Overview of FMCSA Data Quality Programs

CSA 2010 Listening Session
October 16, 2008

FMCSA
AnalysisDivision

Data Quality Program

Motor Carrier Safety Assistance Program (MCSAP)

- Federal grant program for all States, Territories and the District of Columbia.
- To reduce the number commercial vehicle related fatalities and injuries on our nations highways.

FMCSA
AnalysisDivision

Data Quality Program

Purpose

- Authorized by the STAA of 1982 as a discretionary grant-in-aid program to the States initially for roadside inspections only.

- Purpose:
  - eliminate the "patchwork quilt" of State regulations
  - establish a uniform and reciprocal system for enforcing the Federal Motor Carrier Safety Regulations (FMCSRs) & Federal Hazardous Materials Regulations (FHMRs)

History

- Started in 1984 with only four States

- Presently includes all 50 States, DC, Puerto Rico, the U.S. possessions, and several local agencies as direct recipients of MCSAP funding.

- In addition, many county and municipal agencies (funded or not) perform FMCSA-approved inspection activities in support of their overall State safety program.

FMCSA
AnalysisDivision

Data Quality Program

Basic Grants

- State Eligibility Requirements
  - Adopt State laws compatible with the FMCSRs & FHMRs
  - Prepare a Commercial Vehicle Safety Plan (CVSP)
  - Agree to meet certain conditions to receive funding
    - Coordination of CVSP, data collection and information systems, with State highway safety programs
    - Participation in SAFETYNET and other data systems
    - Establish program to ensure accurate, complete, and timely motor carrier safety data collection and reporting
    - Participate in national motor carrier safety data correction program
    - Promote activities in support of MCSAP National Program Elements

- National Program Elements
  - Driver/Vehicle Inspections
  - Traffic enforcement
  - Compliance reviews
  - Public education and awareness
  - Data collection

Data Quality Program

Incentive Grants

- Distributed by "Shares" earned in 5 performance areas:
  - Reduction in the # of fatal accidents involving CMVs (5 shares)
  - Reduction in the CMV-involved fatal accident rate (4 shares)
  - Verification of CDLs during roadside inspections (2 shares)
  - Upload CMV roadside inspection data within FMCSA policy guidelines (2 shares)
  - Upload CMV accident data within FMCSA policy guidelines (2 shares)

FMCSA
AnalysisDivision

Data Quality Program

High Priority Grants

- Provided to States and Localities to support national priorities for CMV safety and compliance

- Eligibility
  - Must address identified data quality issues before other HP projects will be considered for funding

MCSAP Supported Activities

- MCSAP funds support…
  - 9,000 roadside inspectors; 3M roadside inspections in '07
  - CMV traffic enforcement
  - State-conducted CRs
  - New Entrant Safety Audits
  - Uniform application of safety regulations
  - More consistent penalties State to State
  - Improved driver/vehicle compliance
  - Maintenance of national safety databases (e.g., vehicle inspection and CMV accident databases)

FMCSA AnalysisDivision

Data Quality Program

Data Quality Program

- **DQ Evaluation and Monitoring**
  - State Safety Data Quality (SSDQ)
  - State Crash Data Analysis
- **DQ Improvement**
  - State Reviews
  - Technical Assistance
  - Analysis and Improvement of State Police Accident Reporting (PAR)
  - Training
  - Funding
- **Data Correction**
  - DataQs
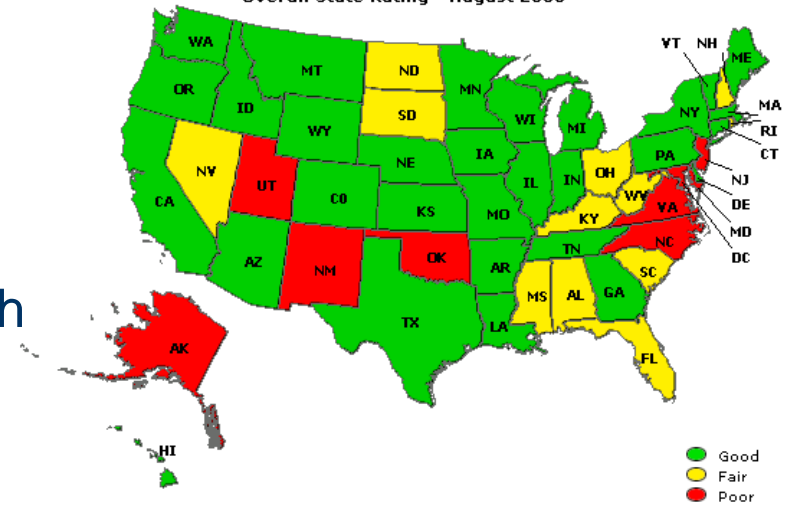 - FARS/MCMIS Matching Tool

Data Quality Program

EVALUATION AND MONITORING

DATA IMPROVEMENT

DATA CORRECTION
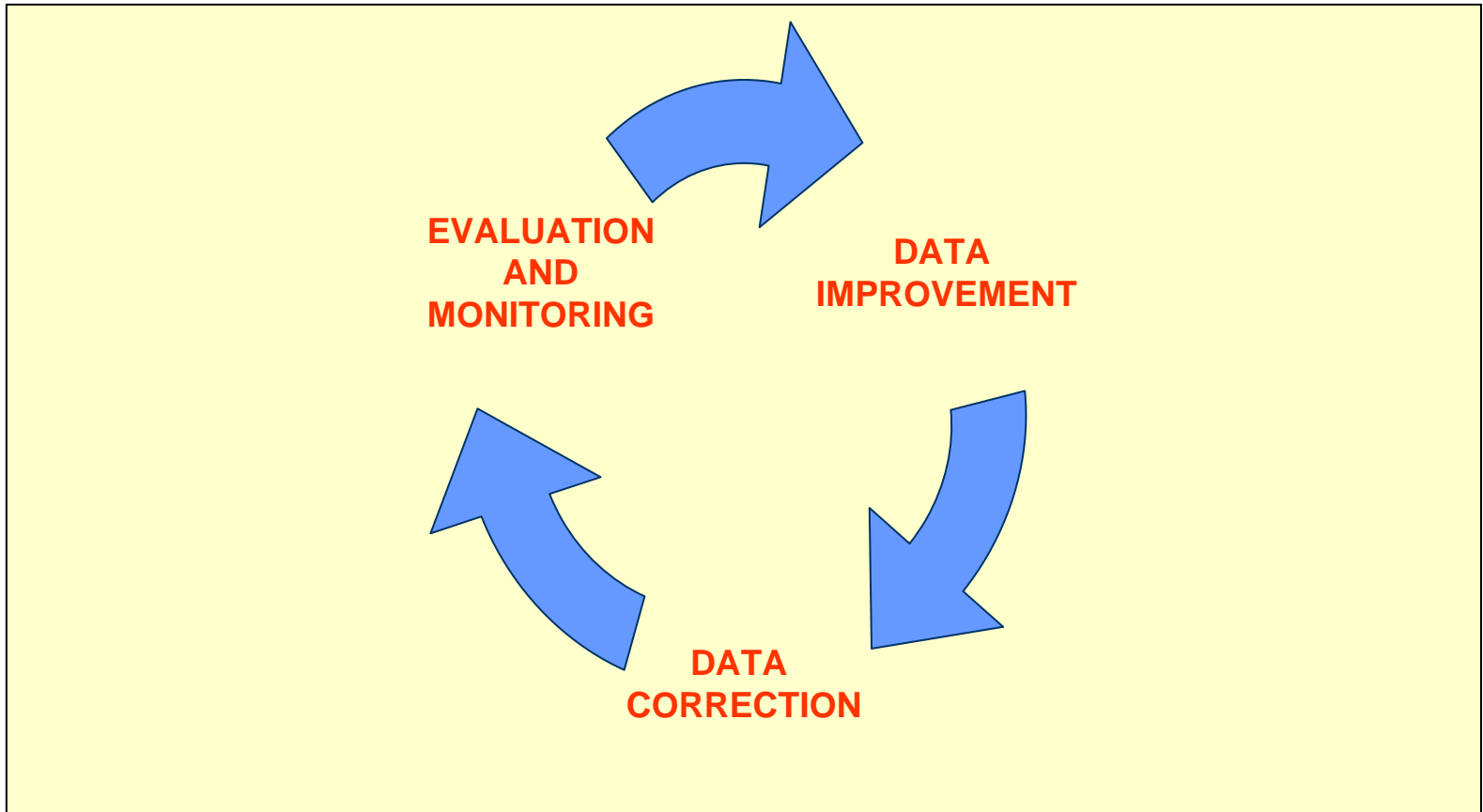
DQ Evaluation
State Safety Data Quality (SSDQ)

August 2008 Evaluation Results

Overall State Rating - August 2008

- ● State data evaluation results – evaluates the completeness, timeliness, accuracy and consistency of State-reported crash and inspection data in MCMIS
  - ▪ 7 performance measures
  - ▪ 1 overriding indicator

- ● Monthly evaluation updates

- ● Historical perspective

Missouri: Crash Timeliness Measure

FMCSA AnalysisDivision

Data Quality Program
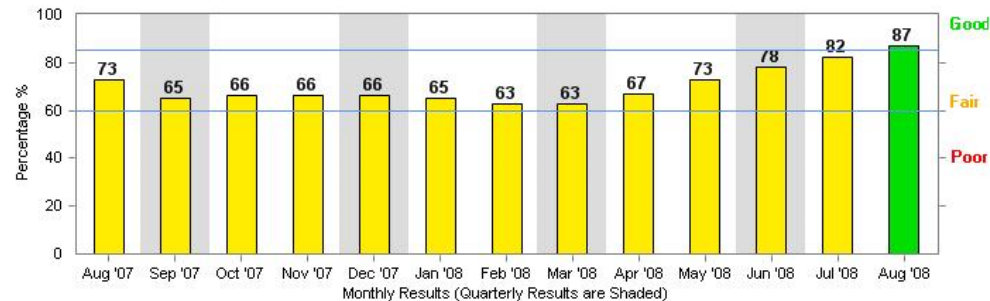
DQ Evaluation
Impact...State Safety Data Quality Evaluation

SSDQ Implemented
(March 2004)

3-yr Improvement
(June 2007)
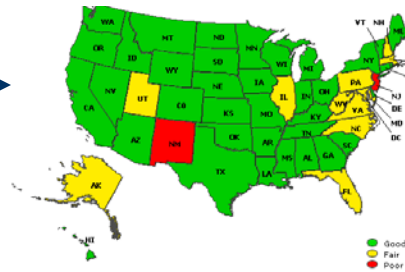
New Measures
(September 2007)

11-month Improvement
(August 2008)

	# States			
	Mar 2004	**Jun 2007**	**Sep 2007**	**Aug 2008**
Good	24	38	27	30
Fair	13	10	16	12
Poor	14	3	8	9

FMCSA AnalysisDivision

Data Quality Program

DQ Evaluation
State Crash Data Analysis

EVALUATION OF IOWA CRASH DATA
REPORTED TO MCMIS CRASH FILE

DANIEL BLOWER
ANNE MATTESON

- Evaluation of State Crash Reporting
- Reports available online
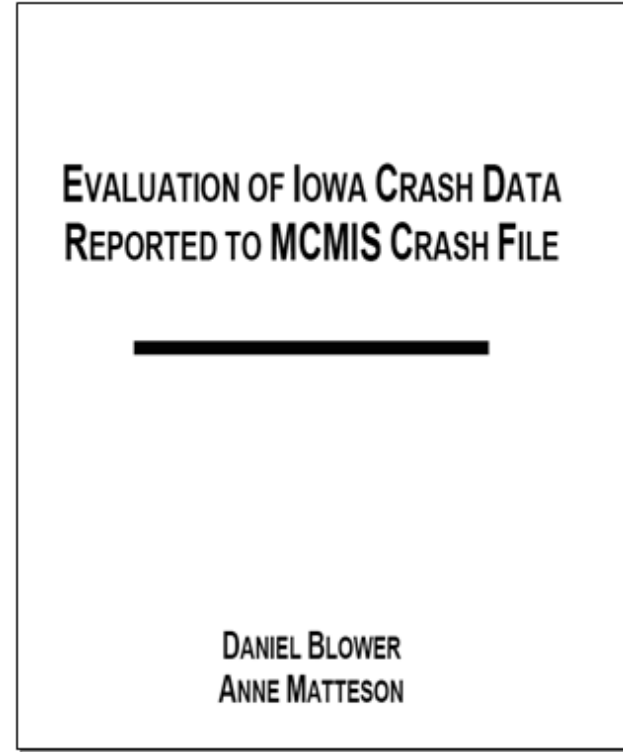
27 States
SC, ME, KY, ID, GA, CT, AL, IN, PA, AZ, TN, SD,
NE, LA, OH, MO, IA, MD, WA, IL, NC, NJ, FL, MI, AR

FMCSA
AnalysisDivision

Data Quality Program

Data Improvements
State Reviews

The State Review Process

Month 1	Month 2	Month 3
Define the Data Collection Process	Identify Bottlenecks & Constraints	Submit Recommendations

FMCSA *AnalysisDivision*

Data Quality Program
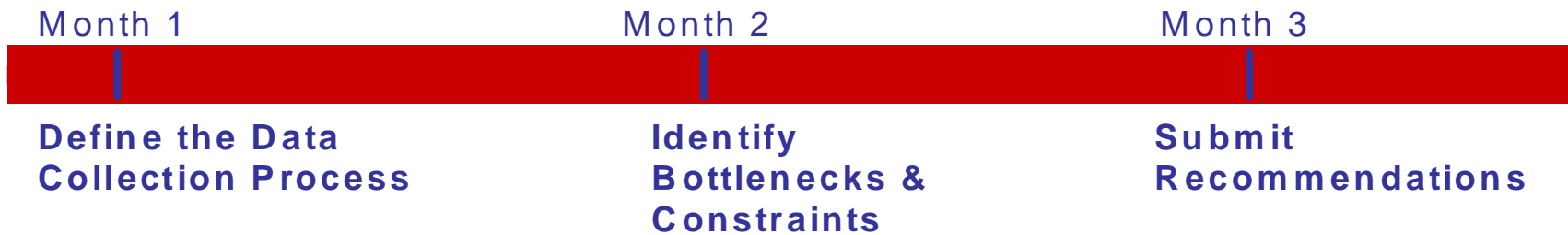
Data Improvements
State Reviews

NH, NC, PA, NJ, TN, LA, IN, MA, NM, IL, MD, WI,

Recommendation Categories

- Crash Form Improvements
- Electronic Collection at the Scene
- Extract Logic/Coding
- Criteria Applied for Hand-Selecting Crashes
- Tracking Reports Throughout the Process
- SAFETYNET Practices
- Empty Fields Research
- Organizational Coordination

FMCSA Analysis Division

Data Quality Program

Data Improvements
Technical Assistance
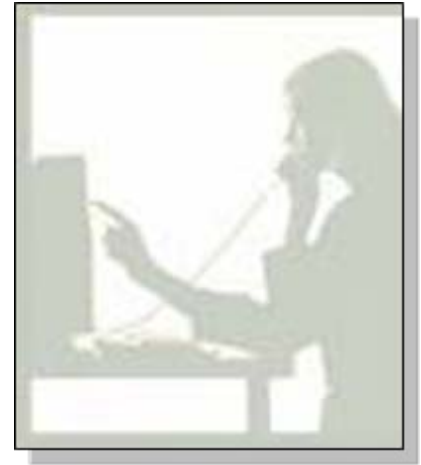
- Monitor SSDQ Evaluation Reports.
  - Review SSDQ Measures for improvement
  - Create/Analyze Custom Crash & Inspection Analysis Reports
  - Provide Information/Training to help improve SSDQ
  - Facilitate solutions to identified data quality improvement areas

FMCSA **AnalysisDivision**

Data Quality Program

Data Improvements
Analysis and Improvement of State Police Accident Reports (PARs)

Crash Data Collection Training

- On-site
- Online

Data Improvements
Funding

Safety Data Improvement
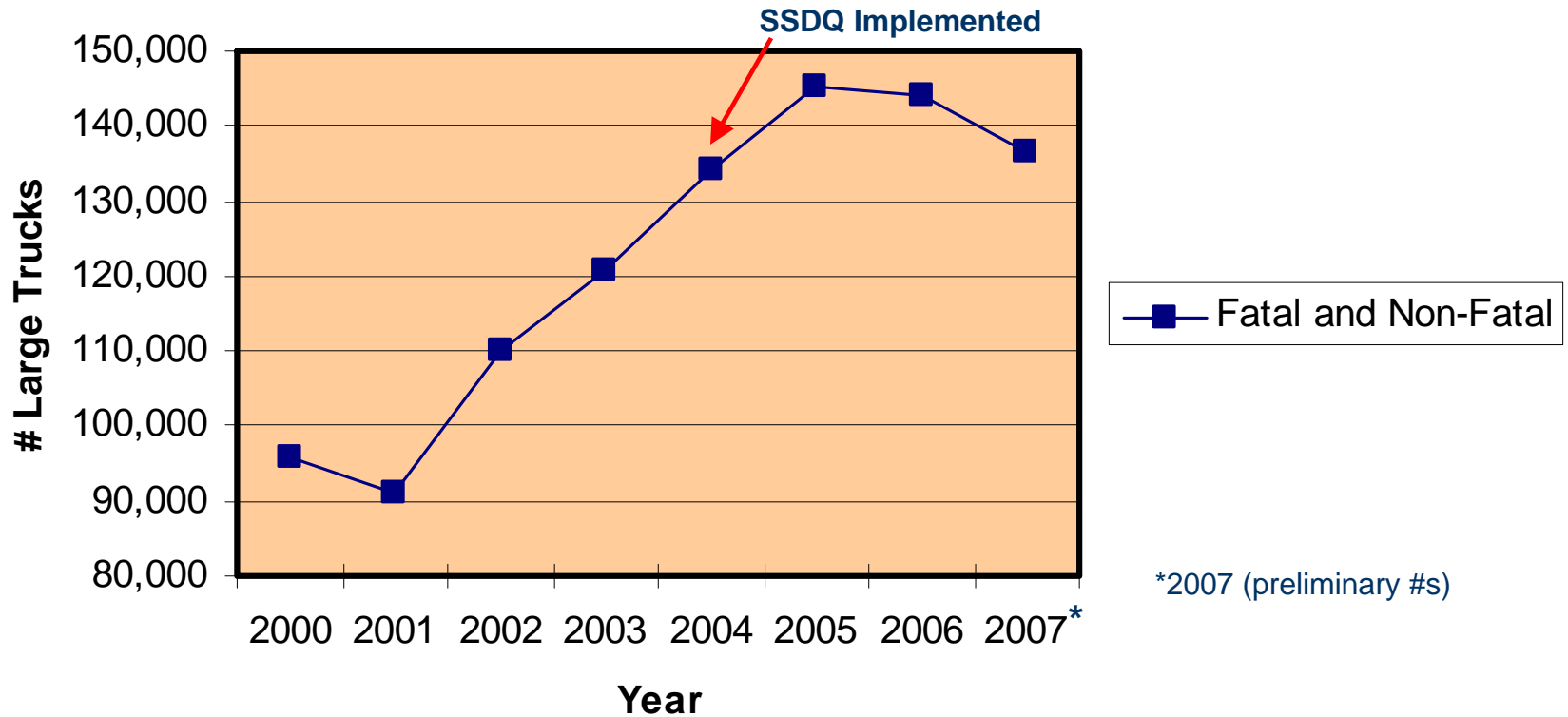Program (SaDIP) Grant
Funding

42 States

FMCSA AnalysisDivision

Data Quality Program

DQ Evaluation
Impact...Comprehensive Data Quality Program

Number of Large Trucks Involved in Fatal and Non-Fatal

*2007 (preliminary #s)

DQ Evaluation
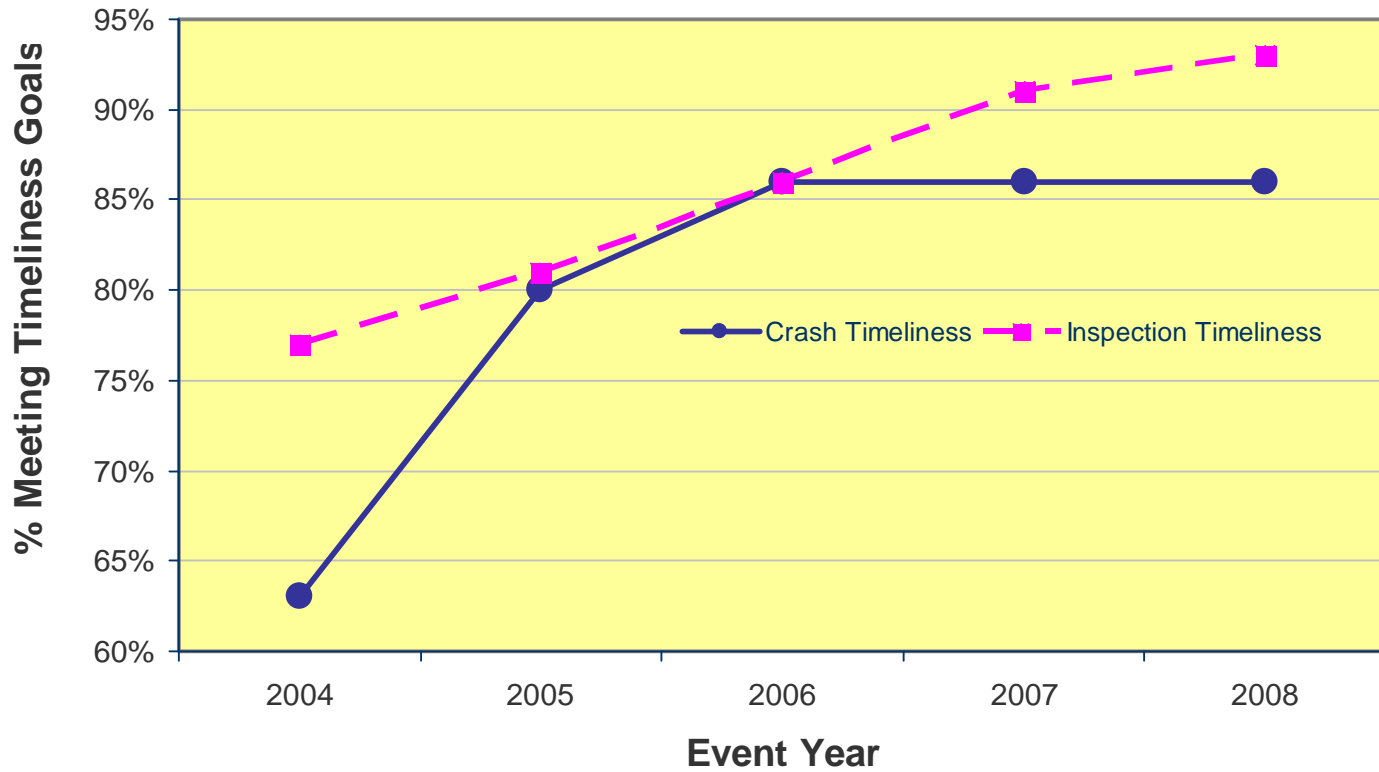## Impact...Comprehensive Data Quality Program

Crash and Inspection Reporting Accuracy Measure
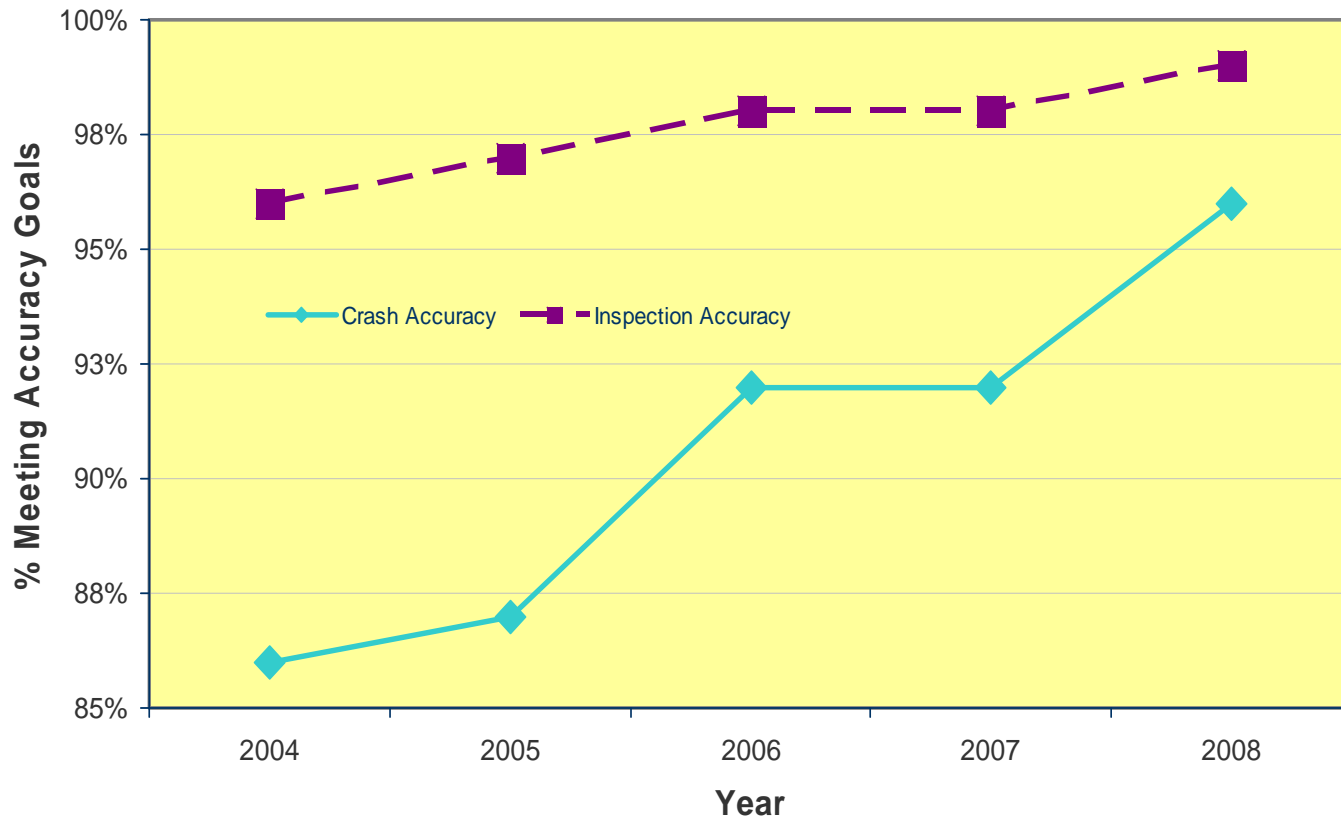
DQ Evaluation
Impact...Comprehensive Data Quality Program

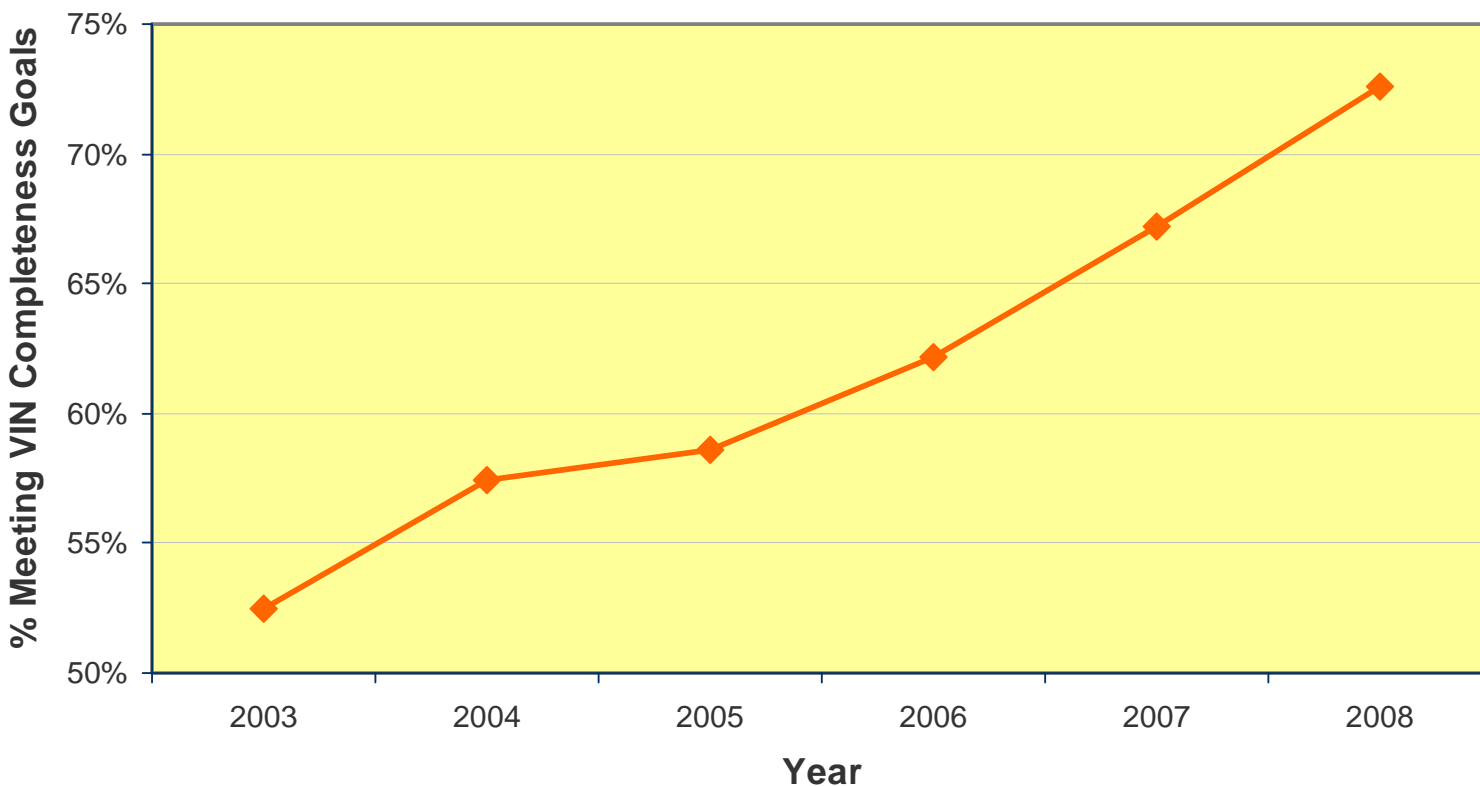**Crash and Inspection Reporting Timeliness Measure**

DQ Evaluation
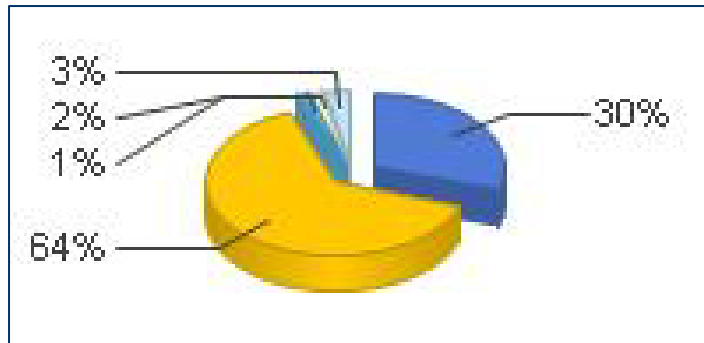## Impact...Comprehensive Data Quality Program

Completeness of Vehicle Identification Number (VIN)

Data Corrections
DataQs

DataQs Data Challenges
Feb 2004 – Sep 2008

Legend:
- Total Crash
- HHG Complaint - Duplicate (Two identical complaints)
- Carrier Information (MCS-150)
- Operating Authority (OP-1, OP-2)
- Insurance Information
- Interstate Carrier - Unregistered (No US DOT #)
- Inspection - Report Request
- HHG Complaint - Fraudulent (Did not do business)
- Total Inspection
- Compliance Review
- Safety Audit
- Enforcement Action
- Other

Pie chart values: 3%, 2%, 1%, 64%, 30%

~41,000 data challenges filed   (66% resulting in data updates)

~1,200 new challenges per month

~15,000 general public/motor carrier registrations

~350 new general public/motor carrier registrations per month

FMCSA Analysis Division

Data Quality Program

Data Corrections
FARS/MCMIS Fatal Crash Record Matching Tool

A tool designed to help reconcile differences between the number of fatal crash records in the FARS and MCMIS databases.

- "match" fatal large truck and bus crash records
- records must contain the same information in several key fields (e.g., county, date, time, VIN, DOT #, etc.).

National Results 🔓
Provides FARS to MCMIS (fatal crash records) matched counts across all States

Individual State Results 🔒
Provides FARS to MCMIS (fatal crash records) matched, potentially matched, and not matched records for each State

FMCSA AnalysisDivision

Data Quality Program

Future Program Improvements

- ## DQ Evaluation and Monitoring
  - Enhance SSDQ Evaluation
  - Release New Evaluation Reports
  - Continue State Crash Data Analysis

- ## DQ Improvement
  - Conduct more State Reviews
  - Expand Technical Assistance
  - Continue PAR Analysis and Training

FMCSA AnalysisDivision

Data Quality Program

WWW.FMCSA.DOT.GOV

Safety Data Analysis (A&I Online)

Jack Kostelnik

Jack.Kostelnik@dot.gov

Phone: 202-366-5721

Betsy Benkowski

Betsy.Benkowski@dot.gov

Phone: (202) 366-5387

FMCSA
AnalysisDivision

Data Quality Program

Federal Motor Carrier Safety Administration