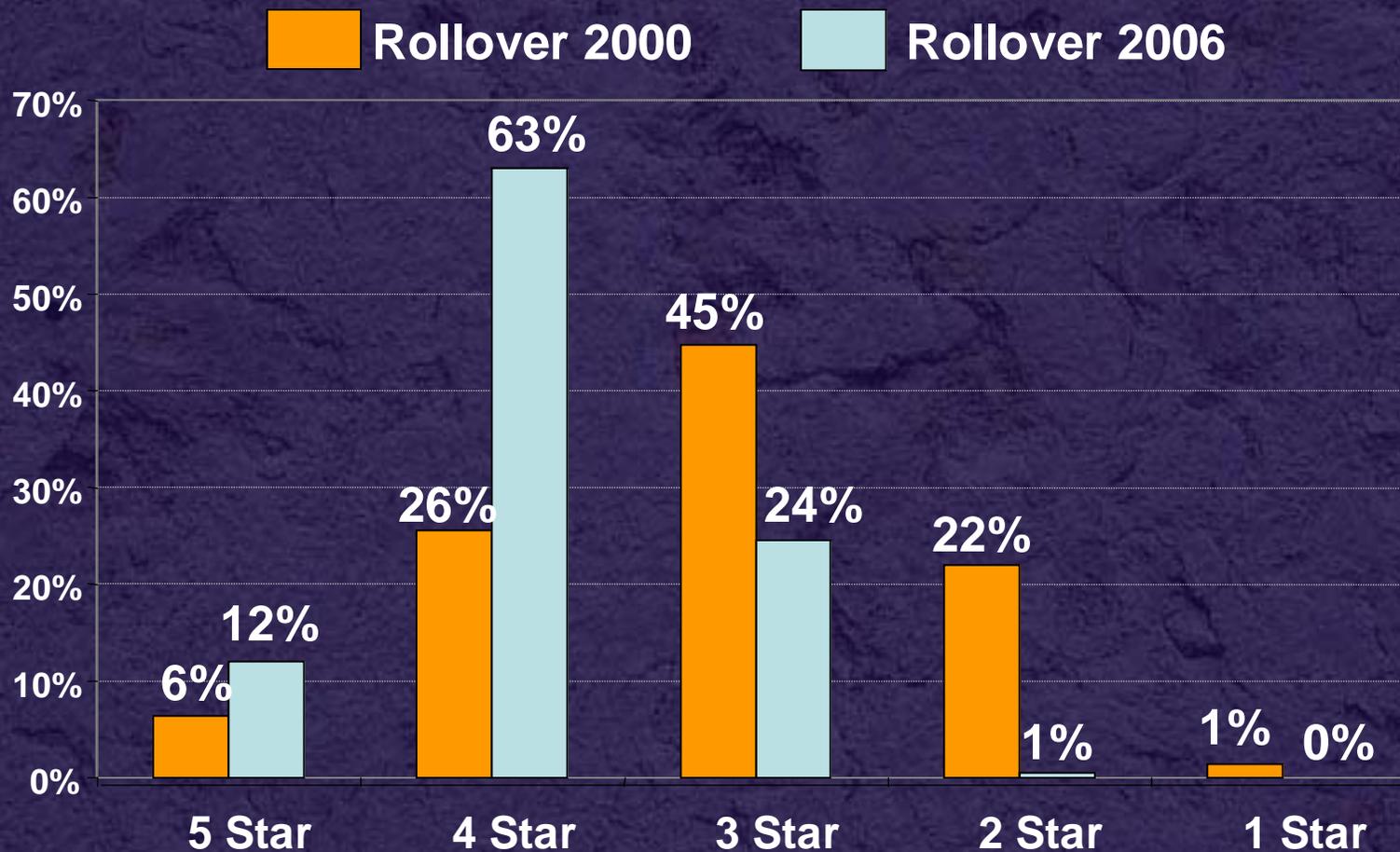
# Side NCAP: 1997 v. 2006

*Side NCAP Trends Compared: 1997 v. 2006 Drivers*



# Rollover NCAP: 2000 v. 2006

*Rollover NCAP Trends Compared: 2000 v. 2006\**



\*2006 data only contains 2-wheel drive vehicle scores.

# Issues Being Considered for Next Generation NCAP

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- **How to enhance crashworthiness?**
- **How to incorporate more crash avoidance or other safety technologies?**
- **Feasibility of using a summary rating**
- **Strengthen our outreach efforts**

# Significant Progress Made

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 Fatality rate **down** from 1.74/1995 to 1.44/2004

 VMT **up** 22% over the last 10 years

 **Progress** on vehicle, roadway and behavioral fronts; however, still more is needed

# Staying Focused

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- **Belts**
- **Alcohol**
- **Rollover**
- **New technologies**

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