Upgrades in Technologies for NHTSA’s Crash Investigations

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Introduction

• What field investigation programs are being modernized

• Modernization efforts

• Crash data collection technologies in 2016

• Future availability of the data
What is Being Updated for Investigations

- All the field investigation-based programs:
  - Crash Investigation Sampling System (CISS)
    - Nationally representative sample of crashes
  - 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
- Currently all three use the same IT infrastructure, so all are being modernized
Times Change

• The data needs of the transportation community have increased and changed over the last three decades

Dodge Charger – 1970 and 2015
As indicated in earlier presentations, CISS is replacing NASS-CDS as the nationally representative sample of crashes.

NHTSA and its users want the most complete, accurate data possible.

NHTSA explored many options for modernizing our field crash data collection systems.

The new systems blend technology, cost and efficiencies.
NASS-CDS Scene Data

- Current NASS-CDS
  - Measuring wheel
  - Run into traffic to obtain measurements
  - Labor intensive
• **Current NASS-CDS Scene Diagram**
  
  - Image format cannot be scaled on web
  - Lanes/markings sometimes are an estimate due to traffic / safety
  - Requires user to obtain same software program as us to fully utilize our diagrams
Improved CISS Scene Data

- CISS/SCI/CI REN
  - 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
Improved CISS Scene Data

- CISS/SCI/CIREN
  - Scaled diagrams
  - Accurate measurements
Current NASS-CDS Field Data Collection

- NASS-CDS
  - Paper data collection
  - Transcribe data to computer
  - Tracking of paper data with Personally Identifiable Information
CISS Electronic Data Collection

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

- Eliminate transcription errors
- Secure data on tablet computer
- Ease of data entry
Current NASS-CDS Vehicle Data

- Tape measures alongside crashed vehicle
- Six crush points measured
- Post crash dimensions measured by hand
Improved CISS Vehicle Data

• Future
  – Electronic measurements of crush on vehicle
  – More efficient
  – Improved crush data
  – Many more crush points measured
  – Scaled damage on vehicles
  – Ability of user to import data into any CAD program for 3-D renderings
Improved CISS Vehicle Data

Many more crush points measured

Software-generated
3D version of same vehicle

Safer drivers. Safer cars. Safer roads.
Other Items Modernized

- Event Data Recorder (EDR) equipment for all field Crash Technicians
- Field inspection protocols updated to reflect electronic documentation
- Release EDR files, scene and vehicle electronic measurements in various formats
- Better worldwide usage of crash data
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