

Fleet Data Quality

Understanding and Improving Your
Agency's FAST Fleet Data Quality Metric



We are...

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We'll cover...

- Thinking about fleet data quality
 - ... from a fleet manager's perspective
 - ... from FAST program's perspective
- Understanding FAST's review process
- Understanding FAST's data quality metric
- Improving fleet data quality
 - ... including FAST's data quality metric
- Q & A

Thinking about data quality

Fleet manager's perspective

- Complete?
- Correct?
- Current?
- Available?

FAST program's perspective

- Validation
- Review & feedback
- Quality metric

... all provide *some* insight into *some* those same aspects of quality

Understanding FAST's review process (1)

- **Data is validated as it is loaded in FAST**
 - Blocks data which *can't* be complete or correct
 - Flags data which *may* be suspect
- **Key points**
 - Understand the validation rules
 - Understand how to access validation results

Understanding FAST's review process (2)

- **FAST team reviews agency submission when complete**
 - High-level measures for year-to-year consistency
 - Vehicle-level measures for specific types of quality issues
 - Written feedback and detail provided to agencies
 - Opportunity for agency to respond and update submission
- **Key points**
 - Understand intent of review and feedback
 - Understand role of agency response to review

Understanding FAST's review process (3)

- **FAST team assembles “concerns per vehicle” metric**
 - Metric based on subset of validation flags and review measures
 - ... adjusted based on agency response to feedback
 - ... and divided by number of vehicles reported
- **Key points**
 - Understand what each included measure is looking at
 - Understand role of agency response to feedback

Understanding FAST's review process (4)

- **FAST team communicates metric to agency**
 - Provided to fleet POCs and agency leadership
 - Includes indication of improvement / regression
 - Includes comparison to overall federal fleet
 - Includes priority areas for agency improvement
- **Key points**
 - Is agency's submission getting better?
 - What are the key areas for improvement?

FAST's data quality metric (1)

- **Which validation warnings go into FAST's quality metric?**
 - OC-1.5: Vehicle acquisition cost inconsistencies
 - F-2-2: Fuel consumption inconsistent with vehicle fuel type/configuration
 - F-2.3: Vehicles consuming B100 w/o reporting diesel consumption
 - F-2.4: PHEVs reported w/o electricity consumption
 - F-4.6: Vehicles with questionable fuel efficiency (also review measure M6)
 - F-5.5: Vehicles with questionable high per-unit fuel cost

FAST's data quality metric (2)

- **Which review measures go into FAST's quality metric?**
 - M-6: Vehicles with questionable fuel efficiency (validation warning F-4.6)
 - M7: Year-to-year consistency of vehicle reporting
 - a) Vehicles with current-year acquisition dates also present in prior year submission (validation warning OW-1.3)
 - b) Vehicles with prior-year acquisition dates missing from prior year submission (validation warning OW-1.4)
 - c) Vehicles in current-year submission reported as disposals in prior-year submission (validation warning OW-4.4)
 - d) Vehicles in prior-year submission w/o disposal information missing in current-year submission
 - e) Vehicles in prior and current submissions with changes to static attributes (validation warning A-1.5)
 - M8: Vehicles with placeholder attributes

FAST's data quality metric (example)

Measure	FY 2020	FY 2021	FY 2022
Review Measure 7(a)	6	2 ↓	2 →
Review Measure 7(b)	144	54 ↓	111 →
Review Measure 7(c)	118	189 →	222 →
Review Measure 7(d)	83	102 →	35 ↓
Review Measure 7(e)	646	346 ↓	459 →
Review Measure 8	1,321	1,812 →	2,131 →
Validation warning OC-1.5	259	5 ↓	36 →
Validation warning F-2.2	414	399 ↓	326 ↓
Validation warning F-2.3	0	0 →	0 →
Validation warning F-2.4	53	57 →	53 ↓
Validation warning F-4.6	636	424 ↓	266 ↓
Validation warning F-5.5	400	1 ↓	172 →
Total Concerns	4,080	3,391	3,813
Vehicles Reported	8,139	8,370	8,549
Concerns per Vehicle (CpV)	0.50	0.41 ↓	0.45 →
Year-to-year Change in CpV	n/a	-0.09 ↓	+0.04 →

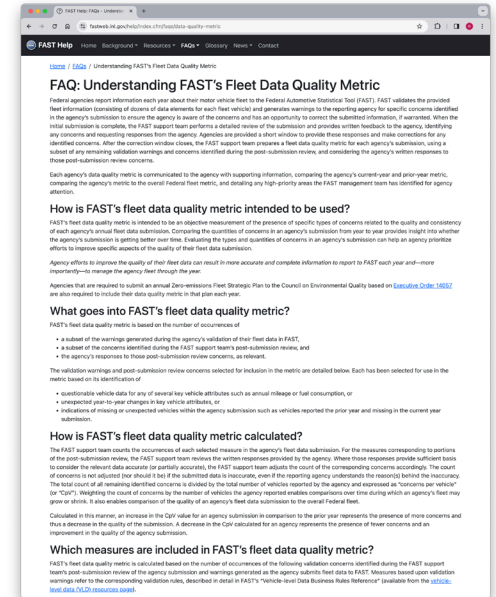
- Overall metric
 - Getting better or worse?
- Where are the concerns?
 - Getting better or worse?

FAST's data quality metric (more)

● FAQ in FAST's Help

- How is the metric intended to be used?
- What goes into the metric?
- How is the metric calculated?
- Which measures are included in the metric?
- An example
- How was the federal fleet scored in recent years?

- <https://fastweb.inl.gov/help/index.cfm/faqs/data-quality-metric>



Improving fleet data quality (1)

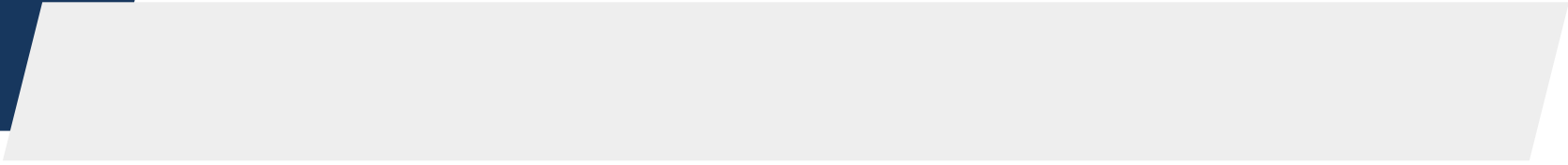
- **Prioritize improving data quality**
 - What's feasible?
 - What's most important?
 - Where are the biggest gains?
- **Measure it**
 - How can you tell if it is getting better?
 - Start measuring / monitoring early

Improving fleet data quality (2)

- **Find and fix problems at / close to the source**
 - Fix the *cause* of the problem
 - Start finding / fixing early
- **Participate in the post-submission review**
 - Ensure metric is representative
 - Use review to inform improvement priorities

Improving fleet data quality (3)

- **Prioritize / Measure / Find & Fix**
 - On-going / continuous activity
 - These (should) form a feedback loop
- **Primary intent: Better data to manage your fleet**
 - By-products: simpler EOY reporting, improved quality metric



Q & A



FAST program contacts

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Federal Automotive Statistical Tool (FAST)

<https://fastweb.inl.gov/>

FAST Sandbox

<https://fastweb.inl.gov/sandbox/>

FAST Help

<https://fastweb.inl.gov/help/>

