



Caltrans Local Assistance

RESIDENT ENGINEER ACADEMY

Module 5

Control of Materials

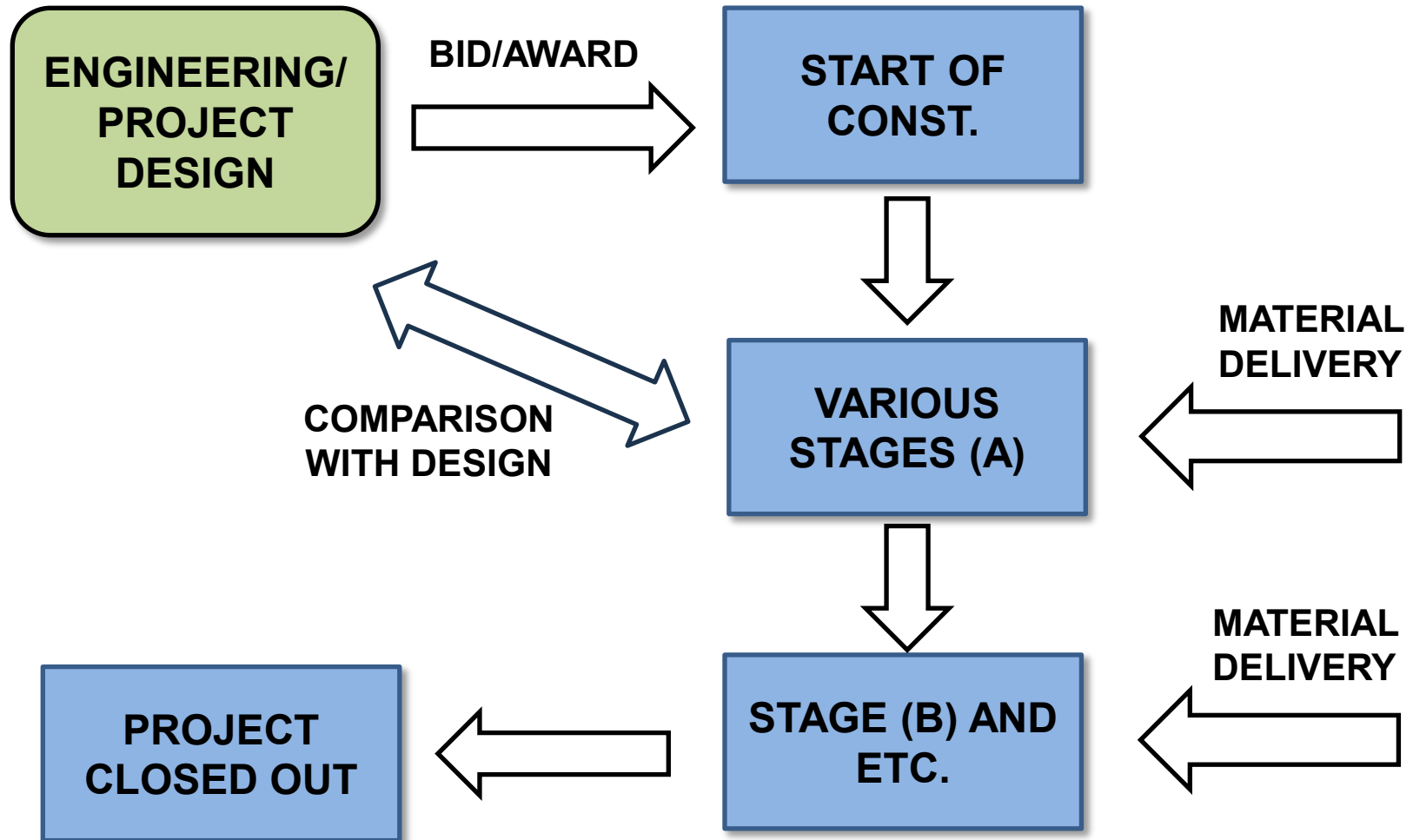
January 2026

Why do we need Control of Materials

What dictates Control of Materials....

- US DOT – Federal Highway Administration (FHWA)
- 23 CFR 637 –Materials Quality Assurance (12/10/2022)
- Pertain to all projects receiving Federal funds

To ensure quality and longevity of project



Control of Materials & Quality Assurance Program (QAP)

This module, you will be able to....

- Find helpful resources
- Know basic materials “concepts”
- Understand the key elements of a QAP
- Update and implement QAP
- Perform proper record keeping

Helpful Resources

6 Key Resources:

1. Local Assistance Procedures Manual (LAPM)
- ~~2. Quality Assurance Programs Manual (QAPM)~~
3. Construction Manual (Ch. 3 & 6) of CTSS
4. Independent Assurance Manual
5. Index to California Test Methods (CTM)
6. Standard Specifications/Special Provisions

Helpful Resources

[Home](#) | [Programs](#) | [Local Assistance](#) | [Guidelines and Procedures](#) | Local Assistance Procedures Manual (LAPM)

Local Assistance Procedures Manual (LAPM)

The Local Assistance Procedures Manual (LAPM) is issued in January of each year, and is updated through [Local Programs Procedures](#) (LPPs). It describes the various procedures required to process Federal and State funded local transportation projects.

Please read our [Disclaimer](#).

Chapter 15: Advertise and Award Project (PDF)	January 2025
Reference OB #25-04 (PDF) OB #25-05 (PDF) and OB #25-06 (PDF) for policy revisions affecting Chapter 16 Chapter 16: Administer Construction Contracts (PDF)	January 2025
Reference OB #25-05 (PDF) for policy revisions affecting Chapter 17 Chapter 17: Project Completion (PDF)	January 2025
Chapter 18: Maintenance (PDF)	January 2025
Chapter 19: Reserved for Future Use	
Reference OB #24-04 (PDF) for policy revisions affecting Chapter 20 Chapter 20: Audits & Corrective Actions (PDF)	January 2025

Guidelines and Procedures

- [Caltrans Oversight Information Notice \(COIN\)](#)
- [Division of Local Assistance Office Bulletins \(DLA-OBs\)](#)
- [Local Assistance Procedures Manual \(LAPM\)](#)
- [Local Assistance Program Guidelines \(LAPG\)](#)

Local Assistance Procedures Manual (LAPM)

<https://dot.ca.gov/programs/local-assistance/guidelines-and-procedures/local-assistance-procedures-manual-lapm>

Office Bulletin (OB)

OB25-4: QAP



Office Bulletin | Division of Local Assistance
Policy Update



#25-04: Sample Quality Assurance Program (QAP)

Purpose

Per 23 CFR 637, Local Public Agencies (LPAs) are required to have a Quality Assurance Program (QAP) that ensures the materials and workmanship incorporated into each construction projects conform to the requirements of the contract plans and specifications. Local Assistance Procedures Manual (LAPM) Chapter 16.11 provides a link to the "QAP Manual for Use by Local Agencies" dated December 2008, which includes an example QAP in Appendix Y. The sample QAP has been updated and is provided as a stand-alone template.



OB25-5: Final Inspection and Final Material Cert.

#25-05: Final Inspection and Final Materials Certification Submittals

Purpose

A process review was conducted to reduce Final Report of Expenditures (FROE) submittal errors from Local Public Agencies (LPAs). One area of improvement identified was the simplification/ elimination of the final report documents that collectively constitute the FROE as detailed in Local Assistance Procedures Manual (LAPM) Chapter 17: Project Completion.



OB25-6: Buy America Req.

#25-06: Buy America Requirements for Manufactured Products

Purpose

The purpose of this Office Bulletin is to inform Local Public Agencies (LPA) of the Federal Highway Administration's (FHWA) final rule amending Buy America regulations to terminate the general applicability waiver for manufactured products. These changes require updates to the Local Assistance Procedures Manual (LAPM) Chapters 12 and 16 to ensure compliance with new federal requirements for Federal-aid highway projects. More information is available at: <https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products>

<https://dot.ca.gov/programs/local-assistance/guidelines-and-procedures/local-assistance-procedures-manual-lapm>

Helpful Resources

LAPM 16.11 Quality Assurance Program

- Administer
- The construction work was delayed by the RW, railroad, or utility
 - The contractor did everything required by the contract to minimize
 - The LPA was unable to exercise effective control of the situation

Process reviews should be conducted by the COEs and the DLAE periodically approved change orders. If change orders are found to be ineligible during federal funds paid for the change order should be withdrawn from the project.

Equipment Rental Rates

Federal policy requires that actual costs be used to determine extra work. Actual equipment costs are not always readily available. A state subject to concurrence, may adopt an industry equipment rate guide or it may develop its own. In California, the guide is the Caltrans Labor Surcharge and Equipment Rental Rates. Overtime, multiple shift, and delay factors apply to these rates as detailed in the guide.

Equipment rental rates paid in excess of those shown in the guide are not reimbursable.

16.11 Quality Assurance Program

A [Quality Assurance Program \(QAP\)](#) is a program that will ensure the materials and workmanship incorporated into each construction project conform to the requirements of the contract plans and specifications including approved changes. The main elements of a QAP are an acceptance program and an independent assurance program.

For federal construction projects, each LPA is required to adopt a QAP. Contractors must process a Request for Authorization for Construction without verification of the QAP. The QAP must be signed by the LPA public works director or, if the director is not available, must be delegated to the next highest registered Engineer. The QAP must be reviewed every five years. Copies of the approved QAP must be kept on file and available for review.

The LPA is required to adhere to their QAP during the construction of the project. The QAP is not part of the contract. A QAP can be thought of as a commitment by the LPA to the contractor.

A typical QAP is structured as shown below:

- 1) General Discussion
- 2) Variations for Projects on or off the SHS
- 3) Materials Acceptance Program
 - a) Minimum Sampling and Testing Frequency Requirements
 - b) Sample Testing Results Summary Log
 - c) Materials Accepted by a Certificate of Compliance per the Contract
 - d) Source Inspection Process
- 4) Independent Assurance (IA) Program
 - a) Tester Certification Process
 - b) Laboratory Qualification Process

LOCAL ASSISTANCE PROCEDURES MANUAL

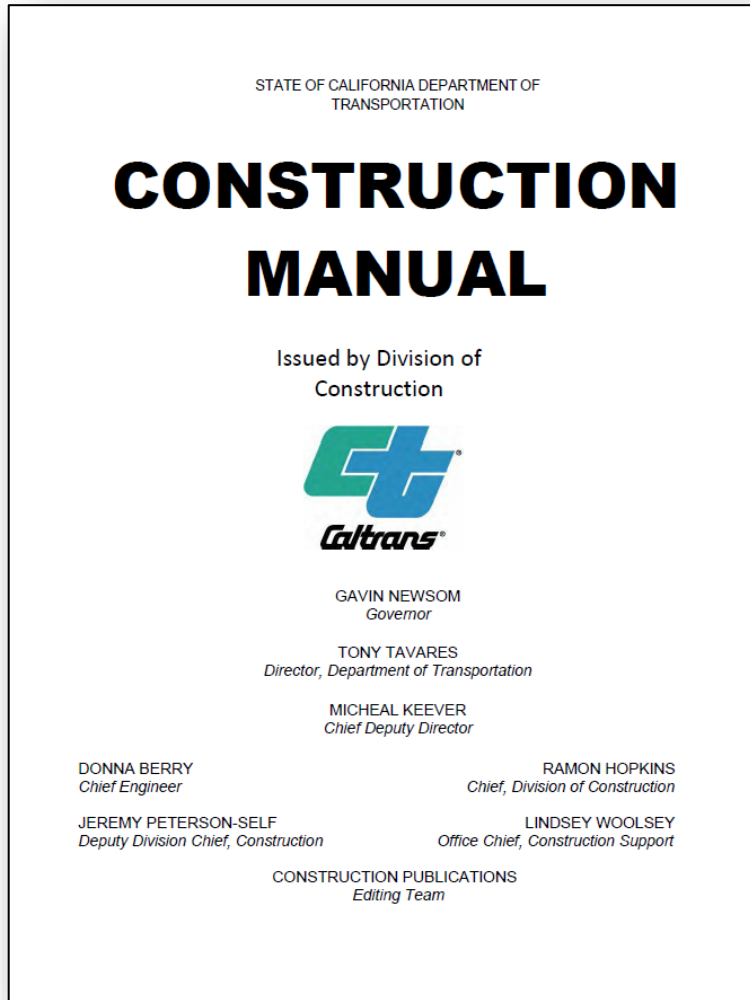
2025



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January 2025

<https://dot.ca.gov/-/media/dot-media/programs/local-assistance/documents/lapm/ch16.pdf>

Helpful Resources



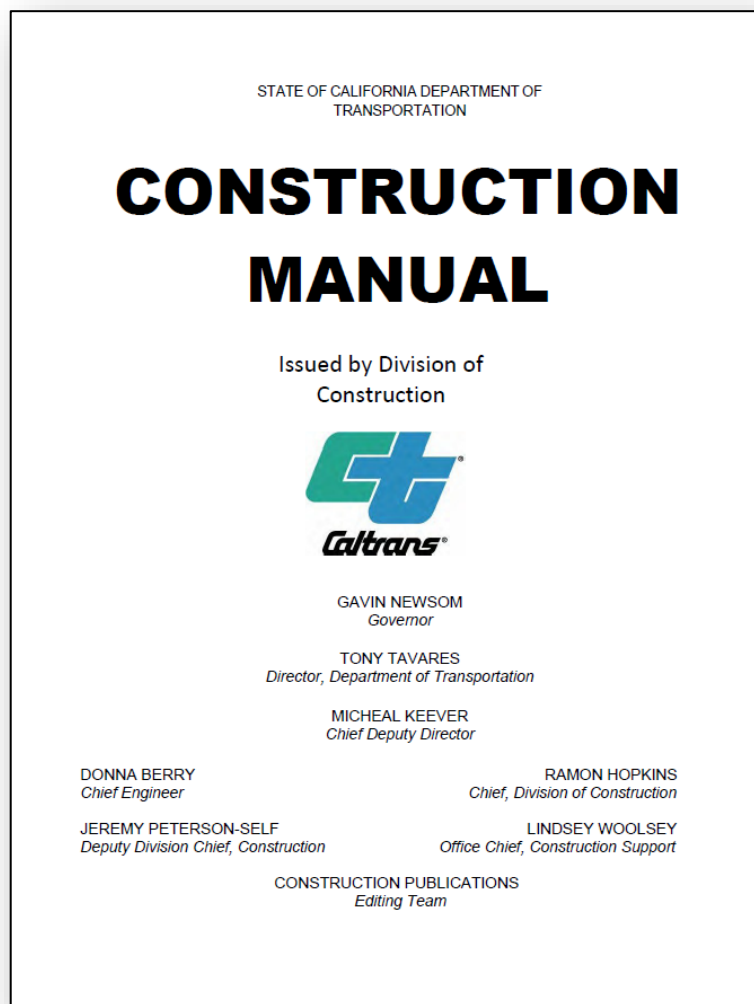
Chapter 3.6	
Chapter 3	General Provisions
Section 6 Control of Materials	
3-601	General
3-602	Department-Furnished Materials
3-603	Local Materials
3-604	Buy America
3-604A	Crumb Rubber
3-604B	Steel and Iron Materials
3-604B (1)	Resident Engineer Approval of Minimum Use Requirements
3-604C	Manufactured Products
3-604D	Construction Materials
3-604E	Federal Highway Administration Approval of Waivers
3-605	Brand or Trade Names and Substitutions
3-606	Buy Clean California Act
3-607	Quality Assurance
3-608	Out-of-State Fabrication
3-609	Testing by Caltrans
3-609A	Operating Range and Contract Compliance
3-610	Testing by the Contractor
3-610A	Action Limit and Suspension Limit
3-611	Suspected Fraudulent Test and Inspection Reports

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Control of Materials

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<https://dot.ca.gov/programs/construction/construction-manual/section-3-6-control-of-materials>

Helpful Resources



Chapter 6

Chapter 6 Sampling and Testing

Section 1 Sample Types and Frequencies

- 6-101 General
 - 6-101A References
- 6-102 Types of Sampling and Testing
 - 6-102A Preliminary Samples and Tests
 - 6-102B Initial Samples and Tests
 - Table 6-1.1. Time Required for Source Testing
 - 6-102B (1) Unprocessed Soils and Aggregates
 - 6-102B (1a) Stone from Ledges and Quarries
 - 6-102B (1b) Material Sites of Sand, Gravel, or Soil
 - 6-102B (2) Processed Aggregates
 - 6-102C Acceptance Samples and Tests
 - Table 6-1.2. Time Required for Materials Acceptance Tests (1 of 4)
 - Table 6-1.2. Time Required for Materials Acceptance Tests (2 of 4)
 - Table 6-1.2. Time Required for Materials Acceptance Tests (3 of 4)
 - Table 6-1.2. Time Required for Materials Acceptance Tests (4 of 4)
 - Table 6-1.3. Time Required for Products Acceptance Tests
 - 6-102D Dispute Resolution Samples
 - 6-102E Investigation Samples and Tests
 - 6-102F Research Samples and Tests
- 6-103 Field Sampled Material Identification for Testing
 - 6-103A Forms TL-0101 and TL-0502
 - Example 6-1.1. Sample Cylinder Label (Set of either five 6- by 12-inch or five 4- by 8-inch cylinders)
 - Example 6-1.2. Sample Cylinder Label (Set of two 6- by 12-inch cylinders)
 - Example 6-1.3. Sample Cylinder Label (Set of three 4- by 8-inch cylinders)
 - 6-103B DIME Sample Record
- 6-104 Shipping of Field Samples
- 6-105 Acceptance Records
- 6-106 Project Materials Certification
- 6-107 Materials Acceptance Sampling and Testing
 - Table 6-1.4. Materials Acceptance Sampling and Testing Requirements: Earthwork (*Standard Specifications* Section 19) (1 of 3)
 - Table 6-1.4. Materials Acceptance Sampling and Testing Requirements: Earthwork (*Standard Specifications* Section 19) (2 of 3)
 - Table 6-1.4. Materials Acceptance Sampling and Testing Requirements: Earthwork (*Standard Specifications* Section 19) (3 of 3)
 - Table 6-1.5. Materials Acceptance Sampling and Testing Requirements: Stabilized Soils (*Standard Specifications* Section 24) (1 of 3)

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Sample Types and Frequencies Page 6-1.1

<https://dot.ca.gov/programs/construction/construction-manual/section-6-1-sample-types-and-frequencies>

Helpful Resources

- Tester Qualification
- Laboratory Accreditation
- Reference Sample Program

**Google search:
Caltrans IA or Caltrans
Independent Assurance**

Send request to:

IA.SERVICE.REQUEST@dot.ca.gov

California Department of Transportation



Independent Assurance Manual

April 2024

ISSUED BY:
DIVISION OF ENGINEERING SERVICES
MATERIALS ENGINEERING AND TESTING SERVICES

Basic Materials “Concepts”

Why Do We Sample and Test?

- Establish the quality of materials entering the work
- Ensure all materials incorporated into the work meet contract specifications
- Check other samples, tests, testers, and equipment

Basic Materials “Concepts”

Concept #1

- Failing material tests are **always** the problem of the Contractor.
- Failing material tests are **never** the problem of the RE, provided you take appropriate action in a timely manner.
- If the RE does not act in a timely manner, failing material tests **always** become the problem of the Resident Engineer.

Basic Materials “Concepts”

Concept #2

RE has the right to...

- Sample
- Test
- Inspect
- Reject ...material at the jobsite

“The Engineer may reject work that does not comply with the Contract at any time, including after a payment has been made.”

Section 5-1.01 and 5-1.03 CTSS

Basic Materials “Concepts”

Concept #3

- Not paying for a material that fails to meet a contract requirement, but allowing it to remain in place, is not an acceptable solution.
- Material good enough to be left in place has some value and should be paid for at that value.
- If the material has no value, then it is not good enough to be left in the completed work.

Basic Materials “Concepts”

Concept #4

- **All** materials entering the work must meet the *contract requirements* for that item.
- If material that does not meet the contract requirements is to remain in the work, a contract change order (CCO) is required.

What is a Quality Assurance Program

A Quality Assurance Program (QAP) is the document by which an *auditor/reviewer* will determine if adequate testing/QA was performed on your project.

What is a Quality Assurance Program

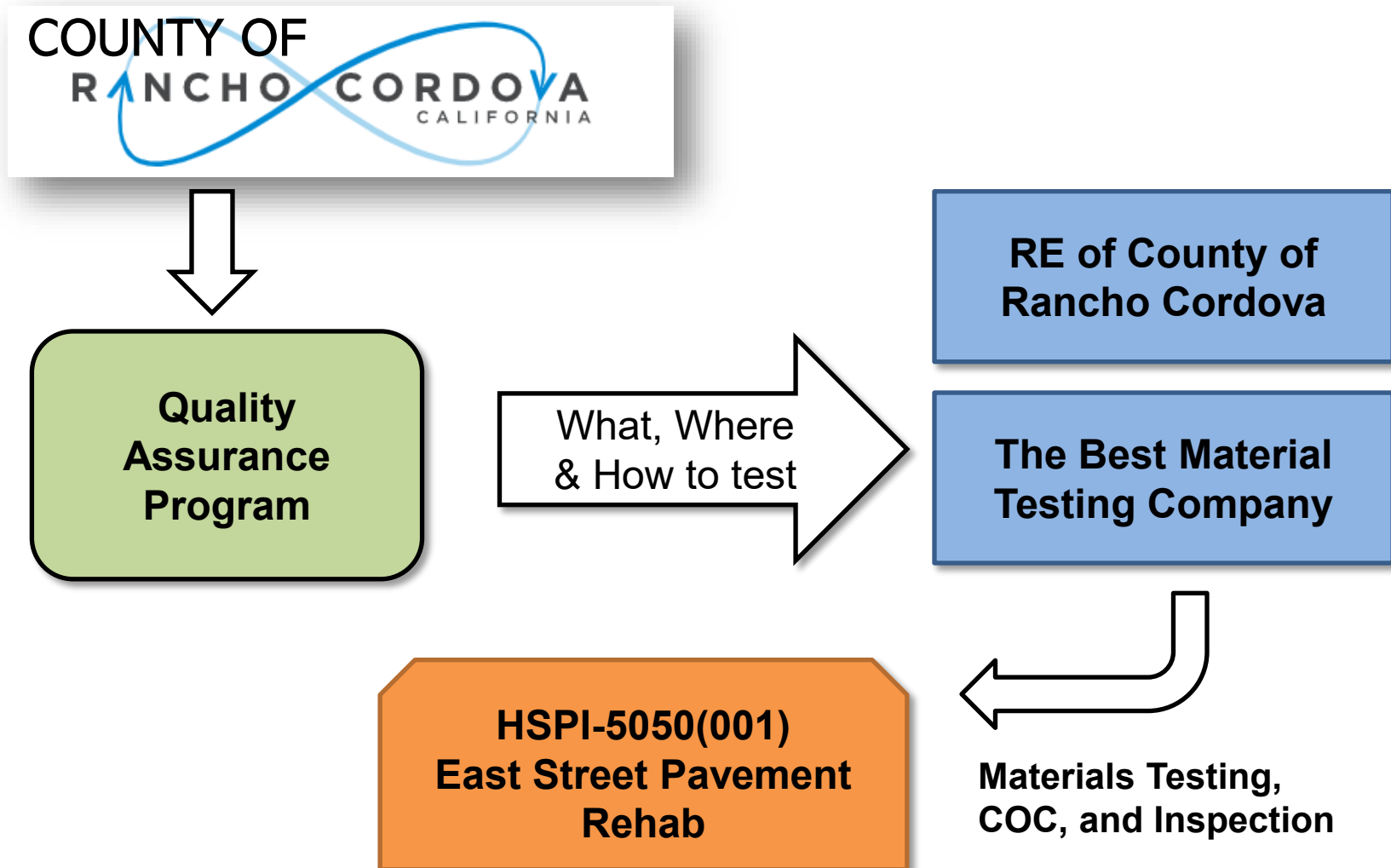
A sampling and testing program that will provide assurance that the *materials and workmanship* incorporated in each roadway/highway construction project are in *conformance with the contract specifications*.

Chapter 16.11 LAPM, Quality Assurance Program

Quality Assurance Program (QAP)

- Required for all LPA seeking federal-aided projects
- Signed by public works director or next highest PE
- Updated once every 5 years, or more often
- No E76 “without verification of an adopted QAP”
 - send in QAP to area engineer for verification

QAP Workflow



Structure of a Typical QAP

A. General Discussion

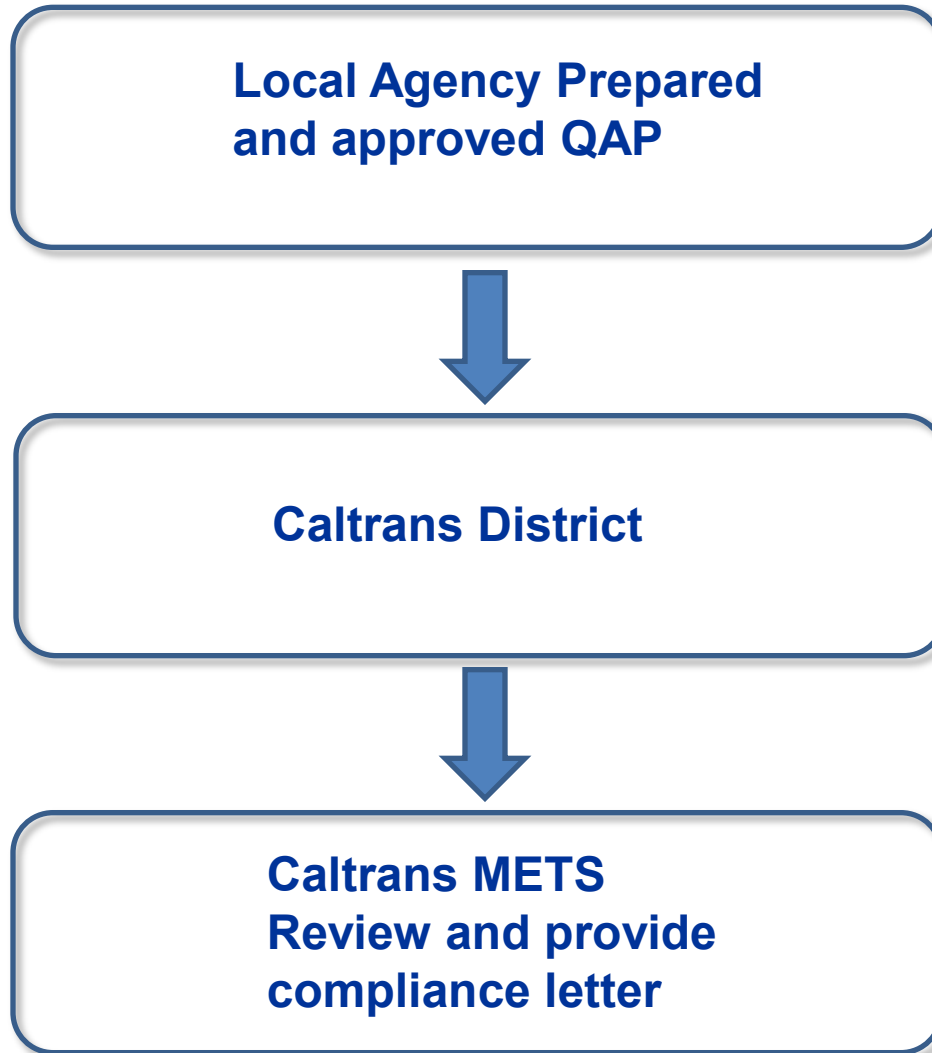
- Variations for SHS, NHS, Non-NHS projects
- Acceptance Program elements
- IA Program elements
- Dispute resolution process
- Filing of QA Documents

Structure of a Typical QAP

B. Tables and Attachments

- Sampling and Testing Frequency Requirements.
- Materials Accepted by a Certificate of Compliance.
- Testing Results Summary Log.
- QA Filing Index (recommended).

QAP Review Process



QAP Review Request Form

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
REQUEST FOR QUALITY ASSURANCE PLAN (QAP) REVIEW
TL-0123 (REV/03/2021)

E-mail completed requests to: IA.Service.Request@dot.ca.gov

PERSONAL INFORMATION NOTICE
Pursuant to the Federal Privacy Act (Section 552 et seq.) and the Information Practices Act of 1977 (IPA) (Civil Code Sections 1798 et seq.), notice is hereby given for the request of personal information by this form. The requested personal information is voluntary. The principal purpose of the voluntary information is to facilitate the processing of this form. The failure to provide all or any part of the requested information may delay processing of this form. No disclosure of personal information will be made unless permissible under Article 6, Section 1798.24 of the IPA of 1977. Each individual has the right upon request and proper identification, to inspect all personal information in any record maintained on the individual by an identifying particular.

QAP REVIEW REQUEST

Section 1: Local Agency Information

Local Agency Name: _____ County: _____
Address: _____ City: _____ Zip: _____
Phone Number: _____ Email: _____
Submitted by (Name): _____ PE-Civil Lic. No.: _____
Position/Title: _____ PE-Civil Exp. Date: _____
Submittal Date: _____

Section 2: Attached Documents

The documents below must be provided with the initial QAP Review request.

1. Complete Local Agency Quality Assurance Plan (QAP) - see Quality Assurance Program (QAP) Manual for Use by Local Agencies (January 2011 revision) or Chapter 16.14 of [Local Assistance Procedures Manual \(LAPM\)](#) | [Caltrans](#) (January 2020 revision).
2. Applicable Attachments/Exhibits

Section 3: Reference Manuals

The document will be reviewed for compliance to California Department of Transportation, Local Assistance Procedure Manual (January 2020 revision), Quality Assurance Program (QAP) Manual for Use by Local Agencies (January 2011 revision) and Federal Highway Administration, 23 CFR 637-Subpart B.

Section 4: Requestor Information (District Local Assistance Engineer/Caltrans District Area Engineer)

Requestor Name _____	Position / District _____
Requestor Signature _____	Date _____


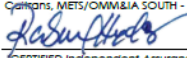
For IA Office Use Only:

Request #: _____	Date Received: _____
Received By: _____	Assigned To: _____

← **Local Agency**

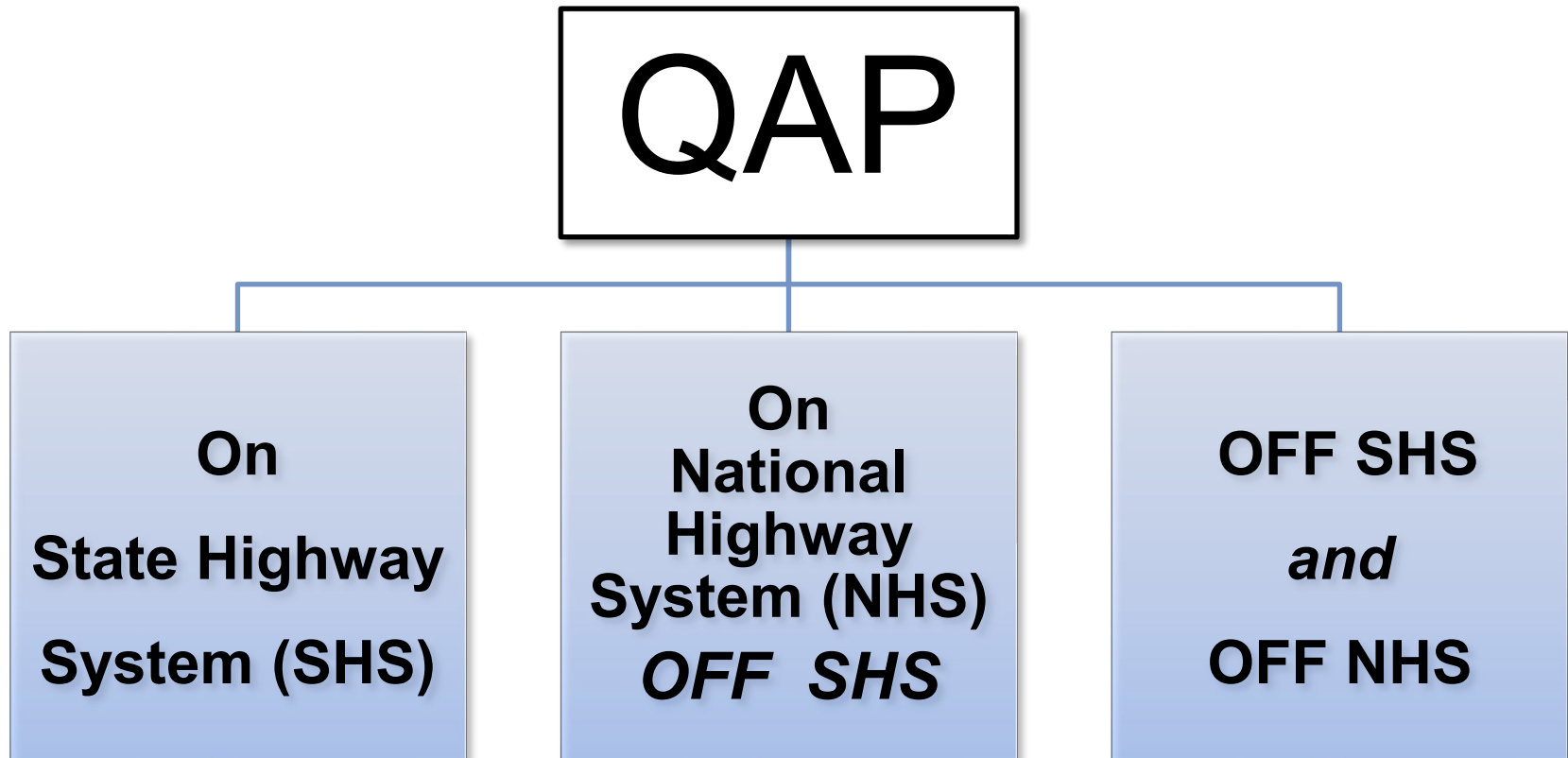
← **Caltrans District**

QAP Acceptance Letter

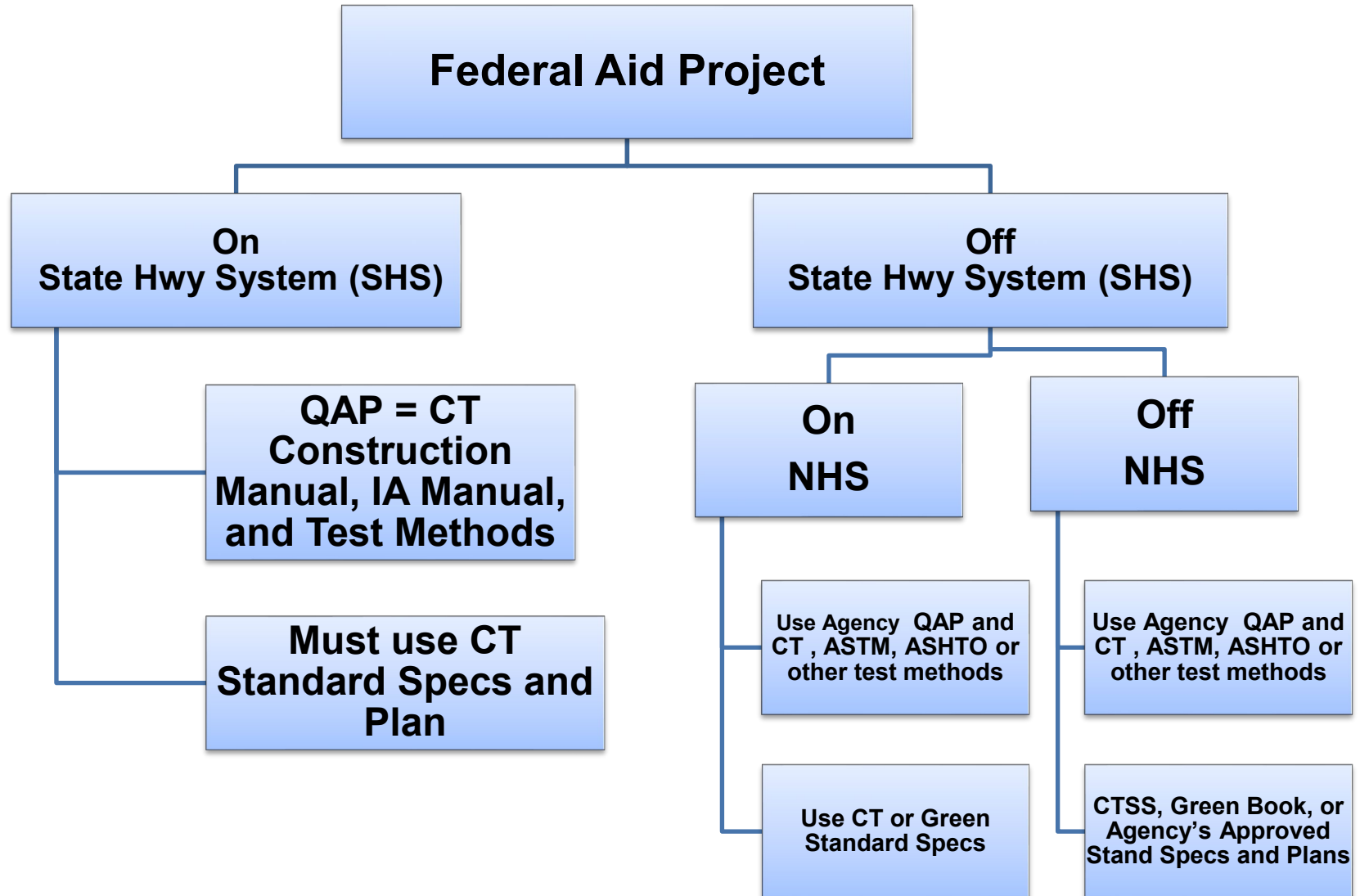
CALIFORNIA STATE TRANSPORTATION AGENCY		Gavin Newsom, Governor
DEPARTMENT OF TRANSPORTATION		
DIVISION OF ENGINEERING SERVICES		
MATERIALS ENGINEERING TESTING SERVICES AND GEOTECHNICAL SERVICES		
OFFICE OF MATERIALS MANAGEMENT AND INDEPENDENT ASSURANCE		
TRANSPORTATION LABORATORY-MS 5 5900 FOLSIOM BLVD. SACRAMENTO, CA 95819-4612		
Status:		Compliance
Quality Assurance Program REVIEW/ACCEPTANCE LETTER		
Name of Agency:		DATE: 2/18/2021
Address:		
Telephone Number:		
Name and Title of person In Charge:		
The document will be reviewed for compliance to California Department of Transportation, Quality Assurance (QAP) Manual for Use by Local Agencies (Jan. 20, 2011 revision) and Federal Highway Administration, 23 CFR 637.		
A. Document Reviewed		
ITEM NO.	DESCRIPTION	
1	KERN COUNTY Quality Assurance Program (QAP) dated : 02/12/2021	
2	Caltrans Local Assistance District: District 6	
3	Local Assistance area engineer -Kirk Anderson, Email: kirk.anderson@dot.ca.gov, Phone: (559) 445-6273	
B. Conditions of acceptance		
ITEM NO.	DESCRIPTION	
1	Document was reviewed and found to be in <u>COMPLIANCE</u> to our requirements	
2	Consistent with requirements accepted as part of this QAP	
2.1	This QAP is applicable to all projects on NHS, SHS, and non-NHS	
2.2	Material testing and sampling frequency table: see <u>Appendix B (also attached to this QAP)</u>	
2.3	Test Method (when use): CTM - only Caltrans certified laboratory & tester will perform Acceptance Testing (AT), a secondary Independent Assurance Program (IAP) is not required.	
2.4	Test Method (when use): AASHTO/ASTM - qualified laboratory & tester to perform Acceptance Testing (AT) and a separate laboratory and tester with similar or higher qualification to perform Independent Assurance Program (IAP) must be hired through local agency and conform to Section 5 of QAP Manual, Rev. Jan 20, 2011	
2.5	Project on NHS/SHS will conform to testing program per item 8.2.3 and AASHTO where CTM is not available.	
2.6	Agency will use certified private materials laboratory. Check https://sds.dot.ca.gov/ for most update certifications.	
3	Provide a signed hard copy to District 6 area engineer and/or DLAE for archive.	
4	This document (letter) shall be a part of QAP, to be attached to project construction document to be reviewed by Oversight Engineer and/or FHWA.	
C. Reviewed by		
Rabiul Hyder, Email: rabiul.hyder@dot.ca.gov		
Caltrans, METS/OMM&IA SOUTH - (916) 708-7152		
		
CERTIFIED Independent Assurance Engineer		
2/18/2021		
DATE		

Elements of a QAP

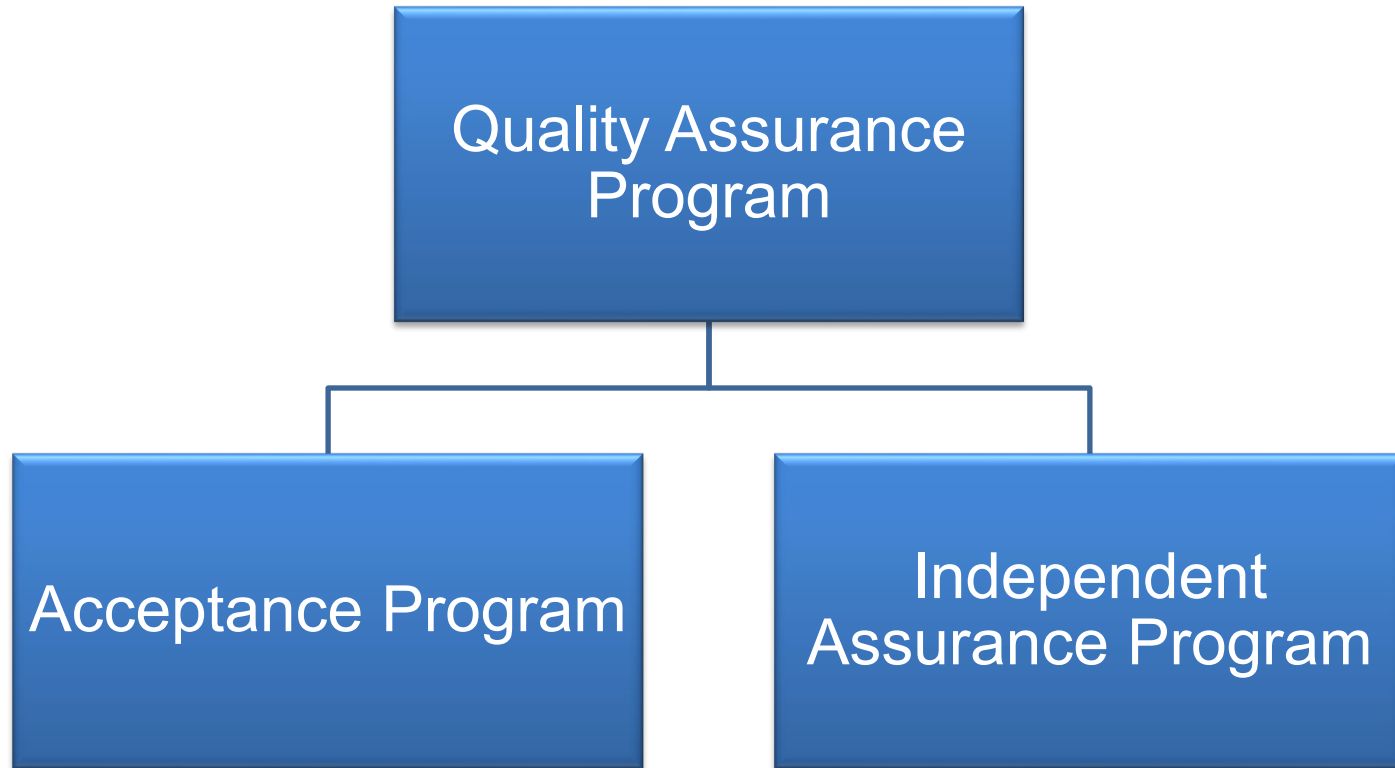
Variations within your QAP:



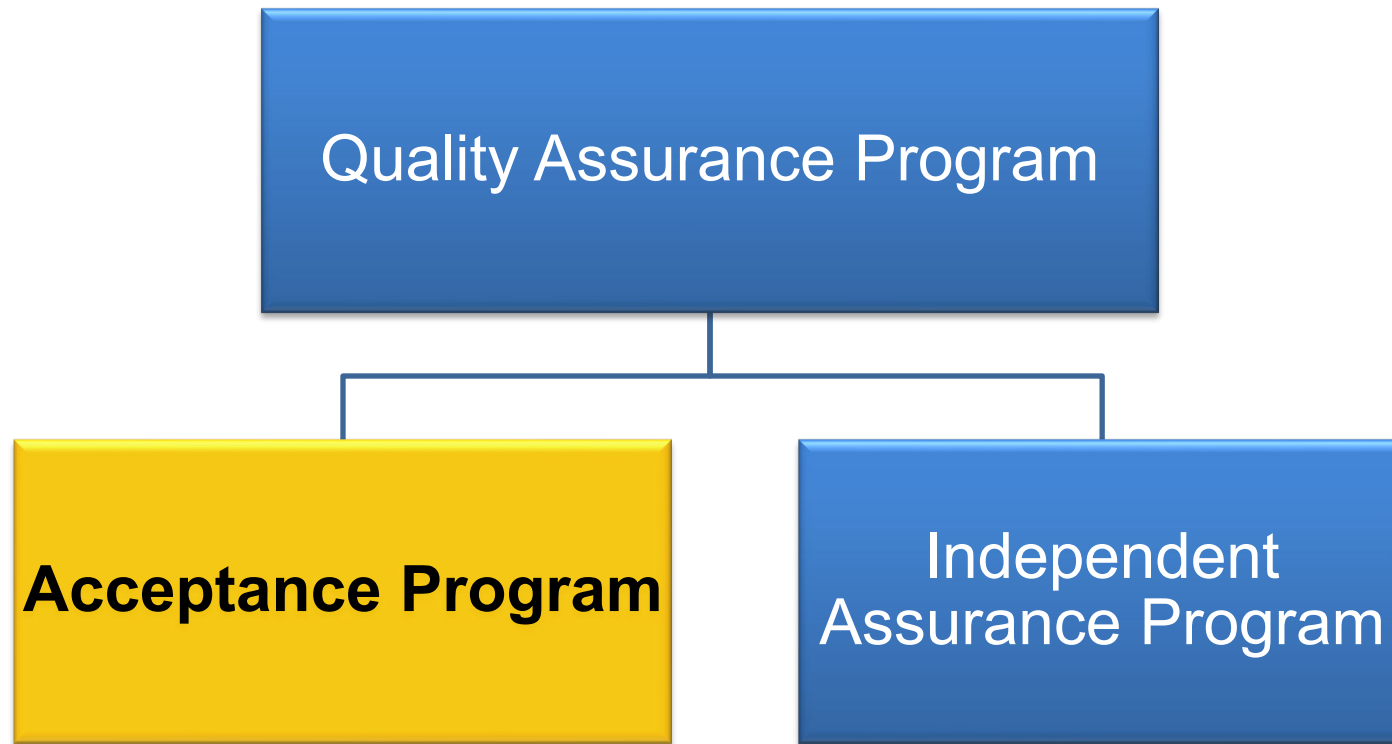
Elements of a QAP



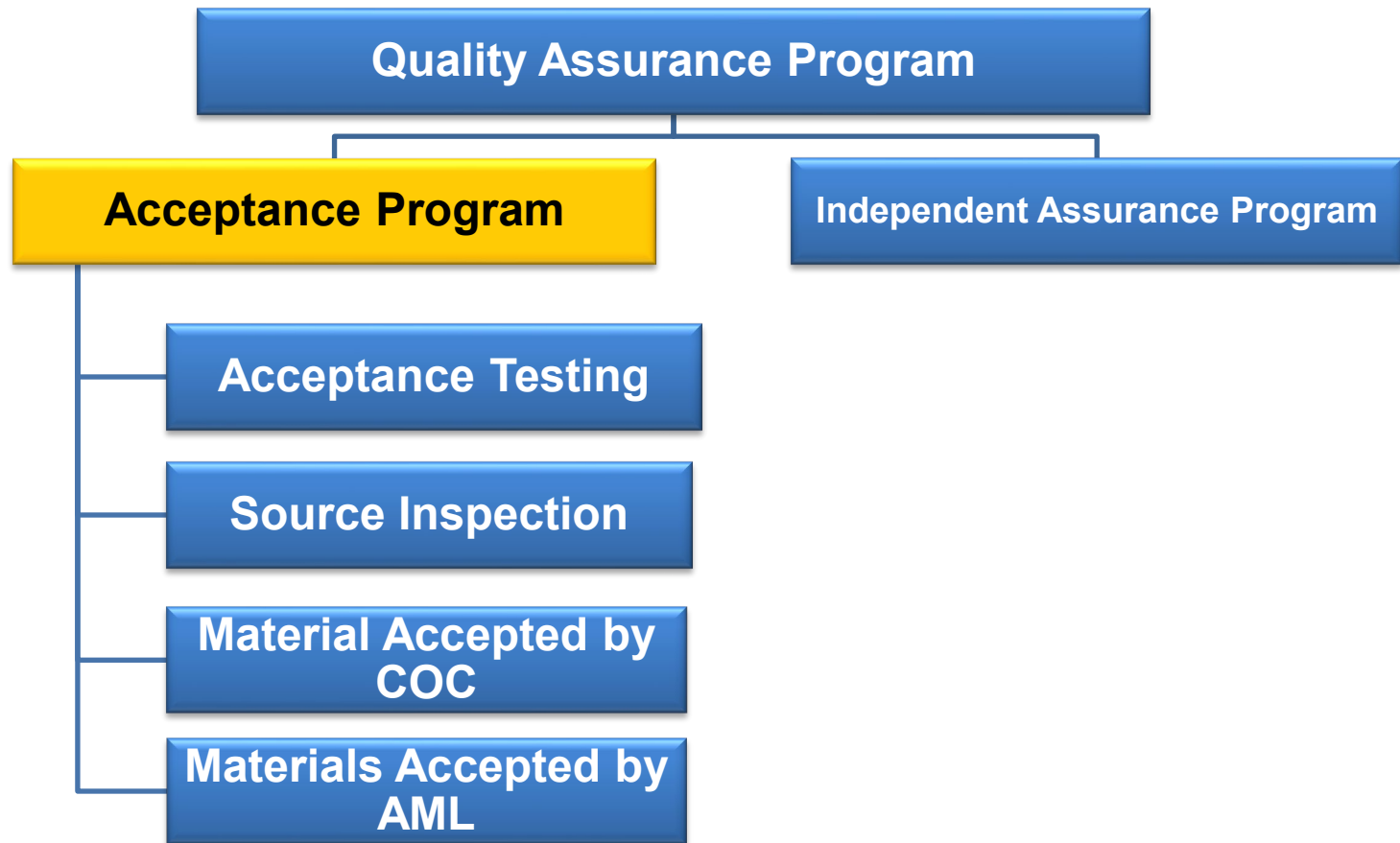
Elements of a QAP



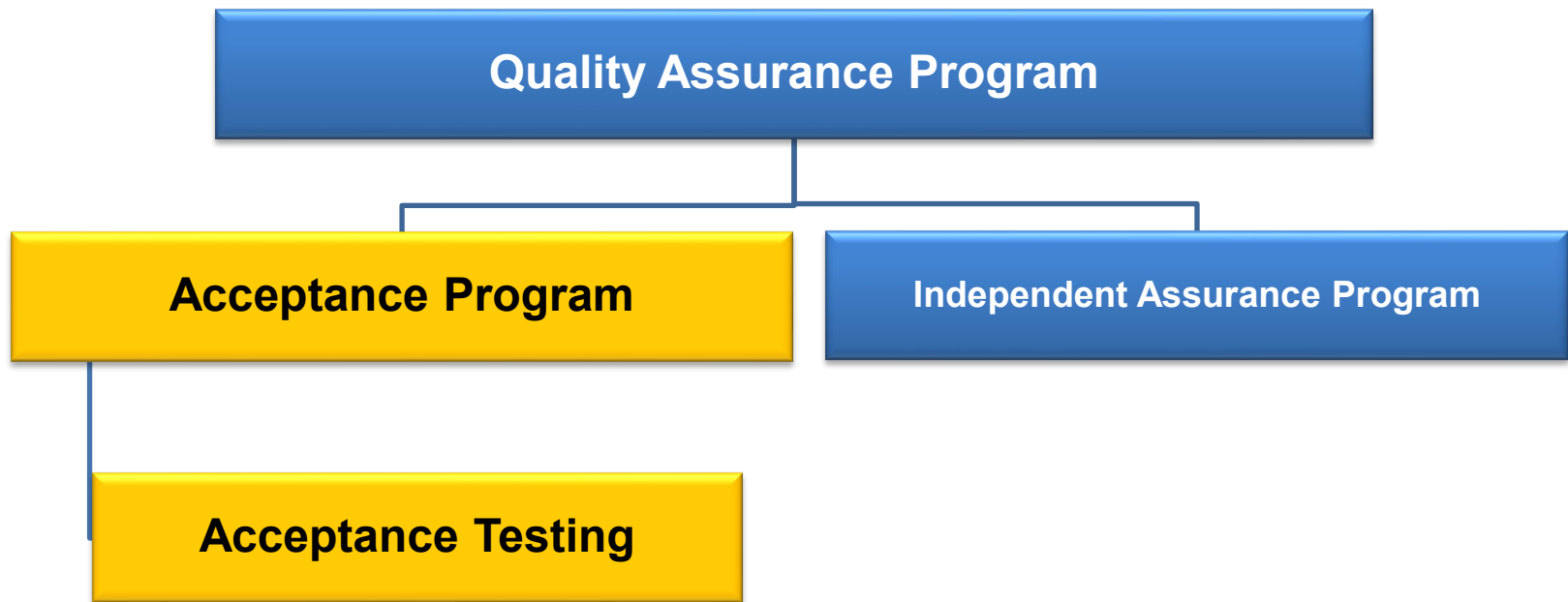
Elements of a QAP



Elements of a QAP



Elements of a QAP



- Verifies the materials and workmanship complies with the contract specs.
- Establishes the minimum number of acceptance tests to be used on each type of material to determine compliance –

Acceptance Program - Testing

Table 6-1.4. Materials Acceptance Sampling and Testing Requirements:
Earthwork (Standard Specifications Section 19) (1 of 3)

Test	Test Method	Sample Size & Container Size	Sampling Location (see Note)	Acceptance Test Frequency	Remarks
STRUCTURE BACKFILL (Section 19-3.02C)					
Sieve Analysis	California Test 202	50 lb	Materials site or stockpile	1 every 3,000 tons or 2,000 cu yd	If uniform material is within specification limits, test frequency may be decreased to 1 per day
Sand Equivalent	California Test 217	50 lb	Materials site or stockpile	1 every 3,000 tons or 2,000 cu yd	If uniform material is within specification limits, test frequency may be decreased to 1 per day
Relative Compaction	California Test 231	Sample for California Test 216	Project site in accordance with California Test 231	1 every 2,000 sq yd and test compaction at every 8 in. of thickness	Relative compaction test is required at each location structure backfill is placed

Table 6-1.2. Time Required for Materials Acceptance Tests (1 of 4)

Material and Test	Sample to Lab (Note 1) (business days)	Lab Time Priority (Note 2) (business days)	Lab Time Normal (Note 2) (business days)	Reporting to Contractor (Note 3) (business days)	Total (business days)
SOILS					
Gradation (CT 202)	1 to 2	1	3	2	4 to 7
Sand Equivalent (CT 217)	1 to 2	1	3	2	4 to 7
Relative Compaction (CT 231/216)	1 to 2	1	2	2	4 to 6
Plasticity Index (Geosynthetic Reinforced Embankment)	1 to 2	3	7	2	6 to 11
pH (Geosynthetic Reinforced Embankment)	1 to 2	2	3	2	5 to 7
Percentage Crushed Particles (Shoulder Backing – CT 205)	1 to 2	2	5	2	5 to 9

CT Construction Manual Ch. 6

Acceptance Program - Testing

SUBGRADE (DISTURBED BASEMENT SOIL) OR EMBANKMENT

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Maximum Density and Relative Compaction	CT 216/CT 231	1 Min. Test per 5000 sq ft under vehicle traveled way and shoulder 1 Min. Test Per 300 linear foot under sidewalk	Random locations as determined by the Engineer in place after compaction.

AGGREGATE BASES AND SUBBASES, IMPORTED BORROW

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 Min. Test Per Material Source	Sample from site stockpile/plant prior to placement.
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216/CT 231	1 Min. Test per 5000 sq ft	Random locations as determined by the Engineer in place after compaction.

STRUCTURE BACKFILL, SELECT BACKFILL

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 Min. Test Per Material Source	Sample from site stockpile/plant prior to placement
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216/CT 231	1 Min. Test Per 2 Vertical Lifts of Placement	Random locations as determined by the Engineer in place after compaction.

Sampling and Testing Frequency Table
for projects OFF the SHS

Acceptance Program - Testing

Acceptance Test Methods

Caltrans

[California Test Methods \(CTM\) | Caltrans](#)

AASHTO

[Samples Types and Tests \(aashtoresource.org\)](#)

ASTM

[Book of Standards - Products & Services \(astm.org\)](#)

Accreditation Body

	CTM	AASHTO	ASTM
Laboratory	Caltrans IA	AASHTO re:source And JTCP (portion)	AASHTO re: source
Technician /Tester	Caltrans IA and JTCP (portion)	JTCP (portion)	ASTM Personnel Cert.

Acceptance Program - Testing

Minor Quantities Accepted Without Testing Allowed, if:

1. Meets the criteria of Section 16-11 of the LAPM
 - A. The source has recently furnished similar materials that passed testing requirements.
 - B. The manufacturer will certify it meets the specs.

**Must indicate in your QAP and
accepted by METS**

Acceptance Program - Testing

Only for “minor” quantities:

- Aggregates of PCC:
 <100 tons/day, < 500 tons/project
- Bituminous mixtures (Hot Mix AC)
 < 50 tons/day, also at RE's discretion
 if job < 500 ton
- Bituminous Material (Asphalts)
 < 100 gallons/project
- Non-reinforced or clay pipe
 < 100 feet/project

Acceptance Program - Testing

Mix Design Approval

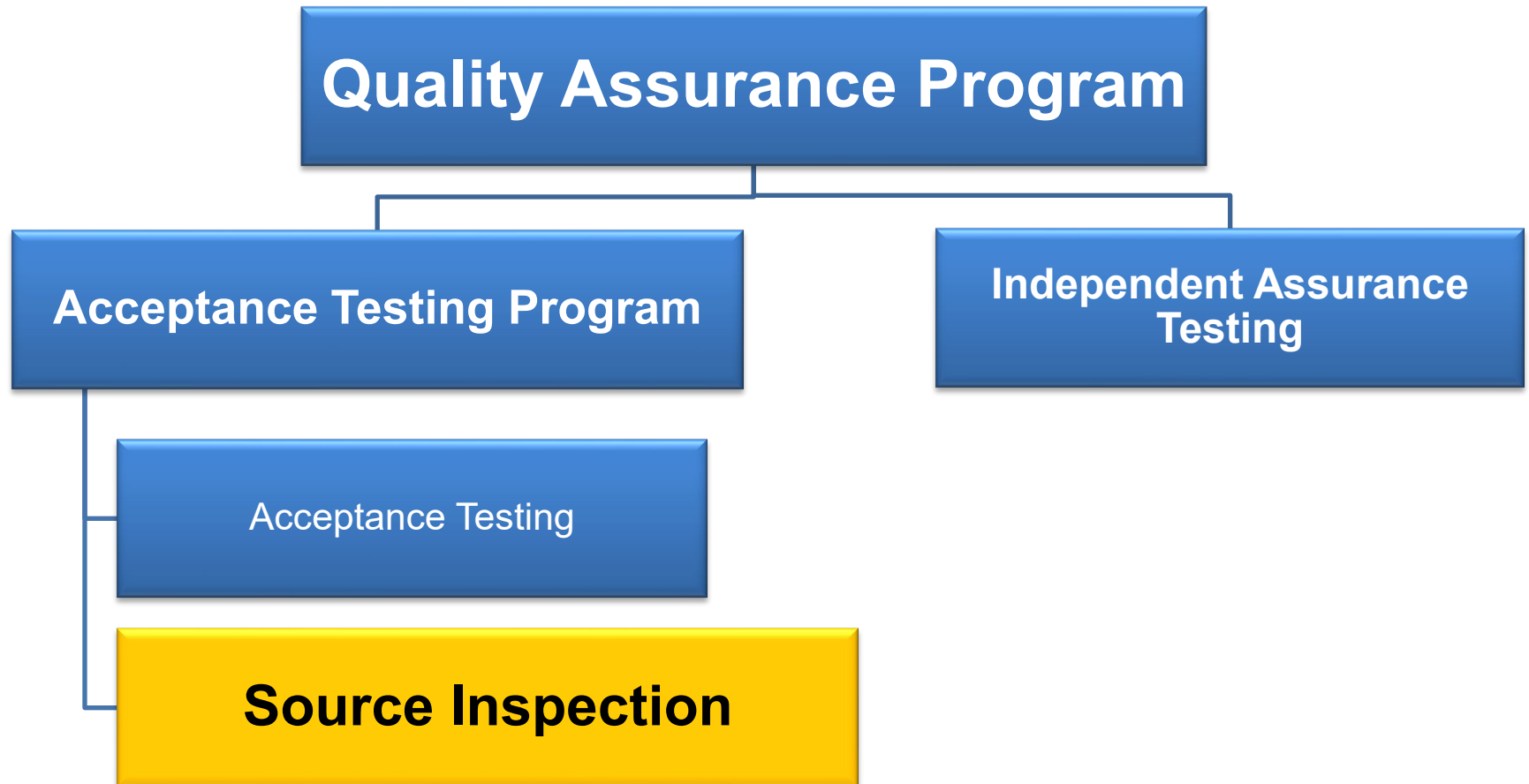
Submittal by contractor

- Source (plant)
- Product
- Mix design number
- Specify area/location or item of work

Reviewed and approved by RE

- Approve in writing
- Specifies what work it may be used in
- Copy in file

Acceptance Program - Source Inspection

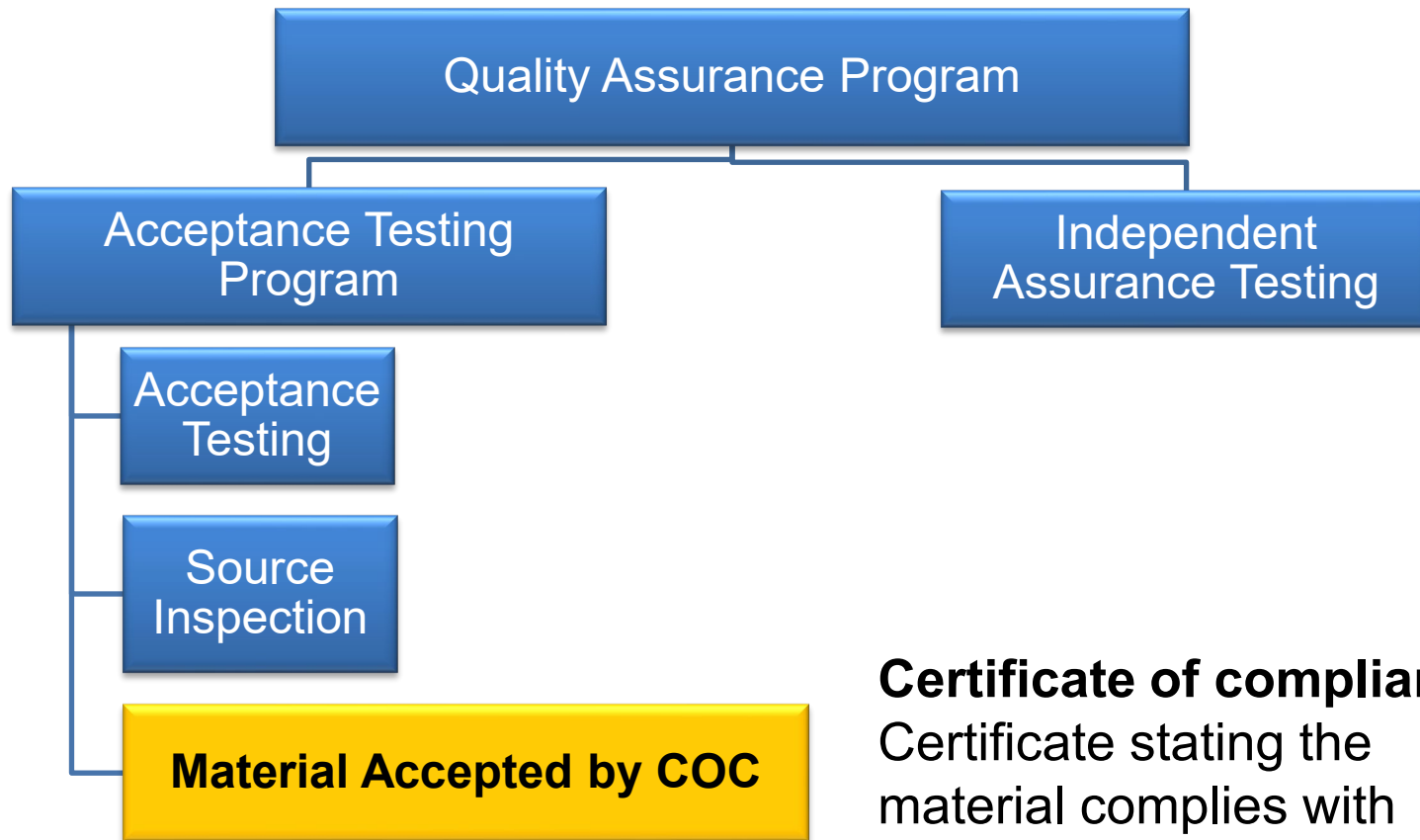


Acceptance Program - Source Inspection

Source Inspection

- Used for manufactured and prefabricated materials at locations other than the job site
- Performed by agency or consultant lab staff
- Documentation is key!

Elements of a QAP



Certificate of compliance:
Certificate stating the material complies with the Contract.

1-1.07 DEFINITIONS, CTSS

Materials Accepted by COC

When specified in the contract

Submit a certificate:

- **Before** material is incorporated.
- For each lot and identify lot on the COC.
- Signed by producer of the material.
- Stating the material complies with the contract.

6-2.03C Certificates of Compliance, CTSS
4-1.5 General, Greenbook

Materials Accepted by COC

- LAPM Chapter 16.11.1 Material Acceptance Program (table attached)
- Table 6-2.3
Materials Accepted
by Certificate
of Compliance

Table 6-2.3. Materials Accepted by Certificate of Compliance (1 of 12)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Alternative earth retaining systems	Must state that the supplied material complies with the index criteria for the system at the time of prequalification.
Asphalt	<p>Certificates of compliance must include the following:</p> <ol style="list-style-type: none">1. Name and location of the supplier.2. Grade of the asphalt.3. The date and time of shipment.4. A unique shipment number, such as a bill of lading number or manifest number.5. A statement confirming that the transport vehicle was checked before loading and was found acceptable for the asphalt shipped.6. The following wording: “(Supplier name) hereby certifies that the asphalt product accompanying this certification was produced in accordance with the California Department of Transportation’s Certification Program for Suppliers of Asphalt, and that this product complies in all respects with the requirements of the applicable specifications for the asphalt product identified on this document. <p>I hereby certify by my signature that I have the authority to represent the supplier providing the accompanying asphalt product.”</p>

Materials Accepted by COC

Materials Accepted by a Certificate of Compliance – LAPM Chapter 16

Materials Requiring a Certificate of Compliance per Caltrans Standard Specifications		
Materials Requiring a Certificate of Compliance per Caltrans Standard Specifications		
Caltrans 2024 Standard Specifications	Material	Additional Info and/or Attachments Required*
6-1.04 BUY AMERICA		
6-1.04B	Crumb rubber	COC
6-1.04C	Steel and iron materials	COC + cert. mill test reports
6-1.07B	Telecommunications and Video Surveillance Equipment	COC
11-2 WELDING QUALITY CONTROL		
11-2.03D	Welding	COC
11-3 WELDING FOR OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES		
11-3.303	Welding	COC
12-3 TEMPORARY TRAFFIC CONTROL DEVICES		
12-3.03A(3)	Plastic Traffic Drums	COC
12-3.20A(3)	Temporary Barrier System	COC
12-3.23A(3)	Impact Attenuator	COC
12-3.32A(3)	Portable CMS	COC
12-3.33A(2)	Portable Signal System	COC
13-2 WATER POLLUTION CONTROL PROGRAM		

Materials Requiring a Certificate of Compliance per Caltrans Standard Specifications		
Caltrans 2024 Standard Specifications	Material	Additional Info and/or Attachments Required*
20-2.08A(3)	Polyethylene pipe	COC
	Plastic pipe supply line	COC
20-3 PLANTING		
20-3.01A(3)(c)	Sod	COC
	Soil amendment	COC
	Plant tubes	COC
20-5 LANDSCAPE ELEMENTS		
20-5.03A(1)(c)	Filter fabric	COC + product data
20-5.03D(1)(c)	Solidifying emulsion	COC + product data & samples
20-5.04A(3)	Wood mulch	COC + sample & authorization
21-2 EROSION CONTROL WORK		
21-2.01C(1)	Straw	COC
	Weed-free straw	COC + cert. of quarantine
	Fiber	COC
	RECP	COC
	Fasteners	COC
	Hydraulically applied erosion control materials	Submit records
21-2.01C(2)	Compost	Submit reports
21-2.01C(3)	Seed	Submit reports
21-2.01C(4)	Tackifier	COC + SDS + Reports
	Bonded fiber matrix	COC + SDS + Reports
21-2.01C(5)	Fiber Reinforced Matrix	COC + Manufacturer information
24 STABILIZED SOILS		
24-1.01C(1)	Stabilizing agent	COC + sample
24-3 CEMENT STABILIZED SOIL		
24-3.01C	Cement	COC + sample
30-4 FULL DEPTH RECYCLING - CEMENT		
30-4.01C(2)	Cement	COC
30-5 PARTIAL DEPTH RECYCLING		
30-5.01C(3)	Recycling agent	COC + SDS + test results
	Cement	COC + SDS
	Other Additives	COC + SDS

* For those materials requiring additional information on or with the COC, see specification.

(Handout pages 2-9)

Materials Accepted by COC

Materials Requiring a Certificate of Compliance – Greenbook 2024

Materials Requiring a Certificate of Compliance per the Greenbook				
Greenbook 2024 Materials Requiring a Certificate of Compliance or Certified Test Reports				
	Material	Section #	Section Title	Additional Comments
1	Any material or assembled material if required by the Engineer	4-5	Certificate of Compliance	General Requirements from 2024 edition of Greenbook
2	Scales and Metering Equipment	4-7	Weighing Equipment	Engineer to "approve" prior to operation.
4	Fly Ash	201-1.2.7.3	Fly Ash	Specific language/info required on the COC. Must also submit test data upon request.
5	Pozzolans	201-1.2.7.4	Class N Pozzolans	Specific language/info required on the COC. Must also submit test data upon request.
6	Fiber Reinforcement for fiber reinforced concrete or air placed concrete, method B	201-2.3	Fiber Reinforcement	
7	Joint Sealant, Type E	201-3.9	Test Report and Certification	Specific language/info required on certified test reports upon request
8	Sheet Curing Materials	201-4.3	Test Report and Certification	Must submit certified test report upon request.
9	Paving Asphalt	203-1.3	Test Report and Certification	Specific language/info required on certified test reports.
10	Liquid Asphalt	203-2.2	Test Report and Certification	Specific language/info required on certified test reports.
11	Microsurfacing Emulsion (MSE)	203-3.4.6	Microsurfacing Emulsion (MSE)	A COC for each shipment of MSE delivered to the work site
12	Emulsified Asphalt	203-3.5	Certificate of Compliance	Must also submit test data upon request

(Handout pages 10-11)

Materials Accepted by COC

Required information on COC

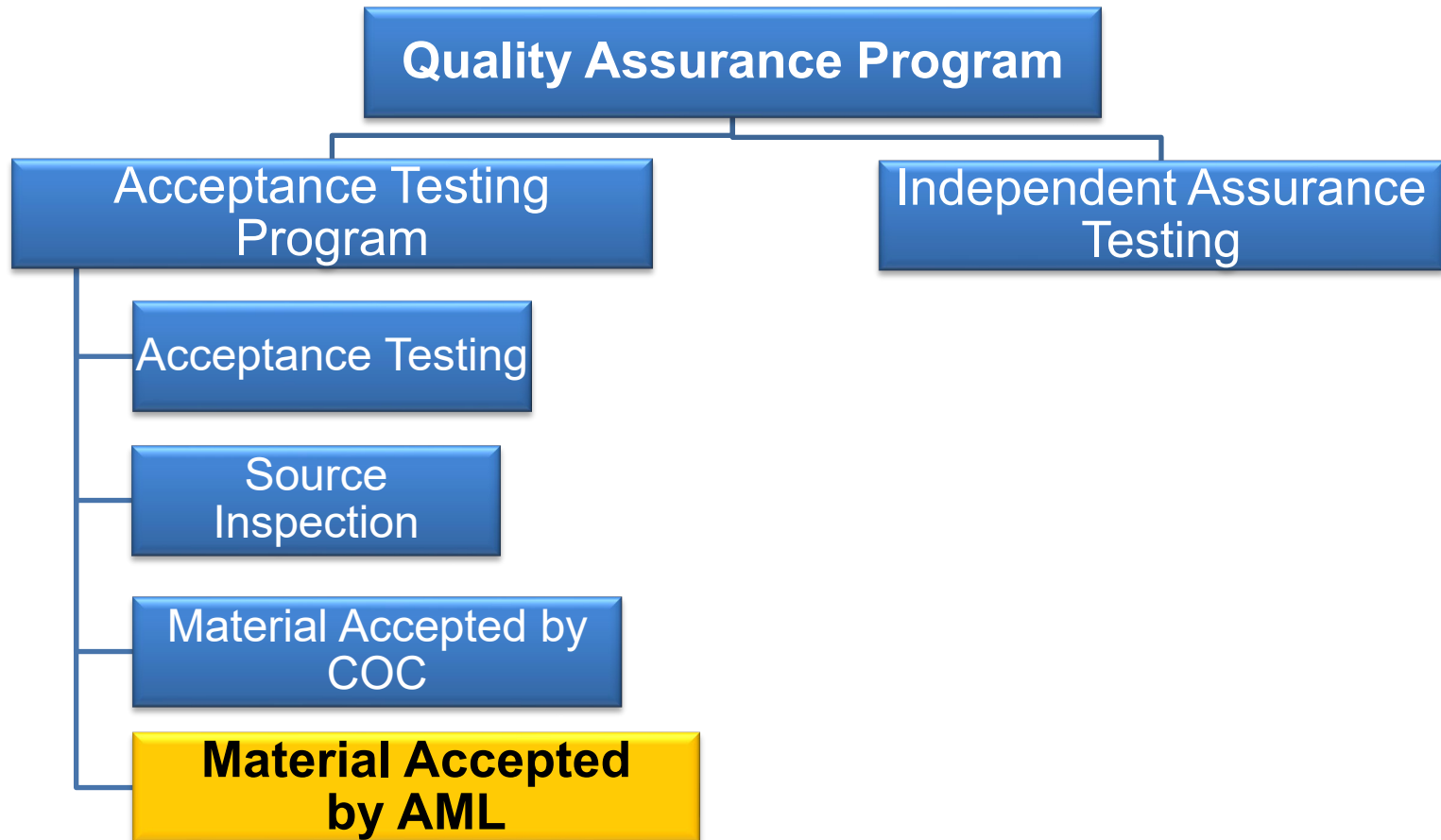
Materials Accepted by Certificate of Compliance

The LPA may permit the use of certain manufactured products, materials, or assemblies accompanied by a Certificate of Compliance (COC) prior to sampling and testing, provided these products, materials, or assemblies do not involve structural integrity or safety to the public. Additionally, these items must have a history of having met specifications based upon previous sampling and testing. The manufacturer of the products, materials, or assemblies must sign the COC and state that the included materials and workmanship conform in all respects to the project specifications. The contract documents must specify which materials require the Contractor to submit a COC. The RE is responsible for ensuring that a COC is furnished with each lot of these materials delivered to the work site. [Materials Requiring a Certificate of Compliance Per the Caltrans Standards Specifications](#) and [Materials Requiring a Certificate of Compliance Per the Greenbook](#) are lists of materials for which the contractor must submit a COC per the respective project specifications. The COC must be furnished before the material is incorporated into the work and include:

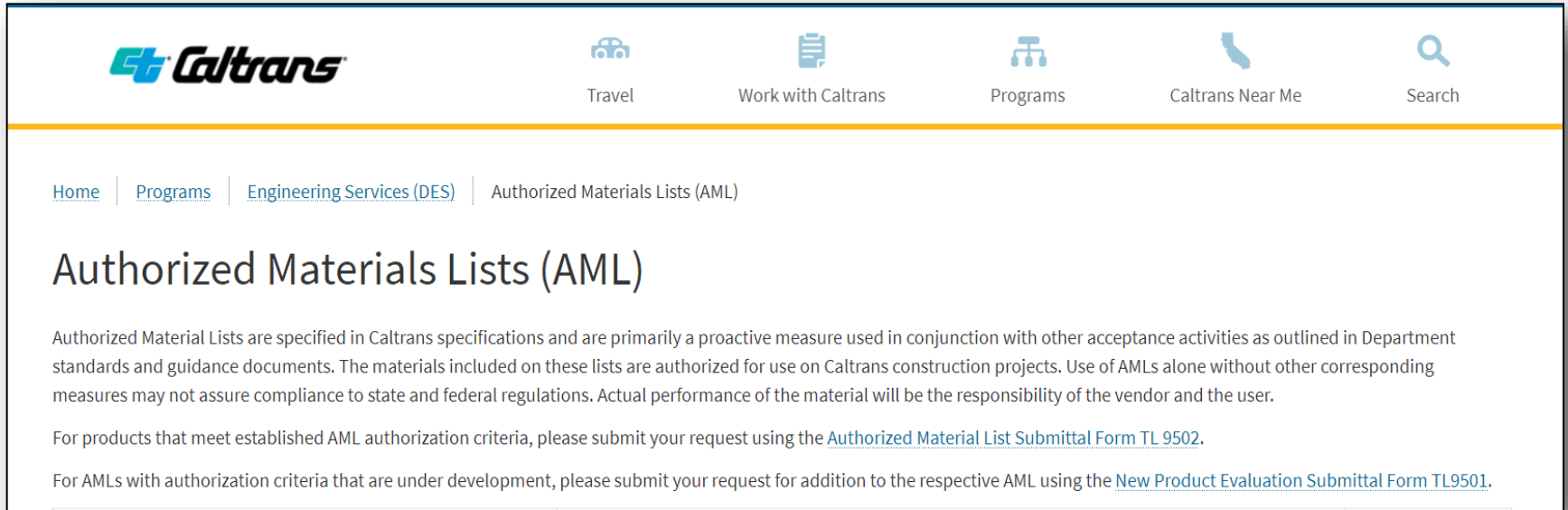
- Project number
- Certified material lot number matching lot tags affixed or stenciled to the released materials
- Manufacturer's signature
- A statement that the material complies with the specifications of the contract

All materials accepted on the basis of a signed COC must be documented in the inspector's daily reports. Inspect the material upon arrival to be sure it meets the requirements of the specifications and is undamaged by shipping and handling before accepting. Manufactured products, materials, or assemblies used on the basis of a COC may be sampled again at the job

Elements of a QAP



Material Accepted by AML



The screenshot shows the Caltrans website header with the logo and navigation links: Travel, Work with Caltrans, Programs, Caltrans Near Me, and Search. Below the header, the breadcrumb trail reads: Home | Programs | Engineering Services (DES) | Authorized Materials Lists (AML). The main heading is "Authorized Materials Lists (AML)". The text explains that AMLs are specified in Caltrans specifications and are a proactive measure used in conjunction with other acceptance activities. It states that materials on these lists are authorized for use on Caltrans construction projects, but use of AMLs alone without other corresponding measures may not assure compliance to state and federal regulations. Actual performance of the material will be the responsibility of the vendor and the user. Two links are provided: "Authorized Material List Submittal Form TL 9502" and "New Product Evaluation Submittal Form TL9501".

Caltrans

Travel Work with Caltrans Programs Caltrans Near Me Search

Home | Programs | Engineering Services (DES) | Authorized Materials Lists (AML)

Authorized Materials Lists (AML)

Authorized Material Lists are specified in Caltrans specifications and are primarily a proactive measure used in conjunction with other acceptance activities as outlined in Department standards and guidance documents. The materials included on these lists are authorized for use on Caltrans construction projects. Use of AMLs alone without other corresponding measures may not assure compliance to state and federal regulations. Actual performance of the material will be the responsibility of the vendor and the user.

For products that meet established AML authorization criteria, please submit your request using the [Authorized Material List Submittal Form TL 9502](#).

For AMLs with authorization criteria that are under development, please submit your request for addition to the respective AML using the [New Product Evaluation Submittal Form TL9501](#).


Complete List of AML:






<https://dot.ca.gov/programs/engineering-services/authorized-materials-lists>

5.1 Handout pages 54-59

Material Accepted by AML

Example of AML product



TravelWork with CaltransProgramsCaltrans Near MeSearch

[Home](#) | [Programs](#) | [Engineering Services \(DES\)](#) | [Authorized Materials Lists \(AML\)](#) | Crumb Rubber Modifier

Crumb Rubber Modifier

Last edit date: 5/2/2024

Crumb Rubber Modifier (CRM) is used in Asphalt Rubber Binder Chip Seal and Rubberized Hot Mix Asphalt (RHMA). There are two material specifications for CRM, scrap tire crumb rubber and high natural scrap tire crumb rubber.

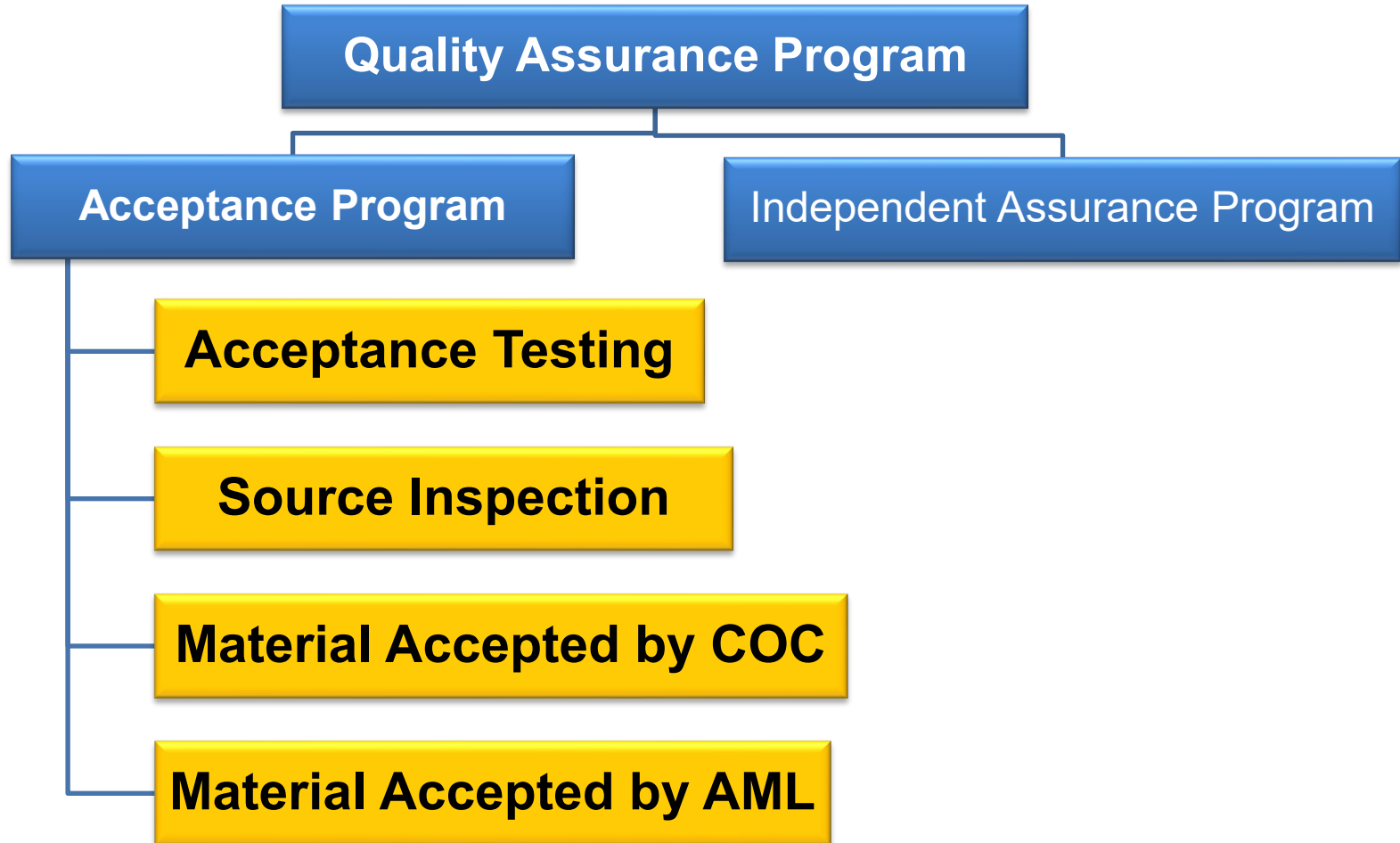
The specification requirements for scrap tire crumb rubber and high natural scrap tire crumb rubber are listed in Section 37-2.04, Section 39-3 and Section 92-1.01B of the 2015 Standard Specifications.

Evaluation Criteria: [Authorization Procedures and Acceptance Criteria for Crumb Rubber Modifier](#).

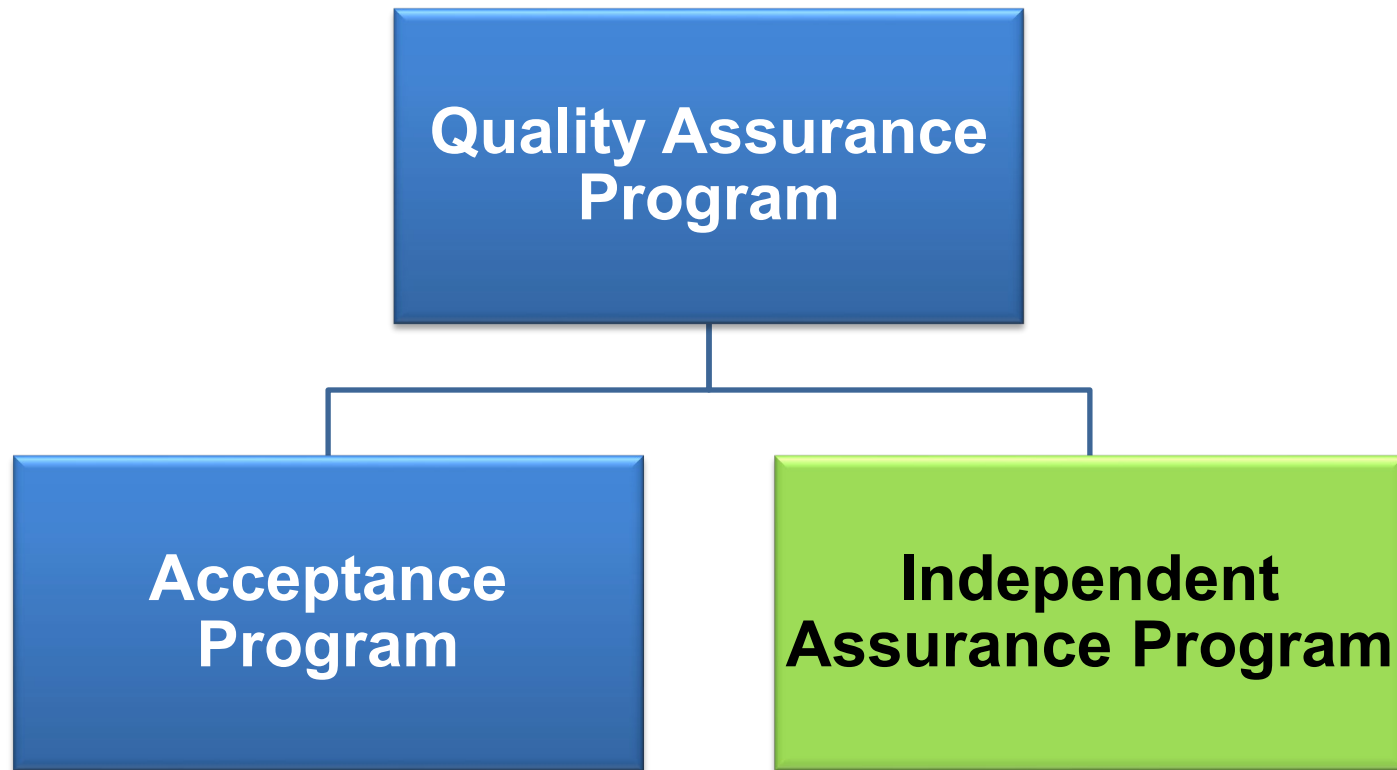
Supplier Name and Location	Contact Information	Product Descriptions	Expiration Date	BABA Act Information*
American Tire Recycling, LLC. - Ballico, CA	(209) 667-8473	Scrap tire crumb rubber, High natural scrap tire crumb rubber	4/2025	Construction material, domestic source reported
BAS Recycling, Incorporated - San Bernardino, CA	(951) 214-6590	Scrap tire crumb rubber, High natural scrap tire crumb rubber	3/2029	Construction material, domestic source reported
CRM (Crumb Rubber Manufacturers) - Corporate Headquarters - Newport Beach, CA	(949) 263-9100	Scrap tire crumb rubber, High natural scrap tire crumb rubber	5/2028	Construction material, domestic source reported

<https://mets.dot.ca.gov/aml/CrumbRubberModifierList.php>

Elements of a QAP



Elements of a QAP



Elements of a QAP

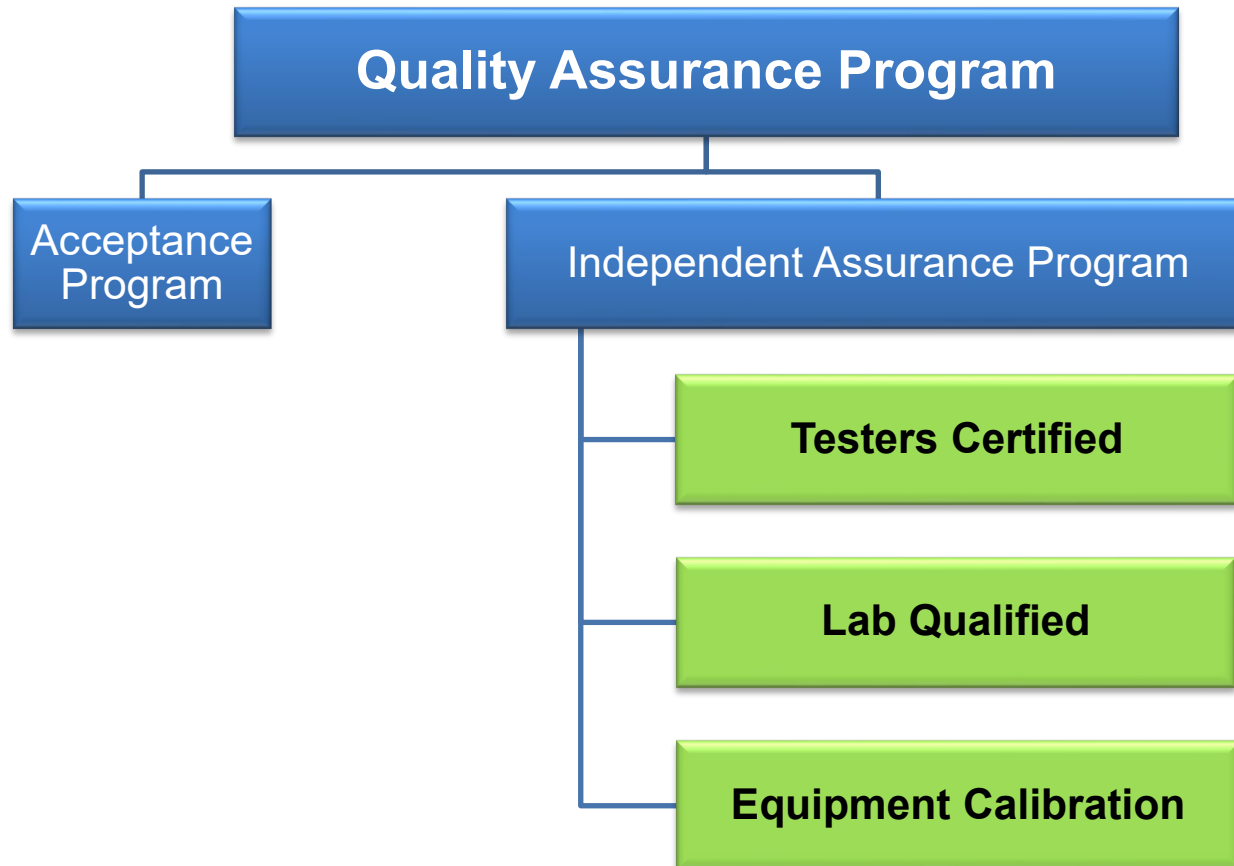
Independent Assurance Program

**Verifies that the acceptance testing
is being performed correctly.**

*“...an unbiased and independent evaluation of all
the sampling and testing procedures used in the
acceptance program.”*

23 CFR 637.203

Elements of a QAP



Elements of a QAP

The Independent Assurance program shall also:

- Include a schedule of frequency for IA evaluation
- Maintain records of tester certificates of proficiency and lab accreditation



5.1 Handout page 23-31
FHWA Tech Brief: Independent Assurance Programs

Elements of a QAP

IA: Tester Certificates of Proficiency

1. Name of tester
2. Methods certified
3. Expiration date

5.1 Handout page 32



SIAD TL-0111: CT CERTIFICATION

**CALIFORNIA DEPARTMENT
OF TRANSPORTATION**

Presents this CERTIFICATE to
Derek Carrington
who is certified to perform the following tests:

Test Method	Expiration Date	IA Responsible	Associated Laboratory
CT 105	2024-05-28	Soroosh Amelian	Lab 1
CT 106	2023-06-30	David Jones	Lab 1
CT 125 AGG	2024-05-28	Soroosh Amelian	Lab 1
CT 125 HMA	2024-05-28	Soroosh Amelian	Lab 1
CT 201	2022-09-06	Sarbjit Grewal	Lab 1
CT 202	2022-09-06	Sarbjit Grewal	Lab 1
CT 205	2022-09-06	Sarbjit Grewal	Lab 1
CT 216	2022-09-06	Sarbjit Grewal	Lab 1
CT 217	2022-09-06	Sarbjit Grewal	Lab 1
CT 226	2022-09-06	Sarbjit Grewal	Lab 1
CT 227	2022-09-06	Sarbjit Grewal	Lab 1
CT 229	2022-09-06	Sarbjit Grewal	Lab 1
CT 306	2024-05-28	Soroosh Amelian	Lab 1
CT 389	2022-06-23	Ashley Shaw	Lab 1

Lab 1: District 9 Construction, 500 S. Main St., Bishop

Certified Independent Assurance (IA)
Date issued: 08/31/2021
Tester ID: 00782

Note: This certificate is valid as long as the Tester complies with applicable requirements in Caltrans Independent Assurance Program Manual.
Please verify tester certifications by visiting the SIAD website at <https://sia.dot.ca.gov/>
Page 1/1

Elements of a QAP


IA: Laboratory Accreditation

1. Lab name and location
2. Test methods
3. Expiration date

5.1 Handout page 33

SIAD TL-0113: CALTRANS ACCREDITATION LABORATORY INSPECTION REPORT

STATE OF CALIFORNIA
DEPARTMENT OF
TRANSPORTATION
CALTRANS ACCREDITATION LABORATORY INSPECTION REPORT



Expiration Date: 2022-08-12
Inspected By: Majid Fahrtosh
IA No.: 112
Phone: 562-449-8001
RSP #: 471
File: Material Category 500
Laboratory: Caltrans Material Lab - Whittier field Lab
1940 S Workman Mill Rd., Whittier CA,
Address: 90601
Lab QC Mgr.: Robert Achuela/ Huey-Min Tzou
E-mail: robert_achuela@dot.ca.gov
Telephone: 213-393-3410
Fax #: 818-385-1120

A certified Independent Assurance (IA) visited this laboratory on (Date) _____

Only the equipment to be used on Caltrans Construction projects and/or local construction projects on the National Highway System was checked for qualification. At the time of Caltrans Accreditation, this laboratory had all necessary equipment to perform the test methods indicated below.

Testing personnel shall be Caltrans Qualified and possess a current Caltrans Certification Form TL-0111 or AASHTO Proficiency Form TL-0115 prior to performing any sampling or testing.

CT 125 ADMIX	CT 125 AGG	CT 125 BIT	CT 125 CEM	CT 125 GEN
CT 125 HMA	CT 216	CT 231	CT 375	CT 504
CT 518	CT 523.1 Section B.1 & B.2	CT 523.2 Section B.3	CT 524	CT 533
CT 539	CT 540	CT 552		

A visual check was performed and documents provided as necessary for the following items:

_____ Facility Safety Manual	_____ Copies of current applicable test procedures
_____ Laboratory Procedures Manual	_____ Calibration and service documentation
_____ Laboratory Quality Control Manual	_____ Calibration stickers affixed to test equipment (dated within the 12 months)
_____ Proper test equipment	

On _____, this laboratory was Caltrans Qualified by:

(Printed name of IA person)

(Signature of IA person)

Please verify lab accreditation by visiting SIAD website: <https://sia.dot.ca.gov/>
Page 1/1

Elements of a QAP

Statewide Independent Assurance Database (SIAD)

<https://sia.dot.ca.gov>

Search Testers

Search Form

Full Name
Select Names

Lab
Select a Lab

District
Select a District

Test Method
Select Test Methods

IA Responsible
Select Names

Search Labs

Search Form

Lab Name
Select Lab Names

Lab District
Select a District

Lab City

Test Method
Select Test Methods

IA Responsible
Select Names

Sampling and Testing Certification

Joint Training and Certification Program

Four Certifications Offered:

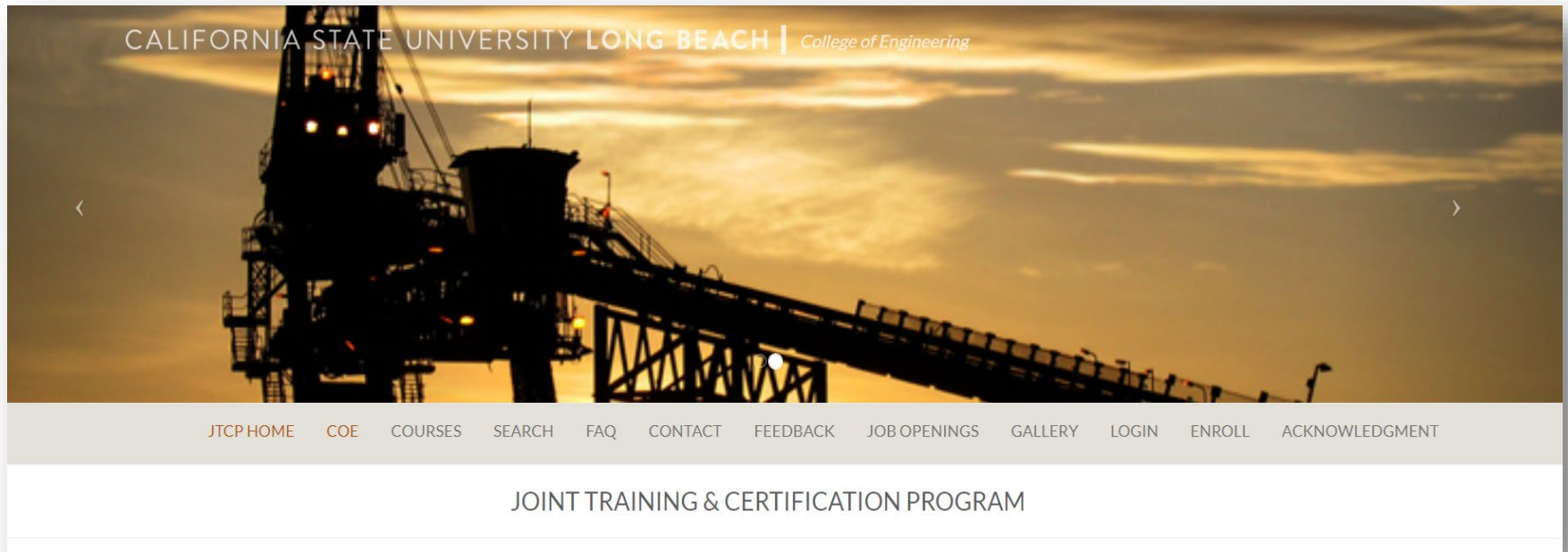
- HMA I (3 yrs)
- HMA II (3 yrs)
- Soils and Aggregate (S&A) (3 yrs)
- Portland Cement Concrete
(ACI Field Tech. – Grade I) (5 yrs)

Partnership with CSU Long Beach and San Jose State University

<https://dot.ca.gov/programs/engineering-services/joint-training-certification-program-jtcp>

Sampling and Testing Certification

Joint Training and Certification Program



<https://dot.ca.gov/programs/engineering-services/joint-training-certification-program-jtcp>

Sampling and Testing Certification

Hot Mix Asphalt I (HMA I)



Hot Mix Asphalt I (HMA I)



The HMA I training module is a 4-day course: The first 3 days include classroom review and discussion of test methods followed by hands-on learning in the lab. The fourth day is a certification day consisting of written and practical exams.

Test Methods Included in the Hot Mix Asphalt I Module

CT 105: Calculations Pertaining to Gradings and Specific Gravities

CT 125 AGG: Sampling Highway Materials and Products Used in the Roadway Structural Section (Appendix A: Aggregates, Soils and Lime)

CT 125 HMA: Sampling Highway Materials and Products Used in the Roadway Structural Section (Appendix B: Hot Mix Asphalt)

CT 306/ AASHTO R 47: Reducing Samples of Asphalt Mixtures to Testing Size

AASHTO R 76: Reducing Samples of Aggregate to Testing Size

AASHTO T 11: Sieve Analysis for Materials Finer than 75 - μm (No. 200) Sieve in Mineral Aggregates by Washing

AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates

AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test

AASHTO T 255: Total Evaporable Moisture Content of Aggregate by Drying **AASHTO T 329:** Moisture Content of Asphalt Mixtures by Oven Method **AASHTO T 335:** Percentage of Fracture in Coarse Aggregate

Sampling and Testing Certification

Hot Mix Asphalt II (HMA II)



Hot Mix Asphalt II (HMA II)



The HMA II training module is a 3-day course: The first 2 days include classroom review and discussion of test methods followed by hands-on learning in the lab. The third day is a certification day consisting of written and practical exams.

Test Methods Included in the Hot Mix Asphalt II Module

AASHTO T 166: Bulk Specific Gravity of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens
Asphalt

AASHTO T 209: Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures

AASHTO T 269: Percent Air Voids in Compacted Dense and Open Asphalt Mixtures **AASHTO T 275:** Bulk Specific Gravity of Compacted Asphalt Mixtures Using Paraffin-Coated Specimens

AASHTO T 308: Asphalt Binder Content (AC) of Asphalt Mixtures by the Ignition Method

Sampling and Testing Certification

Soils & Aggregates



Soils and Aggregates



The Soils & Aggregates training module is a 4-day course: The first 3 days include classroom review and discussion of test methods followed by hands-on learning in the lab. The fourth day is a certification day consisting of written and practical exams.

Test Methods Included in the Soils & Aggregates Module

CT 105: Calculations Pertaining to Gradings and Specific Gravities

CT 125 AGG: Sampling Highway Materials and Products Used in the Roadway Structural Sections

(Appendix A: Aggregates, Soils, and Lime)

CT 201: Soil and Aggregate Sample Preparation

CT 202: Sieve Analysis of Fine and Coarse Aggregate

CT 205: Percentage of Crushed Particles

CT 216: Relative Compaction of Untreated and Treated Soils and Aggregate

CT 217: Sand Equivalent

CT 226: Moisture Content of Soils and Aggregate by Oven Drying

CT 227: Cleanness Value of Coarse Aggregate

CT 229: Durability Index

Sampling and Testing Certification

Portland Cement Concrete



Portland Cement Concrete (PCC)



The PCC training module is a 2-day course: The first day includes classroom review and discussion of test methods followed by hands-on learning in the lab. The second day is a certification day consisting of written and practical exams.

Test Methods Included in the PCC (ACI Field Grade I) Module

ASTM C 31 (Equivalent CT 540): Making and Curing Concrete Test Specimens in the Field

ASTM C 138 (Equivalent CT 518): Density (Unit Weight), Yield, and Air Content (Gravimeter) of Fresh Concrete

ASTM C 143 (Equivalent CT 556): Slump of Fresh Portland Cement Concrete

ASTM C 172 (Equivalent CT 539): Sampling Freshly Mixed Concrete

ASTM C 173 (Equivalent CT 543): Air Content of Freshly Mixed Concrete by the Volumetric Method

ASTM C 231 (Equivalent CT 504): Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C 1064 (Equivalent CT 557): Temperature of Freshly Mixed Portland Cement Concrete

Different Methods of Certification

	CTM	AASHTO	ASTM
Laboratory	Caltrans IA	AASHTO re:source And JTCP (portion)	AASHTO re:source
Technician/ Tester	Caltrans IA And JTCP (portion)	JTCP (portion)	ASTM Personnel Cert.

Costs associate with Certification

	CTM	AASHTO (JTCP)	AASHTO	ASTM
Laboratory	No Fee (by Caltrans)	No Fee (by Caltrans)	\$\$\$ to AASHTO re:source	\$\$\$ to AASHTO re:source
Technician /Tester	No Fee (by Caltrans)	\$\$\$ to JTCP (CSU Long Beah & SJ)		\$\$\$ to ASTM Personnel Cert.

Elements of a QAP

IA: Equipment Calibration –

All local agency's and/or consultant's equipment must have been calibrated on NIST traceable blocks and have current calibration stickers.

Implement Your QAP

1. RE's and Inspectors

- ☐ **Know your contract and your contract items!**
- ☐ Anticipate...
 - What types and how much material will be arriving
- ☐ Know...
 - What tests methods must be used (Contract Docs)
 - How often or how many tests are needed (QAP)

Implement Your QAP

2. Materials Testing Lab (agency or consultants)

Must:

- Have a copy of agency's approved QAP
- Prepare a project testing plan - what tests, how many
- Have lab accreditations, tester certifications
- Maintain ongoing logs of acceptance testing results

Update Your QAP

It's your QAP...

- If you are not doing it, take it out
- Edit to customize for your agency
- Helpful Template - **5.1 Handout**

QUALITY ASSURANCE PROGRAM (QAP)

[NAME OF LOCAL PUBLIC AGENCY (LPA)]

APPROVED BY:

[signature by LPA Public Works Director or next highest registered engineer]

Name: [PE Stamp]

Title:

Revised March 3, 2025

New QAP Template 2025

5.1 Handout

Page 34-51

[This document supports the Caltrans Local Assistance Procedures Manual (LAPM) Section 16.11. In case of conflicts, the contract documents and the agency-state agreements prevail.]

The purpose of the Quality Assurance Program (QAP) is to provide assurance that the materials incorporated into each state and federally funded construction project conform to the contract specifications, as well as to 23 CFR 637.

- The QAP is updated every five years minimum.
- The QAP is updated if changes are made, such as to the test methods or to the testing sampling and frequencies.

I. Definition of Terms

Acceptance Testing	Testing of project materials to determine compliance with the contract specification criteria.
Certificate of Compliance	A signed document from the material manufacturer committing that the delivered goods meet the contract specifications.
Independent Assurance Program (IAP)	A program that verifies that acceptance testing is being performed correctly by certified testers using accredited laboratories and calibrated equipment.
Materials Acceptance Program	Sampling, testing, inspection, and certification of project materials to determine compliance with the contract specifications.
Quality Assurance Program (QAP)	A program that will ensure materials and workmanship incorporated into the project conform to the contract specifications. The main elements of a QAP are the Material Acceptance Program and the Independent Assurance Sampling and Testing Program.
Source Inspection	Sampling, testing, and/or inspection of manufactured or prefabricated structural materials at a location other than the job site, generally at the manufactured location.

New QAP Template 2025

**Must be updated every 5 years
Template can be downloaded
from Construction Oversight
Program under Resources**

<https://dot.ca.gov/programs/local-assistance/guidance-and-oversight/construction-oversight-program>

Update Your QAP

Sample for Local Agency QAPs

Sampling and Testing Frequency Table for projects OFF the SHS.

HOT MIX ASPHALT (HMA) / ASPHALT CONCRETE (AC)

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Aggregate Gradation (Sieve)	CT 202	1 Per 1000 Tons or Part Thereof ; Minimum 1 per day during production/placement of at least 300 tons per day.	At Plant Per CT 125 (a)
Sand Equivalent	CT 217		
Asphalt Binder Content	CT 382		Loose Mix Behind Paver Per CT 125
In-Place Density and Relative Compaction (Nuclear)	Nuclear (b) CT 375 or ASTM D2950 (c)	1 Per 1000 Tons or Part Thereof ; Minimum 1 per day during production/placement of at least 300 tons per day. (b)	Random Locations Per CT 375 (c)
Theoretical Maximum Specific Gravity and Density (Rice)	CT 309	1 Per Day During Production/Placement of At Least 300 Tons Per Day	Loose Mix Behind Paver Per CT 125
HMA Moisture Content	CT 226 or CT 370		
Stabilometer Value (d)	CT 366		
Asphalt Binder	Sample per Section 92	Sample 1 min. per day for production over 300 tons per day; See (f) regarding testing.	At Plant Per CT 125
Smoothness	12-foot Straightedge	As necessary to confirm contract compliance.	Final Pavement Surface

- (a) Exact tonnage of sample location to be determined by Random Sampling Plans
- (b) Compaction determined by Nuclear Density Device. Core testing required if compaction fails the nuclear test
- (c) Correlation between core densities and nuclear device required only if compaction fails the nuclear test
- (d) Report the average of 3 tested briquettes from a single split source
- (e) Use CT 309 to determine maximum theoretical density in lieu of CT 367 calculated maximum theoretical density
- (f) No testing required unless warranted by concern ; sample and store until completion of project

Update Your QAP

SUBGRADE (DISTURBED BASEMENT SOIL) OR EMBANKMENT

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Maximum Density and Relative Compaction	CT 216/CT 231	1 Min. Test per 5000 sq ft under vehicle traveled way and shoulder 1 Min. Test Per 300 linear foot under sidewalk	Random locations as determined by the Engineer in place after compaction.

AGGREGATE BASES AND SUBBASES, IMPORTED BORROW

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 Min. Test Per Material Source	Sample from site stockpile/plant prior to placement.
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216/CT 231	1 Min. Test per 5000 sq ft	Random locations as determined by the Engineer in place after compaction.

STRUCTURE BACKFILL, SELECT BACKFILL

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 Min. Test Per Material Source	Sample from site stockpile/plant prior to placement
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216/CT 231	1 Min. Test Per 2 Vertical Lifts of Placement	Random locations as determined by the Engineer in place after compaction.

5.1 Handout pages 48

Update Your QAP

Test Result Log

Test Method Name and Number: CT 231 Compaction

Project Name: Main St.

Rehab

Contract Number:

5376(056)

Test Number	Date Sampled	Name of Tester/ Company		Production			Test Results			Remarks
		Tester Certification of file?		Location	Elevation	Production Quantity Represented	Required Result	Actual Result	Pass/Fail	
1	9/9/2014	Doug Hole/ County Lab	x	Retaining Wall #3, backfill	4' below Top of Wall	1400 sy	95	96	P	
2	9/10/2014	Rusty Bridges/ County Lab	x	Retaining Wall #3, backfill	2' below Top of Wall	1400 sy	95	94	F	see test 3 for retest
3	9/10/2014	Reid Enright/ County Lab	x	Retaining Wall #3, backfill	2' below Top of Wall	1400 sy	95	95	P	
4										
5										
6										
7										

Materials Certificate

- **LAPM Exhibit 16-E**
- **RE signs off that “materials ...conform to the approved plans and specifications”**
- **Materials which did not conform to specifications must be explained and justified on materials certificate**
- **Submitted to Caltrans upon completion of construction of the project**
- **Copy in construction file**

5.1 Handout pages 52-53

Formatted for eSignatures ⓘ

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
DLA FINAL MATERIALS CERTIFICATION
DOT LAPM 16-E (NEW 02/2025)

Lock Form

Page 1 of 2

DATE	LOCAL PUBLIC AGENCY (LPA)	FEDERAL PROJECT NUMBER

PROJECT NAME

MATERIALS CERTIFICATION

This is to certify that the results of the tests on acceptance samples show that both the materials used in the construction work and the construction operations controlled by sampling conform to the approved plans and specifications.

☐ No exceptions to the plans and specifications were found.

☐ Exceptions to the plans and specifications are explained in the following (or on attached sheet).

I agree that by providing my electronic signature for this form, I agree to conduct business transactions by electronic means and that my electronic signature is the legal binding equivalent to my handwritten signature. I hereby agree that my electronic signature represents my execution or authentication of this form, and my intent to be bound by it.

RESIDENT ENGINEER SIGNATURE	DATE

DISTRIBUTION: Original – LPA Project File Copy – DLAE

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Record Keeping

Sample QA filing system for small projects:

- a. Copy of Quality Assurance Program
- b. Independent Assurance
 - i. Certs. of Proficiency-Testers and Samplers (Exh. 16-D TL-0111)
 - ii. Cert. of Accreditation of Testing Lab (TL-0113)
- c. Notice of Material to be Used (Exh. 16-I)
- d. Approved Mix Designs

Record Keeping

Recommended filing system for small projects (continued):

- e. Acceptance Testing Results and Initial Tests: (*Make a Category 6d for each material...6d.1, CI 2 base, 6d.2, AC etc..Include items below for each.*)
 - i. Test Result Summary Log
 - ii. Test Results (field/lab data records, not just summary of results)
- f. Certificates of Compliance (include Exh. 16-T)
- g. Source Inspection Records/Report of Inspection of Material
- h. Buy America Certifications
- i. Material Certification (Exh. 16-E)

METS Contacts

Independent Assurance

METS offers free Tester Certification and Lab Accreditation for Federal-aid projects that use California Test Methods.

District	Area Senior	Phone	Email
IA North/JTCP	Richard Hibbard	(916) 926-7459	Richard.Hibbard@dot.ca.gov
IA Central	Biplab Bhattacharya	(916) 813-3658	biplab.bhattacharya@dot.ca.gov
IA South	Mehdi Galavi	(916) 926-7452	mehdi.galavi@dot.ca.gov
IA Service Request		IA.Service.Request@dot.ca.gov	

https://sia.dot.ca.gov/index.php?r=iastaff%2Fcontact_list

Search for Laboratory & Material Testers

Examples of how to search using:

[California Test Methods \(CTM\)](#)

[American Association of State Highway and Transportation Officials \(AASHTO\)](#)

[American Society for Testing and Materials \(ASTM\)](#)

Example – Quality Laboratory

Search using California Test Method (CTM)

The screenshot shows the SIAD website in a web browser. The address bar displays <https://sia.dot.ca.gov>. The browser's tab bar includes links such as "Introduction to Proj...", "Local Assistance | D...", "FADS: Fund Summary", "Project Summary", "Construction_Overs...", "iPad Accessible For...", "PS_Sec_15.pdf", "Connect - Login", and "Risk-Based Stev...".

The website header features the SIAD logo, which consists of a yellow outline of California and the text "SIAD STATEWIDE INDEPENDENT ASSURANCE DATABASE". Below the logo is a navigation bar with "Home" and "Search" (with a dropdown arrow), and a "Staff Login" link accompanied by a Caltrans logo.

The main content area is divided into two columns. The left column, titled "Statewide Independent Assurance Database (SIAD)", contains a paragraph explaining the database's purpose: "The Statewide Independent Assurance Database (SIAD) is a web application developed by the California Department of Transportation, Materials Engineering & Testing Services (METS) to allow IA staff the ability to easily submit tester and laboratory information into Caltrans' database via the internet. The SIAD serves as a central repository for statewide Independent Assurance (IA) data pertaining to IA staff, testing personnel, and laboratories. The database provides instant access to statewide IA accreditations, certifications and proficiencies. Project staff no longer needs to rely on paper records, phone calls and emails to verify tester or lab qualification. For more information about the Caltrans Independent Assurance Program (IAP), please see the Independent Assurance Manual and associated documents on the [IAP webpage](#)." Below this text is a "Quick Links" section with four buttons: "Search Labs", "Search Testers", "IA Staff List", and "Help".

The right column, titled "District Map", displays a map of California divided into 12 numbered districts. The districts are color-coded and labeled with their respective names and major cities: 1 (EUREKA), 2 (REDDING), 3 (MARYSVILLE), 4 (OAKLAND), 5 (SAN LUIS OBISPO), 6 (FRESNO), 7 (SANTA ANA), 8 (SAN BERNARDINO), 9 (BISHOP), 10 (STOCKTON), 11 (SAN DIEGO), and 12 (LOS ANGELES).

At the bottom of the page, the URL <https://sia.dot.ca.gov/> is displayed in blue text.

Example – Material Testers

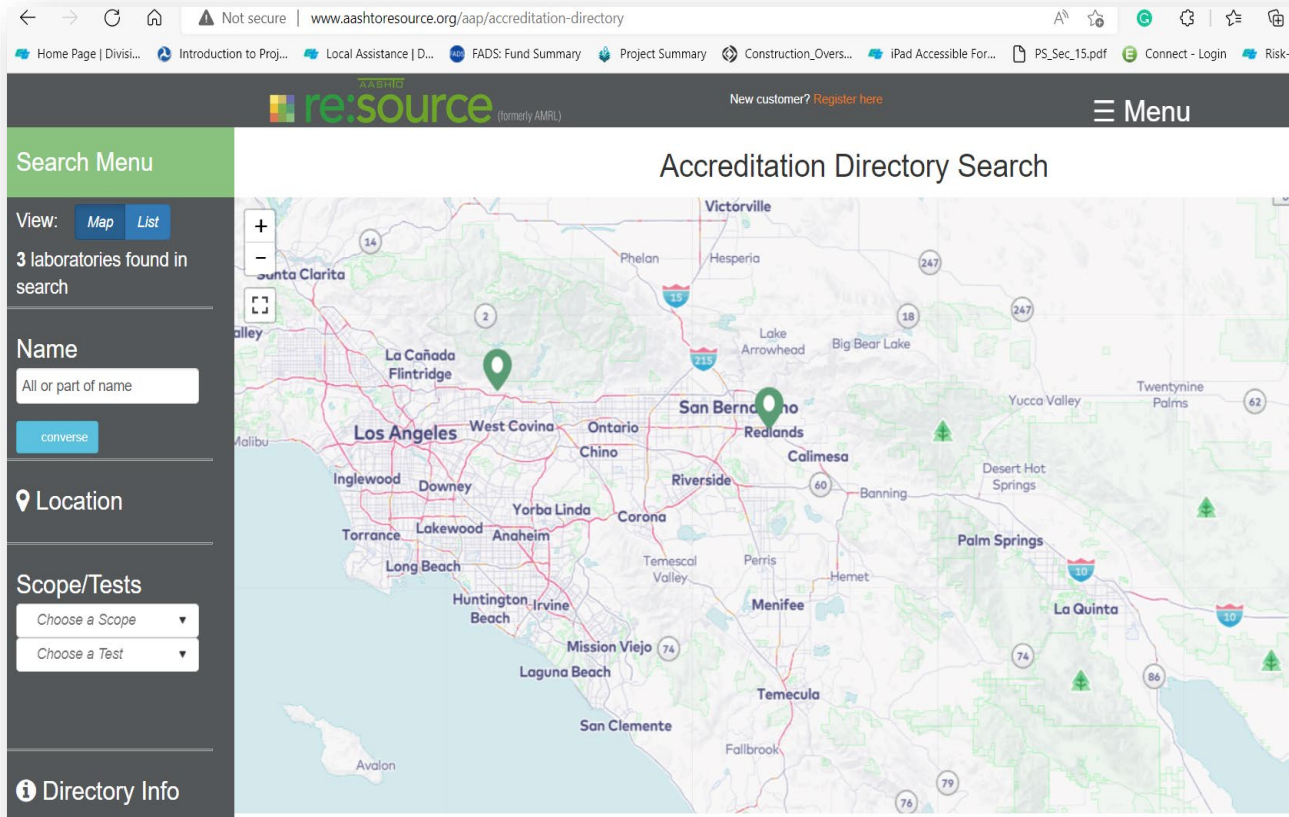
Search using California Test Method (CTM)

The screenshot shows the SIAD website interface. The browser address bar displays <https://sia.dot.ca.gov>. The page features a dark blue header with the SIAD logo (a yellow outline of California with the text 'SIAD STATEWIDE INDEPENDENT ASSURANCE DATABASE') and navigation links: 'Home', 'Search', 'Staff Login', and a Caltrans logo. Below the header, the main content area is divided into two columns. The left column contains a section titled 'Statewide Independent Assurance Database (SIAD)' with a descriptive paragraph about the database's purpose and a 'Quick Links' section with buttons for 'Search Labs', 'Search Testers', 'IA Staff List', and 'Help'. The right column contains a 'District Map' showing a map of California divided into 12 numbered districts. The URL <https://sia.dot.ca.gov/> is displayed in blue text at the bottom of the page.

<https://sia.dot.ca.gov/>

Example – Quality Laboratory

Search using AASHTO/ASTM



<https://aashtoresource.org/aap/accreditation-directory>

Example – Material Testers

Search using
AASHTO/ASTM

[https://credentialing
.training.astm.org/#/](https://credentialing.training.astm.org/#/)

ASTM Personnel Certification and Certificate Programs

EXPLORE CERTIFICATION

Showcase your ability in performing, calculating, and reporting the results of key laboratory and field procedures in these cost-effective, fully online programs

For Labs:

Give your lab a compelling advantage by demonstrating your technicians are certified to the highest industry standards!

For Technicians:

Technician Certification gives you the credentials to further your career and demonstrate your commitment to quality.

Remember...

Be able to:

- Find helpful resources
- Know basic materials “concepts”
- Understand the key elements of a QAP
- Update and implement QAP
- Perform proper record keeping

Buy America

Buy America applies:

- To the entire construction contract even if there is only \$1 in federal money in the project. (E-76 before October 1, 2025)
- And if project is under a NEPA document with no federal money on the project.
- *An Agency cannot “avoid” the Buy America requirement by declaring that the material is being paid for with the non-Federal portion of the funding.*

New Buy America (10/1/2025)

Manufactured Products Waiver Rescinded



Office Bulletin | Division of Local Assistance Policy Update

#25-06: Buy America Requirements for Manufactured Products

Purpose

The purpose of this Office Bulletin is to inform Local Public Agencies (LPA) of the Federal Highway Administration's (FHWA) final rule amending Buy America regulations to terminate the general applicability waiver for manufactured products. These changes require updates to the Local Assistance Procedures Manual (LAPM) Chapters 12 and 16 to ensure compliance with new federal requirements for Federal-aid highway projects. More information is available at:

<https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products>

Policy Update

Effective **October 1, 2025**, for Federal-aid projects with construction E-76 authorization on or after this date, all manufactured products permanently incorporated into the project must be assembled in the United States.

New Buy America (10/1/2025)

Manufactured Products Waiver Rescinded

Applicability

Buy America requirements are applicable on all **Federal-aid projects with \geq \$500,000** in federal funding regardless of the funding source used to purchase the product and/or material and regardless of how the products and/or materials were procured (i.e., agency furnished materials, materials added by change order, etc.).

When Buy America is applicable, the LPA must include the Buy America provisions from LAPM Exhibit 12-G: Required Federal-aid Contract Language (or equivalent) in their PS&E packages prior to advertising for bids. Awarding a federally funded contract, without applicable Buy America provisions, could render the contract ineligible for federal funds.

New Buy America (10/1/2025)

Waiver for Buy America Requirements for De Minimis Cost and Small Grants

Waiver of Buy America Requirements for De Minimis Costs and Small Grants

FHWA's general waiver for manufactured products, established in 1983, has been rescinded, and manufactured products permanently incorporated into the project must be manufactured in the United States. However, a waiver is available for de minimis costs and small grants, which applies to manufactured products and construction materials when:

- The total value of non-compliant products does not exceed the lesser of \$1,000,000 or 5% of total applicable project costs (de minimis costs); or
- The total amount of Federal financial assistance applied to the project, through awards or subawards is below \$500,000 (small grants).

The percent threshold is calculated based on the following formula:

New Buy America (10/1/2025)

Waiver for Buy America Requirements for De Minimis Cost Worksheet

- To assist in the calculation of the De Minimis Cost for a project, a spreadsheet tool is available as a resource.
- The tool requires that the agency provide agency furnished material cost information of applicable Buy America materials to use in the calculation of the De Minimis Cost for the project.
- It is recommended that the spreadsheet tool be made available to the contractor and submitted to the RE early in the contract for review and approval.

New Buy America (10/1/2025)

Waiver for Buy America Requirements for De Minimis Cost Worksheet

Instructions: This form is to be completed by the Contractor and submitted to the RE early in the project to be considered for approval

For Contract Items

1. Columns A & C-G: Enter pay item No., Description, Unit, Qty, Unit Price and Amount for the project

2. Delineate/Highlight line items subject to Buy America (columns A & C-G) with yellow background color

3. Column H: Select from pull down the Material Type: I: Iron, S: Steel, MP: Manufactured Product, CM: Construction Materials.

Column I: Will automatically populate based entry in column H as (1) for Iron, (1) for Steel, (2) for Manufactured Product, and (3) for Construction Materials.

4. Column J: Enter the Applicable Material Cost (including transportation) subject to Buy America. Must be accompanied by Invoices

5% Threshold for Construction Materials and Manufactured Products are calculated at the bottom of the page.

Per De Minimis guidance for Construction Materials and Manufactured, the lesser of \$1,000,000.00 or 5% of Total Applicable Material Costs, \$x,xxx.xx.

5. Column K: Select from pull down (Y) or (N) if Iron or Steel products are accompanied by BA American Certificate of Compliance and Mill Certificate

0.1 of percent of the Contract Amount is calculated at the bottom of the page.

Per De Minimis guidance for Iron or Steel Product, the greater of \$2,500 or 0.1 % of Total Contract Amount, \$x,xxx.xx.

For Change Orders

1. Columns A & C-G: Enter pay CO No., Description, Unit, Qty, Unit Price and Amount for the project

2. Repeat steps 2-5 above and new De Minimis Waiver Amount will be recalculated.

5. Threshold Amount, \$x,xxx.xx

CONTRACT (PAY ITEM/CO) LIST											CATEGORY TABLE I, S, CM, MP				CATEGORY TABLE I or S	
Item #	CO#	Item/CO Description	Unit	Qty	Unit Price	Amount	Material Type I, S, MP, CM	Category Type (1,2,3)	Applicable Material Costs (including transportation)	Iron (I) or Steel (S) (BA/Mill Cert) (Y/N)	I	S	MP	CM	I	S
1		Mobilization	LS	1	\$ 60,000.00	\$ 60,000.00										
2		Mediator	LS	1	\$ 10,000.00	\$ 10,000.00										
3		Traffic Control	LS	1	\$ 220,000.00	\$ 220,000.00										
4		Clearing and Grubbing	LS	1	\$ 30,000.00	\$ 30,000.00				Y						
5		Dust Control Pollution Prevention	LS	1	\$ 2,500.00	\$ 2,500.00				N						
6		Storm Water Pollution Prevention	LS	1	\$ 5,000.00	\$ 5,000.00										
7		Concrete Sidewalk	SF	1,500	\$ 25.00	\$ 37,500.00	I	(1)	\$ 1,000.00	N	\$ 1,000.00				\$ 1,000.00	
8		Concrete ADA Ramp	SF	420	\$ 50.00	\$ 21,000.00	I	(1)	\$ 1,000.00	N	\$ 1,000.00				\$ 1,000.00	

Waiver of Buy America Requirements for De Minimis Costs and Small Grants

Buy America

Buy America Requirements

Apply to iron or steel products, manufactured products, and construction materials permanently incorporated into the project.

23 CFR 635.410 & 23 U.S.C. 313, 2 CFR 184

Chapter 12 LAPM and 6-1.04 CTSS

- Crumb Rubber (Pub Res Code § 42703(d))
- Iron or Steel Products
- Manufactured Products
- Construction Materials
 - Non-ferrous metals, plastic and polymer-based products, glass, fiber optic cable, optical fiber, lumber, engineered wood and drywall

(5.1 Handout pages 16-22)

Buy America

Buy America Certification

Furnish iron or steel products with:

- COC for each shipment
 - Must also state, “All melting and manufacturing processes for these products, including any application of a coating, occurred in the United States”
- Certified Mill Test Report for each heat and size.
 - Mill test report must indicate where the iron or steel products were melted and manufactured

Buy America

Buy America Certification

Furnish Manufactured Products with:

- COC for each shipment
 - Must also identify, where the manufacturing occurred and attest specifically to Buy America requirements 23 CFR 635.410.
 - i.e. the Manufactured Product was manufactured in the United States.
 - Effective for projects that have an E-76 for construction authorization on or after October 1, 2025

Buy America

Buy America Certification

Furnish Construction Materials with:

- COC for each shipment
 - Must also identify, where the manufacturing process occurred and attest specifically to Buy America requirements 2 CFR 184.6.
 - i.e. the Construction Materials were manufactured in the United States.
 - Effective for projects that have an E-76 for construction authorization on or after November 10, 2022.

Buy America

Buy America Certificate of Compliance must:

- Accompany all applicable iron or steel products, manufactured products and construction materials.
- Specify project number (Federal Project No.)
- Specify lot number or mill marking
- State that the material complies with the contract specifications.
- Signed by the manufacturer (not the contractor)

Buy America

Buy America does not apply to:

- A. Temporary steel and construction material
 - Tools and construction equipment
 - Temporary work that is not incorporated into finished project
- B. Minimal use of all foreign iron or steel in which the total delivered cost to the project site is less than \$2,500 or 0.1 percent of the contract amount, whichever is greater.
 - Supported by invoices
 - Includes cost of transportation
 - Keep records in your project files

Buy America

Buy America does not apply to:

C. De Minimis Cost Waiver for Manufactured Products and Construction Materials

- The lesser of \$ 1,000,000 or 5% of the total applicable material cost for the project.
- The percent threshold is calculated based on the following formula:

- $X = NC/TA$

where X = percent threshold (5%)

NC = total value of non-compliant manufactured products and construction material

TA = total applicable project costs (iron or steel products, manufactured products, and construction materials; does not include excluded materials)

Buy America

Buy America does not apply to:

C. De Minimis Cost Waiver for Manufactured Products and Construction Materials (cont.)

- Threshold is based on the actual cost of the iron or steel products, manufactured products, and construction materials.
- Compliant and non-compliant Agency Furnished Materials for the project must be accounted for in a De Minimis Cost Waiver Worksheet calculation, if provided by the Local Agency.
- Actual costs of materials including transportation to the project site must be supported by invoices.
- De Minimis Cost Waiver does not include cost of non-compliant construction materials and manufactured products subject to separate Buy America waiver.

Buy America

Buy America Act 3.0 Requirements

(aka BABA - all must be manufactured and produced in USA)

- ❑ All iron or steel products

(exception: greater of 0.1% of project or \$2,500)

- ❑ All manufactured products and construction materials

(exception: lesser of 5% of applicable items or \$1,000,000)

[FHWA Final Rule-Buy America Requirements for Manufactured Products](#)

Buy America

Buy America Act 3.0 Requirements

(Key Notes)

- ❑ All non-compliant materials must be supported by invoices that reflect the cost of the material including transportation to the project site.
- ❑ The total cost of non-compliant materials cannot exceed the thresholds established for the project based on contract amount (including change orders).
- ❑ A change in the contract amount (i.e. change orders) will result in the thresholds having to be recalculated.

[FHWA Final Rule-Buy America Requirements for Manufactured Products](#)