Overview

- **Current data collection programs**
  - Crash report based
  - Crash investigation based
    - Current techniques used in crash investigation
- **Congressional help to improve crash data**
- **New data collection programs**
  - Crash report based
  - Crash investigation based
    - Modernized tools to improve crash data collection

Safer Drivers. Safer Cars. Safer Roads.

NHTSA
www.nhtsa.gov

Crashes by Crash Severity, 2013

32,719
Fatalities

Fatal Crashes

30,057

1,591,000
Injury Crashes

4,066,000
Property Damage Only

2,313,000
People Injured

5,687,000
Police Reported Crashes

~ 13,000,000 Crashes
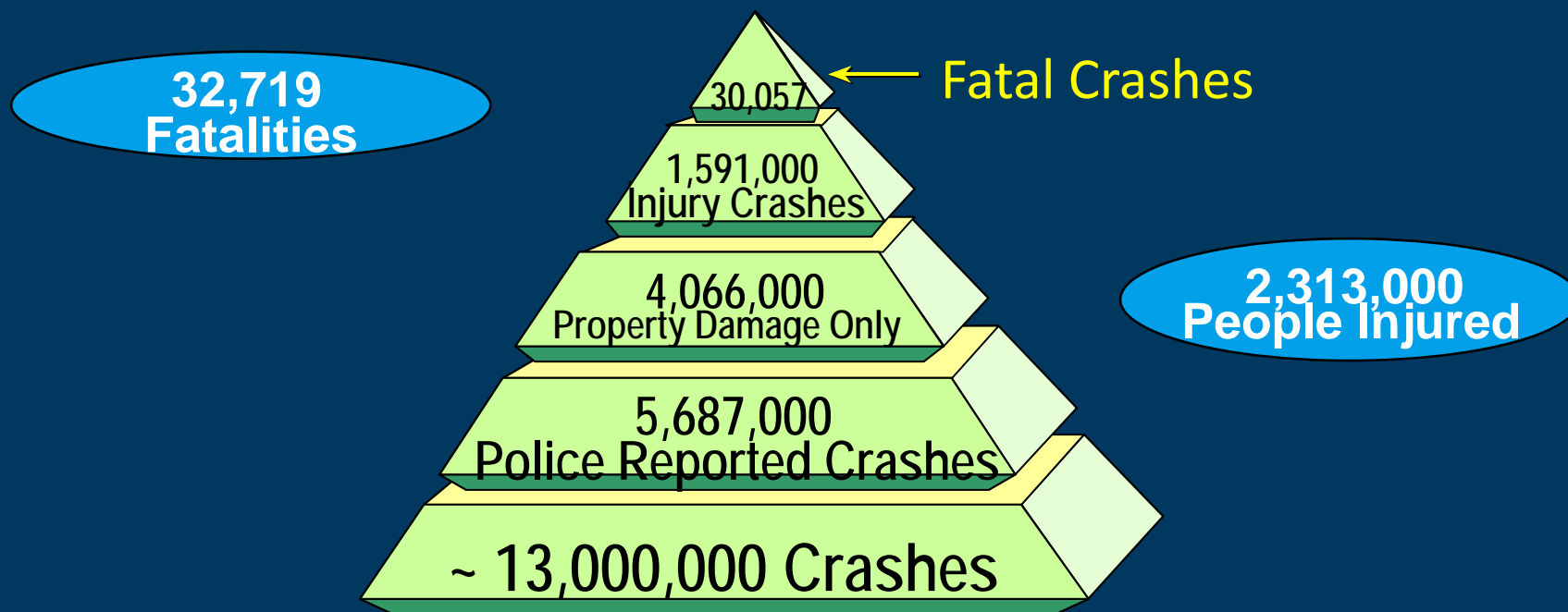
Economic Cost: $242B; Societal Harm: $836B

Safer Drivers. Safer Cars. Safer Roads.

Fatality Analysis Reporting System (FARS)

- All police-reported fatal motor vehicle traffic crashes within the U.S.

- State data recoded into a uniform national data set

- Fatality w/in 30 Days of Crash

- Early notification

Safer Drivers. Safer Cars. Safer Roads.

National Automotive Sampling System (NASS)

- Nationally representative
- Two Components
  - General Estimates System
    - Tracks Crash Trends
    - Identifies Problems
  - Crashworthiness Data System
    - Evaluates Motor Vehicle Safety Countermeasures
    - Provides Details on Passenger Vehicle Crashes

NHTSA
www.nhtsa.gov

NASS History

- Designed in the mid-1970's
- Designed as one system
- 75+ planned collection sites
- 20,000+ planned cases
- Split NASS in 1988:
  - General Estimates System
  - Crashworthiness Data System

Safer Drivers. Safer Cars. Safer Roads.

NHTSA
www.nhtsa.gov

National Automotive Sampling System
GENERAL ESTIMATES SYSTEM (GES)

- Nationally representative sample of police reported traffic crashes

- ~50,000 crashes coded per year

- Sampled from ~5M police reported crashes

- Collected at 60 sites across the country

NHTSA
www.nhtsa.gov
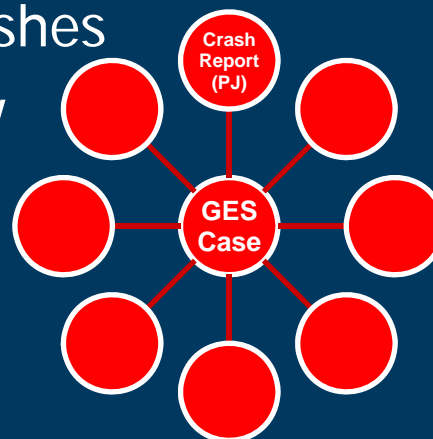
Current Investigation-Based Data Collection

- National Automotive Sampling System (NASS)
  - Nationally representative sample of crashes
  - Light passenger vehicles only
- Special Crash Investigations (SCI)
  - Targeted crashes for Agency priorities
- Crash Injury Research and Engineering Network (CIREN)
  - Multidisciplinary analysis of medical and engineering evidence to determine injury causation

NHTSA
www.nhtsa.gov

National Automotive Sampling System
## CRASHWORTHINESS DATA SYSTEM (CDS)

- Detailed data on vehicle damage and the occupant outcome (crashworthiness) of towed light passenger vehicles
- Field Investigation Based
- Over 600 CDS Data Elements Describe
  - Crash Events
  - Damage to Vehicle
  - Crash Forces Involved
  - Injuries to Victims
  - Injury Mechanisms

Safer Drivers. Safer Cars. Safer Roads.

NHTSA
www.nhtsa.gov

Special Crash Investigations (SCI)

- Detailed investigations on new and rapidly changing technologies:
  - Unintended acceleration
  - Electric / Hybrid vehicles
  - Back over crashes / avoidance
  - Motorcoach crashes / fires
  - Air Bag systems
  - School bus crashes
  - Potential vehicle defects
  - Etc.
- Approximately 100 cases annually
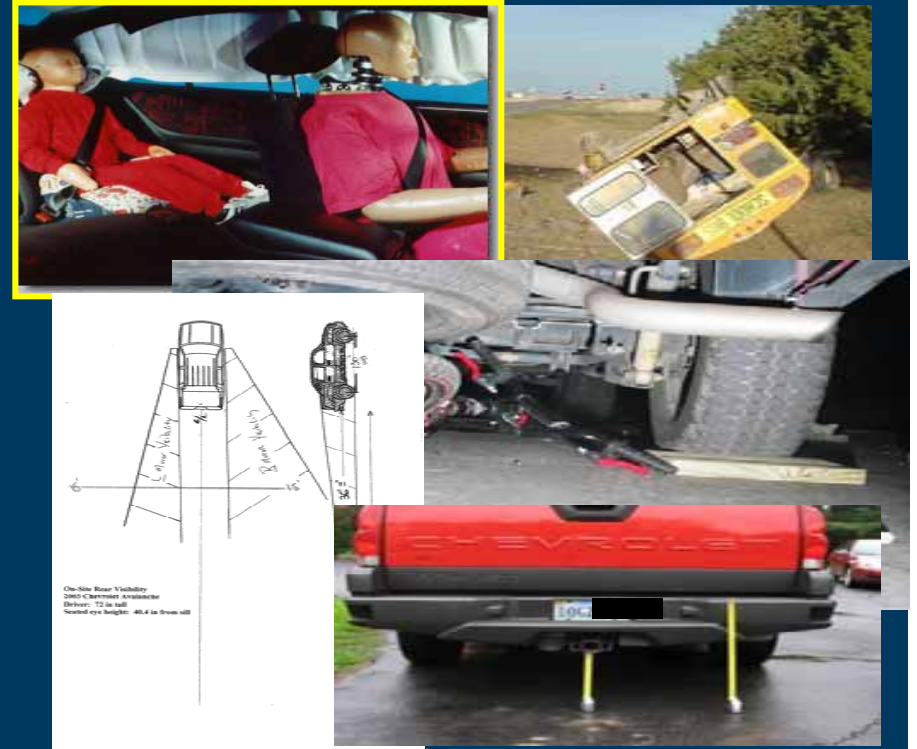
Crash Injury Research and Engineering Network (CIREN)

- Detailed injury causation data in modern passenger vehicle crashes
  - Multidisciplinary review, research and outreach
    - Three Medical and three Engineering Centers
    - State-of-the-art medical and engineering expertise
    - DICOM repository
  - Bio-Tab coding for all serious and disabling injuries
    - Balances occupant data and vehicle data
    - Validation of kinematics and injury causation
  - Research outputs (recent)
    - Knee-Thigh-Hip injury criteria
    - NASS+CIREN data fusion
    - Small overlap crash severity
  - 315 cases annually / 4,100+ cases total

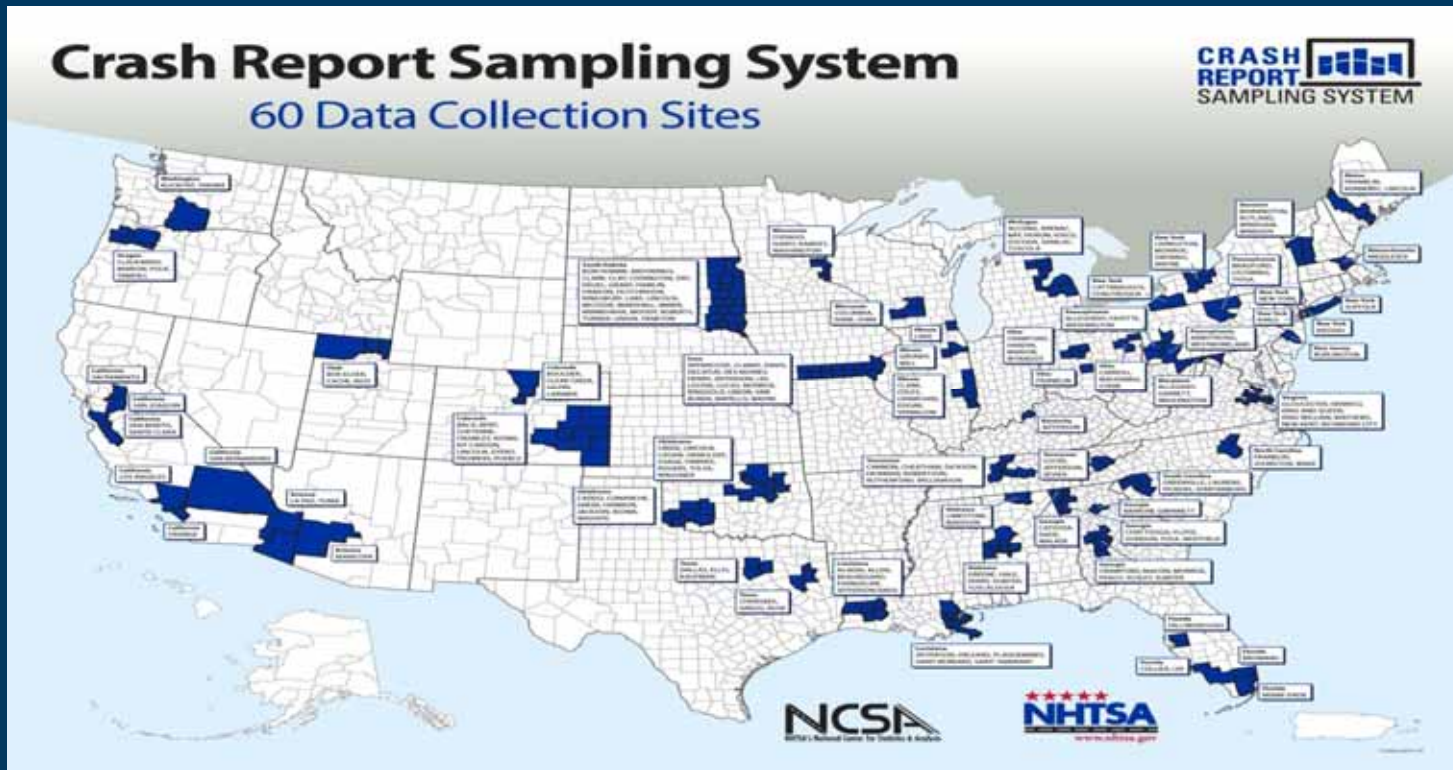*Safer Drivers. Safer Cars. Safer Roads.*

Considerations:

- Is sample size and design sufficient?
- Is scope too limited?
- What data needs to be collected?
- What data do external stakeholders need?

Congress appropriated $25M in FY 2012 to modernize NASS

Safer Drivers. Safer Cars. Safer Roads.

NHTSA
www.nhtsa.gov

New Sample Design

- Current sample design over 35 years ago

- New design sample design
  - Two systems
    - Crash Report Sample System (CRSS)
    - Crash Investigations Sample System (CISS)
  - Improve the precision of the statistical estimates
  - Provide more relevant information for policy makers

New CRSS Data Collection Sites

Crash Report Sampling System
60 Data Collection Sites

New CISS Data Collection Sites

Improved Scene Data

- Future
  - Electronic Distance Measuring Instrument
  - Off-road operations
  - SAFE!
  - More accurate
  - Provides scaled scene data
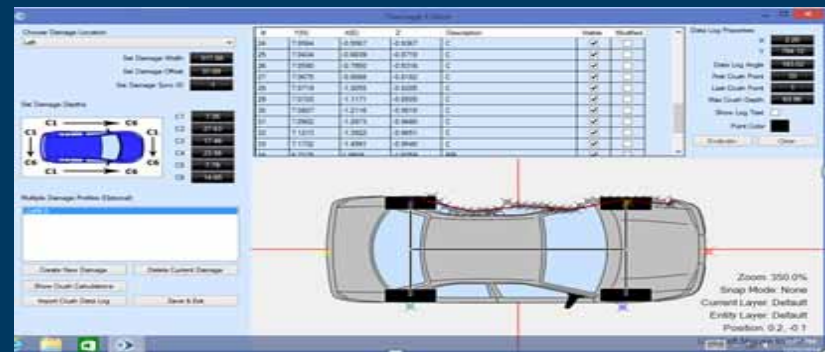 - Capable of importing into any CAD program for 3-D renderings

NHTSA
www.nhtsa.gov

Improved Scene Data

- Future
  - Scaled diagrams
  - Accurate measurements
  - Capability for user to create 3-D renderings of crash sites
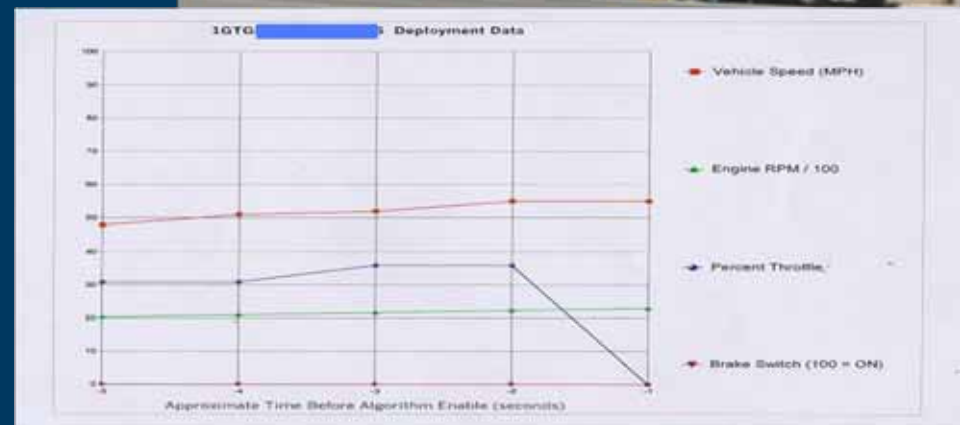
NHTSA
www.nhtsa.gov
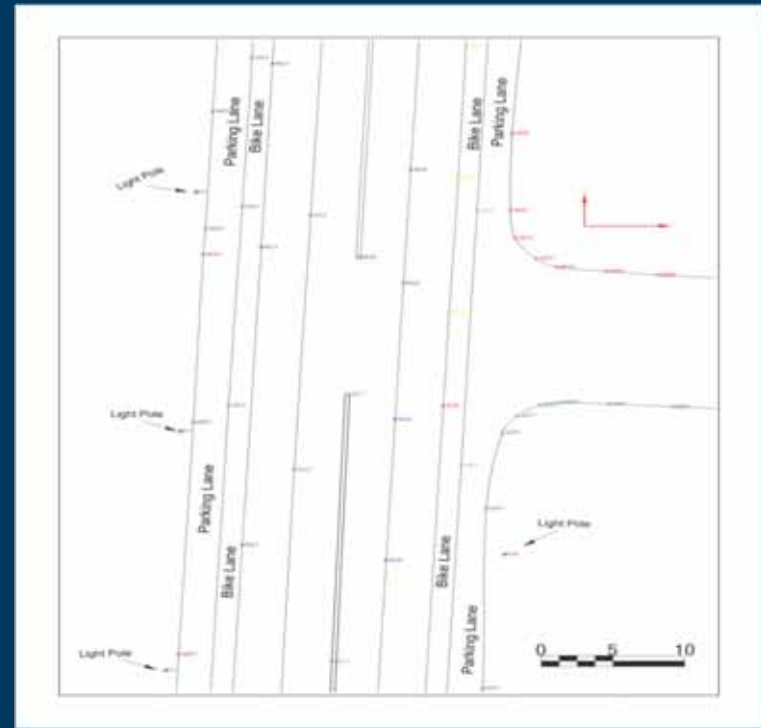
Improved Vehicle Data

- Future
  - Electronic measurements of crush on vehicle
  - More efficient
  - Improved crush data
  - Many more crush points measured
  - Scaled damage on vehicles
  - Capable of importing into any CAD program for 3-D renderings

Improved Vehicle Data

Event Data Recorder (EDR)

NHTSA
www.nhtsa.gov

Electronic Data Collection

- Tablet computer for field data collection
- Data entry using drop down

- Eliminate transcription errors
- Secure data on tablet computer
- Ease of data entry

NHTSA
www.nhtsa.gov

Modernized Information Technology

- IT Systems
  - Consolidated multiple systems into one for efficiency
- Data files to users
  - Releasing data file in multiple formats (currently only one format)
  - Release EDR files, scene and vehicle electronic measurements in various formats
- Better worldwide usage of crash data

NHTSA
www.nhtsa.gov

Safer Drivers. Safer Cars. Safer Roads.

Questions?

NHTSA
www.nhtsa.gov