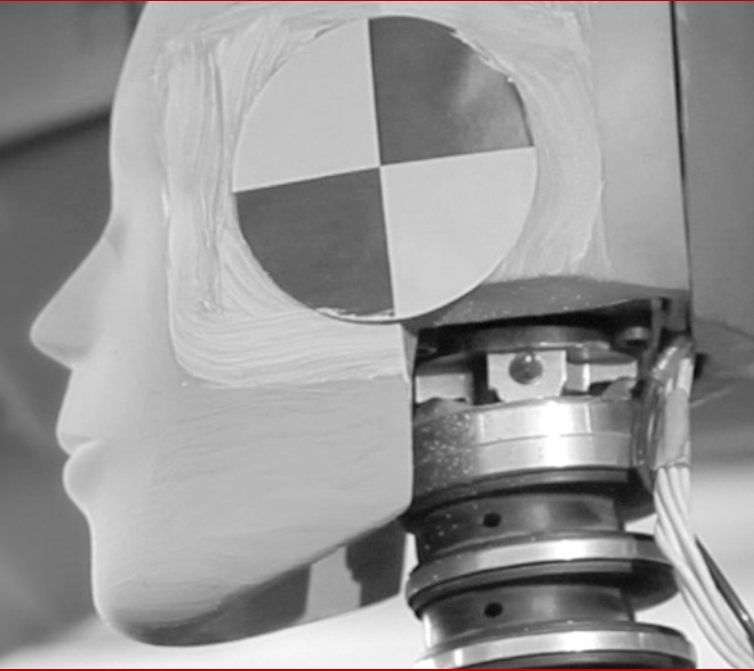


Understanding Federal Crash Programs

+ Program Updates



Michael D. Frenchik

NCSA, Safety Systems Management Division (SSMD) Chief

Overview

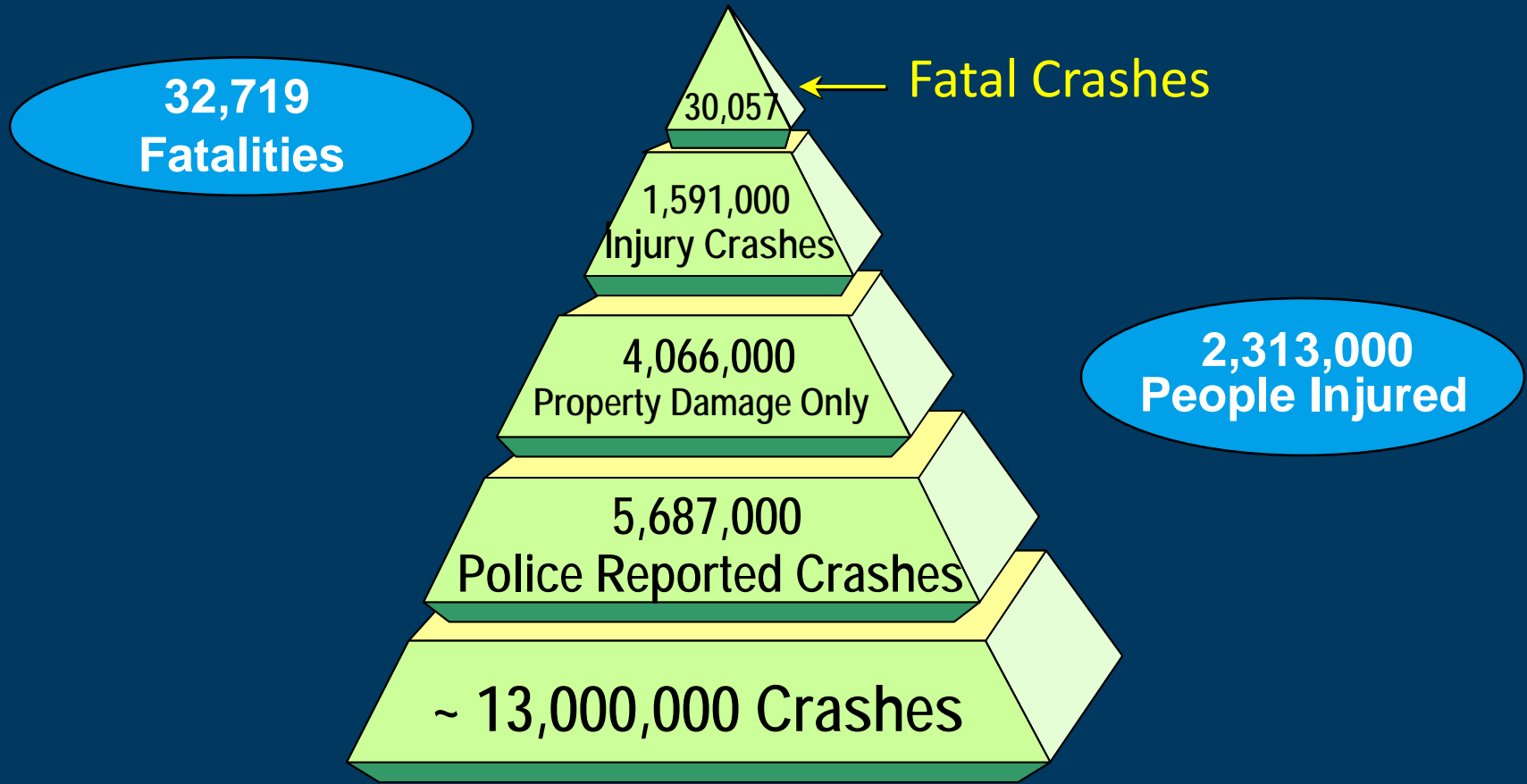
This presentation will introduce recent data collection and management endeavors at the National Highway Traffic Safety Administration (NHTSA) including the:

- Crash Report Sampling System (CRSS),
- Crash Investigation Sampling System (CISS),
- Fatality Analysis Reporting System (FARS) – Maryland, and
- NHTSA Electronic Data Transfer (EDT) programs.

Objectives

- 1) Understand the purpose and structure of CRSS, CISS, and EDT
- 2) Identify how EDT will improve data quality
- 3) Describe how FARS impacts Maryland's traffic records systems

Crashes by Crash Severity, 2013



Economic Cost: \$242B; Societal Harm: \$836B

What is NHTSA DataMod?

NHTSA's effort to:

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

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

Crash Data Systems - Concepts

- For Sample-based Systems:
 - Probability-based (needed for rulemaking)
 - Two independent sample systems
 - Completed the 3-stage sample design and selected the first and second stage sites
 - No intentional overlap between “old” NASS and “new” data collection sites
 - Flexibility to add special studies (Peds, Trucks, Motorcycles,...)
 - Sample scalability (up or down)
- For Fatality-based Analysis:
 - Census of all reportable fatalities that are within the roadway

What is the NHTSA Crash Report Sampling System (CRSS)?

- Replacement for the current NASS General Estimate System (GES)
- Probability-based design
- 60 sites in 31 states
 - Larger Sites / More Injuries
 - 392 Police Jurisdictions
- About 50,000 crashes sampled annually
- 100+ variables coded from police crash reports
- All vehicle types and crash severities

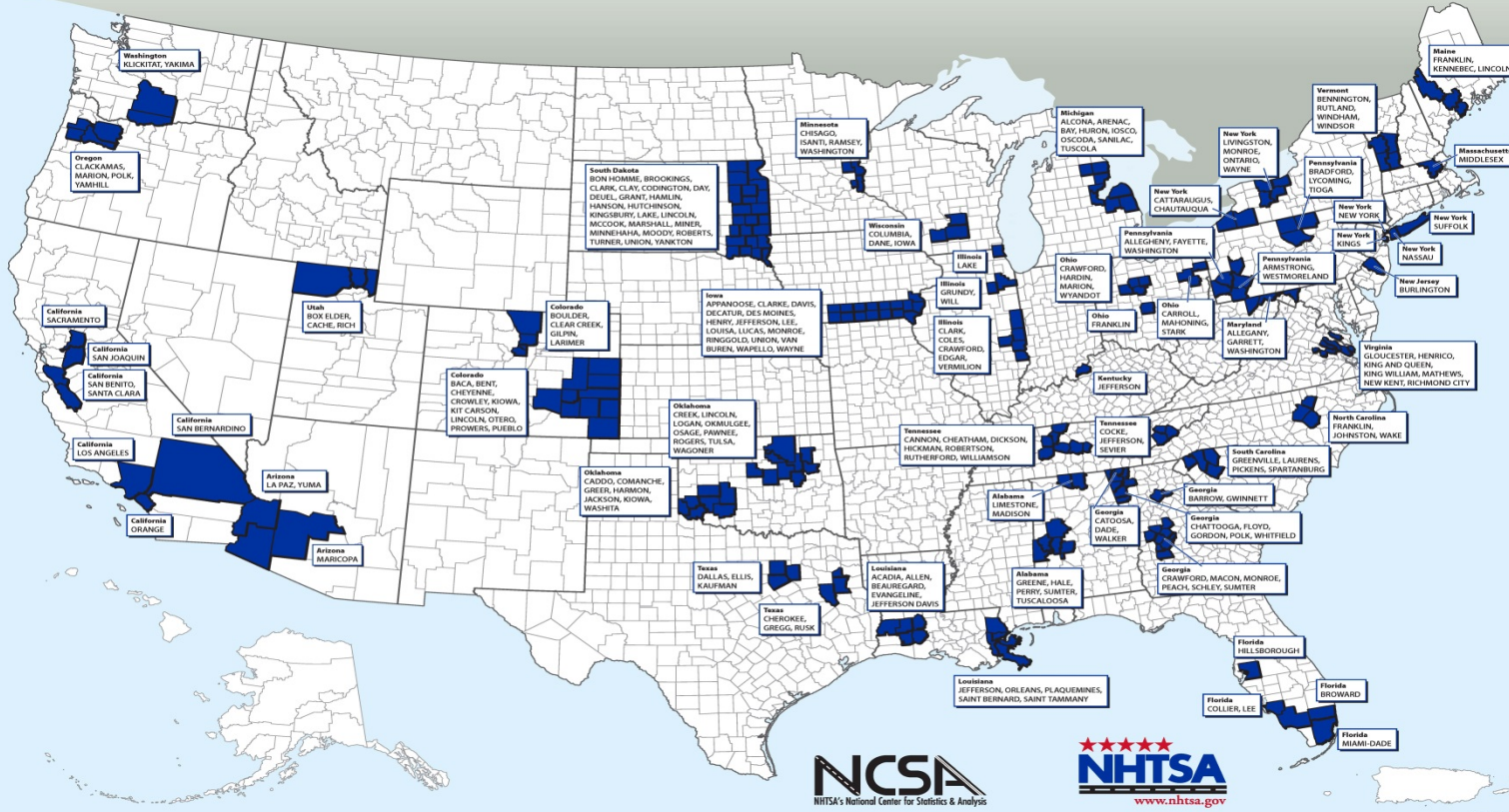
Purpose: To monitor large scale crash trends and broad crash characteristics



New CRSS Data Collection Sites

Crash Report Sampling System

60 Data Collection Sites



11/20/06 02/20/14

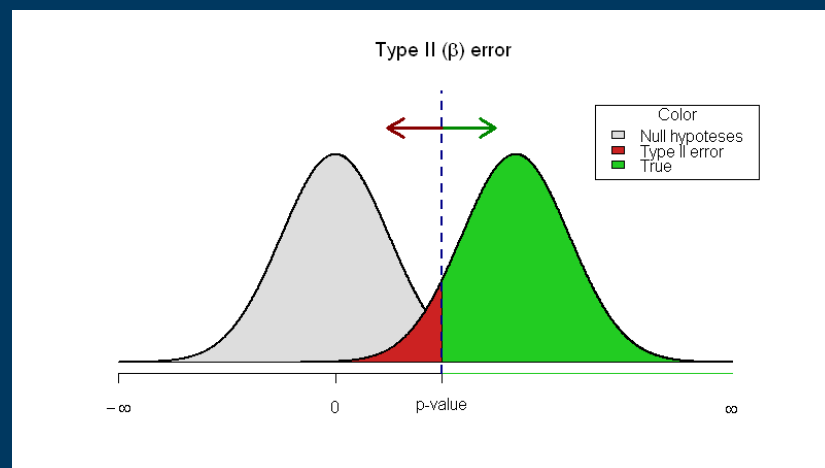
Safer drivers. Safer cars. Safer roads.



What is the NHTSA Crash Investigation Sampling System (CISS)?

- Replacement for existing Investigative-based Sampling
- 24 Sites (PSUs) in 18 States
- Smaller sites that target late model year vehicles and injury crashes
- 182 Police Jurisdictions (~8 PJs/PSU)
- 4,000 to 4,500 annual cases

Purpose: To aid in the development and evaluation of passenger vehicle crashworthiness and occupant protection systems.



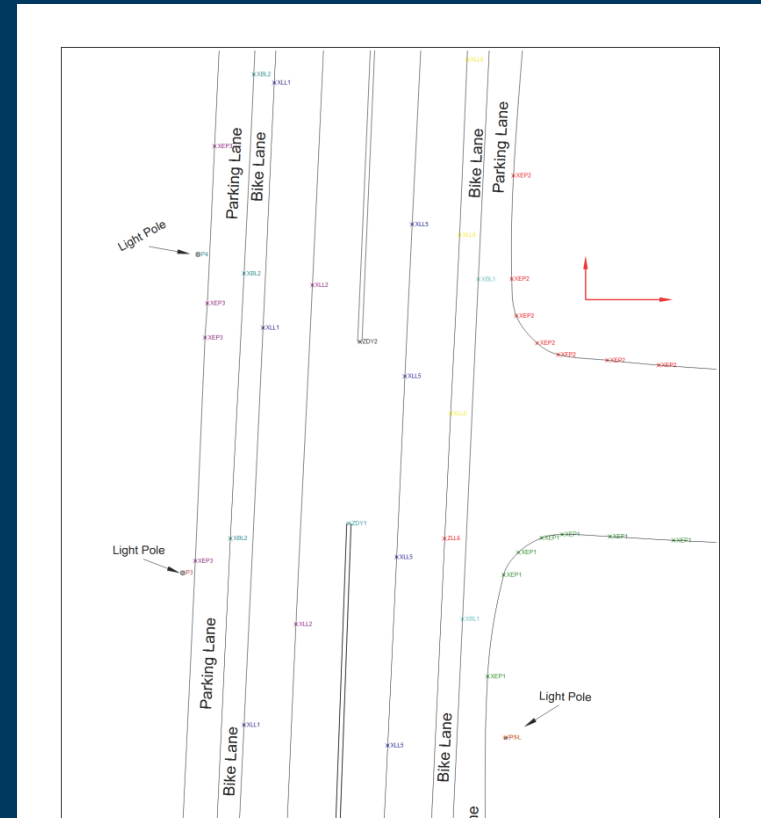
Improved Scene Data

- 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



Improved Scene Data

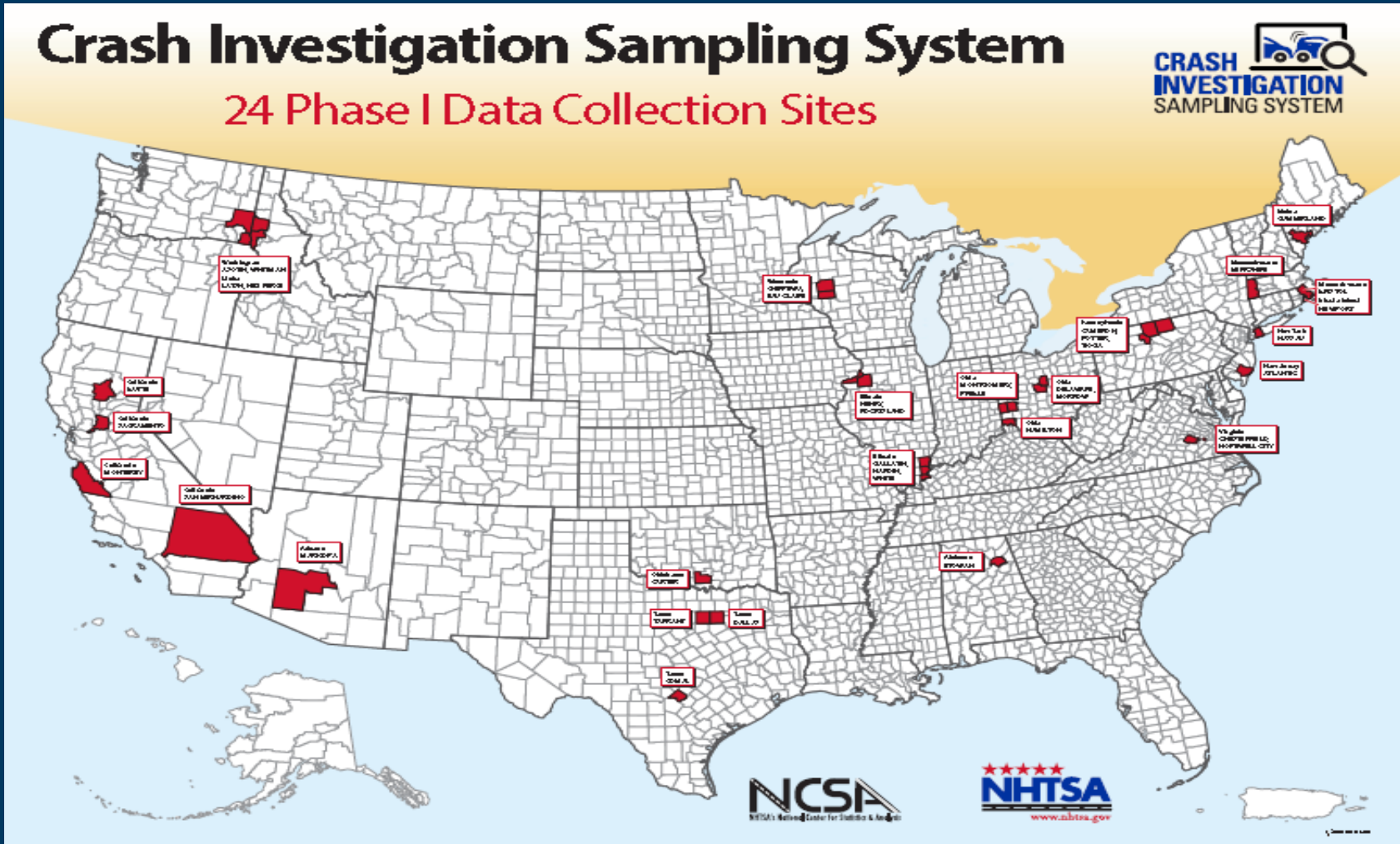
- Future
 - Scaled diagrams
 - Accurate measurements
 - Capability for user to create 3-D renderings of crash sites



New CISS Data Collection Sites

Crash Investigation Sampling System

24 Phase I Data Collection Sites



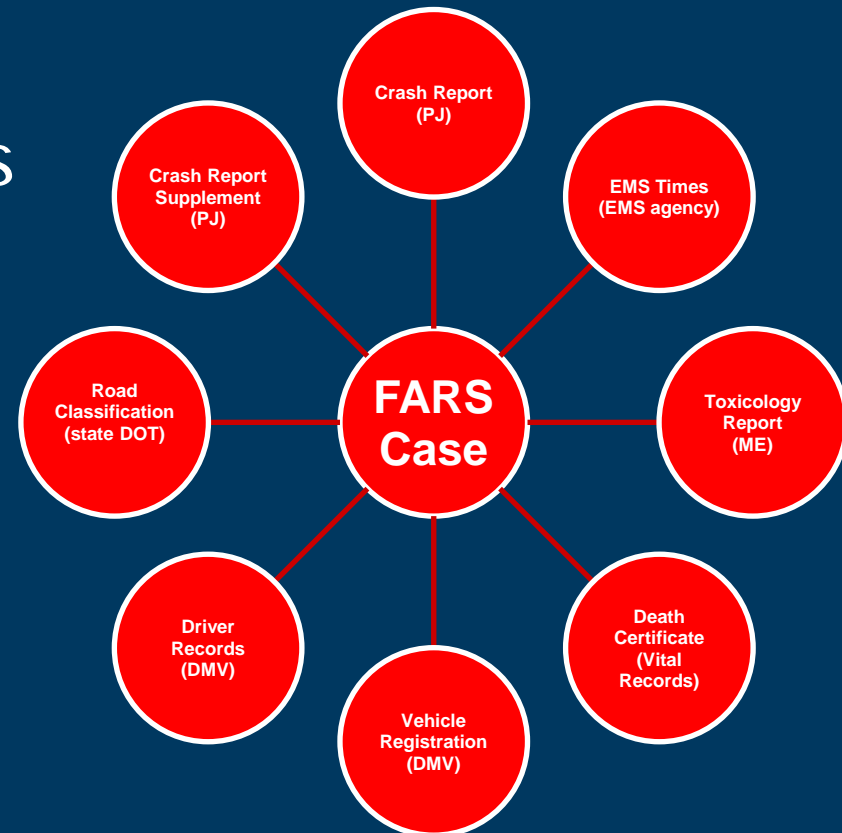
Fatality Analysis Reporting System (FARS)

- What is FARS
 - Data derived from 50 states, the District of Columbia, and Puerto Rico.
 - Developed by the National Center for Statistics and Analysis in 1975
- How Does FARS Work
 - Cooperative agreement
 - Trained state employees collect data
- What Data is Included
 - Coded: Crash, pre-crash, vehicle, driver, person, non-occupant
 - Personal identifiers not recorded
- Uses of FARS Data
 - Traffic safety legislation
 - Vehicle safety designs



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

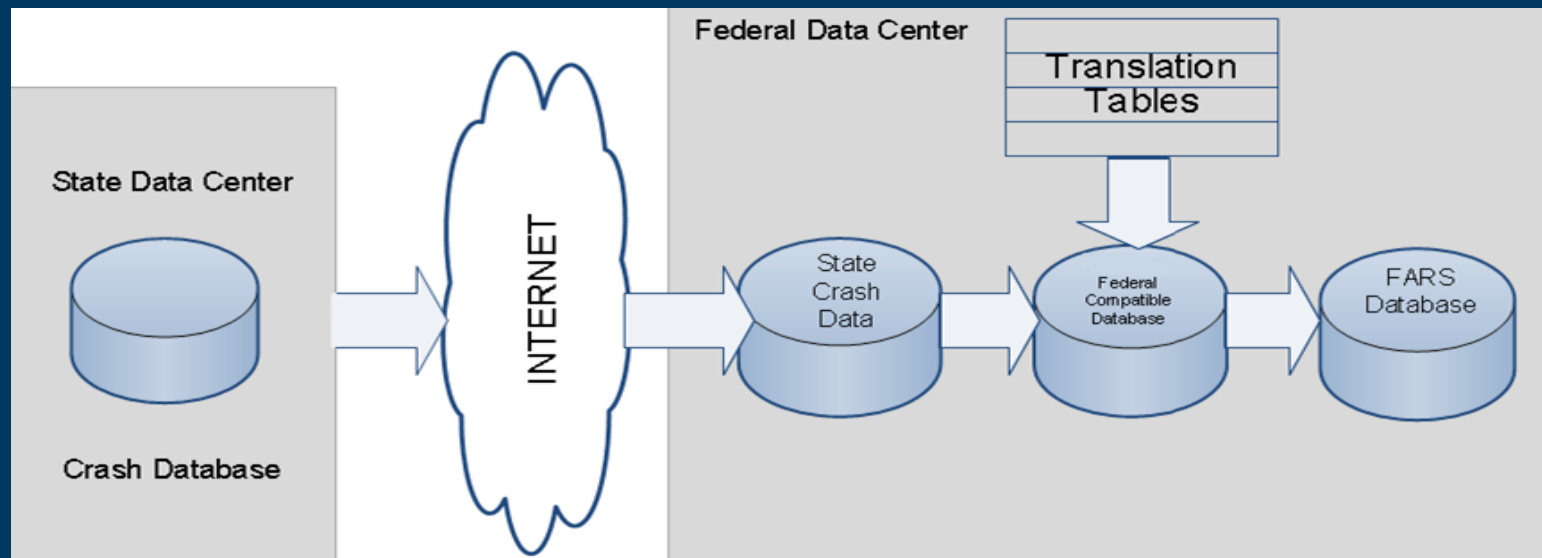


New Platform / New Technologies (Cont')

- Consolidated Server Platform
- Data Standardization Among Studies (e.g., Vehicle Specifications)
 - Electronic Data Transfer (EDT)
 - Product Information Catalog and Vehicle Listing (vPIC)
- Capability of automatically pre-coding data from State-based systems
- Improved output to NHTSA website aimed at improvement of data user experience

Electronic Data Transfer (EDT)

- Concept of Operation
 - Transfer Crash data electronically from State to Federal database
 - Transfer all crashes instead of just fatal crashes
- Success factors
 - Timeliness of data availability
 - Improved data quality



EDT Process – Concept of Operations

- Data will be transferred from the Maryland Crash Data System to NHTSA on a daily basis.
- All of the cases received by NHTSA are processed on a NIGHTLY basis.
 - Updates are made to data entry systems nightly.
- Each case is tagged with
 - Date case received from State
 - Date EDT Process updated the case

Pre-Code of FARS Cases (EDT)

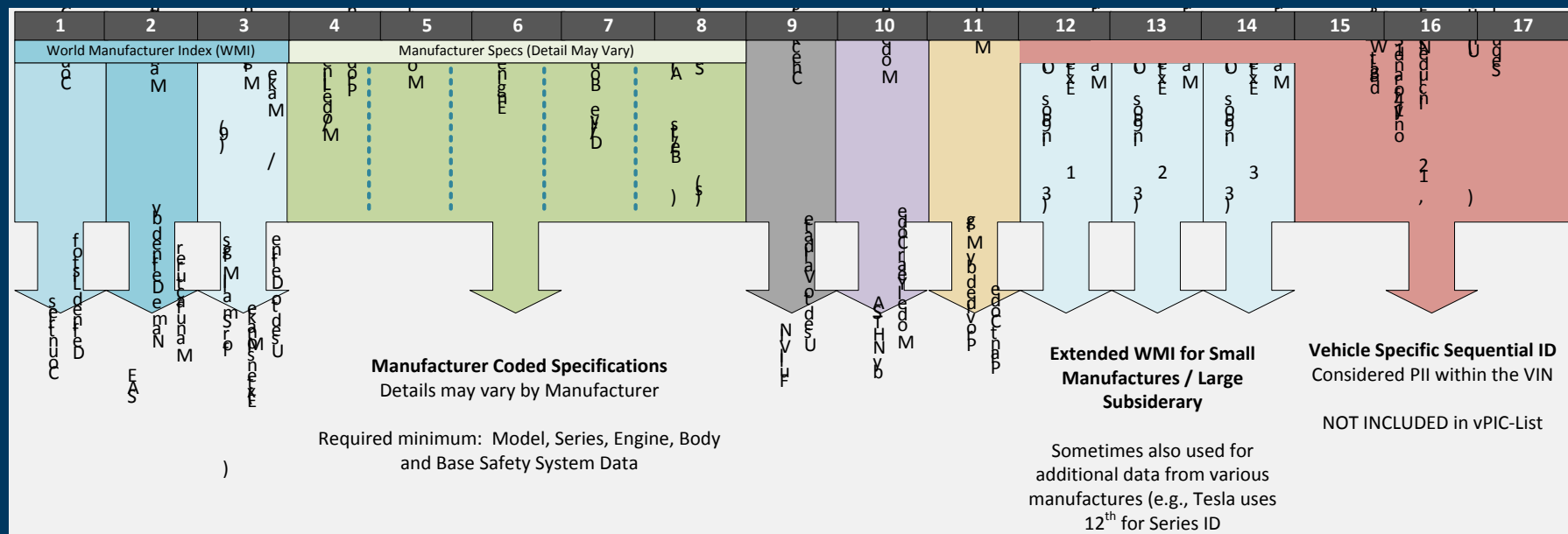
- Potentially EDT Can Pre-Code around 60-70% of Case Variables
- Reduced time for coding
- Improved time for analysis
- Improved quality
- Pre-code colored for confidence level (1-100%)
- Not all can be pre-coded
 - Case events
 - Death
 - Other

The screenshot displays the FARS Case Information form, which is pre-coded with various data points. The form is organized into several sections:

- Form Browser:** A tree view showing the hierarchy of forms: Crash - 0006, Vehicle_1, Driver_V1, Precrash_V1, Person_1_V1*, and Person_2_V1.
- Case Information:** Displays case details such as Year (2015), Status (Saved), EDT Case Status (New), Last Update By, State (5/12/2015 11:14 AM), EDT (5/22/2015 9:37 AM), and Analyst (5/12/2015 1:02 PM).
- Crash Information:** Includes fields for State # (51), Case # (0006), EN Case # (0007), EN Type (01), St Case # (150065048), and various form counts (Non-Occ, Veh, Occ).
- Vehicle Information:** Details for Vehicle 1, including Trafficway Identifier (RT. 678), Type of Intersection (01), Relation to Trafficway (06), Route Signing (4), Work Zone (0), Land Use and Functional Sys, Ownership, National Highway System (0), Special Jurisdiction, Mile Point, Global Position (F9), and Arrival Time EMS.
- Crash Events:** A section for recording crash events, including the first harmful event.

On the right side of the form, there are several action buttons: Print Case, Print Form, Print Blanks, Enter Early Notification, Check Case, Save Case, Close Case, Restructure Case, Request Data, Delete Case, Override, Crash Events, Crash Type, Clear Form, and Check Case All.

Product Information Catalog and Vehicle Listing (vPIC)



- Serves as a centralized authoritative data source for VIN associated, and VIN specific data:
 - Manufacture 565 Submittals – Primary Source
- Standard Used for Key Data Elements
 - Based on CFR 49 Sections 500-599 – Part 565 Vehicle Identification Number (VIN)
 - Passenger Vehicles, Multi-Purpose Vehicles, Motorcycles, Trucks, Buses, Low Speed Vehicles, & Trailers

vPIC Public Interfaces

- Vehicle VIN Decoding
 - Single / Batch
 - VIN Checking / Validation Services
- Manufacturer Lookup Data (First Stage – Part 566)
- Vehicle Decoding / Specification Research Reports
 - Over 110 Potential Vehicle Attributes

Edit Patterns
Pattern does not include WMI - start from position 4 in VIN

Schema: BMW Schema for WBS - 2005
Associated WMIs: WBS
Pattern: 1-3: WMI 4-8: Vehicle Description Section 9: CD 10-Year, 11-Plant, 12-17: Vehicle Identification Section

Load Clear All Close

Displaying data for Pattern = 9L93

General Exterior Interior Mechanical Engine Passive Safety System Active Safety System Internal

Make: BMW Plant Country:
Model: BMW / M3 Plant State:
Series: 3 - Series Plant City:

```
<Response>
<Count>102</Count>
<Message>Results returned successfully</Message>
<SearchCriteria>VIN:5UXWX7C5*BA</SearchCriteria>
</Results>
<DecodedVariable>
<VariableId>142</VariableId>
<Variable>Suggested VIN</Variable>
<Value>
</Value>
</DecodedVariable>
<DecodedVariable>
<VariableId>143</VariableId>
<Variable>Error Code</Variable>
<ValueId>1</ValueId>
</Value>
</DecodedVariable>
1 - VIN decoded clean. Check D
</Value>
</DecodedVariable>
<DecodedVariable>
<VariableId>144</VariableId>
```

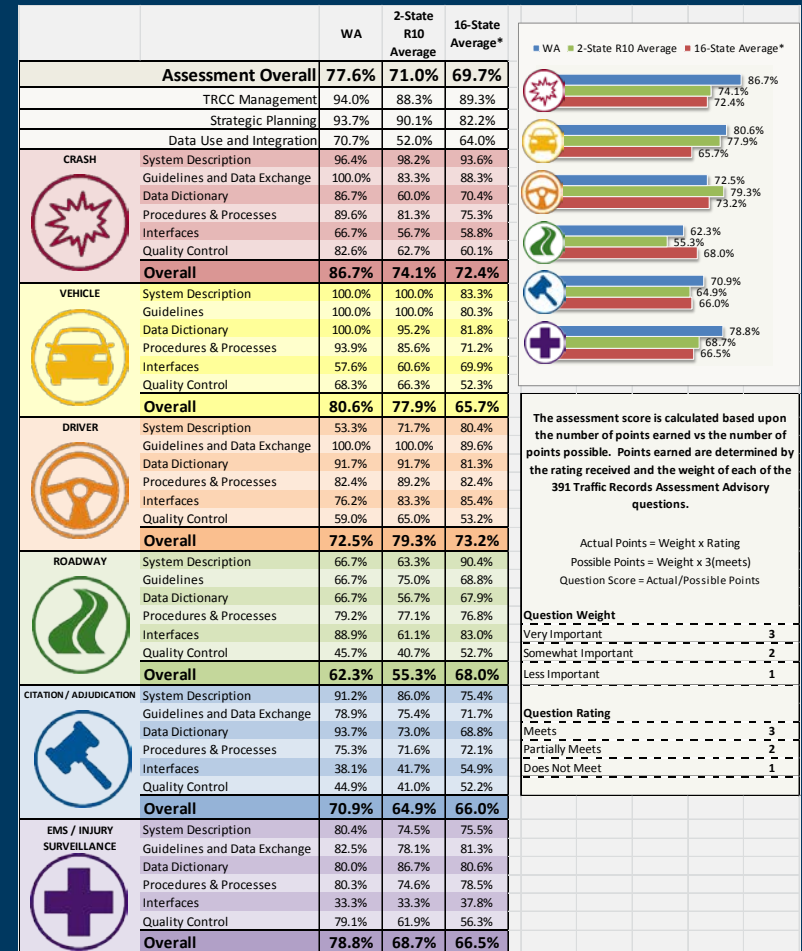
VIN to Decode
VIN: 5UXWX7C5*BA Model Year (optional):

Decoded Properties
Show 25 entries

Variable	Value	VinSchemaid	Keys	ElementId
Body Class	Truck	2850	"FP" "24"	5
Brake System Type	Hydraulic	2850	"VRP"	42
Class	Regular	2850	"FP" "24"	4
Engine (CC)	5400	2850	"FP" "245"	11
Engine (L)	329.52821811105	2850	"FP" "245"	12
Engine (L)	5.4	2850	"FP" "245"	13
Engine Type	4C2	2850	"FP" "2"	15
Engine Brake (hp)	300	2850	"FP" "245"	71
Engine Configuration	V-Shaped	2850	"FP" "245"	64
Engine Number of Cylinders	6	2850	"FP" "245"	9
Engine Power (kW)	402.30662700	2850	"FP" "245"	21

Improved Communication / Measures

- NHTSA is currently working on improved state assessments
- Expect EDT / vPIC to Result in Improvements in Data Standards
 - Improved compliance with MUCC
 - Improved data matching to NHTSA crash file outputs
 - Streamlined processes for state-level data



EDT Effectiveness Evaluation

- Will work with the state to determine the effectiveness of EDT
- Evaluation will include
 - Assessment of costs,
 - Activities required to bring to production, and
 - Cost / benefits of use
- Lessons Learned
- Areas of Opportunity
 - Potential reduction in reporting
 - Potential reduction in duplicative data transmissions (e.g., other DOT modes)

Safer drivers. Safer cars. Safer roads.

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