National Highway Traffic Safety Administration

Understanding Federal Crash Programs

+ Program Updates

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Overview

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

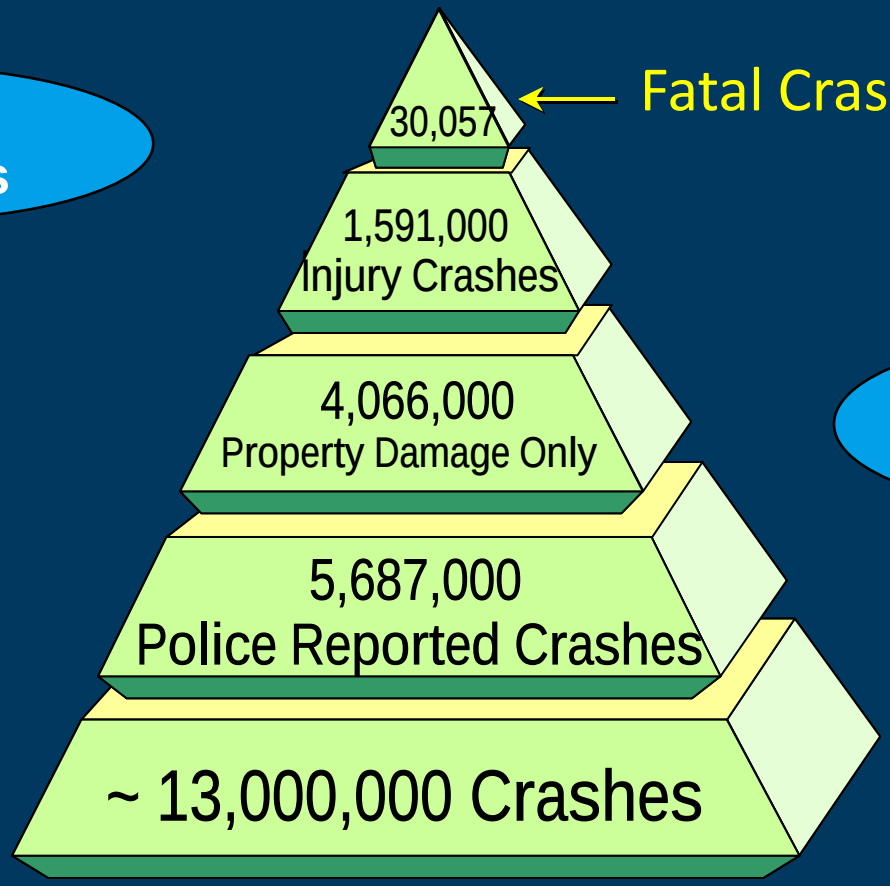
- Crash Report Sampling System (CRSS),
- Crash Investigation Sampling System (CISS),
- Fatality Analysis Reporting System (FARS) – Maryland, and
- NHTSA Electronic Data Transfer (EDT) programs.

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

32,719 Fatalities



2,313,000 People Injured

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

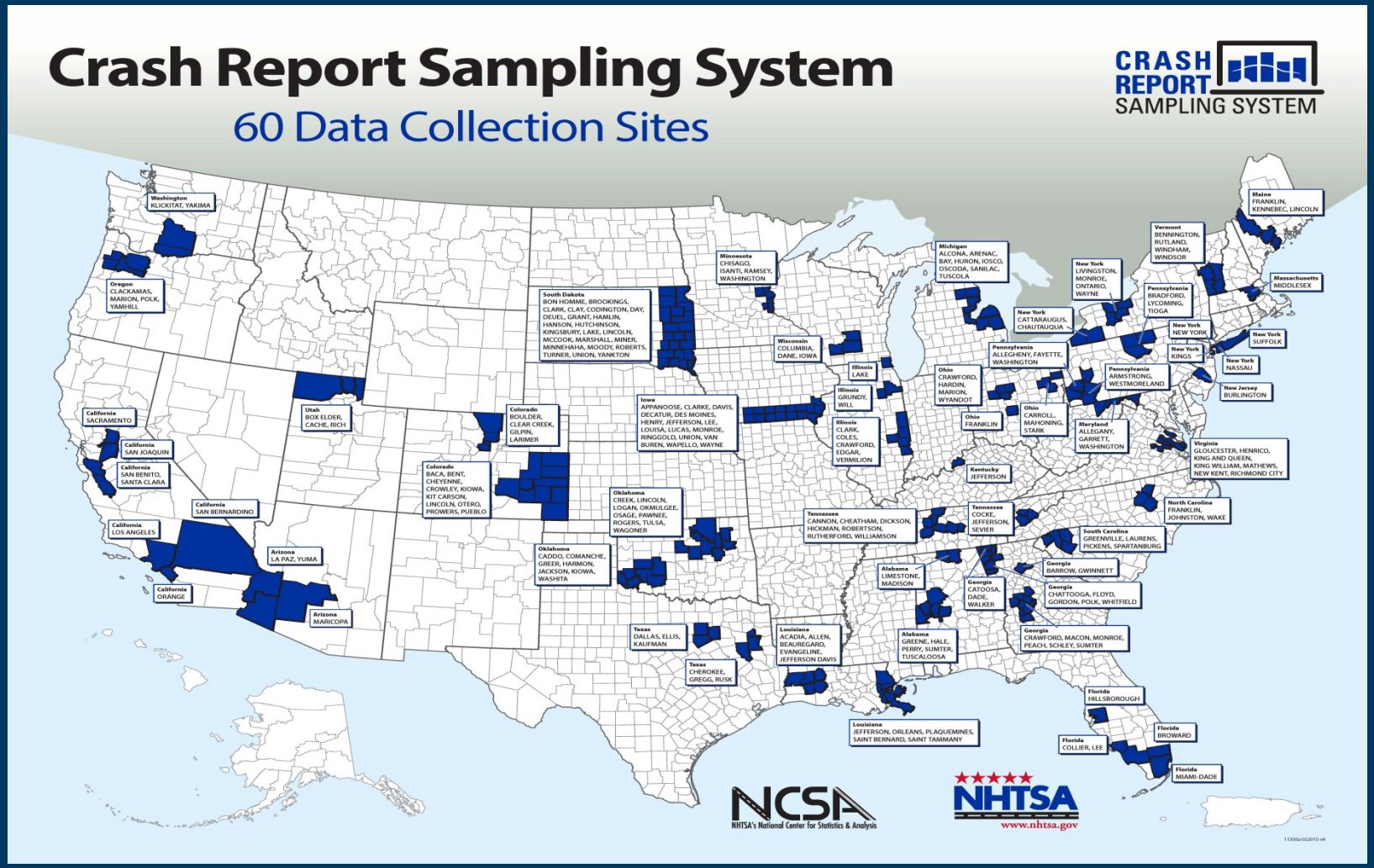
- For Sample-based Systems:
  - Probability-based (needed for rulemaking)
  - Two independent sample systems
  - Completed the 3-stage sample design and selected the first and second stage sites
  - No intentional overlap between “old” NASS and “new” data collection sites
  - Flexibility to add special 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

<u>Purpose</u>: To monitor large scale crash trends and broad crash characteristics

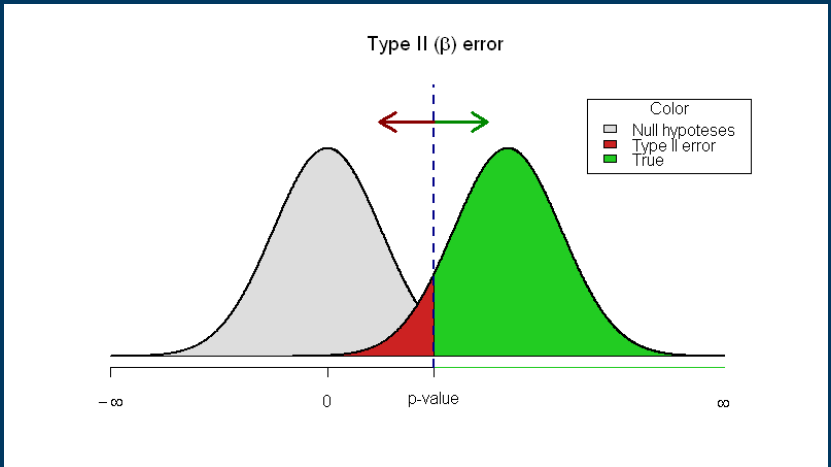
New CRSS Data Collection Sites



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

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

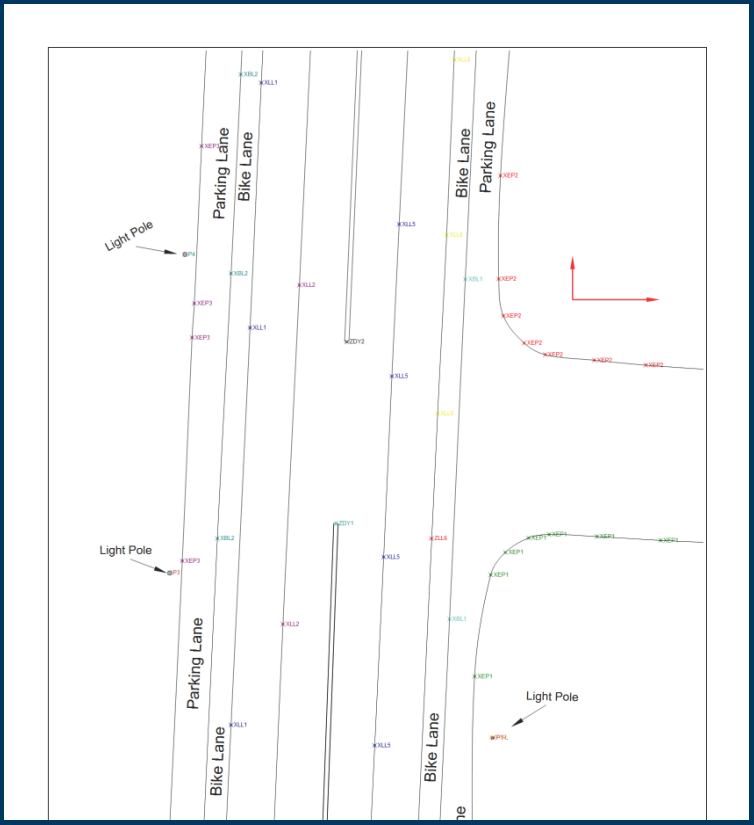


Improved Scene Data

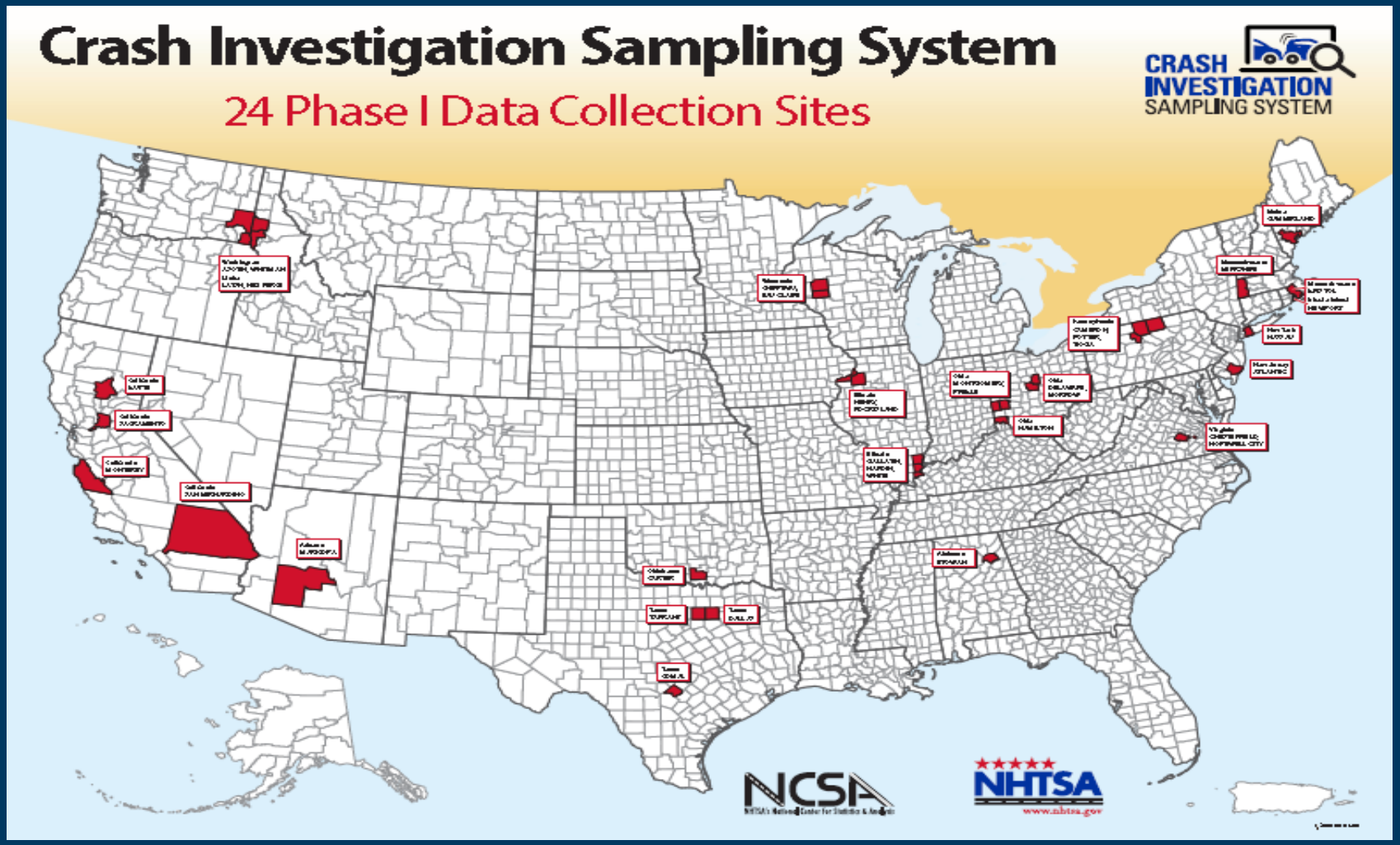
- Future
  - Electronic Distance Measuring Instrument
  - Off-road operations
  - SAFE!
  - More accurate
  - Provides scaled scene data
  - Capable of importing into any CAD program for 3-D renderings

Improved Scene Data

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



New CISS Data Collection Sites

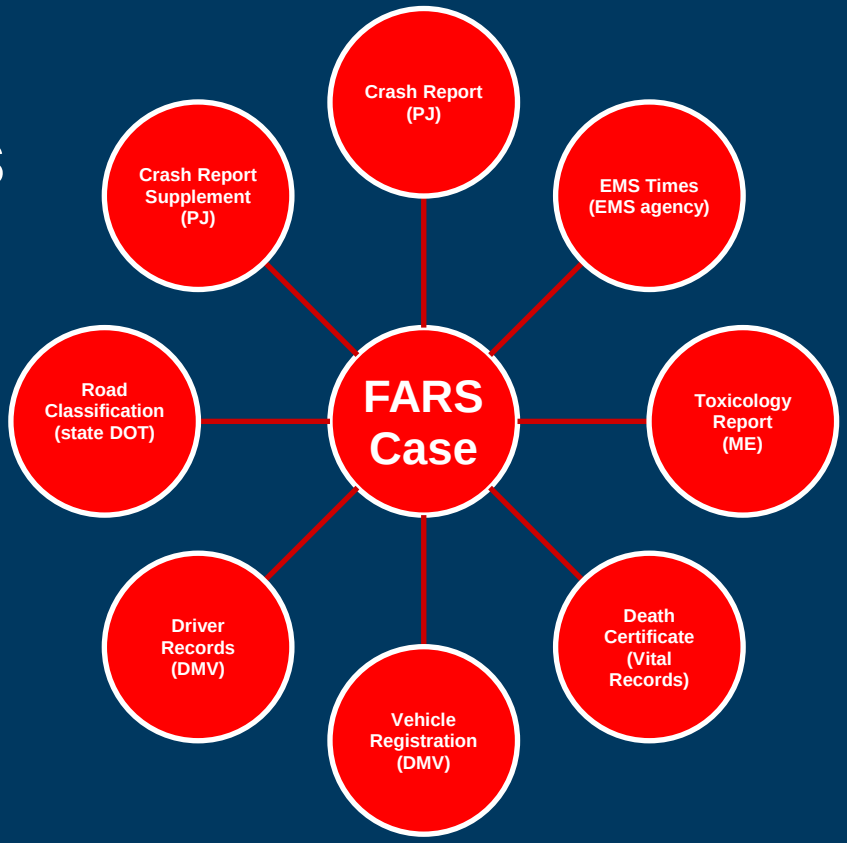


Fatality Analysis Reporting System (FARS)

- 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

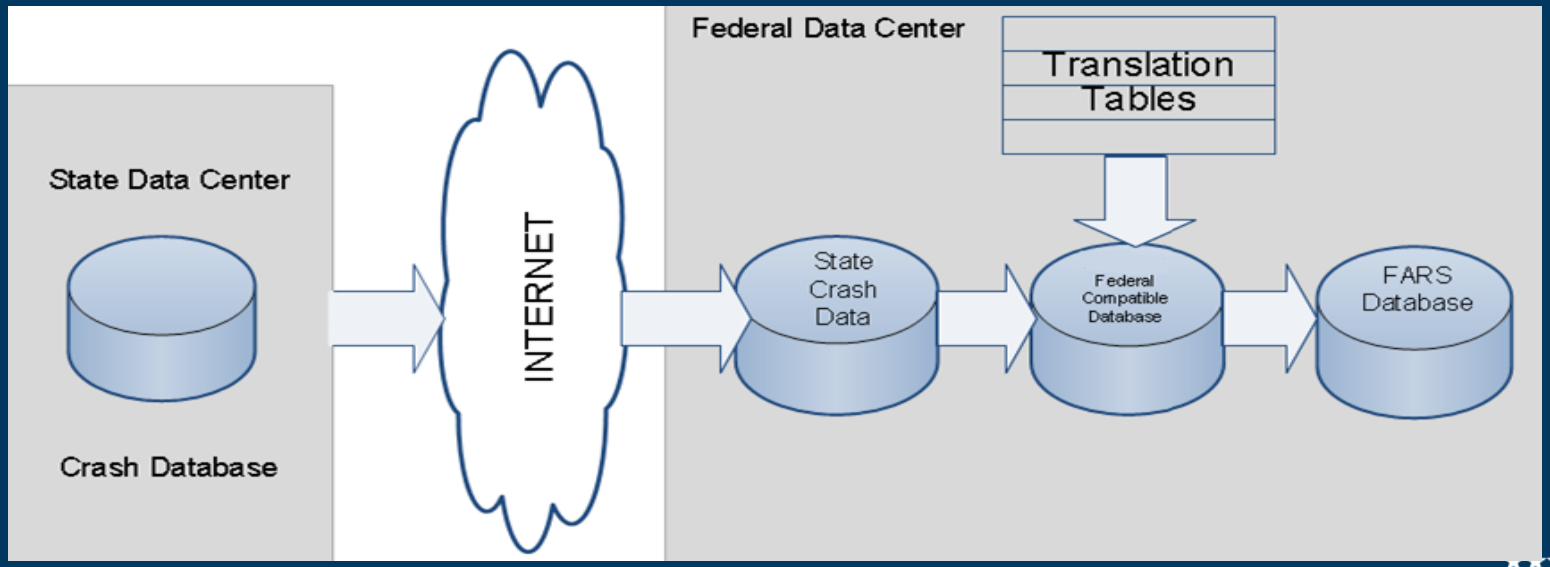


New Platform / New Technologies (Cont')

- 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



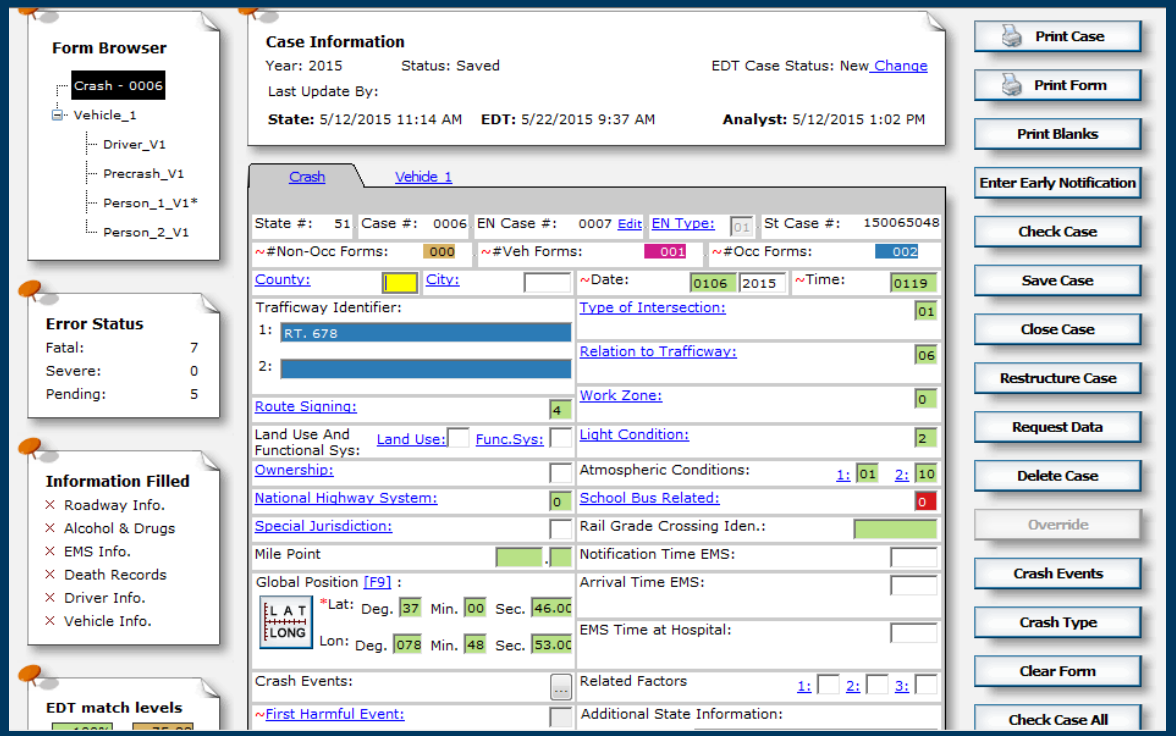
EDT Process – Concept of Operations

- 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

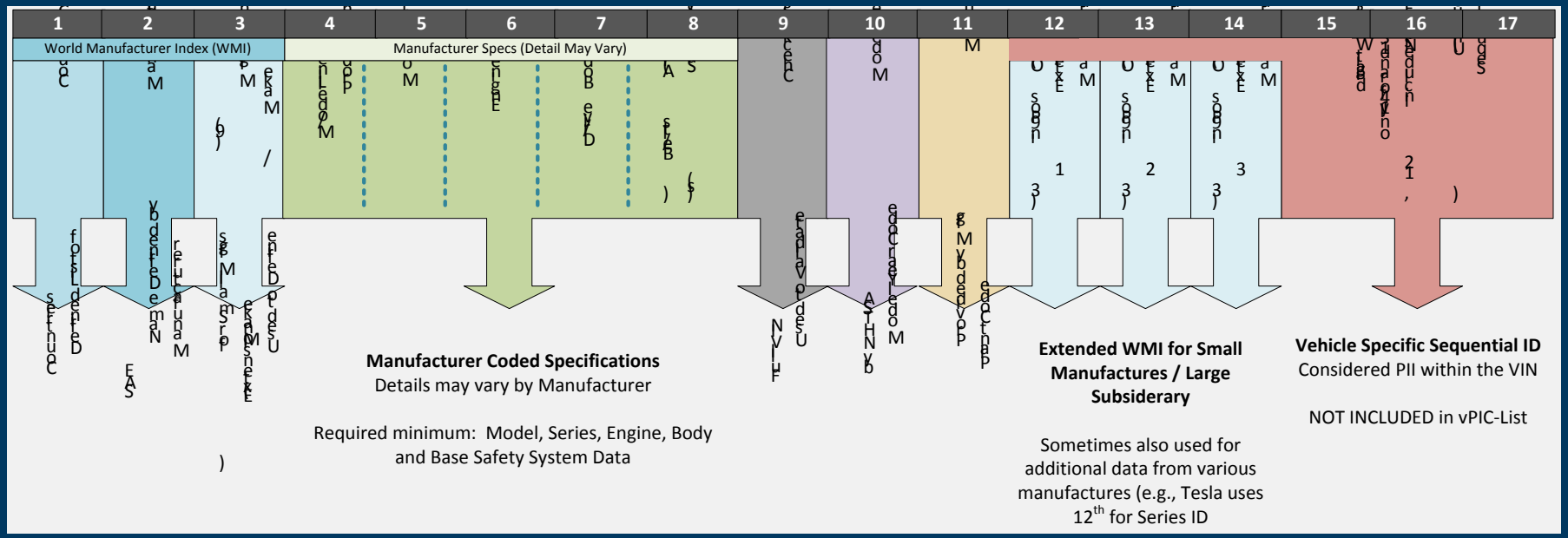
Pre-Code of FARS Cases (EDT)

- 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



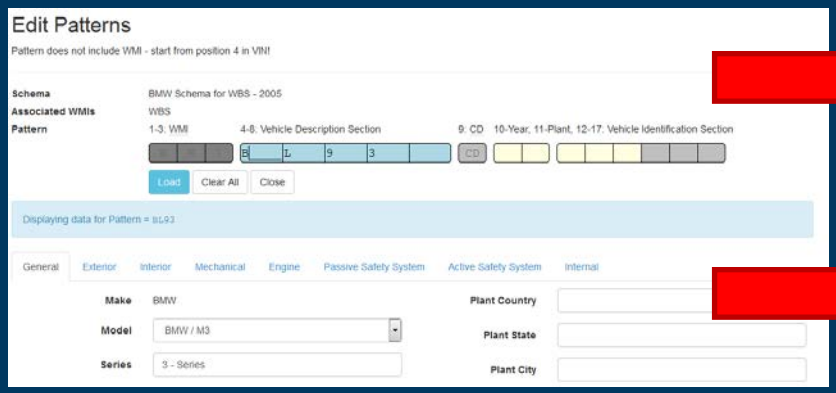
Product Information Catalog and Vehicle Listing (vPIC)

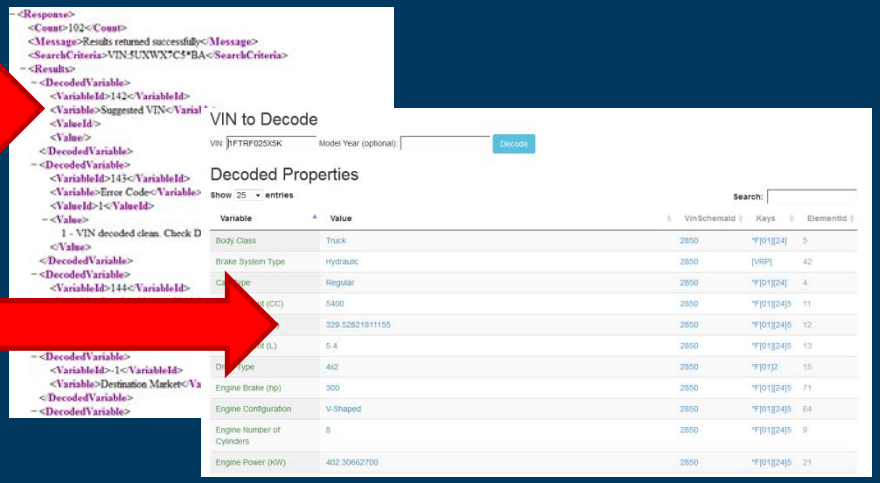


- Serves as a centralized authoritative data source for VIN associated, and VIN specific data:
  - Manufacture 565 Submittals – Primary Source
- Standard Used for Key Data Elements
  - Based on CFR 49 Sections 500-599 – Part 565 Vehicle Identification Number (VIN)
  - Passenger Vehicles, Multi-Purpose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

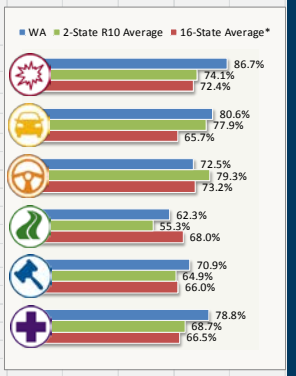




Improved Communication / Measures

- 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

		WA	2-State R10 Average	16-State Average*
	Assessment Overall	**77.6%**	**71.0%**	**69.7%**
	TRCC Management	94.0%	88.3%	89.3%
	Strategic Planning	93.7%	90.1%	82.2%
	Data Use and Integration	70.7%	52.0%	64.0%
CRASH	System Description	96.4%	98.2%	93.6%
	Guidelines and Data Exchange	100.0%	83.3%	88.3%
	Data Dictionary	86.7%	60.0%	70.4%
	Procedures & Processes	89.6%	81.3%	75.3%
	Interfaces	66.7%	56.7%	58.8%
	Quality Control	82.6%	62.7%	60.1%
	Overall	**86.7%**	**74.1%**	**72.4%**
VEHICLE	System Description	100.0%	100.0%	83.3%
	Guidelines	100.0%	100.0%	80.3%
	Data Dictionary	100.0%	95.2%	81.8%
	Procedures & Processes	93.9%	85.6%	71.2%
	Interfaces	57.6%	60.6%	69.9%
	Quality Control	68.3%	66.3%	52.3%
	Overall	**80.6%**	**77.9%**	**65.7%**
DRIVER	System Description	53.3%	71.7%	80.4%
	Guidelines and Data Exchange	100.0%	100.0%	89.6%
	Data Dictionary	91.7%	91.7%	81.3%
	Procedures & Processes	82.4%	89.2%	82.4%
	Interfaces	76.2%	83.3%	85.4%
	Quality Control	59.0%	65.0%	53.2%
	Overall	**72.5%**	**79.3%**	**73.2%**
ROADWAY	System Description	66.7%	63.3%	90.4%
	Guidelines	66.7%	75.0%	68.8%
	Data Dictionary	66.7%	56.7%	67.9%
	Procedures & Processes	79.2%	77.1%	76.8%
	Interfaces	88.9%	61.1%	83.0%
	Quality Control	45.7%	40.7%	52.7%
	Overall	**62.3%**	**55.3%**	**68.0%**
CITATION / ADJUDICATION	System Description	91.2%	86.0%	75.4%
	Guidelines and Data Exchange	78.9%	75.4%	71.7%
	Data Dictionary	93.7%	73.0%	68.8%
	Procedures & Processes	75.3%	71.6%	72.1%
	Interfaces	38.1%	41.7%	54.9%
	Quality Control	44.9%	41.0%	52.2%
	Overall	**70.9%**	**64.9%**	**66.0%**
EMS / INJURY SURVEILLANCE	System Description	80.4%	74.5%	75.5%
	Guidelines and Data Exchange	82.5%	78.1%	81.3%
	Data Dictionary	80.0%	86.7%	80.6%
	Procedures & Processes	80.3%	74.6%	78.5%
	Interfaces	33.3%	33.3%	37.8%
	Quality Control	79.1%	61.9%	56.3%
	Overall	**78.8%**	**68.7%**	**66.5%**



The assessment score is calculated based upon the number of points earned vs the number of points possible. Points earned are determined by the rating received and the weight of each of the 391 Traffic Records Assessment Advisory questions.

Actual Points = Weight x Rating
Possible Points = Weight x 3(meets)
Question Score = Actual/Possible Points

Question Weight	
Very Important	3
Somewhat Important	2
Less Important	1

Question Rating	
Meets	3
Partially Meets	2
Does Not Meet	1

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)

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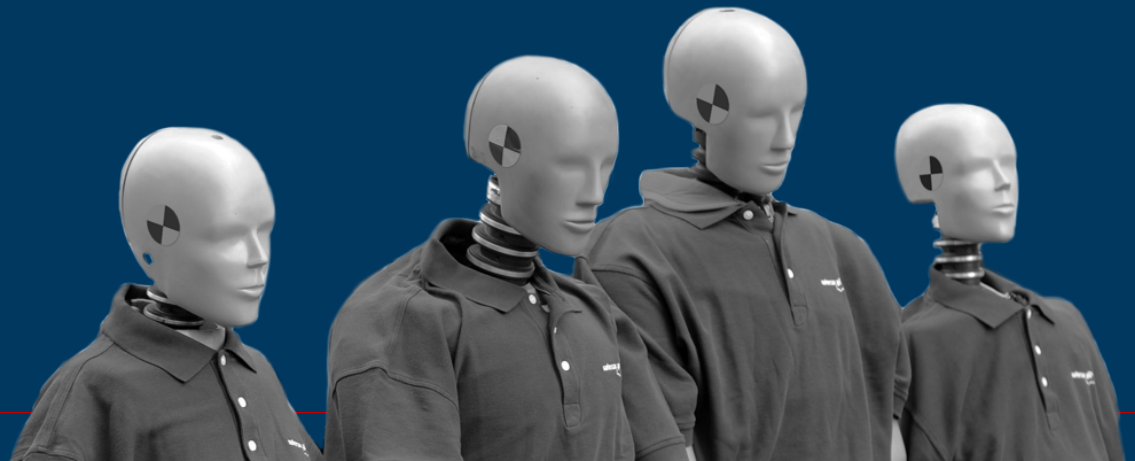
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