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## Project Construction and Contract Administration Project Management **Construction Quality Assurance**

[www.fhwa.dot.gov/federal-aidessentials](http://www.fhwa.dot.gov/federal-aidessentials)


*Necessary quality assurance must be provided for achieving a project's contracted level of quality*



Aristotle once said, "Quality is not an act, it is a habit." For the Federal Highway Administration (FHWA), construction quality

assurance, which is often simply called QA, is not a slogan. Rather, it is a systematic approach to ensure the constructed quality of each Federal-aid project is what it should be. It's making sure the public gets what it paid for.

In doing so, it's important to know the principles of QA and its requirements for Federal-aid construction contracts and how a local public agency, or LPA, can comply with these requirements.

QA for highway construction is built on key principles that have been developed and accepted nationally by FHWA, the American Association of State Highway and Transportation Officials, or AASHTO, and construction industry organizations.

Quality Assurance is a broad umbrella term covering the shared responsibilities of both the contractor and the agency for achieving a project's contracted level of quality. Under the umbrella, the basic categories of responsibilities are:

- Quality control, or QC, activities performed by the contractor
- Acceptance activities performed by the local public agency.



The contractor's QC function requires ongoing monitoring and measurement to continually adjust and control the quality. This is accomplished through QC inspection, sampling, and testing at both materials and production facilities and at the project site.

The agency's acceptance function means taking responsibility for verifying and accepting the quality of materials and construction workmanship.

Complete QA implementation requires three major components, which can be illustrated as tiers within a pyramid diagram to show how these components build upon each other.



First, and foundational, is Joint Agency and Industry Support. This means commitment, communication, training and funding by both contractors and agencies to ensure that sufficient resources, including personnel and equipment, are in place to perform the required quality functions. These ongoing support activities are needed so that QA principles are mutually understood and correctly applied.

LPAs and their consultants should be aware of existing resources, such as QA training available through their State department of transportation (State DOT) and other organizations.

The second tier of the pyramid is a formal QA program developed and documented by the agency.



The QA program outlines overall requirements for all projects. A well-developed program

outlines the proper agency and contractor roles and responsibilities. Each State DOT must have a QA program approved by FHWA, and LPAs are encouraged to use these for your projects.

A complete QA program includes the six core elements of:

- Contractor Quality Control
- Agency Acceptance
- Independent Assurance
- Dispute Resolution
- Laboratory Accreditation-Qualification
- Personnel Qualification-Certification.

Specific requirements for each element are provided in FHWA's regulations and related FHWA and AASHTO guidance documents.

Let's go over the QA program requirement based on road designation for Federal-aid projects.

For projects on the National Highway System (NHS), the LPA must have an FHWA-approved QA program that addresses the six core elements.



The NHS includes the interstate highway system and other major roads designated by each State. In this case, an LPA may either:

- Adopt the State DOT's approved program requirements
- Or develop an LPA QA program that complies with FHWA requirements and is approved by the State DOT and FHWA.

For projects not on the NHS, FHWA does not have specific QA program requirements. However, LPAs are responsible to ensure that each Federal-aid project receives adequate supervision and inspection. With this in mind, LPAs should have a program that is acceptable to the State DOT, and that includes the six core elements.



Several State DOTs have developed special QA programs for use on LPA projects. FHWA recommends that an LPA identify the acceptance activities to be performed by the agency, or by its consultant, as a key part of any QA program. In addition, FHWA recommends your program identify the minimum requirements for a contractor's QC system to ensure real-time inspection that will head off quality issues.

The third tier of the pyramid is quality assurance specifications. These provide project-specific instructions for implementing the QA program, which will be included in the contract.

These specifications include:

- Contractor QC requirements, such as minimum inspection and testing activity
- The agency acceptance criteria, including the items to be inspected, materials to be tested, and quality standards that will be applied
- How to make payments that are based on the measured construction quality, including any incentives and disincentives

Let's summarize and review what we have covered.

- Construction QA is built on key principles accepted nationally.
- QA is an umbrella term covering both quality control activities by the contractor and agency acceptance activities.
- Successful QA implementation has three major components that build upon one another like the tiers of a pyramid. They are: Joint agency and industry support, a QA program, and QA specifications.
- For National Highway System projects, LPAs may either adopt the State DOT's approved QA program or develop an LPA QA program that meets FHWA requirements.
- For all other Federal-aid projects, FHWA does not prescribe specific QA program requirements. However, the LPA should have a QA program that is acceptable to the State DOT.
- QA specifications are included in the contract to implement the QA program.

If you would like to know more about Federal-aid requirements for construction quality assurance, please refer to the FHWA Web site. You should always check with your State DOT or FHWA division office for specific policies and procedures in your State.

### Additional Resources

- Regulation for construction quality assurance  
<http://www.gpo.gov/fdsys/pkg/CFR-2011-title23-vol1/pdf/CFR-2011-title23-vol1-part637.pdf>
- FHWA policy on regulatory requirements in 23 C.F.R. § 637 Subpart B  
<http://www.fhwa.dot.gov/pavement/0637bsup.cfm>
- Questions and answers on the quality assurance regulation 23 CFR 637  
<http://www.fhwa.dot.gov/pavement/materials/qanda637.cfm>
- FHWA guidance on construction quality assurance  
<http://www.fhwa.dot.gov/pavement/qa/index.cfm>

The content of this document is not a substitute for information obtained from State departments of transportation, appropriate FHWA Division Offices, and applicable laws. Scenarios have been simplified for emphasis and do not necessarily reflect the actual range of requirements applicable to the scenario or this topic. This document was created under contract number DTFH63-11-D-00066 by the Federal Highway Administration, U.S. Department of Transportation, and is offered to the public to heighten and focus awareness of Federal-aid requirements within the local public agencies community and reinforces the importance of these necessary policies, procedures, and practices.

This companion resource is the script content for the video production of the same name.