

# Quality Assurance Requirements on Federal-aid Projects



2011 Asphalt Pavement Conference  
Ontario, CA  
November 3, 2011

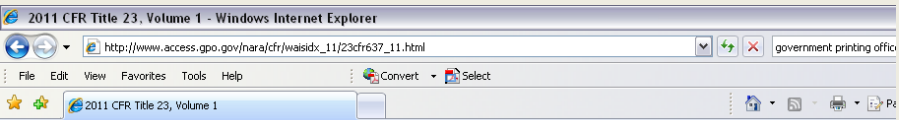
Steve Healow  
FHWA California Division



# General Outline

- Quality Assurance requirements as set forth in 23 CFR 637
- Where they apply/do not apply
- Responsibilities of the State DOT
- Six Critical Elements of a Quality Assurance Program
- Define terms
- Conclusion





# 23 CFR 637 Subpart B – “Quality Assurance Procedures for Construction”

## Title 23--Highways

### CHAPTER I--FEDERAL HIGHWAY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

#### PART 637--CONSTRUCTION INSPECTION AND APPROVAL

637.201	Purpose.
637.203	Definitions.
637.205	Policy.
637.207	Quality assurance program.
637.209	Laboratory and sampling and testing personnel qualifications.
Appendix	Appendix A to Subpart B of Part 637--Guide Letter of Certification by State Engineer

“... Purpose: To prescribe policies, procedures and guidelines to assure the quality of materials and construction in all Federal-aid highway projects on the National Highway System...”

#### § 636.507

(b) In situations where the solicitation stated that evaluation credit would be given for technical solutions exceeding any mandatory minimums, you may hold discussions regarding increased performance beyond any mandatory minimums, and you may suggest to offerors that have exceeded any mandatory minimums (in ways that are not integral to the design), that their proposals would be more competitive if the excesses were removed and the offered price decreased.

#### § 636.507 What subjects are prohibited in discussions, communications and clarifications with offerors?

- You may not engage in conduct that:
- Favors one offeror over another;
  - Reveals an offeror's technical solution, including unique technology, innovative and unique uses of commercial items, or any information that would compromise an offeror's intellectual property to another offeror;
  - Reveals an offeror's price without that offeror's permission;
  - Reveals the names of individuals providing reference information about an offeror's past performance; or
  - Knowingly furnishes source selection information which could be in violation of State procurement integrity standards.

#### § 636.508 Can price or cost be an issue in discussions?

You may inform an offeror that its price is considered to be too high, or too low, and reveal the results of the analysis supporting that conclusion. At your discretion, you may indicate to all offerors your estimated cost for the project.

#### § 636.509 Can offerors revise their proposals as a result of discussions?

(a) Yes, you may request or allow proposal revisions to clarify and document understandings reached during discussions. At the conclusion of discussions, each offeror shall be given an opportunity to submit a final proposal revision.

(b) You must establish a common cut-off date only for receipt of final proposal revisions. Requests for final proposal revisions shall advise offerors that the final proposal revisions shall

#### 23 CFR Ch. I (4-1-10 Edition)

be in writing and that the contracting agency intends to make award without obtaining further revisions.

#### § 636.510 Can the competitive range be further defined once discussions have begun?

Yes, you may further narrow the competitive range if an offeror originally in the competitive range is no longer considered to be among the most highly rated offerors being considered for award. That offeror may be eliminated from the competitive range whether or not all material aspects of the proposal have been discussed, and whether or not the offeror has been afforded an opportunity to submit a proposal revision. You must provide an offeror excluded from the competitive range with a written determination and notice that proposal revisions will not be considered.

#### § 636.511 Can there be more than one round of discussions?

Yes, but only at the conclusion of discussions will the offerors be requested to submit a final proposal revision, also called best and final offer (BAFO). Thus, regardless of the length or number of discussions, there will be only one request for a revised proposal (i.e., only one BAFO).

#### § 636.512 What is the basis for the source selection decision?

(a) You must base the source selection decision on a comparative assessment of proposals against all selected criteria in the solicitation. While you may use reports and analyses prepared by others, the source selection decision shall represent your independent judgment.

(b) The source selection decision shall be documented, and the documentation shall include the rationale for any business judgments and tradeoffs made or relied on, including benefits associated with additional costs. Although the rationale for the selection decision must be documented, that documentation need not quantify the tradeoffs that led to the decision.

#### Federal Highway Administration, DOT

#### § 637.203 Are limited negotiations allowed prior to contract execution?

(a) Yes, after the source selection but prior to contract execution, you may conduct limited negotiations with the selected design-builder to clarify any remaining issues regarding scope, schedule, financing or any other information provided by that offeror. You must comply with the provisions of 19CFR in the exchange of this information.

(b) Limited negotiations conducted after this section may include negotiations necessary to incorporate the ideas and concepts from unsuccessful offerors into the contract if a stipend is offered by the contracting agency and accepted by the unsuccessful offeror and if the requirements of section 637.203 are met.

(c) 49 FR 2698, Dec. 10, 1992, as amended at 73 FR 7902, Dec. 29, 2008

#### § 637.203 How may I provide notifications and debriefings?

You may provide pre-award or post-award notifications in accordance with State approved procedures. If an offeror requests a debriefing, you may provide pre-award or post-award debriefings in accordance with State approved procedures.

#### PART 637--CONSTRUCTION INSPECTION AND APPROVAL

##### Subpart A [Reserved]

##### Subpart B--Quality Assurance Procedures for Construction

#### § 637.203 Purpose.

#### § 637.203 Definitions.

#### § 637.203 Policy.

#### § 637.203 Quality assurance program.

#### § 637.203 Laboratory and sampling and testing personnel qualifications.

#### APPENDIX A TO SUBPART B OF PART 637--GUIDE LETTER OF CERTIFICATION BY STATE ENGINEER

#### § 637.203 Laboratory and sampling and testing personnel qualifications.

#### § 637.203 Quality assurance program.

#### § 637.203 Laboratory and sampling and testing personnel qualifications.

#### § 637.203

##### Subpart A [Reserved]

##### Subpart B--Quality Assurance Procedures for Construction

#### § 637.201 Purpose.

To prescribe the policies, procedures, and guidelines to assure the quality of materials and construction in all Federal-aid highway projects on the National Highway System.

#### § 637.203 Definitions.

Acceptance program. All factors that comprise the State transportation department's (STD) determination of the quality of the product as specified in the contract requirements. These factors include verification sampling, testing, and inspection and may include results of quality control sampling and testing.

Independent acceptance program. Activities that are an unbiased and independent evaluation of all the sampling and testing procedures used in the acceptance program. Test procedures which are performed in the STD's central laboratory would not be covered by an independent acceptance program. Homogeneous samples that are distributed and tested by two or more laboratories. The test results are compared to assure that the laboratories are obtaining the same results.

Qualified laboratories. Laboratories that are capable as defined by appropriate programs established by each STD. As a minimum, the qualification program shall include provisions for checking test equipment and the laboratory shall keep records of calibration checks.

Qualified sampling and testing personnel. Personnel who are capable as defined by appropriate programs established by each STD.

Quality assurance. All those planned and systematic actions necessary to provide confidence that a product or service will satisfy given requirements for quality.

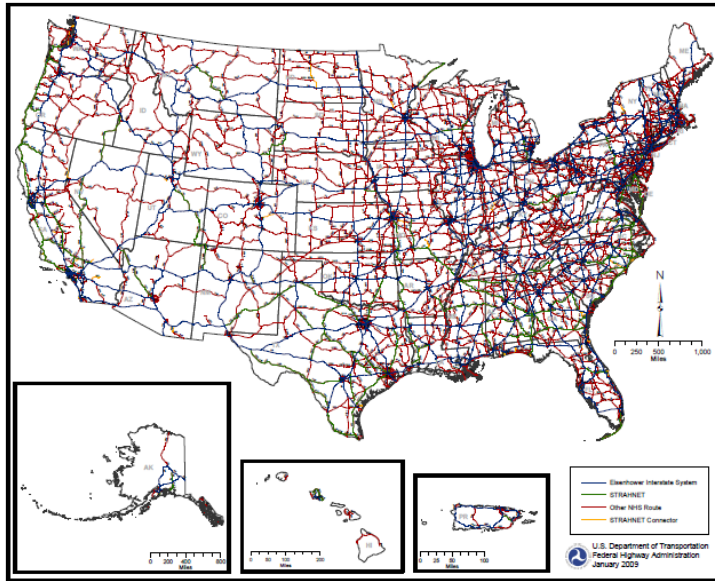
Quality control. All contractor/vendor operational techniques and activities that are performed or conducted to fulfill the contract requirements.

# Authority/Legal Basis



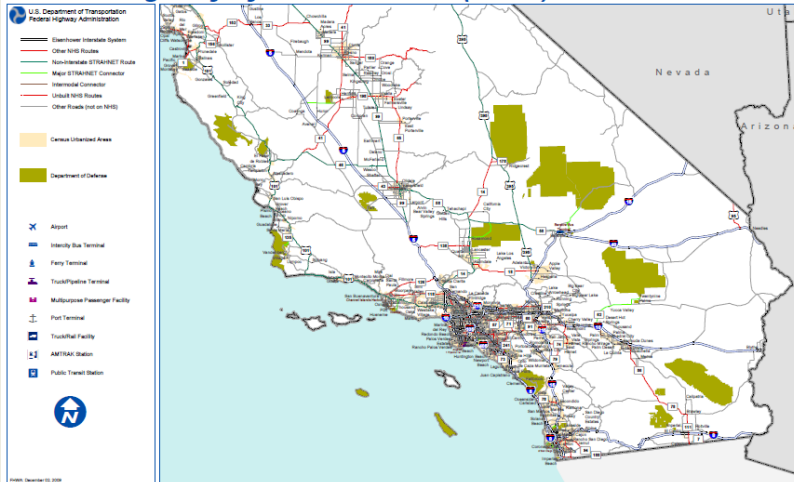
- **Title 23 U.S. Code § 109. Standards**
- (a) **In General.**— The Secretary shall ensure that the plans and specifications for each proposed highway project under this chapter provide for a facility that will— (1) **adequately serve the existing and planned future traffic** of the highway in a manner that is conducive to **safety, durability, and economy of maintenance**; and
- (2) be designed and constructed in accordance with criteria best suited to accomplish the objectives described in paragraph (1) and to conform to the particular needs of each locality.

National Highway System

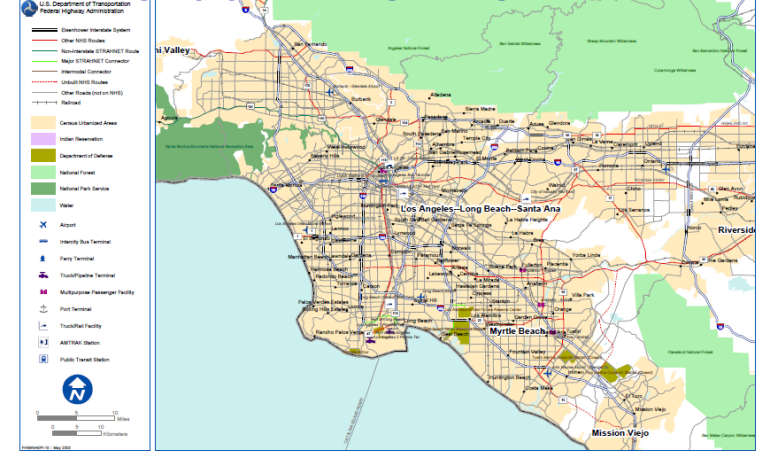


23 CFR 637 applies to federally-funded projects on the National Highway System

National Highway System: California (South)



National Highway System: Los Angeles-Long Beach-Santa Ana CA





# 03-ED-50, PM 0.2/9.1 HOV Widening Project



# 04-Sol-80, PM 29, Leisure Town Road O.C., City of Vacaville



# What does 23 CFR 637 require of local agencies?

- The regulation does not specifically mention local agencies
- The regulation applies to all Federal-aid highway construction projects on the National Highway System.
- The regulation enumerates requirements for the State DOTs under the general headings Quality Assurance Program, Acceptance Program, Independent Assurance Program, Dispute Resolution, Qualified Technicians and Qualified Laboratories.



# What does 23 CFR 637 require of a State DOT?

- A statewide quality assurance program which meets these requirements
  - Acceptance Program
    - Frequency guide, specific location, specific attributes
  - Independent Assurance Program
- A central lab (AMRL/CCRL certified)
- Adequate qualified staff
- Q.C. sampling and testing is evaluated by an I.A. program
- Verification sampling & testing by qualified testing personnel
- A dispute resolution system
- A materials certification for each project

## Six Critical Elements of a Quality Assurance Program

Critical Element	Responsible Party	
	Contractor	State D.O.T.
Quality Control	✓	
Acceptance		✓
Independent Assurance		✓
Dispute Resolution		✓
Qualified Laboratories	✓	✓
Qualified Sampling and Testing Technicians	✓	✓

# Quality Assurance Definitions

Quality Assurance = “...All those planned and systematic actions necessary to provide confidence that a product or facility will perform satisfactorily in service.” [TRB Circular E –C037 & AASHTO R10 ]

Simple Definition

Quality Assurance = “...Making sure the quality of a product is what it should be.”



# Contractor Quality Control



- “Quality Control is the system used by a Contractor party to monitor, assess and adjust their production or placement processes to ensure that the final product will meet the specified level of quality.”





# Contractor Quality Control

QC is the responsibility of the contractor; this includes:

Prime (general) contractor

Subcontractors

Producers

Fabricators

Manufacturers



# Acceptance (Verification)

Acceptance = “All factors used by the Agency (e.g. sampling, testing, inspection) to evaluate the degree of compliance with contract requirements and to determine the corresponding value for a given product. “

The Agency is entirely responsible for Acceptance.



# Three Principal Materials Categories (AASHTO R38)

- Project Produced Materials



- Fabricated Structural Materials



- Standard Manufactured Materials



# Independent Assurance

- “Activities that are an unbiased and independent evaluation of all the sampling and testing (or inspection) procedures used in the Quality Assurance Program.” [ AASHTO R44]
- I.A. is not used to make a determination of project quality or acceptability

STATE OF CALIFORNIA . DEPARTMENT OF TRANSPORTATION  
REPORT OF WITNESS TEST  
TL-0103 (REV. 06/00)

NAME (Tester)		VALID TL-0111 <input type="checkbox"/> Yes <input type="checkbox"/> No
DATE (Witness Test)	WAS MATERIAL SAMPLED? <input type="checkbox"/> Yes <input type="checkbox"/> No	TEST PROCEDURE
WAS A MATERIAL TESTED? <input type="checkbox"/> Yes <input type="checkbox"/> No		TEST PROCEDURE
TYPE OF MATERIAL		
LOCATION OF WITNESS TEST		
LOCATION OF SAMPLED MATERIAL		
RESULTS	WERE SAMPLING PROCEDURES CORRECT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	WERE TESTING PROCEDURES CORRECT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
ACTION <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/> Decertified		





# Dispute Resolution

“The procedure used to resolve conflicts resulting from discrepancies between the Agency’s and Contractor’s results of sufficient magnitude to impact payment.”

Use to address disputes involving test methods, results, or inspection-related disputes.

Use of 3<sup>rd</sup> party is recommended to avoid bias or conflict of interest.



# Laboratory Qualification and Accreditation

- AASHTO Materials Reference Lab Accreditation Program
  - All Agency Central Labs
  - Consultant Labs used for Independent Assurance or Dispute Resolution
- State DOT Laboratory Qualification Program
  - All other Labs performing sampling and testing used in Agency Acceptance decision



State of California Department of Transportation  
CALTRANS QUALIFIED LABORATORY INSPECTION REPORT  
Form TL-0115

Expiration date: \_\_\_\_\_  
Inspected by: \_\_\_\_\_  
IA No.: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
File: Materials Category 500

Laboratory: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Lab QC Mgr.: \_\_\_\_\_ e-mail: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Fax #: \_\_\_\_\_

A certified Independent Assurance (IA) visited this laboratory on (Date) \_\_\_\_\_  
Only \_\_\_\_\_  
Nation \_\_\_\_\_

At the \_\_\_\_\_  
indici \_\_\_\_\_  
of Pre \_\_\_\_\_

APPENDIX F

CALTRANS LABORATORY ACCREDITATION MANUAL

1. **Contacts**  
Laboratory name, address, telephone number, and fax number.

2. **Organizational Chart**  
Laboratory organizational chart (complete and up-to-date).

3. **Quality Control Manager**  
Laboratory Quality Control Manager qualifications.

A visa \_\_\_\_\_  
\_\_\_\_\_

4. **Laboratory Affiliations**  
Laboratory accreditations/verifications/qualifications (private, city, county, state, federal).

5. **Reference Sample Records**  
Proof of current and past successful participation in proficiency testing with reference samples.

6. **List of Test Procedures**  
List of test procedures (accreditation will be limited to relevant tests).

7. **Calibration**  
Testing equipment calibration, service and inventory list:  
• All test equipment calibration, maintenance, and service will be documented. All calibration devices will be traceable to the National Institute of Standards and Technology (NIST).  
• Calibration, maintenance, and service will be in accordance with accepted standards, manufacturer's recommendations, and applicable test procedures; intervals will not exceed one year.  
• All test equipment will have a calibration decal attached. The calibration decal will have the information specified in the calibration portions of this manual.  
• Equipment inventory list will include the following information: equipment name, make, model, serial or ID number, calibration date, next calibration due date, the calibrator, and acceptable tolerances. Form TL-0112, "Inventory of Materials Testing Equipment," can be used for this purpose.

On \_\_\_\_\_

8. **Personnel**  
List of personnel to be qualified for testing including:  
• Materials-related work experience summaries.  
• Copies of current certifications/qualifications (ACL, NICET, NRMCA, Caltrans, etc.).  
• Detailed summary of training, including comprehensive description of the training, total hours of training, and training dates.

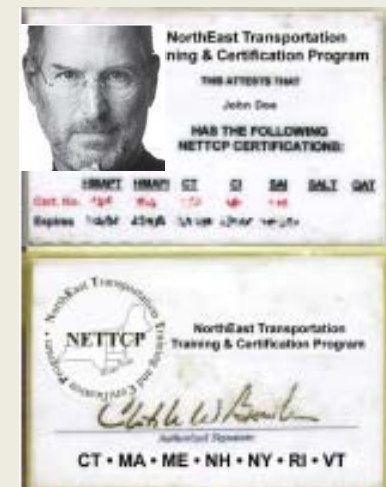
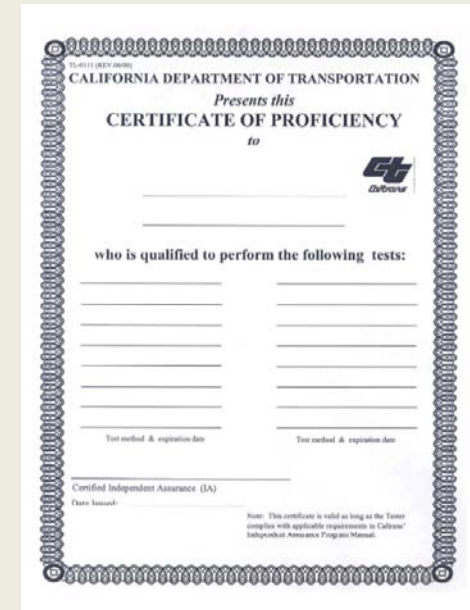
9. **Nuclear Gage**  
• Nuclear gage license (if applicable).  
• Nuclear moisture-density gages will have current calibration.

44

CALIFORNIA DEPARTMENT OF TRANSPORTATION  
INDEPENDENT ASSURANCE MANUAL - JULY 2005

# Qualified sampling and testing personnel

- Personnel who are capable as defined by appropriate programs established by each State DOT
  - Training history (Instruction, OJT)
- Exams (written, performance)
- Periodic re-qualification (e.g. 1-5 years)
- Removal process for improper procedures, falsifying data, or false statements



# Conclusions

- 23 CFR 637 applies to all Federal-aid highway projects on the National Highway System.
- For local agency projects which are not on the NHS but do have Federal highway trust fund dollars, other standards will apply (e.g. an approved quality assurance plan).
- For local agency projects not on the NHS, not on the state highway system and with no Federal funds, the local agency selects the standards that apply.

