



FHWA Perspective on Quality Assurance for Emerging Technology

Lectern Session 1400

Quality Assurance in Construction and
Smart Technology

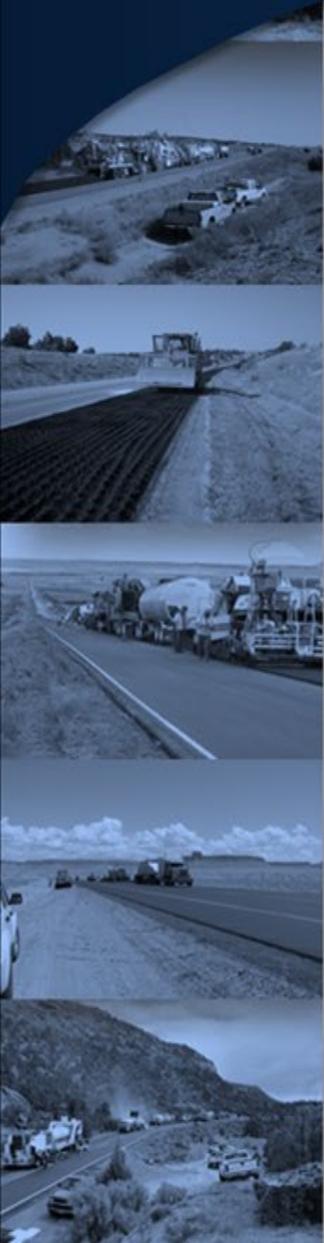
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FHWA Supports Any Quality Improvements

Support and Encourage

- Quality Innovations
- Emerging Technologies
- Production and Staffing Efficiencies

**Public Funding Accountability Remains
Fundamental Acceptance Principals**



Highway Program Accountability History

- 1960s Blatnick Investigations
 - Early interstate construction Issues
 - Waste/Abuse
 - Procedures not followed
 - NBC Nightly News
 - Proposed to give interstate program administration to USACE
 - Questioned our oversight of Federal taxpayers' money





Definition of Quality Assurance (QA)

- (1) All those planned and systematic actions necessary to provide confidence that a product or facility will perform satisfactorily in service
- (2) Making sure the quality of a product is what it should be

AASHTO R10-06

Agency Acceptance

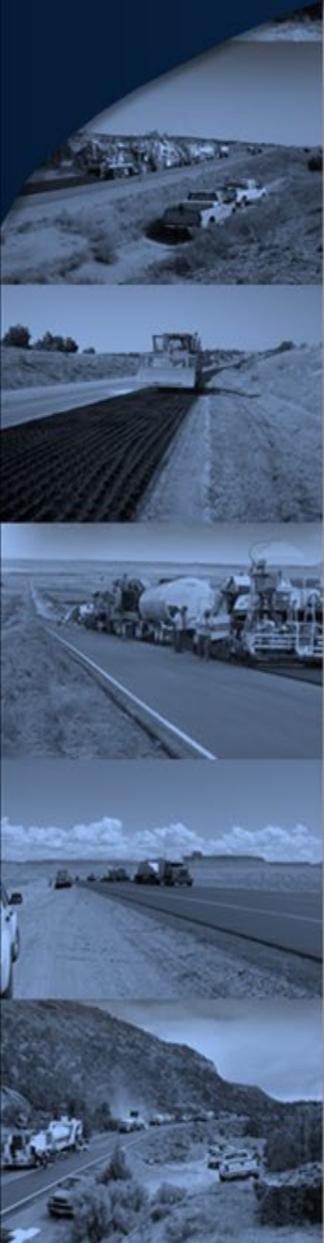
- Low Bid Environment
- Acceptance program weaknesses may be exploited to gain a competitive advantage
- Quality contractors benefit when the agency eliminates the potential for abuse and creates a fair bidding environment
- A strong acceptance program ensures that the value paid for the product corresponds to the actual quality received and is not based on manipulated or falsified quality tests



Definition of Materials Acceptance Program

23 CFR 637.203 Definition:

All factors that comprise the SHA determination of the quality of the product as specified in the contract requirements



Agency Acceptance

- All acceptance activities must be carried out by the agency or their designated agent excluding the contractor and vendor
- Agency independently performs:
 - Acceptance inspection
 - Acceptance (verification) testing
 - Measurement and payment
- Agency personnel monitor/audit QC activities
 - Verify that the Contractor is following their Quality Control Plan





Measurement and Payment

- Public funding accountability
- Acceptance is the Owner's responsibility
- Cannot delegate to the contractor
- Cannot base payments on contractor measurement of quality or quantity

Quality Assurance Program

- Verification:
 - performed on samples independent of QC

Note: See 23 CFR 637.207(a)(1)(ii)(B)

Quality control sampling and testing results may be used as part of the acceptance decision provided that:

(B) The quality of the material has been validated by the verification sampling and testing. The verification testing shall be performed on samples that are taken independently of the quality control samples.



Intelligent construction Application for Federal-aid projects

Federal-aid funds should not be used for pay adjustments without independent agency verification since payment would be based on contractor data

- Intelligent compaction (IC)
- Paver mounted thermal profiling
- Surface dielectric profiling system using Ground penetrating radar



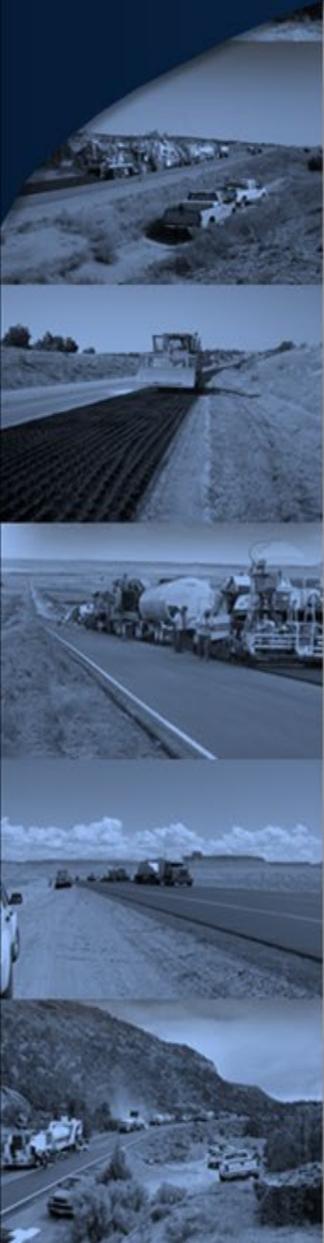
Adoption of Emerging Technology

- Is the Emerging Technology a contractor process control tool?
- Is the Innovation an enhancement to the contractor's equipment?
- Does the Innovation provide the contractor real time Quality Control of a quality characteristic that the Owner can independently verify in the final product?
- Is the Emerging Technology a quality measurement tool that can be operated independent of the contractor production or Quality Control?



Adoption of Emerging Technology

- Will the Innovation be required by contract?
- Will the use of the Emerging Technology be compensated with a pay item or will it be incidental?
- How will the Emerging Technology's use be documented, what Quality Control deliverables will be available?
- How does the Owner Agency intend to monitor the contractor's Quality Control?
- How will Independent Verification of Quality by the Owner Agency be accomplished?

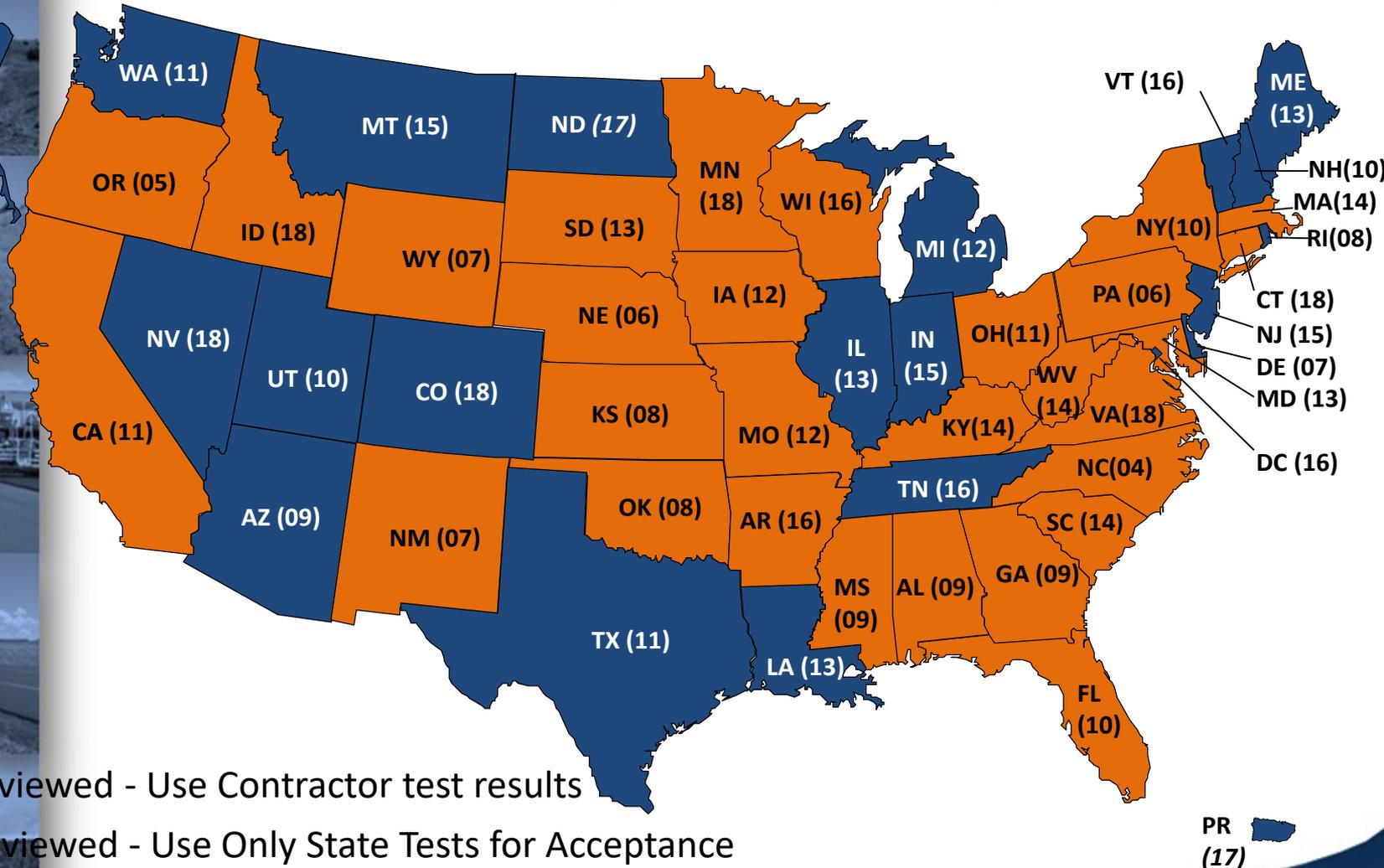


Implementation of Emerging Technology

- Recognition of Agency Acceptance and Accountability Fundamentals
- Quality Control and Agency Acceptance Roles and Responsibilities
- Process Control or Quality Measure Tool
- Encourage and Promote Adoption of the Quality Improvement Innovation
- Agency Verification of any QC data used for pay adjustment



QA Reviews and Asphalt Acceptance



Key:

(Year) Reviewed - Use Contractor test results

(Year) Reviewed - Use Only State Tests for Acceptance

(Based on 2014 FHWA Quality Assurance Assessment.)



Thank You – Questions?

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