

# DATA COLLECTION TECHNOLOGIES BEING RESEARCHED FOR THE DATA MODERNIZATION PROJECT

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# Overview

- **Data Modernization Project**
- **Technology to improve productivity and accuracy**

# Data Modernization

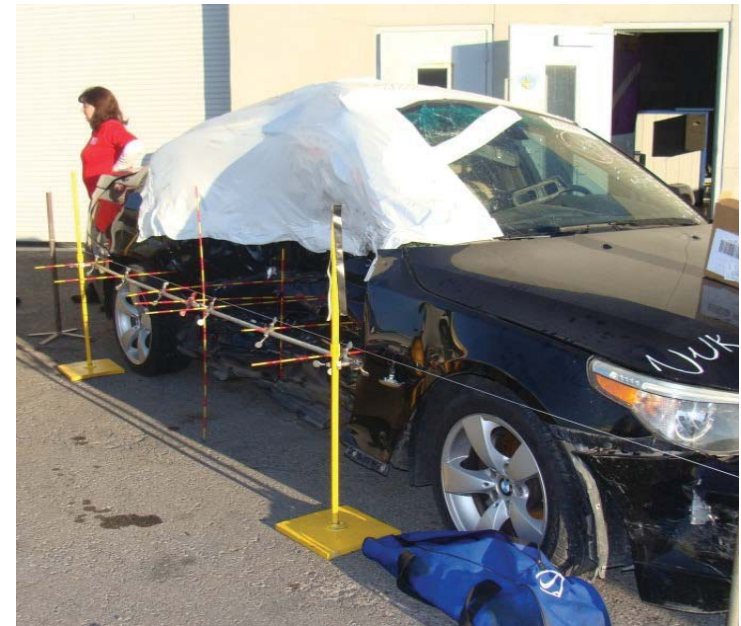
## NHTSA's Project to:

- **Upgrade the National Automotive Sampling System (NASS)**
- **Modernize and consolidate related information technology systems**

**Goal: To affirm NHTSA's position as the leader in motor vehicle crash data collection and analysis, by collecting quality data to keep pace with emerging technology and evolving policy needs.**

# Background

- **NASS, SCI and CIREN continue to use the same techniques for obtaining measurements as in 1979 when NASS began**



# Background

- NHTSA's investigation-based programs take detailed measurements of crash scenes and vehicles
  - **NASS-CDS**
  - **CIREN**
  - **Special Crash Investigations**



# Background

- **Why do investigation programs need to upgrade measurement collection methods?**
  - **Efficiency**
    - Increased efficiency saves time and money
  - **Evolving data requirements**
    - Users want additional details
  - **SAFETY**
    - Gets personnel out of roadway
    - Some areas prohibit us from being on road





# Technology for Data Collection

- Evaluated platforms for field data collection, e.g., laptops, tablets, military spec notebooks, etc.
- Evaluated and field tested electronic distance measurement instruments



# Data Mod IT Direction

- **Paperless data collection- tablets, SmartForms**
- **Upgrading the VIN software**
- **IT solutions to facilitate better quality control and access to collected data**



# Technology for Scene Documentation

- **Evaluated three differing electronic measuring systems**
- **Crash Investigation Division evaluated equipment and various software**

# Example Instrument Technology

- **How does it work?**
  - **Uses electronic theodolite integrated with electronic distance meter to read slope distance to a point**
- **Device stores only**
  - **Instrument setup information**
  - **Date/time stamp (editable)**
  - **Measurements, angles**
- **Produces .CSV file**
  - **Common format**



# Proposing for Data Modernization Effort

- **Better scene data**
  - **Electronic Distance Measuring Instrument (EDMI) for scene documentation**
  - **More precise measurements**
  - **Ability to produce 3-D scenes**
- **Technology advancements for field data collection**
  - **GPS to link information**
  - **Crush measurements, etc.**



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CO,          RAW data format v2.00
CO,GH2
CO,Description:
CO,Client:
CO,Comments:
CO,Downloaded 03-sep-2010 14:51:51
CO,Software: Pre-install version: 1.02
CO,Instrument: Nikon NPL-352
CO,Dist Units: Feet US
CO,Angle Units: DDDMMSS
CO,Zero azimuth: North
CO,Zero VA: Zenith
CO,Coord order: NEZ
CO,HA Raw data: HA zero to BS
CO,Tilt Correction: VA:OFF HA:OFF
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SS.9.6.000.34.78.206.0311.86.5056.13:58:11.x1
```

Date and time displayed and can be changed for PII reasons

# Software

- **Conducted market research**
  - **Various suites of Products**
    - **Primary advantage over current software applications**
      - Automatically joins the measured points to produce final scaled diagram
      - Vehicle damage profile documentation looks promising - coming soon
- **Software works in conjunction with electronic measuring systems**



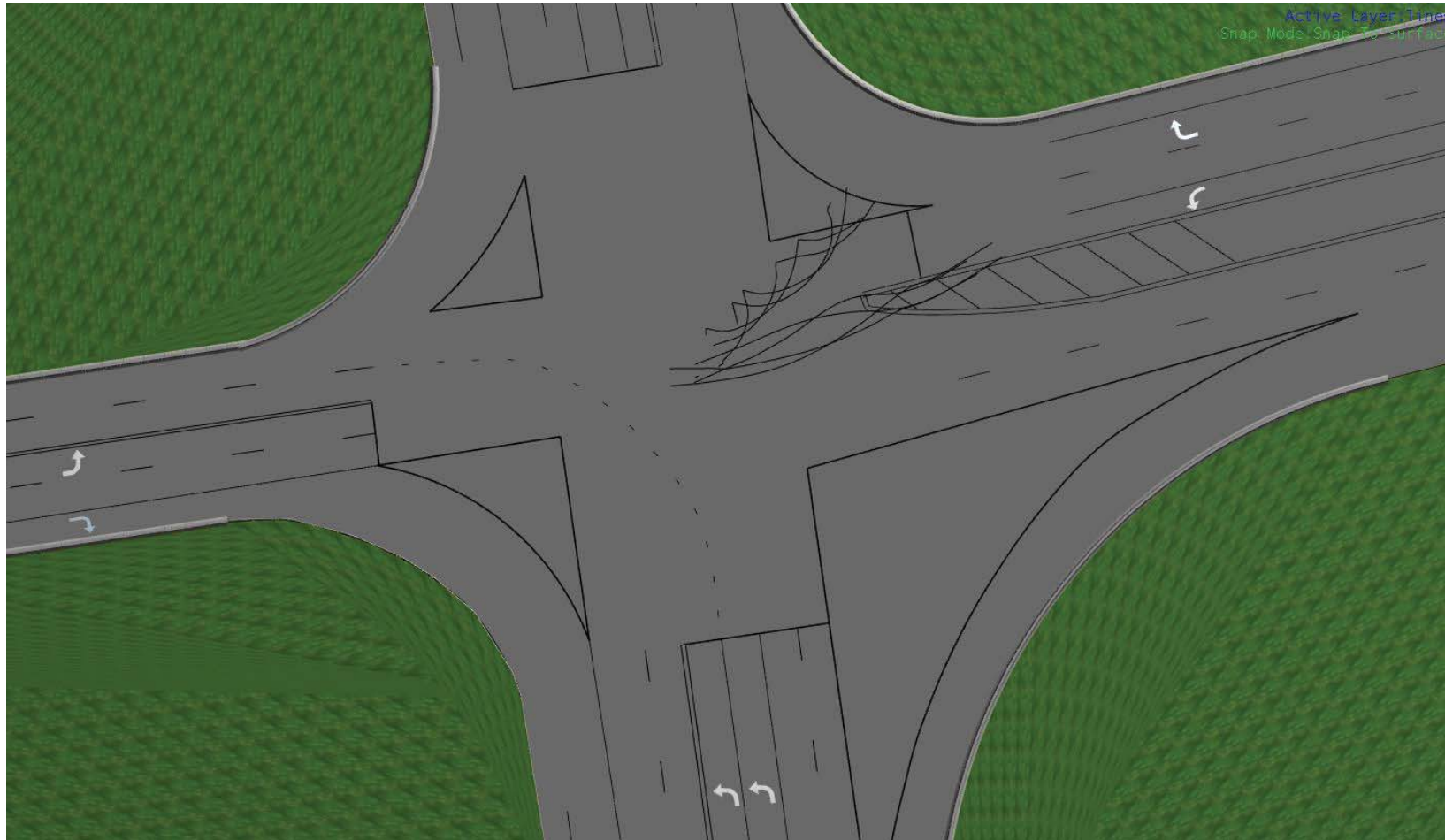
# Software Can Produce

- **Scaled crash diagram (2D & 3D)**
- **Vehicle damage models (2D & 3D)**
- **Advanced capabilities:**
  - **End-user could import data into any reconstruction software and compute speed analysis**
    - Could provide user speed calculations throughout crash sequence
  - **End-user could produce animation of crash**
    - Anticipated case outputs include **.CSV, .DXF, .JPG files**



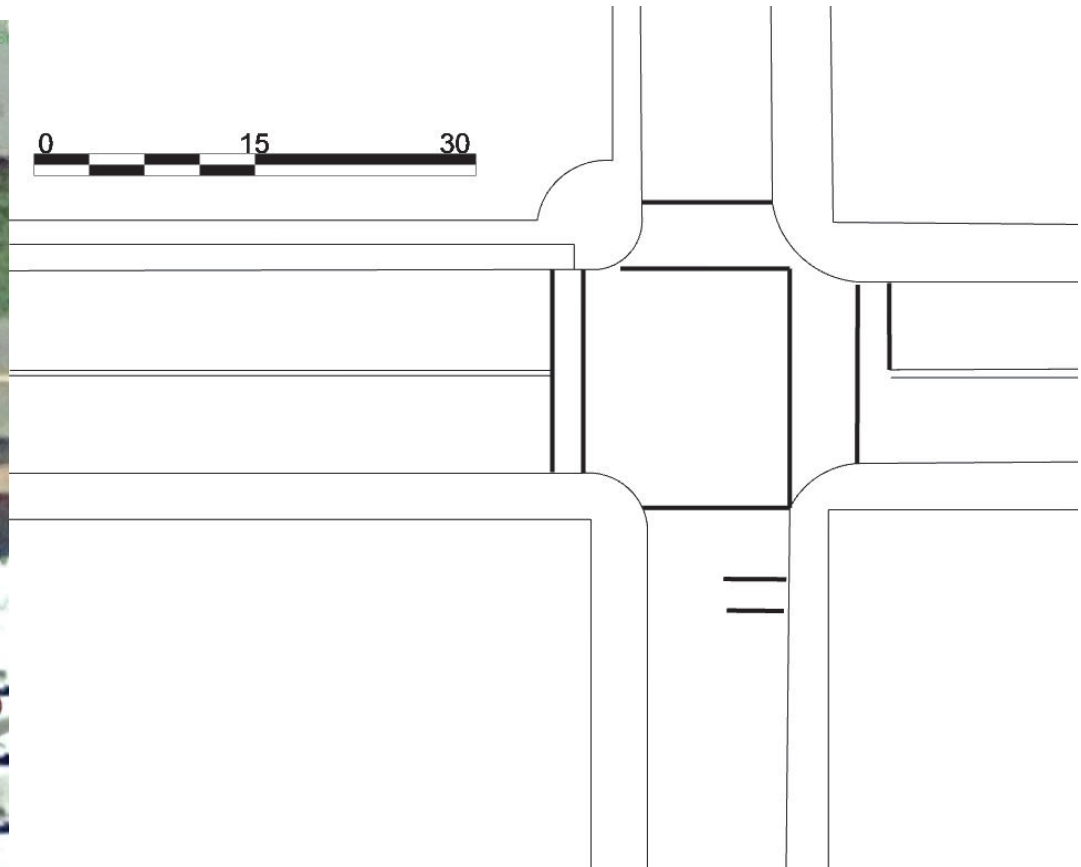
# Scene Safety

- Investigators can obtain measurements while positioned safely off the road



# Scene Safety

- **Software also imports scaled Google images – can be traced to make sketch**



# Summary - Drawbacks

- **Requires upgraded computers with a more powerful graphics card**
- **Considerable upfront costs**
- **Vehicle measurement aspect of program still being finalized**

# Summary - Benefits

- **Safety!**
- **Modernizes measurement techniques**
- **Satisfies end users**
  - **Increased accuracy**
  - **Software can allow determination of speeds**
- **Efficiency = saving \$\$\$**
- **Instruments are durable**
- **Software does NOT require frequent upgrades**
- **Files produced are in common formats**
  - **Small file sizes**