



Quality Review and Assessment of Pavement Condition Survey Vehicle Data Across New England

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ABSTRACT

NETC members spend significant time and resources on pavement surface condition data collection in support of a wide range of reporting and decision-making functions. Quality data are of critical importance to these functions—as the adage goes, “garbage in, garbage out.” The data quality management plans (DQMPs) mandated by Congress in 23 CFR 490.319(c) provide a means to assist in achieving quality data, but the specific steps are not clear. This project was undertaken to provide data collection quality guidance.

A review of the existing NETC DQMPs was first undertaken to better understand their strengths and weaknesses. Interviews with staff at the NETC transportation agencies were then conducted, with a focus on the identification and selection of control sites needed to establish the reference values for the certification, validation, and verification of pavement surface data collection equipment. The resulting information was used to develop:

- Common terminology to facilitate clear and concise communications between NETC members;
 - Guidelines and tool to identify and select control sites, which consider site requirements and characteristics;
 - Recommendations for control site inter-agency sharing options; and
 - Other data quality-related guidelines, such as certification, validation, and verification frequency.
- Once implemented, the terminology and guidelines will yield important benefits to the NETC members.

ACKNOWLEDGMENTS

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RESEARCH DATA

Data gathering began with a review of existing New England states DQMPs...

DOT	Overall	Equipment Calibration and Certification	Certification Process for Persons	QC Before and During Data Collection	Data Sampling, Review, and Checking	Error Resolution Procedures and Data Acceptance Criteria
State 1	75%	74%	60%	80%	75%	67%
State 2	49%	27%	00%	68%	58%	33%
State 3	47%	48%	09%	61%	42%	40%
State 4	79%	82%	50%	88%	100%	40%
State 5	48%	69%	44%	24%	75%	75%
State 6	78%	74%	63%	89%	75%	67%

...and was followed with control site interviews and a literature review.

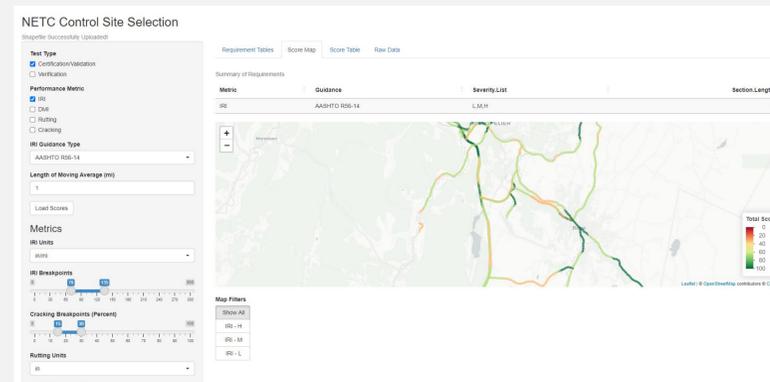


- FHWA-RC-20-0007, Successful Practices for QMP Pavement Surface Condition Data Collection and Analysis
- FHWA-HIF-18-032, Interstate Highway Pavement Sampling: Quality Management Plan

RESEARCH PRODUCTS

Using the data, common terminology and control site selection guidelines and a tool were developed.

Terminology
Calibration
Certification
Validation
Verification
Quality Control
Quality Assurance
Control Site



Building on this, control site sharing options and supplementary guidelines were developed.

Sharing Options
1. Annual rodeos
2. Each agency performs all activities, independent from others
3. Combination of Options 1 and 2

Other guidelines:

- C/V/V frequency
- Accuracy/repeatability acceptance limits
- Error resolution
- Feedback process

CONCLUSIONS

Reference pavement surface condition data obtained at certification, validation, and verification control sites are at the heart of data quality—accuracy, precision, and repeatability. Consequently, much of the project effort focused on the identification, selection, and sharing of control sites within the New England region. However, other recommendations and guidelines were provided, such as certification, validation, and verification frequency, accuracy and repeatability acceptance limits, and error resolution. Adoption of the recommended guidelines will lead to several benefits, such as common terminology to improve data quality-related communications; an improved control site identification and selection process to better reference data for data quality characterization; and inter-agency sharing of control sites that will lead to improved regional efficiencies. Ultimately, these guidelines will assist with compliance of the federal-mandated DQMPs data reporting requirements.