National Performance Management Measures for Assessing Pavement Condition

Data Quality Management Program

Road Profiler Users’ Group (RPUG) 29th Annual Meeting
November 15, 2017
23 CFR 490.319(c) Data Quality Management Program

- States must submit for FHWA approval within one year of the effective date of the TPM regulations (May 20, 2018).
- Addresses quality of all data collected to report pavement metrics.
- Applies to manual and automated data acquisition methods.
- Submit any proposed significant change for approval.
(c) Each State DOT shall develop and utilize a Data Quality Management Program, approved by FHWA that addresses the quality of all data collected, regardless of the method of acquisition, to report the pavement condition metrics, discussed in 23 CFR 490.311, and data elements discussed in 23 CFR 490.309(c).
Data Quality Management Plan
Minimum Requirements

• Data collection equipment calibration and certification
• Certification process for performing manual collection
• Data quality control measures before and during collection
• Data sampling, review and checking processes
• Error resolution procedures and data acceptance criteria

Reference: 23 CFR 490.319
Data Management Resources

- FHWA Practical Guide
  - Detailed guidance on pavement data quality
- NCHRP Synthesis 401
  - Data quality approaches
  - Review of the state of practice
- HPMS materials
  - Guidance on topics including data quality
  - HPMS continuous process improvement model
Quality Management Guide: Contents

• Principles of Data Quality Management
• Data Quality Standards and Acceptance Criteria
• Quality Control
• Acceptance
• Quality Management Reporting
• Quality Management Tools

• Quick Reference to QMP: Appendix A
• QMP Template: Appendix B
• QC and Acceptance Checklist: Appendix G
• Case Studies
  o Louisiana DOTD
  o Oklahoma DOT
  o Pennsylvania DOT
  o British Columbia MoTI
• Information from Virginia DOT and FHWA Long-Term Pavement Performance (LTPP)
Example Data Quality Process: Virginia DOT

1. Start up Process - Control Sites
   - Control Sites Adequate (VDOT)

2. Production Data Collection
   - Verification Sites
   - Image Quality
   - Field QC
   - SOP

3. Data Processing
   - Semi-Auto
   - Automatic
   - QA

4. Internal QA

5. Deliverables
   - Data
   - Report
   - Documents

6. Deliverables
   - QC Report

7. Deliverables
   - QA Report

8. Independent Validation & Verification
   - 5% Data Review
   - Data Completeness
   - Index Limits

9. Independent Validation & Verification
   - IV&V Report
   - Deliverable Tables

10. Pass IV&V

11. Deliver to VDOT
   - Deliverable Files via ftp site
   - Images via portable hard drive

12. Batch Acceptance (VDOT)

13. Deliverables
   - QA IV&V Report
   - 0.1 mi Delivery Table
   - Homogeneous sections delivery table

14. Batch Acceptance (VDOT)

15. PMS Database
16. AMS Database
17. Video Database
23 CFR 490.309 State DOT Pavement Data Submittal: INTERSTATE Data

First Performance Period

- 2017: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2018: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2019: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2020: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2021: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2022: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2023: IRI, Rutting, Cracking Percent, Faulting, and Inventory

Second Perf Period

- 2017: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2018: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2019: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2020: IRI, Rutting, Cracking Percent, Faulting, and Inventory
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- 2022: IRI, Rutting, Cracking Percent, Faulting, and Inventory
- 2023: IRI, Rutting, Cracking Percent, Faulting, and Inventory

Interstate Data Collection

- Calendar Year
  - 2017: Submit June 15
  - 2018: Submit April 15
  - 2019: Submit April 15
  - 2020: Submit April 15
  - 2021: Submit April 15
  - 2022: Submit April 15
  - 2023: Submit April 15
23 CFR 490.309 State DOT Pavement Data Submittal: NON-Interstate

First Performance Period

Second Perf Period

Calendar Year


Submit June 15 Submit June 15 Submit June 15 Submit June 15 Submit June 15 Submit June 15 Submit June 15 Submit June 15

Non-Interstate NHS Data Collection

IRI Inventory IRI Inventory IRI Inventory

IRI, Rutting, Cracking Percent, Faulting, and Inventory

IRI, Rutting, Cracking Percent, Faulting, and Inventory

U.S. Department of Transportation
Federal Highway Administration
# 23 CFR 490.309 State DOT Pavement Data Submittal

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Final Rule in the Federal Register

Pavement and Bridge Condition Performance Measures Final Rule

Final Rule Webinar Recordings

http://www.fhwa.dot.gov/tpm/resources/presentations.cfm
Contacts

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