Preliminary Investigation

Caltrans Division of Research, Innovation and System Information

Joint Training and Certification of Materials Testers

Requested by
Joseph Peterson, Caltrans Division of Engineering Services

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Executive Summary

Background

Caltrans Materials Engineering and Testing Services is interested in developing a formalized joint training program for the certification of both industry and Caltrans materials testers (for tests on soil, aggregate, hot-mix asphalt and portland cement concrete). Currently there are a number of separate training programs—provided by Caltrans districts, contractors and consultants—that are inconsistent in their approaches. Caltrans would like to establish a consistent approach that ensures that all laboratories, testing equipment and testers produce materials test results consistent with Caltrans and national standards. In establishing this program, Caltrans METS would like to replicate the best practices of other formalized joint training programs nationwide.

To assist in identifying and documenting these programs, CTC & Associates contacted state departments of transportation and training program providers directly by email and phone. We also searched program provider web sites for training materials. We focused our efforts on states west of the Mississippi River, including Colorado, Idaho, Oregon and Texas.

Summary of Findings

CTC interviewed 14 states about their joint training and certification programs for materials testing. We compiled key information about each state's program, including:

- The program provider (DOT, consultant or trade organization).
- The program location, and information on whether program staff travel to provide training around the state or whether the program is stationary.
- A point of contact for the program.
- Where available, copies of training modules, manuals and curricula. One state (Texas) also provided contractual materials.

Resources for most programs are available online, and several respondents also provided further documentation (see Appendices A to D). Several western states (including Washington and three of the focus states for this Preliminary Investigation—Colorado, Idaho and Oregon) partner with the Western Alliance for Quality Transportation Construction (WAQTC) for certification. Extensive materials for the program are available online at http://www.waqtc.org/library/library.cfm.

Gaps in Findings

- Our contacts were generally unable to provide contracts and scopes of work. TxDOT was the only agency to provide contractual materials.
- Few materials are available online for the TxDOT training provider, the Texas Asphalt Association (TXAPA). TXAPA did not respond to our queries.

Next Steps

Moving forward, Caltrans could consider:

- Following up with the Western Alliance for Quality Transportation Construction (WAQTC), with which a number of states have partnered for materials testing.
- Following up with Washington State DOT on its experience with implementation of the WAQTC program.
- Contacting DOT contracting divisions concerning contracts and scopes of work related to partnerships with program providers.

Detailed Findings

Arizona Department of Transportation

Interviewee: Paul Burch, Construction and Materials Group, 602-712-8085, PBurch@azdot.gov.

Arizona DOT has a joint training program for materials testing of asphalt and soils/aggregates.

- **Provider:** Arizona Technical Testing Institute (ATTI): http://www.attiaz.org/
- **Location:** Certification testing is done at the ADOT Materials Training Center in Phoenix. The program is stationary.
- **Points of Contact:**
    - Meghaen Dell'Artino, ATTI Executive Director, meghaen@attiaz.org.
    - Rehnuma Rahman, ADOT Quality Assurance Engineer, rrahman@azdot.gov.
- **Materials:** Training modules, manuals and curricula are available online.
    - Certification materials: http://azdot.gov/business/engineering-and-construction/MaterialsGroup/technician-certification
        - ADOT/ATTI Review Course Schedule: http://azdot.gov/docs/default-source/business/adot-atti-review-course-schedule.pdf?sfvrsn=4
        - ATTI 2015 Examination Schedule: http://azdot.gov/docs/default-source/business/atti-2014-examination-schedule.pdf?sfvrsn=4
        - ATTI Examination Registration Form: http://azdot.gov/docs/default-source/business/atti-examination-registration-form.pdf?sfvrsn=2
        - Asphalt Technician Review Training Study Guide: http://azdot.gov/docs/default-source/business/asphalt-study-guide.pdf?sfvrsn=2
        - Field Technician Review Training Study Guide: http://azdot.gov/docs/default-source/business/field-technician-review-training-study-guide.pdf?sfvrsn=4
        - Soils and Aggregate Technician Review Training Study Guide: http://azdot.gov/docs/default-source/business/soils-and-aggregate-review-training-study-guide.pdf?sfvrsn=0
        - ATTI List of Certified Technicians: http://www.attiaz.org/CertificationTechnicians.htm
    - Manuals
        - ADOT Materials Testing Manual: http://azdot.gov/docs/default-source/businesslibraries/adot-materials-testing-manual.pdf?sfvrsn=22

- ADOT Materials Policy and Procedure Directives Manual: http://azdot.gov/docs/default-source/businesslibraries/ppd.pdf?Status=Master&sfvrsn=13

- ADOT Materials Preliminary Engineering and Design Manual: http://azdot.gov/docs/businesslibraries/ped.pdf?Status=Master&sfvrsn=4

Arkansas State Highway and Transportation Department

Interviewee: Stacy Williams, Director, Center for Training Transportation Professionals, 479-575-2220, sgwill@uark.edu.

The Arkansas State Highway and Transportation Department (AHTD) has a joint training program via the Center for Training Transportation Professionals (CTTP).

- **Provider**: Center for Training Transportation Professionals: http://www.cttp.org.
- **Location**: Fayetteville, AR; occasionally travels to Little Rock.
- **Point of Contact**: Stacy Williams.
- **Materials**:
  - Course Descriptions: http://www.cttp.org/technician-certification/course-descriptions
  - Quality Manual: http://www.cttp.org/laboratory-certification/quality-manual

Colorado Department of Transportation

Interviewees:

Michael Stanford, Asphalt Program Manager, 303-398-6576, michael.stanford@state.co.us.

Bill Schiebel, Materials and Geotechnical Branch Manager, 303-398-6501, bill.schiebel@state.co.us.

Colorado DOT has joint training programs with three different providers for asphalt, soils, aggregates and concrete.

- **Providers**:
  - **LabCAT:** Asphalt, smoothness and some aggregate certifications; www.co-asphalt.com/labcat/. This program is tailored to Colorado's unique Superpave specifications and not easily adapted by other states.
  - **Western Alliance for Quality Transportation Construction (WAQTC):** Colorado uses this program for soils and some aggregates; WAQTC (http://www.waqtc.org) also maintains qualification programs for all other material types. CDOT is a member of WAQTC with 10 other agencies. WAQTC is a well-run program with a low annual cost, according to Schiebel.

- **American Concrete Institute (ACI):** Concrete and some aggregate certifications; www.crmca.org/american-concrete-institute-certifications/registration/.

- **Location**: All programs travel around the state several times a year.
- **Points of Contact**:
  - LabCAT: Thomas Peterson, Executive Director, Colorado Asphalt Pavement Association, 303-741-6150, ext. 152, tompeterson@co-asphalt.com.
  - WAQTC: Garth Newman, Recorder, 208-334-8039, garth.newman@itd.idaho.gov.
  - ACI: Stacy Ehrlick, Manager of Education and Promotion, Colorado Ready Mixed Concrete Association (CRMCA), 303-290-0303, stacy@coloradocaa.org.
- **Materials**:
  - **LabCAT:** http://co-asphalt.com/labcat/. Materials include manuals for each certification level:
    - Level A—Laydown: http://co-asphalt.com/wp-content/uploads/2015/03/LevelA2015.pdf
    - Level B—Asphalt Plant Materials Control: http://co-asphalt.com/wp-content/uploads/2015/03/LevelB2015.pdf
    - Level C—Mixture Volumetrics and Stability: http://co-asphalt.com/wp-content/uploads/2015/03/LevelC2015.pdf
    - Level E—Aggregates: http://co-asphalt.com/wp-content/uploads/2015/03/LevelE2015.pdf
    - Level S—Smoothness: http://co-asphalt.com/wp-content/uploads/2015/03/LevelS2015.pdf
    - Level I—Asphalt Inspector**:** http://co-asphalt.com/wp-content/uploads/2015/03/LevelI2015.pdf
  - **WAQTC:** http://www.waqtc.org/library/library.cfm. WAQTC makes a large quantity of materials related to its training program available online, including (but not limited to):
    - Administration Manual: http://www.waqtc.org/library/documents/admin-manual.docx
    - Qualification Modules (each includes a participant workbook, test procedures and performance exam checklist).
      - Aggregate: http://www.waqtc.org/library/aggregate.cfm
      - Asphalt I: http://www.waqtc.org/library/asphalt.cfm
      - Asphalt II: http://www.waqtc.org/library/asphalt2.cfm
      - Concrete: http://www.waqtc.org/library/concrete.cfm

        - Embankment & Base: http://www.waqtc.org/library/embankment.cfm
        - In-Place Density: http://www.waqtc.org/library/density.cfm
    - **ACI/CRMCA:** http://crmca.org/american-concrete-institute-certifications/registration/ and http://www.concrete.org/certification/certificationprograms.aspx
    - **Colorado DOT:** CDOT provided Colorado Procedure CP-10 (see **Appendix A**), which defines required tester qualifications.

Idaho Transportation Department

Interviewee: Garth Newman, ITD Technical Training Specialist and WAQTC Qualification Advisory Committee (QAC) Chair and Recorder/Historian, 208-334-8039, garth.newman@itd.idaho.gov.

ITD is a founding member of the Western Alliance for Quality Transportation Construction (WAQTC), which has a joint training program for asphalt, concrete, and soils/aggregates. This program is also used by Colorado for soils and aggregates, by Oregon for asphalt, and by Utah; Washington is in the process of implementing the WAQTC program.

- **Provider**: WAQTC.
- **Location**: The program travels.
- **Point of Contact**: Garth Newman.
- **Materials**: See the materials listed for the Colorado Department of Transportation.

Iowa Department of Transportation

Interviewee: Chris Anderson, Technical Training Coordinator, 515-239-1819, christie.anderson@dot.iowa.gov.

Iowa's joint training program for certification in materials testing is called the Technical Training and Certification Program (TTCP). The program is conducted jointly for both industry and state DOT testers, and also includes producers, counties and cities, and consultants. TTCP started in the early 1970s and is now a very large program, certifying or recertifying around 4,000 technicians annually. It conducts around 300 classes from December through May.

- **Provider**: TTCP is a joint effort of Iowa DOT and the Des Moines Area Community College (DMACC).
- **Location**: TTCP's main location is the DMACC Boone Campus, but it also holds classes in five of IDOT's six district labs and in conference rooms in Ames, IA.
- **Points of Contact**:
    - Chris Anderson.
    - Brian Squier, Training Specialist, Office of Materials, brian.squier@dot.iowa.gov.

- **Materials**: http://www.iowadot.gov/training/ttcp.html
  - Aggregate
    - Level I and II Instruction Text Manual: http://www.iowadot.gov/training/ttcp/training_manuals/Aggregate.pdf
    - Level I and II Reference Manual: http://www.iowadot.gov/training/ttcp/training_manuals/AGGRefMan.pdf
  - Hot-Mix Asphalt (HMA)
    - Sampling Technician: http://www.iowadot.gov/training/ttcp/training_manuals/HMASampler.pdf
    - Reference Manual: http://www.iowadot.gov/training/ttcp/training_manuals/HMARefMan.pdf
    - Level I Instruction Manual: http://www.iowadot.gov/training/ttcp/training_manuals/HMA1.pdf
    - Level I Update handout: http://www.iowadot.gov/training/ttcp/training_manuals/HMAupdate.pdf
    - Level II Manual: http://www.iowadot.gov/training/ttcp/training_manuals/HMA2.pdf
    - Field Inspection Manual: http://www.iowadot.gov/training/ttcp/training_manuals/HMAFieldInspectionManual.pdf
  - Portland Cement Concrete (PCC)
    - Level I Instruction Manual: http://www.iowadot.gov/training/ttcp/training_manuals/PCC1.pdf
    - Level II Instruction Manual: http://www.iowadot.gov/training/ttcp/training_manuals/PCC2.pdf
    - Reference Manual: http://www.iowadot.gov/training/ttcp/training_manuals/PCCRefMan.pdf
    - Update handout: http://www.iowadot.gov/training/ttcp/training_manuals/PCCupdate.pdf
    - Level III Instruction Manual: http://www.iowadot.gov/training/ttcp/training_manuals/PCC3.pdf
    - Field Inspection Manual: http://www.iowadot.gov/training/ttcp/training_manuals/PCCField.pdf
  - Soils
    - Erosion and Sediment Control Field Guide: http://www.iowadot.gov/Construction_Materials/earthwork_erosion/Erosion_Sediment_Control_Field_Guide.pdf
    - Soils Course Manual: http://www.iowadot.gov/training/ttcp/training_manuals/Soils.pdf

        - Soils Reference Manual: http://www.iowadot.gov/training/ttcp/training_manuals/SoilsReference.pdf
    - Videos: http://www.iowadot.gov/training/ttcp/videos.html
    - Web-based courses: http://www.iowadot.gov/training/web_courses.html
    - Materials manual: http://www.iowadot.gov/erl/current/IM/navigation/Index.htm

Kansas Department of Transportation

Interviewees:

Rick Kreider, Chief, Bureau of Research, 785-296-1195, RickK@ksdot.org.

Lora Kowach, Administrator, Certified Inspection and Testing Training Program, Bureau of Construction & Materials, 785-291-3836, Lora@ksdot.org.

KDOT has a Certified Inspection and Testing Training Program in partnership with Kansas State University.

- **Provider**: KDOT and Kansas State University, Salina: http://www.salina.k-state.edu/profed/profdev/cit/
- **Location**: Kansas State University (Salina, KS).
- **Point of Contact**: Lora Kowach.
- **Materials**:
    - Course and test information: http://www.salina.k-state.edu/profed/profdev/cit/courses.html
    - Extensive study guides for aggregates and soils: http://www.salina.k-state.edu/profed/profdev/cit/studyguide.html
    - KDOT Construction Manual sections related to materials: http://www.ksdot.org/burconsmain/Connections/ConstManual/index.asp
    - Sample online class: http://www.salina.k-state.edu/profed/profdev/cit/class_pages/PMAClassMaterial.html
    - Kowach also provided:
        - The Policy and Procedure Manual for the Certified Inspection and Testing Training Program (see **Appendix B**).
        - The KT-50 performance test for aggregate field testing technicians (see **Appendix C**).

Louisiana Department of Transportation and Development

Interviewee: Cindy Twiner, Structured Training Director, Louisiana Transportation Research Center, 225-767-9125, cindy.twiner@la.gov.

Louisiana's program is called the Construction Certification Program, and is managed in-house by Louisiana DOTD's Technology Transfer and Training Section. This section develops all of the materials for the program, conducts registration for courses, and issues certifications.

- **Provider**: Louisiana DOTD: http://www.ltrc.lsu.edu/certification.html
- **Location**: The program is located at Louisiana DOTD's training office and is administered by its training specialists in its nine district locations.
- **Point of Contact**: Cindy Twiner.
- **Materials**:
    - Administrative manual: http://www.ltrc.lsu.edu/pdf/2008/admin_manual_final08.pdf
    - More information: http://www.ltrc.lsu.edu/certification.html

Minnesota Department of Transportation

Interviewee: John Micheau, Technical Certification Specialist, 651-366-4201, John.Micheau@state.mn.us.

MnDOT's joint training program is called the MnDOT Technical Certification Program (TCP).

- **Provider**: MnDOT partners with Lake Superior College and Aggregate and Ready Mix of Minnesota. These two agencies help with registrations, hire instructors (approved by the program), print classroom materials, and generally assist MnDOT's Technical Certification Program in delivering training to approximately 3,000 attendees annually.
- **Location**: The Transportation Building in St. Paul, MN. The program hosts classes (both regular and recertification) at its district offices located throughout the state.
- **Point of Contact**: John Micheau.
- **Materials**: http://www.dot.state.mn.us/const/tcp/
    - Technical Certification Handbook: http://www.dot.state.mn.us/const/tcp/docs/tcp-handbook.pdf
    - Inspector's Job Guide: http://www.dot.state.mn.us/const/tcp/docs/mndot-jobguide.pdf
    - Online classes: http://www.dot.state.mn.us/const/tcp/classes.html
    - National Highway Institute (NHI) modules: http://www.dot.state.mn.us/const/tcp/nhi.html
    - Video series on concrete testing: https://www.youtube.com/playlist?list=PL0rmHaSsN3sduEBO02fcc109B5sJ4YryK

Missouri Department of Transportation

Interviewee: Brett Trautman, Physical Laboratory Director, Construction and Materials Division, 573-751-1036, Brett.Trautman@modot.mo.gov.

In 2000, MoDOT implemented a joint training program called the Technical Certification Program (TCP). This program was mandated by FHWA so that contractors, consultants, cities, counties and state inspectors working on MoDOT or federally funded projects would be certified to perform concrete, asphalt, aggregate and soil testing.

Initially, Level 1 technician certifications were performed in-house by MoDOT laboratory personnel and district material/construction inspectors throughout the state. An in-state university (Missouri University of Science and Technology in Rolla, MO) was chosen to work in conjunction with MoDOT on its Level 2 bituminous (Superpave) classes at their facility. Today, the university continues to teach Superpave classes, in addition to tensile strength ratio (TSR) and hot-mix asphalt (HMA) aggregate classes.

In 2002, MoDOT decided to outsource some of its Level 1 classes to an outside entity. State Technical College (STC) of Missouri in Linn, MO, was chosen to spearhead this effort. Since 2005, all Level 1 technician classes (new and recertification) have been taught at STC of Missouri. Also, for four weeks each year, STC and MoDOT hold recertification classes in St. Louis, Kansas City, Poplar Bluff and Springfield for contractors, consultants, cities, counties and MoDOT inspectors in these areas.

- **Providers**:
  - Missouri University of Science and Technology.
  - State Technical College of Missouri.
- **Locations**:
  - Rolla, MO.
  - Linn, MO.
  - Classes travel to St. Louis, Kansas City, Poplar Bluff and Springfield four weeks per year.
- **Points of Contact**:
  - Brett Trautman.
  - Sam Marshall, Technician Certification Program Coordinator, 573-522-2742, Robert.Marshall@modot.mo.gov.
- **Materials**: http://www.modot.org/business/materials/pdf/TechCert/TechContent.pdf
  - Courses: http://www.modot.org/business/materials/pdf/TechCert/Figure%202.pdf
  - Manuals: http://www.modot.org/business/materials/pdf/TechCert/Manuals.pdf

New Mexico Department of Transportation

Interviewee: Brian Legan, Administrator, Technician Training and Certification Program, 505-344-2072, ext. 18, Brian.Legan@state.nm.us.

NMDOT established the New Mexico Technician Training and Certification Program (TTCP) in 1995 as a joint cooperative program between NMDOT and the Associated Contractors of New Mexico (ACNM), which is the Associated General Contractors (AGC) branch representing heavy highway contractors.

- **Provider**: Associated Contractors of New Mexico: http://aconm.org.
- **Location**: The training facility and NMDOT training staff are located at the ACNM facility in Albuquerque. TTCP has dedicated training and certification labs and classrooms, and most classes can travel around the state.
- **Point of Contact**: Brian Legan.
- **Materials**:
    - Aggregate Manual: http://aconm.org/ACNM/Pages/training/ttcp_training/training_manuals/TTCP%20Aggregate%20Manual%20-%202015.pdf
    - Concrete Field and Laboratory Technician Manual: http://aconm.org/ACNM/Pages/training/ttcp_training/training_manuals/TTCP%20Concrete%20Field%20and%20Lab%20Manual%20-%202015.pdf
    - HMA and WMA Manual: http://aconm.org/ACNM/Pages/training/ttcp_training/training_manuals/TTCP%20HMA%20Manual%20-%202015.pdf
    - Nuclear Moisture Density Gauge Manual: http://aconm.org/ACNM/Pages/training/ttcp_training/training_manuals/TTCP%20Nuclear%20Densometer%20Manual%20Cover%20-%202015.pdf
    - Soil Manual: http://aconm.org/ACNM/Pages/training/ttcp_training/training_manuals/TTCP%20Soil%20Manual%20-%202015.pdf
    - Classes: http://aconm.org/ACNM/Pages/training/acnm_training/acnm_schedule.pdf

Oregon Department of Transportation

Interviewee: Greg Stellmach, Quality Assurance Engineer, Construction Section, 503-986-3061, greg.f.stellmach@odot.state.or.us.

Oregon DOT works with the Asphalt Paving Association of Oregon (APAO) to deliver training for certification of technicians that work on ODOT projects with asphalt, soils and aggregate testing (both industry and DOT technicians). APAO is responsible for the training portion of the program, and ODOT is responsible for testing and certification. APAO uses the training materials that WAQTC has developed (Oregon is a member of WAQTC).

Certification for concrete testing technicians is done by the Oregon Concrete and Aggregate Producers Association (OCAPA), similar to the arrangement that ODOT has with APAO. OCAPA does the majority of its training and testing in Salem, with some classes held in eastern Oregon. OCAPA classes include an ACI portion that technicians must pass as well.

- **Providers**:
  - Asphalt Paving Association of Oregon (APAO): http://www.apao.org/index.shtml
  - WAQTC: http://www.waqtc.org/
  - Oregon Concrete and Aggregate Producers Association (OCAPA): http://www.ocapa.net/
- **Location**: Salem, OR, at the offices of APAO/OCAPA; eastern Oregon.
- **Points of Contact**:
  - Greg Stellmach.
  - Sean Parker, ODOT Certification Program Coordinator, 503-986-6631, sean.p.parker@odot.state.or.us.
- **Materials**:
  - Training materials from the APAO classes can be found at the WAQTC website (see the entry for the Colorado Department of Transportation for links to materials).
  - OCAPA
    - Classes: http://www.ocapa.net/certification-classes
    - Technical Resources: http://www.ocapa.net/technical-resources

Texas Department of Transportation

Interviewee: David Belser, Construction Division, 512-751-8874, David.Belser@txdot.gov.

TxDOT has a joint training program for HMA, aggregates and soils (but not concrete—TxDOT uses a combination of ACI and an internal program for this purpose).

- **Provider**: Texas Asphalt Pavement Association (TXAPA): http://www.texasasphalt.org/; http://www.txhmac.org/.
- **Location**: Buda, TX (training is conducted only at this central location).
- **Points of Contact**:
  - TXAPA: 512-312-2099.
    - Harold Mullen, Executive Vice President, hmullen@texasasphalt.org.
    - Jimmy Whited, Director of Technical Services, jwhited@texasasphalt.org.

- **Materials**:
    - TxDOT provided a statement of work for training services (see **Appendix D**).
    - Test procedures and other information: http://www.txhmac.org/?page_id=139
    - Classes: http://www.txhmac.org/?page_id=75
    - Certification levels: http://www.txhmac.org/?page_id=257
    - Videos: http://www.txhmac.org/?page_id=450

Virginia Department of Transportation

Interviewee: Robert W. Crandol, Assistant State Materials Engineer, Central Office Materials Division, 804-328-3173, Robert.Crandol@vdot.virginia.gov.

VDOT runs its own joint training program for concrete, asphalt, and aggregate/soils testing.

- **Provider**: VDOT Materials Certification Schools.
- **Location**: Richmond, VA.
- **Point of Contact**: Duane Sayre, Training Programs Manager, 804-328-3150, RD.Sayre@vdot.virginia.gov.
- **Materials**: http://www.virginiadot.org/business/matschools.asp (includes numerous manuals).

Washington State Department of Transportation

Interviewee: Kurt Williams, State Materials Engineer, 360-709-5410, willikr@wsdot.wa.gov.

WSDOT is in the process of implementing the Western Alliance for Quality Transportation Construction (WAQTC) program for tester qualification for soil, aggregate, asphalt and density. WAQTC recognizes ACI certifications for concrete, so WSDOT plans to use ACI for concrete qualification requirements.

- **Providers**: WAQTC.
- **Location**: The program travels.
- **Points of Contact**:
    - WAQTC: Garth Newman, Recorder, 208-334-8039, garth.newman@itd.idaho.gov.
    - WSDOT: David Jones, Assistant State Materials Engineer, 360-709-5411, JonesDa@wsdot.wa.gov.
- **Materials**: See WAQTC materials under the entry for the Colorado Department of Transportation.

Contacts

CTC & Associates contacted the organizations below to gather information for this investigation.

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Colorado Procedure 10 -15

Standard Practice for

Qualification of Testing Personnel and Laboratories

1. INTRODUCTION

1.1 This procedure defines the requirements for qualification of people and laboratories. Specifically, all persons and all laboratories conducting tests used in mix design or acceptance must be qualified. Laboratories conducting Independent Assurance (IA) inspections for CDOT must be accredited and the people conducting these inspections must be certified.

2. SAMPLING AND TESTING PERSONNEL QUALIFICATIONS

2.1 All persons conducting or supervising tests used in mix design, acceptance, or IA must be qualified. The personnel conducting or supervising tests for the contractor's QC Program must be qualified. This includes mix design testing, verification testing by CDOT and designated agents (private laboratories), testing conducted by contractors and vendors and used in the acceptance decision (QC-For-Pay), and IA testing by CDOT and designated agents. The requirements to be qualified are stated below.

2.2 The person with overall responsibility for the sampling and testing on construction projects (the Project Engineer or Resident Engineer for CDOT and the Quality Control Supervisor if non-CDOT) shall be a registered Professional Engineer in the State of Colorado or possess a National Institute for Certification of Engineering Technologies (NICET) Level III Certificate in Highway Materials or Construction Materials with the soil, concrete, and asphalt sub-fields.

2.2.1 Pursuant to Section 12-25-102(10) of the Colorado Revised Statutes all mix designs shall be sealed by a registered Professional Engineer in the State of Colorado.

2.3 Persons performing sampling and testing used in the mix design, acceptance decision, QC, or IA testing shall be qualified by meeting the requirements listed in Table 10-1 and possessing current certifications.

2.3.1 To operate a nuclear device, CDOT personnel must possess a current certificate indicating that they have satisfactorily completed CDOT's School of Radiological Safety and Nuclear Gauge Operation. Non-CDOT operators of nuclear gauges must be certified as required by their company's Radioactive Materials License, issued by the Colorado Department of Public Health and Environment.

2.4 *New Employees*: New employees not qualified in accordance with Subsection 2.3 may conduct acceptance tests under the direct, day-to-day, supervision of an employee that is qualified (in accordance with Subsection 2.3) to conduct those tests. The maximum time period of supervised testing by any one non-qualified employee for each item is indicated in Subsection 2.4.2. Additional conditions that must be met are listed in Subsection 2.4.1. Note that these provisions do not apply to nuclear testing.

2.4.1 *Qualified Supervisor*: The qualified supervisor shall train the new employee, if needed, and then confirm in writing that this employee is capable of performing the tests in accordance with the standards. This written confirmation shall contain the following: identity and signature of the qualified supervisor, name and previous experience of the new employee, the time spent training the new employee, the tests for which the new employee is qualified, and the date the new employee will begin mix design or acceptance testing. The written confirmation shall be delivered to and approved by the Region Materials Engineer before the new employee performs mix design or acceptance tests. The qualified supervisor shall be present on the testing site at least once each day the new employee is conducting tests to closely oversee and check the work of the new employee. The qualified supervisor shall co-sign each test report and worksheet produced by the new employee. The close day-to-day supervision shall continue until the new employee is qualified by meeting the requirements of Subsection 2.3.

2.4.2 Time Limits for Acceptance Testing by

Non-qualified New Employees:

2.4.2.1 *Soils Testing*: A maximum of 2 calendar months of continuous testing before qualification is required. Accumulation of time is not allowed.

2.4.2.2 *HMA Testing*: A maximum of two calendar months of continuous testing before qualification is required. Accumulation of time is not allowed. Inexperienced employees (less than one year of documented experience) performing testing on HMA shall successfully complete the Asphalt Construction QC/QA Technician Education course provided by the Rocky Mountain Asphalt Education Center (303-741-6148) before seeking certification.

2.4.2.3 *Concrete Testing:* A maximum of six calendar months of continuous testing before qualification is required. Accumulation of time is not allowed.

3. LABORATORY QUALIFICATION PROGRAM

3.1 The purpose of the Laboratory Qualification Program is to verify that laboratories conducting testing used in mix design or the acceptance decision are qualified. All laboratories conducting tests used in mix design or the acceptance decision must be qualified before construction of items requiring testing by that lab. Testing used in the acceptance decision includes verification testing by CDOT and designated agents of CDOT, plus QC testing by contractors and vendors.

3.2 All laboratories conducting testing used in mix design or the acceptance decision must meet the following requirements. CDOT and designated agent laboratories conducting verification testing, and contractors and vendors conducting QC testing used in the acceptance decision are included.

3.2.1 *Laboratory Inspections*:

3.2.1.1 *CDOT Laboratories*: The Region Materials Engineer or his designee shall conduct an inspection of each project laboratory before mix design or verification testing begins. The Central Laboratory may conduct random Field Laboratory inspections during project construction. The inspection shall be documented using the *Field Lab & Personnel Qualification Checklist* and any supplemental lists deemed necessary. The Region Materials Engineer, his designee, or the Central Laboratory Inspection Coordinator shall indicate on the checklist whether or not the laboratory is qualified. If the laboratory has been determined to not be qualified, the deficiencies will be corrected to the satisfaction of the Region Materials Engineer. Project construction involving items subject to mix design or verification testing shall not begin until the laboratory conducting these tests is determined to be qualified. The Resident Engineer, in cooperation with the Region Materials Engineer, shall be responsible for assuring that CDOT owned project testing equipment is acceptable for mix design or verification sampling and testing.

3.2.1.2 *Designated Agent Laboratories*: All designated agent laboratories shall be part of the AASHTO accreditation program such as AASHTO Materials Reference Laboratory (AMRL) or Cement and Concrete Reference Laboratory (CCRL) in all of the tests performed. The Region Materials Engineer shall conduct or direct a designated representative to conduct an inspection of each designated agent laboratory used in verification testing before testing begins. The Central Laboratory may conduct random Field Laboratory inspections during project construction. The inspection shall be documented using the *Field Lab & Personnel Qualification Checklist* and any supplemental lists deemed necessary. The Region Materials Engineer, his designated representative, or the Central Laboratory Inspection Coordinator shall indicate on the checklist whether or not the laboratory is qualified. If the laboratory is determined to not be qualified, the deficiencies will be corrected to the satisfaction of the Region Materials Engineer. Project construction involving items subject to verification testing shall not begin until the laboratory conducting these tests is determined to be qualified. A designated agent may not conduct an inspection for qualification of its own laboratory. The laboratory shall participate in the CDOT round robin program for the required tests and achieve a score of 3.0 or better. Scores below a 3.0 will require approved corrective action and possible retesting.

3.2.1.3 *Contractor and Vendor Laboratories*: The Region Materials Engineer or his designated representative may conduct an inspection of each Contractor or vendor

laboratory before QC testing used in the mix design or acceptance decision begins. If the inspection is performed it shall be documented using the *Field Lab & Personnel Qualification Checklist* and any supplemental lists deemed necessary. The checklist shall indicate if the laboratory is qualified in all required tests. If the laboratory is determined to not be qualified, the deficiencies will be corrected to the satisfaction of the Region Materials Engineer. If the Contractor or vendor laboratory is used for mix design testing and is not AASHTO accredited, the laboratory shall participate in the CDOT round robin program for the required tests and achieve a score of 3.0 or better. Scores below a 3.0 will require approved corrective action and possible retesting. Testing conducted before the laboratory is determined to be qualified may not be used in the acceptance decision. Contractor or vendor laboratories used in QC-for-Pay projects shall be qualified in accordance with this subsection.

3.2.2 *Calibration Checks*: All laboratories performing mix design, verification testing, or QC testing used in acceptance shall conduct calibration checks at the minimum frequencies required by the test procedure, equipment operating guides, or Calibration Schedule included in the Field Materials Manual's Inspections (Central -> Region) Chapter. The results of these calibration checks shall be documented on the appropriate forms and retained for a period of seven years. The calibration check documentation shall be made available to the Region Materials Engineer or the Project Engineer upon request.

3.2.3 *Lab Personnel Qualifications*: All laboratories performing mix design, verification testing, or QC testing used in the acceptance decision shall maintain documentation of the qualification of all laboratory personnel. This documentation shall indicate that all laboratory personnel are qualified for all the tests they conduct. This documentation shall be current and available at all times for review by the Project Engineer and the Region Materials Engineer.

3.3 If the laboratory performing the mix design, verification testing, or QC used in the acceptance decision is AASHTO accredited in the tests performed, it may be exempted from the above requirements for inspection and calibration checks.

4. INDEPENDENT ASSURANCE (IA) LABORATORY REQUIREMENTS

4.1 The CDOT Central Laboratory, the Region Materials Laboratories, and designated agent laboratories conducting Independent Assurance (IA) inspections and testing shall conform to the following requirements.

4.1.1 *Central Lab and Designated Agents*: The CDOT Central Lab and designated agents conducting IA testing shall be AASHTO accredited in accordance with the requirements of Section 5.

4.1.2 *Region Materials Labs:* An inspection of each Region Materials Laboratory shall be made annually by personnel from the Central Materials Laboratory, as per Subsection 9.2.1.2 of the QA Procedures Chapter. Equipment Verification Checks will be made on equipment used for IA testing including ovens, scales, and balances.

4.1.3 All laboratories performing IA testing shall conduct equipment verification checks twice a year on all equipment used in IA testing during that period. The results of those checks shall be in accordance with AASHTO R 18 and documented on the appropriate forms and retained for a period of seven years.

5. ACCREDITATION

5.1 *CDOT Central Laboratory and Designated Agent Inspection*: The CDOT Central Lab and designated agents conducting IA testing for CDOT will be inspected periodically by National Reference Laboratories (AMRL and/or CCRL) and will maintain accreditation by the AASHTO Accreditation Program.

5.1.1 The test procedures covered by the designated agent accreditation shall include all IA tests that the designated agent will conduct or observe for CDOT.

5.1.2 AASHTO Materials Reference Laboratory (AMRL) and Cement and Concrete Reference Laboratory (CCRL) Inspection Reports:

5.1.2.1 All AMRL and CCRL inspection reports from inspections conducted on the Central Materials Laboratory will be retained and made available to the FHWA upon request.

5.1.2.2 All AMRL and CCRL inspection reports from inspections conducted on designated agents that conduct IA testing for CDOT will be retained and made available to CDOT upon request.

5.1.3 Deficiencies Identified in AMRL or CCRL Inspection Reports:

5.1.3.1 Deficiencies indicated in the AMRL or CCRL inspection reports for inspections conducted on the CDOT Central Materials Laboratory or on designated agents conducting IA testing for CDOT will be corrected at the earliest opportunity and documentation of the corrective action sent to AMRL or CCRL.

5.1.4 Proficiency Samples Ratings:

5.1.4.1 CDOT Central Laboratory or designated agent laboratory AASHTO Proficiency Samples with a rating of less than 3 (2 Standard Deviations) will be investigated to determine the cause of the low ratings and corrective action taken to prevent future occurrences. These corrections will be reported, in writing, to AMRL or CCRL within 60 days of the receipt of the deficient rating.

5.2 Local Agencies shall have IA inspections conducted by an AASHTO accredited laboratory in accordance with the conditions of Subsection 7.4 of the Quality Assurance Procedures Chapter of the Field Material Manual (FMM). The local agency must confirm that the Accredited Laboratory meets all appropriate criteria.

6. INSTRUCTIONS FOR USE OF THE – FIELD LAB & PERSONNEL QUALIFICATION CHECKLIST

GENERAL

6.1 Lab Cleanliness & Housekeeping - The field-testing lab is generally clean and organized to the point where it will not affect test results.

6.2 Equipment Cleanliness & Functionality - The field-testing equipment is clean and in good working order, with no broken or partially repaired parts that would have a detrimental effect on the test results.

6.3 Calibration Checks & Personnel Qualification - Documentation of the calibration checks must be readily available in the field-testing lab, being both complete and up-to-date. This includes calibration checks of scales, ovens, water baths (concrete & bulk), and thermometers. Equipment verification such as sieve examinations, measurements of air meters, slump cones, cylinder molds, beam molds, etc. should also be documented. The qualifications of each person in the lab who conduct the tests are documented, being both current and available.

6.4 Scales, Accurate & Level - Verify scales have been checked with a reference weight in accordance with AASHTO M 231 and are level on the testing face.

6.5 Ovens, Accurate Temperatures (140°, 230°, 275°, & 300°F) - Verify that oven thermostats are maintaining the temperature of the 140°F ± 5° (60°C ± 2.8°) oven, 230°F ± 9° (110°C ± 5°) oven, 275°F ± 5° (135°C ± 2.8°) oven, and the 300°F ± 5° (149°C ± 2.8°) oven.

6.6 Thermometer(s) Accurate - Conforming to the requirements of ASTM. The thermometers shall be capable of reading 77°F by 0.2°F (25°C by 0.1°C), 140°F by 0.2°F (60°C by 0.1°C), 230°F by 1°F (110°C by 0.5°C), 275°F by 2°F (135°C by 1°C), and 300°F by 2°F (149°C by 1°C).

6.7 Sieves - In good repair, and checked with comparator. Sieves conform to ASTM E 11 and have been checked with a certified comparator in accordance with ASTM E 11. Verify that there are no visible holes, dents, wire marks, etc. in the sieves or any sagging of the sieve.

6.8 Current and Updated CDOT Materials Forms. CDOT Form #250 (Materials Documentation Record) and Form #379 (Project Independent Assurance Sampling Schedule) are filled out and complete as of the date of the inspection.

6.9 Equipment and Lab Facility supplied by the Contractor meet the M Standards (M-620-11 or M-620-12) or the specification for the project for which the lab is being supplied. If the Contractor has proposed establishing a project field laboratory within a fixed building, the Contractor shall first provide a proposed floor plan layout of the laboratory space to the Project Engineer and Region Materials Engineer for review and approval. The proposed lab space shall be at least the same

overall size, have roughly the same dimensions, and have the same general layout and useable work space as the specified laboratory space as shown in the M Standards. If the plan layout is approved by the Project Engineer and Region Materials Engineer, but the building space requires modification in order to accommodate the proposed lab space, the Contractor shall obtain all required building permits and pass all inspections required for the modifications. Modifications may include, but are not limited to; removal, modification to, or construction of walls, changes to electrical wiring / loading, changes to plumbing, including drains, venting for ovens, providing for nuclear gauge storage / isolation, etc.

6.10 Aggregate splitter complies with ASTM C 702 for the correct number of opening and the size of openings. Splitter does not have visible signs of excessive wear, i.e., splitter openings broken, dented, welds detached, etc.

6.11 Shaker - Sieving Adequacy Test Performed. Verify the correct aggregate sieving time by running the sieving adequacy test defined in CP 31, ASTM C 136, and AASHTO T 27. Verify that the sieve shaker can hold an entire set of sieves, (10 + catch pan).

CONCRETE

6.12 Curing tanks for concrete cylinders and beams contains lime-water at the correct temperature, 73°F ± 1.8° (23°C ± 1°C) in accordance with ASTM C 31. Verify the recording thermometer is present and is correct in accordance with ASTM C 31.

6.13 Verify that all Concrete Testing Equipment meets the appropriate requirements: Air meter (ASTM C 231), Slump Cone (ASTM C 143), Unit Weight (ASTM C 138), Cylinder Molds (ASTM C 31), and Beam Molds (ASTM C 78).

6.14 Verify that the Concrete Compression Machine has been calibrated for concrete cylinders, ASTM C 39, and for beams (if tested), ASTM C 78, and has a current (yearly) certified calibration sticker on the machine. Verify that the neoprene pads meet ASTM C 1231 and have been checked for wear and logged for the number of breaks on each pair of pads (maximum of 100 uses per pad). Verify the loading rate of the Concrete Compression Machine and that it meets the ASTM C 39. Verify that calibration records for the Concrete Compression Machine are available and up to date in accordance with ASTM E 4.

ASPHALT

6.15 Verify that a square splitting pan and square sided scoop are being used for asphalt sampling and splitting in accordance with CP 55.

6.16 Verify that CP 51 is being followed for determination of Maximum Specific Gravity (Rice). Verify that manometer is free of air bubbles, vacuum pump oil is free of water, desiccating crystals are free of moisture, flasks have been calibrated in accordance with CP 51 and “D” weights have been logged. Verify that vacuum pump pressure can be maintained at 28 ± 2 mm of mercury.

6.17 Verify that CP 44 is being followed for determination of Bulk Specific Gravity. Bulk tank is at the correct temperature, 77°F ± 1.8° (25°C ± 1°). Suspension line is of the smallest possible diameter at the water surface (and there are no knots at the surface).

NUCLEAR

6.18 Verify that nuclear gauges are stored and secured properly as required by the Radioactive Materials License. Verify that the Caution Radioactive Materials placard, the Notice to Employees document, and the Nuclear Incident Procedure sheet (filled out with responsible individual(s) names and phone numbers) are posted correctly. That the daily gauge logs are filled out and current, and the Moisture / Density Gauge has been calibrated as specified. Consultant M/D Gauges will be certified within the last 12 months and CDOT M/D Gauges will be calibrated within the last 24 months. Verify that Statistical Stability and Drift tests have been run before the start of the project and whenever requested by the Project Engineer.

SOILS

6.19 Verify that soils and base course equipment meet the corresponding AASHTO requirements and that the correct hammers and molds, designated in AASHTO T 99 and T 180, are used. Verify that the atterberg limit equipment is calibrated properly and is within specification in accordance with AASHTO T 89 and T 99. Verify that the #4 riddle meets the

AASHTO E 11 standards by using a comparator, micrometer, or other calibrated measuring device. Verify that the compaction base is of sufficient mass (> 90 kg) and that a suitable area for compaction is available in accordance with AASHTO T 99 and T 180.

TABLE 10-1 Sampling & Testing Personnel Qualifications

AASTHO Test Designation	ASTM Test Designation	CDOT Test Designation	Test Description	ACI Concrete Field Testing Technician Grade I	ACI Aggregate Testing Technician - Level 1	ACI Aggregate Testing Technician - Level 2	ACI Concrete Lab. Testing Tech. Grade I (G) - Level 1 (L) – Both (B)	ACI Concrete Lab. Testing Tech. Grade II (G) - Level 2 (L) – Both (B)	ACI Concrete Strength Testing Technician	WAQTC Embankment & Base Excavation & Embankment – Soil s Inspector	LABCAT A	LABCAT B	LABCAT C	LABCAT E
T 2	D 75	CP 30	Sampling Aggregates		X		B				X			X
T 84	C 128	CPL 4102	Specific Gravity and Absorption of Fine Aggregate		X		B							X
T 85	C 127		Specific Gravity and Absorption of Coarse Aggregate		X		B			X				X
T 11	C 117	CP 31	Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing		X		B					X		
T 248	C 702	CP 32	Reducing Samples of Aggregate to Testing Size		X		B					X		
T 255	C 566		Total Moisture Content of Aggregate by Drying		X		B			X				
T 27	C 136	CP 31	Sieve Analysis of Fine and Coarse Aggregates		X		B					X		
T 112	C 142		Clay Lumps and Friable Particles in Aggregate			X		G						X
T 96	C 131		Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine			X		G						X
	C 535		Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine			X		G						
T 176		CP 37	Plastic fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test			X								X
T 304			Uncompacted Void Content of Fine Aggregate			X								X
TP 61	D 5821	CP 45	Determining the Percentage of Fractured Particles in Coarse Aggregate											X
T 104			Soundness of Aggregates by Freezing and Thawing			X								X
	D 4791		Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate			X								X
		CPL 4211	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus											X
T 166		CP 44	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens									X		
T 209		CP 51	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures									X		
		CP 81	In-Place Density of Bituminous Mixes Using the Nuclear Moisture-Density Gauge								X			
	D 3665	CP 75	Random sampling								X			
T 168		CP 41	Sampling Hot Mix Asphalt								X			
T 248		CP 55	Splitting Hot Mix Asphalt								X			
T 287		CP 85	Asphalt Content by Nuclear Method									X		
T 308		CPL 5120	Asphalt Content by Ignition Method									X		
TP 4		CPL 5115	Superpave Gyratory Compactor										X	

AASTHO Test Designation	ASTM Test Designation	CDOT Test Designation	Test Description	ACI Concrete Field Testing Technician Grade I	ACI Aggregate Testing Technician - Level 1	ACI Aggregate Testing Technician - Level 2	ACI Concrete Lab. Testing Tech. Grade I (G) - Level 1 (L) – Both (B)	ACI Concrete Lab. Testing Tech. Grade II (G) - Level 2 (L) – Both (B)	ACI Concrete Strength Testing Technician	WAQTC Embankment & Base Excavation & Embankment – Soil s Inspector	LABCAT A	LABCAT B	LABCAT C	LABCAT E
T 246		CPL 5106	Hveem Stability										X	
T 283		CPL 5109	Resistence to Moisture Induced Damage										X	
	C 1231		Unbonded Caps for Concrete Cylinders				B		X					
	C 39		Compressive Strength of Cylindrical Concrete Specimens				B		X					
	C 617		Capping Cylindrical Concrete Specimens				B		X					
	C 1064		Temperature of Freshly Mixed Hydraulic-Cement Concrete	X										
	C 172		Sampling Freshly Mixed Concrete	X										
	C 143		Slump of Hydraulic-Cement Concrete	X										
	C 138		Density, Yield and Air Content (Gravimetric) of Concrete	X										
	C 231		Air Content of Freshly Mixed Concrete by Pressure Method	X										
	C 31		Making and Curing Concrete Test Specimens in the Field	X										
	C 42		Obtaining and Testing Drilled Cores and Sawed Beams					B						
	C 78		Flexural Strength of Concrete (Using Simple Method with Third-Point Loading)				L	G	X					
T 224		CP-23	Correction for Coarse Particles in the Soil Compaction Test							X				
T 310		CP 80	In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)							X				
T 89			Determining the Liquid Limits of Soils							X *				
T 90			Determining the Plastic Limit and Plasticity Index of Soils							X *				
T 99 T 180			Moisture Density Relations of Soils							X				

* Those only seeking an inspection certification need only pass the excavation and embankment exam.

Field Lab & Personnel Qualification Checklist – 15

Project No. _____ **Contract ID** _____

Project Location: _____

Consultant / Field Tester _____ **Project Engineer** _____

Qualified Laboratory? [ ] Yes [ ] No **General Impression** _____

[ ] Region Inspection of Project Field Lab [ ] Region Inspection of Contractor Lab
[ ] Region Inspection of Consultant Lab

GENERAL

6.1 Lab Cleanliness & Housekeeping. (Good/Fair/Poor) ..... _____
6.2 Equipment Cleanliness & Functionality. (Good/Fair/Poor) ..... _____
6.3 Calibration Checks & Personnel Qualification, Documents present & complete.(Y/N/NA) _____
6.4 Scales-Accurate & Level. (Y/N/NA) ..... _____
6.5 Ovens-Accurate Temperatures (140°, 230°, 275°, 300EF). (Y/N/NA) ..... _____
6.6 Thermometer(s)-Accurate. (Y/N/NA) ..... _____
6.7 Sieves - Good repair, and checked w/ comparator. (Y/N/NA) ..... _____
6.8 Current CDOT Materials Forms. (Y/N/NA) ..... _____
Forms up-to-date (# 250 & # 379, and all others). (Y/N/NA) ..... _____
6.9 Equipment & Lab facility supplied by Contractor meet Specifications. (Y/N/NA) ..... _____
6.10 Aggregate Splitter - Correct # of openings. (Y/N/NA) ..... _____
Correct size openings. (Y/N/NA) ..... _____
6.11 Shaker-sieving adequacy performed. (Y/N/NA) ..... _____
Holds full set of sieves (10 + catch pan). (Y/N/NA) ..... _____

Comments: _____

_____

CONCRETE Applicable. (Y/N) ..... _____

6.12 Concrete curing water at correct temperature. (Y/N/NA) ..... _____
Recording thermometer present and operating. (Y/N/NA) ..... _____
6.13 Concrete Testing Equipment:
Air Meter Calibrated. (Y/N/NA) ..... _____
Slump Cone Dimensions are accurate. (Y/N/NA) ..... _____
Strike off plate for Unit Wts is accurate. (Y/N/NA) ..... _____
Approved Cylinder/Beam Molds. (Y/N/NA) ..... _____
6.14 Concrete Compression Machine:
Calibrated for Cylinders/Beams. (Y/N/NA) ..... _____
Neoprene Pads checked/logged. (Y/N/NA) ..... _____
Correct Loading Rate. (Y/N/NA) ..... _____
Calibration records present. (Y/N/NA) ..... _____

Comments: _____

_____

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ASPHALT Applicable. (Y/N) .....

6.15 Square Splitting Pan for Asphalt. (Y/N/NA) .....
Square Sided Scoop for Asphalt. (Y/N/NA) .....
6.16 Maximum Specific Gravity (RICE) set up. (Y/N/NA) .....
Manometer free of air. (Y/N/NA) .....
Pump oil free of water. (Y/N/NA) .....
Desiccating crystals free of water. (Y/N/NA) .....
Flasks calibrated and logged. (Y/N/NA) .....
Vacuum Pump Pressure at 28 ± 2 mm Hg. (Y/N/NA) .....
6.17 Bulk Specific Gravity Equipment:
Tank at Correct Temperature. (Y/N/NA) .....
Suspension line of smallest diameter. (Y/N/NA) .....

Comments:

NUCLEAR Applicable. (Y/N) .....

6.18 Nuclear Gauge Stored Properly & Secured. (Y/N/NA) .....
Caution Radioactive Materials placard posted correctly. (Y/N/NA) .....
Nuclear Incident Procedures filled out. (Y/N/NA) .....
Daily Gauge Logs filled out. (Y/N/NA) .....
M/D Gauge Certified. (Y/N/NA) .....
Stat & Drift Test performed. (Y/N/NA) .....

Comments:

SOILS Applicable. (Y/N) .....

6.19 Soils & Base Equipment:
Hammers & Molds within specification. (Y/N/NA) .....
Atterburg equipment within specification. (Y/N/NA) .....
#4 Riddle within specification. (Y/N/NA) .....
Compaction base of sufficient mass (>90 Kg). (Y/N/NA) .....

Comments:

PERSONNEL

Tester 1 (Name / Title)	**Required (Y or N)**	**Certification**	**Expiration MM-DD-YY**
		ACI Concrete Field Testing Technician Grade I	
		ACI Aggregate Testing Technician – Level 1	
		ACI Aggregate Testing Technician – Level 2	
		ACI Concrete Laboratory Testing Technician Grade I or ACI Concrete Lab. Testing Tech. Level 1	
		ACI Concrete Laboratory Testing Technician Grade II or ACI Concrete Lab. Testing Tech. Level 2	
		ACI Concrete Strength Testing Technician	
		WAQTC Embankment & Base Excavation & Embankment – Soils Inspector	
		LabCAT A	
		LabCAT B	
		LabCAT C	
		LabCAT E	

Tester 2 (Name / Title)	**Required (Y or N)**	**Certification**	**Expiration MM-DD-YY**
		ACI Concrete Field Testing Technician Grade I	
		ACI Aggregate Testing Technician – Level 1	
		ACI Aggregate Testing Technician – Level 2	
		ACI Concrete Laboratory Testing Technician Grade I or ACI Concrete Lab. Testing Tech. Level 1	
		ACI Concrete Laboratory Testing Technician Grade II or ACI Concrete Lab. Testing Tech. Level 2	
		ACI Concrete Strength Testing Technician	
		WAQTC Embankment & Base Excavation & Embankment – Soils Inspector	
		LabCAT A	
		LabCAT B	
		LabCAT C	
		LabCAT E	

Comments:_____

_____

Inspected by: _____ **Date** _____ **Region** _____ **Materials Lab**
(print name)

Inspected by: _____
(signature)

Approved by: _____ **Date** _____.
Project Engineer (print name)

Approved by: _____
(signature)

Distribution: ( ) Region Materials Engineer - Original
( ) Resident Engineer
( ) Project Engineer
( ) Field Lab Tester

Rev. 7/01/14

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Policy and Procedure Manual for The Certified Inspection and Testing Training (CIT) Program

Rev. 2014

TABLE OF CONTENTS

CIT TRAINING OVERVIEW

a. Background Information. The federal regulations for "Quality Assurance Procedures for Construction" were published as 23 CFR 637 on June 29, 1995. This regulation, among other things, established a deadline of June 29, 2000 for all state transportation departments to implement a program whereby "all sampling and testing data" used by state transportation agencies "shall be executed by qualified sampling and testing personnel." 23 CFR 637.209(b) "Qualified sampling and testing personnel" are defined as "personnel who are capable as defined by appropriate programs established by each state transportation department." 23 CFR 637.203 The referenced personnel include those engaged in sampling and testing of materials for acceptance and use in transportation infrastructure projects, such as employees of the Kansas Department of Transportation (KDOT), personnel of consultants and contractors working under contract with KDOT, as well as those of their subcontractors and sub-consultants.

Federal guidelines for technician qualification include: (a) formal training, including all sampling and testing procedures with instructions on the importance of proper procedures and the significance of test results; (b) hands-on training to demonstrate proficiency; (c) a period of on-the-job training with a qualified individual; (d) a written examination and demonstrated proficiency of the various sampling and testing methods; (e) requalification at pre-determined intervals; and (f) a documented process for retraining or removing personnel that perform the testing and sampling procedures incorrectly. (See FHWA "Quality Assurance", Transmittal 36, dated 19 July 2006).

b. Federal Funding. This program has been created to comply with the federal rules and guidelines. Moreover, it is subject to ongoing federal review and approval and is an integral part of continuing eligibility for federal funding of roads, highways and bridges in Kansas.

c. Rationale for Program. The quality of a final product is only as good as the quality of the materials and workmanship that go into it. Quality control and quality assurance activities involve the routine sampling, testing and analysis of various materials to determine whether the quality of a given product meets the specific requirements (or specifications) of the contract for the particular project including, but not limited to, materials related to soils, aggregates, concrete and asphalt. Therefore, the purpose of this program is to educate, train, and test individuals so they may properly perform sampling and testing functions on KDOT projects.

d. Why Quality Control/Quality Assurance? The primary reason for inspection, sampling and testing requirements is to verify that workmanship and materials to be incorporated into a project meet the quality requirements of the contract documents, including the plans, specifications, and special provisions designated for that particular project. Therefore, technicians who perform inspection, sampling and testing fulfill a very important job.

Plans and specifications require use of certain materials with particular characteristics known or expected to perform satisfactorily for a number of years—in many cases decades--with a minimum of maintenance or repair costs. Any material or workmanship that deviates appreciably from the specification requirements will not perform as well as expected for as long as intended. The risk of premature failure as well as excessive costs of maintenance and repair may be dramatically minimized with proper quality control. The careful work of a competent technician can directly affect the useful life and long-term maintenance costs of a project.

Second, all contractors competitively bidding to furnish materials should be treated equally. That is, the contract documents define the requirements to be met--ideally with the least possible difference of interpretation. Contractors compete fairly on a level playing field when the materials specified can be measured, sampled and tested to demonstrate whether or not the quality standards are acceptable. After award and during performance of the contract, it is essential that quality control and quality assurance be correctly understood and applied uniformly by engineers, inspectors and technicians from project-to-project so that all contractors and their suppliers are treated consistently.

Third, responsible expenditure of public funds requires that taxpayers actually received the quantity and quality of materials specified in exchange for tax dollars spent. Whether or not to pay the costs invoiced by contractors is a decision which relies heavily upon sampling and testing results. In a fundamental way, technicians play a key role in serving the public--to justify the expenditure of public monies and the acceptance of any contractor's work. Through the work of knowledgeable, competent and skilled technicians, KDOT can verify and confirm whether or not the contractor has fulfilled its obligations to build the project as intended.

Fourth, unless samples are taken and tests are performed correctly at the right time, a contractor or supplier will not be able to make corrections to improve or maintain quality. For some materials, any "do-overs" are extremely costly, such as the incorporation of aggregate materials into concrete. It is therefore imperative that samples, tests and test reports are handled properly and expeditiously so substandard quality may be detected and improved, and good quality may be consistently maintained.

Finally, the specification requirements for materials constantly evolve, based on new developments, information learned from past performance of material in the field, research and technological innovations. Accurate recordkeeping of materials and test results using consistent practices provides a basis to compare results over time—an indispensable advantage for meaningful research. Data properly collected and recorded by technicians can confirm whether or not changes in material specifications and testing requirements have, in fact, resulted in a better product, state-wide or in a particular location or application.

All technicians should review the applicable clauses of the Standard Specifications for State Road and Bridge Construction as well as Part V of the KDOT Construction Manual at regular intervals to refresh their understanding of the subject and the particular sampling and testing requirements.

e. Objective. The objective of this program is to improve the quality and workmanship of transportation infrastructure projects by training students to:

- Be skilled, competent and knowledgeable technicians;
- Achieve accuracy, uniformity, and consistency in sampling and testing practices; and
- Create and maintain complete, accurate and reliable records.

REGISTRATION PROCESS

Register for classes through K-State Salina, or K-State Manhattan.

a. Class Contact Info.

K-State Manhattan
Kansas State University
DCE-Conference Registration
142 College Court Building
Manhattan, KS 66506
Phone (785) 532-2533
Fax (785) 532-5637
http://www.dce.k-state.edu/conf/superpave/

K-State Salina
K-State Salina
Professional Education and Outreach
SAC Building,
2310 Centennial Road
Salina, KS 67401
Phone (785) 826-2633
Fax (785) 826-2632
www.citksu.com

b. Student Cancellation. Whether a student may be reimbursed any enrollment fees or expenses when the student cancels from a certification class is as provided by K-State Salina or K-State Manhattan.

c. Class Cancellation. Whether a student may be reimbursed any enrollment fees or expenses when the class is cancelled by the training provider is as provided by K-State Salina or K-State Manhattan.

d. Unpaid Accounts. Both K-State Salina and K-State Manhattan requires classes to be paid for before attending. No-shows and cancellations that did not meet the cancellation deadline will be paid for in the same manner. If a no-show is unpaid from a previous class they will not be able to attend another class until payment is received in full.

If payment is submitted, but funds are insufficient, the individual will be decertified for that class, until full payment is made.

CERTIFICATION PROCESS

a. General. All sampling and testing required by the construction contract documents and consultant inspection agreements must be performed by *qualified* technicians. See Course Summaries in Appendix B.

Students may become qualified technicians in individual classifications by successfully passing:

- written examination requirements for each such classification, some of which have prerequisites; and
- performance tests demonstrating skill and competence for such classification.

Technicians may maintain their qualifications by continuing to correctly perform their sampling, testing and recordkeeping obligations, and satisfying the requirements stated in this manual for periodic renewal of qualification. Technicians may lose their qualifications for the reasons and infractions listed in the "Disqualifications" section of this manual.

Dates for classes and examinations are listed on the websites in "Class Contact Information" see registration process. Many classes require math as a prerequisite.

Students may or may not wish to attend training sessions in advance of written examinations. Classes and training in advance of written examinations are offered at various times and locations in Kansas. Students must contact the appropriate training provider, submit a completed application and pay the applicable fee to attend regularly-scheduled training sessions.

ACI tests provided by K-State Salina will be handled like the KDOT sponsored tests, except for ACI Examination Policy, ACI Written Examination, ACI Performance Examination, ACI Re-Examination, ACI Appeals and Recertification which will be as ACI stipulates.

ACI Concrete Field Technician Tester offers a review class and the written and performance exams.

b. Reciprocal Classes/Waivers. A person who has a current certification for testing Superpave materials from one of the regional reciprocal state's (Iowa, Nebraska and Missouri) certification program within the last five (5) years may apply for certified status on a reciprocity basis.

KDOT may accept another state's certification in cases where the testing requirements are deemed equal to KDOT's. The applicant will be required to pass a written examination covering KDOT specifications for some certification classifications.

KDOT will accept all ACI Concrete Field Testing Technician certified inspectors, provided that a photocopy of the technicians ACI Concrete Field Testing Technician card is provided to the CIT Program Administrator.

In addition, KDOT will accept other state's reciprocity for Profilograph.

Persons seeking to become certified using reciprocal classes must submit information to:

CIT Program Administrator
KDOT, Bureau of Construction and Materials
700 S.W. Harrison Street 6th Floor
Topeka, KS 66603-3745

It is the responsibility of the individuals seeking certification to provide proof of satisfactory completion of training to the CIT Program Administrator, regardless of which entity sponsored the training.

Math exam requirements will be waived for individuals who are licensed Professional Engineers or Intern Engineers, or have passed the Engineer in Training Exam or the Fundamentals of Engineering Exam.

Individuals must provide a copy of their Professional Engineer license, Intern Engineer Certificate or certificates that they passed the Engineer in Training or Fundamentals of Engineering Exams to K-State Salina in order to be granted the waiver.

Reciprocity Certifications that have been granted will follow renewal guidelines in this manual.

KDOT does not sponsor or certify the International Municipal Signal Association Course, but the course provides training on traffic signal inspection required to determine that proper/specified construction practices are followed during signal installation.

Questions about registrations should be directed to:

Sedgwick County-
IMSA Certification Chairman
1144 S. Seneca
Wichita, KS 67213

c. Exam Notifications. Once the applicable examinations have been passed, a letter, card, and a certificate will be issued to the technician.

Technicians who fail will be notified in writing by the training provider and may make arrangements to retake the course and exams.

Letters notifying technicians of test results will be sent to the individual and the employer designated by the individual; in the case of KDOT employees, to the applicable District Engineer and the Human Resource Personnel (HRP) representative.

Notifications will be sent within 2 to 4 weeks of the exam.

d. Failed Exams. Failure on any part of the written exam requires a full retest. Failure on any individual test of the performance exam requires a retest on only the failing part. However, if four or more performance tests are failed, the individual will be required to retake all performance tests.

When both a written test and a performance test are required, the written test and performance test must both be passed within a one year time frame. Failure to pass both the written and performance test within a one year time frame requires both the written test and performance test to be retaken.

e. Challenges. If a technician feels that a test question was unclear, incorrect, or unfair, then they may appeal. The first step is to take the appeal to the examiner issuing the test, immediately after the exam. If they are unable to resolve the differences, or if the technician is dissatisfied with the result, the technician can then appeal the dispute to K-State (Salina or Manhattan). The technician must send an in-depth written explanation to K-State Salina or K-State Manhattan The written explanation must specify the examination date, the instructor, and the nature of the problem. K-State Salina or K-State Manhattan will forward the relevant information to the CIT Program Administrator for decision, and the Administrator's decision is final. If the complaint is ruled valid, then the grades will be adjusted accordingly.

QUIZ OUT

A Quiz Out is for individuals who:

- currently do not hold a certification, in area in which they wish to quiz out in:
- want to take only the written and performance (if one is required) exams, and
- do not want to attend the class to obtain certification.

The quiz out option is offered for the classes as specified in **TABLE 1**.

RECERTIFICATION

Most certifications will be valid for five years from date of issue. Certified personnel are required to renew current certifications on or before the expiration date of the certification classification. Expiration dates are shown on the certification card issued to certified persons. Follow KDOT specifications for EIT and EMT certifications renewals. **Renewal of certification is the responsibility of the certificate holder.** If a technician should fail to successfully complete certification renewal before the expiration date, they will be decertified (in that area only) once the certification expires.

Notice will **not** be sent when a technician allows any certification to lapse or expire.

Recertification is the process for individuals who currently hold a certification and want to take only the written and performance (if one is required) exams and not take the class to obtain certification. Recertification is offered for the following classes in **TABLE 1**. If the CIT Class is not listed in **TABLE 1**, then persons wishing to renew certification in that area must attend the course.

TABLE 1: RECERTIFICATION AND QUIZ OUT OPTIONS				
COURSE	**PRE-REQUISITES**	**SPECIAL REQUIREMENTS**	**QUIZ OUT**	**RECERTIFICATION**
ACI Concrete Field Testing Technician (CF)	Math		Yes	Yes
Aggregate Field Tester (AGF)	Math	Send CMS DTMT SCREEN 296 proving IA witnessed in last 2 years to K-State Salina. Also, See **TABLE 2**.	Yes	Yes
Aggregate Laboratory Technician (AGL)	Math, AGF	Send CMS DTMT SCREEN 296 proving IA witnessed in last 2 years to K-State Salina. Also, See **TABLE 2**.	Yes	Yes
Nuclear Moisture Density Gauge Tester (NUC)	Proof of radiation safety training	Send CMS DTMT SCREEN 295 proving IA witnessed in last 2 years to K-State Salina. Also, See **TABLE 2**.	Yes	Yes
Soils Field Tester (SOF)	Math		Yes	Yes
Hardened Concrete Properties(HCP)	Math		Yes	

COURSE	PRE-REQUISITES	SPECIAL REQUIREMENTS	QUIZ OUT	RECERTIFICATION
Superpave Field (SF)	Math, AGF	Send CMS DTMT SCREEN 296 proving IA witnessed in last 2 years to K-State Salina. Also, See **TABLE 2**.	No	Yes
CMS Comprehensive(CMC)		Have a DT Number (KDOT Mainframe sign on)	No	Yes
Drilled Shaft Inspection (DSI)	Math, BI	Must have attended class to obtain original certification.	No	Yes
Pile Driving Inspection (PDI)	Math, BI		No	Yes
Profilograph (PO)	Math		No	Yes
QC/QA Concrete/Cement Treated Base (QCS)	Math, Statistics		No	Yes
Basic Inspection (BI)	Math		No	Yes
Structures Inspection (STR)	Math, BI		No	Yes
Asphalt Paving Inspection (API)	Math, BI		No	Yes
Concrete Paving Inspection(CPI)	Math, BI		No	Yes
Statistics (no renewal required) (Stats)	Math		Yes	No

TABLE 2: INDEPENDENT ASSURANCE OPTIONS*		
COURSE	**PRE-REQUISITES**	**SPECIAL REQUIREMENTS**
Aggregate Field Tester (AGF)	Requires validation of one of the following: • Passing a written examination (arrangements made through K-State Salina) and the satisfactory completion of an IA witness test performed within two years prior to the expiration date, or • Written test and performance test will be given at K-State Salina.	
Aggregate Laboratory Technician (AGL) requires AGF certifications		
Nuclear Moisture Density Gauge Tester (NUC)		
Superpave Field (SF)	Requires validation of AGF certifications, and one of the following: • Passing a written examination (arrangements made through K-State Salina) and the satisfactory completion of an IA witness test performed within two years prior to the expiration date, or • Written test and performance test will be given at K-State Manhattan.	

*The IA witness test will cover the grouping of tests covered in KDOT Construction Manual Part V Appendix C.

BASIC INSPECTION COURSE, EXAMS AND RECERTIFICATION EXAMS

Any person wanting to become certified (STR, API, CPI) for the **first time** is required to take the corresponding course module and the 1-1/2 day Basic Inspection (BI) module.

Recertification exams (Basic Inspection, Structures, Asphalt Paving Inspection, Concrete Paving Inspection and Basic Math) may be taken at the District Headquarters mentioned below.

Individuals will need to register with K-State Salina.

District One
121 W. 21 St.
Topeka, KS 66612-1429
(785) 296-3881

District Three
312 S. Second
P.O. Box 350
Norton, KS 67654
(785) 877-3315

District Four
411 W. Fourteenth
Chanute, KS 66720-2894
(620) 431-1000

District Five
500 N. Hendricks
P.O. Box 769
Hutchinson, KS 67504-0769
(620) 663-3361

District Six
121 N. Campus Drive
Garden City, KS 67846-6603
(620) 276-3241

Professional Education and Outreach
SAC Building,
2310 Centennial Road
Salina, KS 67401
Phone (785) 826-2633
Fax (785) 826-2632
www.citksu.com

DISQUALIFICATIONS

Technicians may be disqualified and/or lose their certification status for any one of the following circumstances described in subparagraphs A, B and C below. Disqualifications include denial, suspension and revocations of certification.

a. Immediate Disqualification. Immediate disqualification may occur in cases where, in the sole discretion of the KDOT Bureau Chief of Construction and Materials, an alleged infraction poses an imminent danger to public health, safety or welfare. Regardless of whether review is requested of the Review Committee or a hearing is requested before the Appeals Committee, an immediate disqualification results in immediate revocation of the subject technician's certification(s), until further notice of reinstatement is given by KDOT.

b. Cheating on Any Examination. Cheating occurring in connection with any examination will result in disqualification. Cheating includes, but is not limited to, improper attempts to influence an examiner for a passing grade, inducing or participating in the presentation of a false identity at the time of examination, obtaining or creating copies of exam questions for improper use, failure to comply with instructions of the examiner, plagiarism, improper communication during an examination, or any other action which negatively affects the integrity of an examination.

K-State Salina Professional Education and Outreach or K-State Manhattan Global Campus, when providing training and examinations, assumes responsibility to maintain quality instruction and training materials as well as preserve the integrity of the examination process. If an examiner suspects cheating, then the examiner should:

- Request a K-State Salina Professional Education and Outreach or K-State Manhattan Global Campus staff member to witness the cheating incident, if possible.
- Allow the technician(s) to finish the written or performance/proficiency test.
- Inform the technician(s) involved that cheating is suspected.
- Gather and preserve any evidence of such cheating, including names and statements of witnesses.
- Document the circumstances of alleged or suspected cheating in writing.
- Contact and forward such evidence to the CIT Program Administrator.

The CIT Program Administrator will review the evidence provided by the examiner and if the Administrator determines the evidence presented demonstrates cheating has occurred, then the technician(s) involved (and their last known employer) will be notified in writing of disqualification due to cheating. For KDOT employees, the notification will be sent to the individual and District Engineer and HRP representative, as appropriate.

If a technician holds a valid certification but is seeking renewal of it at the time of examination for which cheating is alleged, then such otherwise valid certification will not be disqualified, suspended or revoked while any investigation, review or appeal is pending regarding the renewal. If the certification expires while investigation, review, or appeal is pending, the certification will not be renewed until, and if allowed by, the results of the investigation, review or appeal.

Technicians disqualified for cheating may be prohibited to re-apply for training and examination for a prohibition period of one year or longer. Due to the reprehensible nature of cheating, the CIT Program Administrator may also inform the technician(s) involved that any other certifications held by the technician(s) that expire during the prohibition period are not renewable during the prohibition period.

The technician may appeal the decision of the CIT Program Administrator to the Review Committee within ten (10) days of receiving notice of the CIT Program Administrator's determination. The request for review by the Review Committee shall be in writing and addressed to:

Kansas Department of Transportation
ATTN: CIT Program Administrator
Notice of Appeal
KDOT, Bureau of Construction and Materials
700 S.W. Harrison Street 6th Floor
Topeka, KS 66603-3745

c. Disqualification for Other Infractions. Technicians may also be disqualified and/or lose their certification status for any one of the following infractions.

1. Using incorrect test equipment.
2. Using test equipment which is damaged or in otherwise unsatisfactory condition.
3. Using incorrect sampling or incorrect testing procedures.

4. Failing to correctly perform calculations.
5. Failure to correctly perform any sampling or testing procedure.
6. Failing to correctly complete and maintain paperwork or recordkeeping.
7. Performing sampling or testing in a classification without valid and current certification.
8. Submitting fraudulent test results.
9. Engaging in any other conduct which negatively reflects on the integrity of the CIT Program or QC/QA program.
10. Failing to cooperate in an investigation concerning any infraction allegation.

d. Notice of Action, Appeal of Determinations Regarding Disqualification. The CIT Program Administrator will notify technician(s), in writing (sent to the last known address of the technician and the technician's employer) of action taken or to be taken to disqualify the technician. The notice will advise the technician the date disqualification is effective, and the conditions, if any, of eligibility for reinstatement, as well as the right to appeal such decision. If the technician wishes to appeal, then the technician must do so in writing within ten (10) days of receipt of the notice. Unless shown otherwise in the notice of action, technician requests for appeal shall be addressed to:

Kansas Department of Transportation
ATTN: CIT Program Administrator
Notice of Appeal
KDOT, Bureau of Construction and Materials
700 S.W. Harrison Street 6th Floor
Topeka, KS 66603-3745

e. Status of Certifications While Investigation, Review or Appeal Pending. Except for disqualifications due to (1) imminent danger to public health, safety or welfare and (2) cheating on examinations, the certification(s) at issue and subject to review will not be revoked or suspended while investigation, review, or appeal is pending, unless the technician allows an otherwise valid certification to expire.

REPORTING INFRACTIONS

Any person possessing knowledge, facts or evidence of suspected infractions should report it by providing the following information to the CIT Program Administrator:

- Name of individual reporting the infraction (with address and phone number)
- Name of technician(s) involved in alleged infraction
- Name of technician employer (if known)
- Description of the infraction at issue (with date or dates of occurrence)

In addition to the above, reviews of technician performance in completed KDOT "Certified Inspector Review Questionnaire" Form 276 may initiate inquiry and investigation of potential infractions.

Once an infraction (described in A or C (1-9) above) is reported, the preparer or recipient of such report shall submit or forward it to the CIT Program Administrator at the following address:

Kansas Department of Transportation
ATTN: CIT Program Administrator
KDOT, Bureau of Construction and Materials
700 S.W. Harrison Street 6th Floor
Topeka, KS 66603-3745

INVESTIGATION

The CIT Program Administrator shall review the allegation(s) of infraction and confer with the KDOT Bureau Chief of Construction and Materials. If, in the sole discretion of the Bureau Chief, further investigation is warranted, then

- The CIT Program Administrator shall select one or more investigators to work independently to investigate allegation(s) that may warrant disqualification. Investigators will conduct interviews, obtain documents and otherwise gather facts relevant to the allegations.

- A three-member Review Committee will be appointed by the Bureau Chief to review the allegation(s) and the results of the investigation. The Review Committee members are: either a District Construction Engineer or a District Materials Engineer (from a District other than the District where the alleged infraction(s) occurred) and two representatives from the Bureau of Construction and Materials.

- The CIT Program Administrator shall send a letter giving written notice to the technician(s) under review, as well as their last known employer, of the allegations lodged and the investigation. For KDOT employees the notice shall be sent to the relevant District Engineer and HRP Representative.

Investigations will be concluded within twenty-one (21) days. If the complexity of the investigation, scheduling conflicts and the other factors require more time to conclude the investigation, then the Bureau Chief must approve or deny any extension of time. At the conclusion of the investigation, the investigator(s) shall provide to the Review Committee, through the CIT Program Administrator, a report on the results of the investigation, as well as the documentation relevant to the investigation.

REVIEW COMMITTEE

The Review Committee will consider the evidence of infractions, including the results of the investigation and any written statements provided by the technician(s) under review. (The Review Committee will not, however, review disqualifications due to failure to renew certifications prior to expiration.)

The Review Committee shall make findings and render a decision. If finding infractions have occurred but disqualification is not warranted, then the Review Committee may require the technician to undergo a probationary period, demonstrate proficiency through performance tests, and/or obtain further instruction, training or supervision to retain valid certification status. When finding disqualification is appropriate, and depending on the circumstances of the particular

infraction(s), the Review Committee may determine the conditions, extent, and term of the disqualification as well as the conditions of eligibility for reinstatement. If a decision is made to disqualify one or more certifications, then the decision will also advise the technician of the effective date of disqualification and the right to appeal the decision to the Appeals Committee by submitting a written request for appeal within ten (10) days of receipt of the Review Committee decision.

The decision of the Review Committee will be sent to the last known address of the technician under review and the technician's employer as well as any individual who reported the infraction. If the technician being reviewed is a KDOT employee, the decision of the Review Committee will be sent to the KDOT technician, the applicable KDOT District Engineer, and the HRP representative in the District.

APPEALS COMMITTEE

a. Request for Hearing. If a technician wishes to appeal a decision of the Review Committee, then the technician must request a hearing before the Appeals Committee in writing within ten (10) days of receipt of the Review Committee decision. The written request for hearing must be addressed to:

Kansas Department of Transportation
ATTN: CIT Program Administrator
Notice of Appeal
KDOT, Bureau of Construction and Materials
700 S.W. Harrison Street 6th Floor
Topeka, KS 66603-3745

b. Appointment of Appeals Committee Members. The Appeals Committee shall have three members, composed of individuals from among one or more of the following groups: KDOT Materials Engineer, KDOT Construction Engineer (from a KDOT District other than the District where the alleged infraction(s) occurred), KDOT Bureau of Construction and Materials, and a Local Public Authority. The Bureau Chief of Construction and Materials shall appoint the members. Each individual shall have some experience, education or training in QC/QA programs.

c. Hearing before Appeals Committee. A hearing before the Appeals Committee will be informal. The rules of evidence shall not apply; for example, hearsay will be allowed. The hearing will allow for submission of evidence, including testimony by the technician under review and relevant witnesses. Each side will have the opportunity to file briefs and make motions. The decision of the Review Committee is not binding on the Appeals Committee, which will make its own determination(s).

d. Decision of the Appeals Committee. Subsequent to the hearing, the Appeals Committee shall reach a decision, such decision requiring at least two of the three members to concur in it. If finding infractions have occurred but disqualification is not warranted, then the Appeals Committee may require the technician to undergo a probationary period, demonstrate proficiency through performance tests, and/or obtain further instruction, training or supervision to retain valid certification status. When finding disqualification is appropriate, and depending

on the circumstances of the particular infraction(s), the Appeals Committee may determine the conditions, extent, and term of the disqualification as well as the conditions of eligibility for reinstatement. If a decision is made to disqualify one or more certifications, then the decision will also advise the technician of the effective date of disqualification and the right to further appeal the decision.

A staff attorney from the KDOT Office of Chief Counsel will notify, in writing, the technician and its last known employer of the Appeals Committee decision. For KDOT employees, the written notification will be sent to the technician and the applicable District Engineer and the HRP representative, as appropriate.

The decision of the Appeals Committee is "final agency action" under KSA 77-601 *et seq*. (the Kansas Judicial Review Act) and will be noted as such in the decision delivered.

PROGRAM ADMINISTRATION

a. CIT Program Advisory Committee.

The CIT Program Advisory Committee provides guidance to KDOT's Director of Operations on the CIT Program's content and administration. The Advisory Committee typically consists of the following members:

ACI Certification Coordinator
Executive Director Kansas Asphalt Paving Association
Representative of the KDOT Bureau of Construction and Materials
CIT Program Administrator
Managing Director, Kansas Aggregate Producers Association
Representative of the Federal Highway Administration
Executive Director KS/MO Chapter American Concrete Pavement Association
Continuing Education Coordinator, K-State Salina
Bureau of Local Projects Representative
ACEC Representative
Local Government Representative

b. Tracking Certified Personnel. The CIT Program Administrator will maintain in KDOT'S Learning Management System (LMS) a listing of technicians, classes taken by technicians, their addresses, and certifications held (including expiration dates) by technicians. Additionally, the information will be kept in KDOT's Construction Management System (CMS). Each certified technician is issued a unique identification number. K-State Salina will assign the identification number for all non-KDOT technicians and the KDOT districts will supply the CIT Program Administrator with the identification number for KDOT employees. The Bureau of Construction and Materials will issue the certification letters, cards and certificates to the technicians last known address in LMS database. Certification cards will show the expiration date of the certification. LMS and CMS will be updated, as information is made available to the CIT Program Administrator. Each technician is responsible for giving notice of any changes occurring during the certification period to their employer and the CIT Program Administrator. Such changes may be a change in address, a name change, or change of employer. All certification cards returned by mail will be held until the CIT Program Administrator receives a current mailing address.

c. Trainee Policy. Uncertified trainees will be permitted to assist certified persons in the performance of sampling and testing activities subject to the limitations that follow. The trainee must demonstrate satisfactory performance of all tests they will perform on projects to District Independent Assurance (IA) Staff prior to working on such projects. The District IA Staff has complete discretion to determine the number of times IA staff will witness a trainee perform tests to demonstrate satisfactory performance. The trainee will only be permitted to perform the approved tests in the presence of a supervising individual certified to perform the same tests. A trainee will only be allowed to perform tests for 6 six months or one construction season whichever is less. A trainee will not be allowed to work as a trainee in any subsequent season within the same role. Example: If the trainee is running aggregate tests in the concrete lab during the current construction season, then the same trainee cannot work in the same lab or any other lab running aggregate tests in the next construction season without the proper certifications.

d. Equal Opportunity. No individual may be denied qualification, or be disqualified because of age, race, creed, color, sex, disability, national origin ancestry, political affiliation or marital status.

e. Disclaimer. Certification by KDOT indicates that the individual has demonstrated a certain level of competence in a written and performance examination in a selected field of activity. Each individual or organization utilizing certified technicians must make their own independent judgment of the overall competence level. KDOT makes no claims regarding the abilities or competence of certified technicians. KDOT specifically disclaims all responsibility for the actions, or the failure to act, of individuals who have been certified through the CIT Program.

f. Students with Learning and Physical Disabilities. Students with disabilities requesting an accommodation to participate in a certification class or test must contact the training provider.

APPENDIX A - ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACI	AMERICAN CONCRETE INSTITUTE
AGF	AGGREGATE FIELD TESTER
AGL	AGGREGATE LAB TECHNICIAN
API	ASPHALT PAVING INSPECTION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BI	BASIC INSPECTION
CF	ACI CONCRETE FIELD TESTING TECHNICIAN
CIT	CERTIFIED INSPECTION AND TESTING TRAINING PROGRAM
CMC	CMS COMPREHENSIVE
CMF	CMS FINALS
CMS	CONSTRUCTION MANAGEMENT SYSTEM
CPI	CONCRETE PAVING INSPECTION
DSI	DRILLED SHAFT INSPECTION
EIT	ENVIRONMENTAL INSPECTOR TRAINING
EMT	ENVIRONMENTAL MANAGER TRAINING
HCP	HARDENED CONCRETE PROPERTIES
IA	INDEPENDENT ASSURANCE
ICS	INTRODUCTION TO CONSTRUCTION STAKING
KDOT	KANSAS DEPARTMENT OF TRANSPORTATION
KT	KANSAS TEST METHOD
LMS	LEARNING MANAGEMENT SYSTEM
MSA	INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION
NUC	NUCLEAR MOISTURE DENSITY GAUGE TESTER
PDI	PILE DRIVING INSPECTION
PM	PROJECT MANAGEMENT
PMA	PAINT, MISCELLANEOUS AND ASPHALT SAMPLING
PO	PROFILOGRAPH
QCA	QC/QA ASPHALT SPECS
QC/QA	QUALITY CONTROL/QUALITY ASSURANCE
QCS	QC/QA CONCRETE SPECS/CEMENT TREATED BASE SPECS
SF	SUPERPAVE FIELD
SOF	SOILS FIELD TESTER
STR	STRUCTURES INSPECTION
TCI	TRAFFIC CONTROL INSPECTION

APPENDIX B – COURSE SUMMARIES

COURSE SUMMARIES

Courses that require Certification

* Math exam requirements will be waived for individuals who are licensed Professional Engineers or Intern Engineers, or have passed the Engineer in Training Exam or the Fundamentals of Engineering Exam. Individuals must provide a copy of their Professional Engineer license, Intern Engineer Certificate or certificates that they passed the Engineer in Training or Fundamentals of Engineering Exams to K-State Salina in order to be granted the waiver. Math exam requirements will also be waived for Quiz Out and Recertification. Options.

Course Title Description of Course/Required Certification	**Quiz Out Option** *	**Recert. Option** *	**Pre-Requisite***	**Special Requirements**	**Independent Witnessing Offered for Recert.**
Aggregate Field Tester Certification required for individuals performing aggregate field testing	Yes	Yes	Math required if attending class	Send CMS DTMT SCREEN 296 proving IA witnessed in last 2 years to K-State Salina.	Yes
Aggregate Laboratory Technician Certification required for individuals testing aggregate for asphalt and concrete mix design to decide on quality and acceptability the field	Yes	Yes	Math required if attending class and Aggregate Field Tester	Send CMS DTMT SCREEN 296 proving IA witnessed in last 2 years to K-State Salina.	Yes
Superpave Field Certification required for individuals working on superpave projects	No	Yes	Aggregate Field Tester	Send CMS DTMT SCREEN 296 proving IA witnessed in last 2 years to K-State Salina.	Yes
ACI Concrete Field Testing Technician Certification required for individuals testing concrete in the field	Yes	Yes	Math required if attending class		No

Course Title **Description of Course/Required Certification**	**Quiz Out Option**	**Recert. Option**	**Pre-Requisite**	**Special Requirements**	**Independent Witnessing Offered for Recert.**
Hardened Concrete Properties Certification required for individuals who are sampling and testing hardened concrete cores, cylinders or beams	Yes		Math required if attending class		No
Soils Field Tester Certification required for individuals testing soils to determine quality and acceptability	Yes	Yes	Math required if attending class		No
Profilograph Operator Certification required for individuals operating manual and computerized profilographs on roadway surfaces	No	Yes	Math		No
Traffic Control Inspection Certification required for individuals doing traffic control inspection on KDOT projects	No	No	Math		No
Basic Inspection Certification required for individuals inspecting various KDOT projects	No	Yes	Math		No

Course Title **Description of Course/Required Certification**	**Quiz Out Option**	**Recert. Option**	**Pre-Requisite**	**Special Requirements**	**Independent Witnessing Offered for Recert.**
Structures Inspection Certification required for individuals inspecting various KDOT projects	No	Yes	BI		No
Asphalt Paving Inspection Certification required for individuals inspecting various KDOT projects	No	Yes	BI		No
Concrete Paving Inspection Certification required for individuals inspecting various KDOT projects	No	Yes	BI		No
Drilled Shaft Inspection Certification required for individuals on KDOT projects inspecting drilled shafts	No	Yes	BI		No
Pile Driving Inspection Certification required for individuals on KDOT projects with piling installation	No	Yes	BI		No
CMS Comprehensive Class Introduces inspectors to the Construction Management System (CMS)	No	Yes	BI		No

Course Title **Description of Course/Required Certification**	**Quiz Out Option**	**Recert. Option**	**Pre-Requisite**	**Special Requirements**	**Independent Witnessing Offered for Recert.**
CMS Final This course focuses on how to "final" the material side of a CMS project	No	Yes	CMS Comprehensive		No
Statistics This course covers information in Part V and is key component of the KDOT QC/QA Assurance Program	Yes	No	Math		No
QC/QA Asphalt Specs Certification required for individuals involved in the construction of Superpave HMA pavements using QC/QA Specifications in Kansas It is required for one person working for KDOT and one for the contactor on superpave project to be certified	No	No	Stats		No

Course Title Description of Course/Required Certification	Quiz Out Option	Recert. Option	Pre-Requisite	Special Requirements	Independent Witnessing Offered for Recert.
QC/QA Concrete Specs Certification required for project managers and persons performing inspection functions on QC/QA Concrete and Cement Treated base projects	No	Yes	Stats		No
Nuclear Gauge Certification required for individuals on KDOT projects running the nuclear gauge.	Yes	Yes		Send CMS DTMT SCREEN 295 proving IA witnessed in last 2 years to K-State Salina.	Yes
Environmental Inspection Training Certification required for individuals conducting site inspections for compliance with KDHE general permit	No	No			
Environmental Manager Training Certification required for contractor personnel designated as project Water Pollution Control Managers. Also required for KDOT Personnel with responsibility for SWPPP review and approval	No	No	Environmental Inspection Training		No

COURSE SUMMARY

Courses that <u>DO NOT</u> require Certification

Course Title Description of Course/Required Certification	**Quiz Out Option**	**Recert. Option**	**Pre-Requisite**	**Special Requirements**	**Independent Witnessing Offered for Recert.**
Intro to Construction Staking Informational class offered for individuals with responsibility for basic construction staking or any person dealing with basic surveying	No	No	Math		No
Paint, Miscellaneous & Asphalt Sampling Informational class offered for individuals sampling asphalt materials, pavement marking materials and reflective sheeting and traffic paints	No	No		Study information is online and test is at districts	
Project Management Class Informational class offered for individuals managing a construction project	No	No			No

Aggregate Field Testing Technician
KT-50 Uncompacted Void Content Of Fine Aggregate
Revised 2012

Two attempts may be made by the applicant. The applicant may stop themselves once and not have that count as one of the two attempts. If the applicant stops voluntarily, draw a line at that point and note that the applicant stopped themselves then restart at the top of the next attempt.

Applicant: _____ **CIT #:** _____

Employer: _____

		1st Test		Stopped Test		Re-Test	
	Sample Preparation						
1.	Wash the sample over the No. 200 (75 µm) sieve. Dry the plus No. 200 (75 µm) material to a constant mass. (4.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
2.	Sieve the dry aggregate over the No. 8 (2.36 mm), No. 16 (1.18mm), No. 30 (600 µm), No. 50 (300 µm), and No. 100 (150 µm). Discard all material retained on the No. 8 (2.36 mm) and passed through the No. 100 (150 µm). (4.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
3.	Weigh and combine the quantities of dry aggregate from each of the sizes shown on the chart. (4.2)	PASS	FAIL	PASS	FAIL	PASS	FAIL
4.	Prepare two test samples from the recipe. (4.3.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
	Test Procedure						
5.	Mix the test sample until it is homogenous. (5.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
6.	Using a finger to block the opening of the funnel, pour the test sample into the funnel. (5.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
7.	Level the material in the funnel with the spatula. Center the measure under the funnel, remove finger and allow the sample to fall freely into the measure. (5.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL

Aggregate Field Testing Technician
KT-50 Uncompacted Void Content Of Fine Aggregate
Revised 2012

		1st Test		Stopped Test		Re-Test	
8.	After the funnel empties, remove excess aggregate from the measure by a single pass of the spatula with the blade vertical using the straight part of its edge in light contact with the top of the measure. (5.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
9.	Exercise care to avoid vibration or disturbance that could cause compaction of the fine aggregate in the measure. (5.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
10.	Strike off, after tap the measure lightly to compact the sample. Brush adhering grains from the outside of the measure. (5.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
11.	Pour contents of measure into 200 mL volumetric flask using a funnel to assure total transfer of aggregate. (5.3.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
12.	Weigh the flask and sample, record as A. (5.4.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
13.	Add distilled water and remove trapped air by slowly turning the flask at an angle along its base. (5.5.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
14.	Allow the flask to sit for several minutes then roll flask again. Continue the process until there is no visible air bubbles present or for a maximum of 15 minutes, whichever comes first. Distilled water should be at 77 +/- 2^{o}F (25 +/- 1^{o}C) (5.5.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
15.	Adjust distilled water to the calibrated volume mark on the neck of the flask. (5.6.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
16.	Weigh flask and contents, record as B. (5.7.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
17.	Repeat procedure for the second test sample and record results. (5.8.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
	Calculations						
18.	Calculate the uncompacted voids. (6.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL

Aggregate Field Testing Technician
KT-50 Uncompacted Void Content Of Fine Aggregate
Revised 2012

Overall Score

Circle One

1st Test	Stopped Test	Re-Test
PASS	PASS	PASS
FAIL	FAIL	FAIL

Witness Examiner: _____ _____

(First Try) Signature Date

Witness Examiner: _____ _____

(Stopped Try) Signature Date

Witness Examiner: _____ _____

(Re-Test) Signature Date

TEXAS DEPARTMENT OF TRANSPORTATION
GENERAL SERVICES DIVISION
STATEMENT OF WORK

1. SCOPE: This solicitation is to provide Classroom/Laboratory style instructor-led certification and recertification services to be held at statewide district locations for Hot-Mix Asphalt certification and recertification classes for Texas Department of Transportation employees.

2. DEFINITIONS OF TERMS AND ACRONYMS

   2.1. CM – TxDOT Contract Manager

   2.2. Curriculum - Certification and recertification class materials, participant manual(s), certification and recertification class tests, certification and recertification class evaluation forms and other supporting class materials.

   2.3. Full Day – business days, Monday through Friday, except for State and Federal holidays 8:00 am to 5:00 pm, local time.

   2.4. Half Day – business days, Monday through Friday, except for State and Federal holidays 8:00 am to 12:00 pm or 1:00 pm to 5:00pm, local time.

   2.5. State –The State of Texas

   2.6. CST-M&P – Construction Division-Materials and Pavements

   2.7. POC – Point of Contact

   2.8. SME - Subject Matter Expert: A member of the TxDOT staff assigned to provide expertise and clarification of the subject matter through the TxDOT CM.

   2.9. HMA – Hot-Mix Asphalt

   2.10. Certification and Recertification – teaching the participant to become proficient in a specified category.

   2.11. TxDOT CM – TxDOT Contract Manager

3. BACKGROUND TxDOT has identified the need to provide instructor-led certification classes for HMA testing procedures.

4. RESPONDENT QUALIFICATIONS: The respondent shall:

   4.1. Be an organization engaged in the business of providing classroom style certification and recertification for a minimum of three years within the last five years in the categories in which respondent is submitting a response.

   4.2. Be in good financial standing and current in payment of all taxes and fees such as state franchise fees. TxDOT reserves the right to request a copy of the respondent's audited or un-audited financial statement.

4.3. TxDOT may request a statement from the president on company letterhead certifying that the company is in good financial standing and current in payment of all taxes and fees.

When financial statements are requested, TxDOT will review the respondent's audited or un-audited financial statement to this solicitation in accordance with Texas Government Code, Title 10, Subtitle D, Section 2156.007 to evaluate the sufficiency of the respondent's financial resources and ability to perform the contract or provide the service required in the solicitation. TxDOT will be the sole judge in determining the sufficiency of the respondent's financial resources and ability to perform the contract or provide the service. Factors to be reviewed include:

4.3.1. Balance sheets

4.3.2. Net working capital

4.3.3. Current asset ratio

4.3.4. Liquidity ratio

4.3.5. Auditor(s) notes

4.3.6. Any notes to the financial statements

5. INSTRUCTOR QUALIFICATIONS: The respondent shall provide the following instructors:

5.1. LEAD INSTRUCTOR: Shall have:

5.1.1. A minimum of two years of experience within the last five years of conducting certification in the categories (Ref. para. 8.2-8.3) in which instructor shall perform certification or as deemed necessary by the TxDOT CM.

5.1.2. A minimum of three years of experience within the last five years of hands-on experience in the categories (Ref. para. 8.2-8.3) in which instructor shall perform certification or as deemed necessary by the TxDOT CM.

5.1.3. TxDOT/CST-M&P qualifications prior to providing any services. Qualification consists of a written test and performance evaluation for each TxDOT procedure within the specified certification categories. (Ref. para. 8.2-8.3)

5.2. ADDITIONAL INSTRUCTORS: Shall have:

5.2.1. A minimum of one year of experience within the last five years of conducting certification in the categories (Ref. para. 8.3.1-8.3.3) in which instructor shall perform certification or as deemed necessary by the TxDOT CM.

5.2.2. A minimum of two years of experience within the last five years of hands-on experience in the categories (Ref. para. 8.3.1-8.3.3) in which instructor shall perform certification or as deemed necessary by the TxDOT CM.

5.2.3. TxDOT/CST-M&P qualifications prior to providing any services. Qualification consists of a written test and performance evaluation for each TxDOT procedure within the specified certification categories. (Ref. para. 8.3.1-8.3.3)

5.3. QUALIFICATION CRITERIA: Lead and additional instructors shall maintain TxDOT/CST-M&P qualifications for each category (Ref 8.3.1-8.3.3) on a three-year term. Requalification is based on a written test and performance evaluation. A minimum score of 80% is required on the written test. Performance evaluation shall consist of an observational assessment of each test procedure or as deemed necessary by TxDOT/CST-M&P personnel.

6. VENDOR REQUIREMENTS: The vendor shall:

6.1. Adhere to the TxDOT Terms and Conditions identified on the solicitation.

6.2. Direct all communication to TxDOT's CM whether written or verbal.

6.3. Provide all labor and supplemental equipment necessary to meet requirements of the specified services throughout the term of the purchase order.

Supplemental equipment may include additional apparatus at the district locations as deemed necessary to reasonably complete the observational part of certification.

6.4. Provide a primary and secondary point of contact.

6.5. Provide instructors that meet the following requirements. All instructors shall be approved by TxDOT in writing prior to performing certification and recertification classes. Vendor instructors may be rejected by TxDOT if references or past working performance is questionable or unfavorable. Conducting certification and recertification classes using an unapproved instructor may lead to cancellation of payment for the service provided.

6.5.1. Lead instructor: The lead instructor shall:

6.5.1.1. Assure all the vendor's instructors are familiar with TxDOT requirements and oversee the performance of additional instructors for the vendor.

6.5.1.2. Review and approve curriculum proposed by the vendor.

6.5.2. Additional instructors: All vendor instructors shall meet minimum qualifications. A resume for each offered instructor shall be submitted to TxDOT after award and throughout the term of service.

6.5.3. Vendor requests to add or delete instructors shall be submitted in writing via email to TxDOT CM ten days prior to scheduling instructors for certification and recertification classes. TxDOT will approve or disapprove the instructor in writing via email within ten days of receipt of written request.

6.6. Provide or develop curriculum and materials for certification and recertification classes that meet TxDOT standards as defined by TxDOT's SME.

6.7. Submit curriculum and materials for approval by TxDOT prior to certification and recertification classes being scheduled and make any changes requested by TxDOT.

6.8. Use class rosters and evaluation forms. The vendor shall ensure that rosters are signed in ink by the instructor(s) and participants for every class.

6.9. Not use the TxDOT logo for any purpose. The TxDOT logo is copyrighted by TxDOT.

7. SERVICE REQUIREMENTS: The vendor shall:

7.1. Begin work on the agreed upon date between TxDOT and the vendor.

7.2. Provide a minimum of two evaluators per certification class or as deemed necessary by the TxDOT CM.

7.3. Provide a proposed calendar year schedule of certification times and dates. Notify the TxDOT CM with any changes to the schedule as soon as changes are identified.

7.4. Assist with the administration of an annual statewide proficiency program in collaboration with TxDOT-CST M&P.

7.5. CURRICULUM REQUIREMENTS: TxDOT reserves the right to modify the specific curriculum of each class throughout the term of the purchase order.

7.6. Conduct certification and recertification classes between 8:00 am to 5:00 pm, local time, or as mutually agreed upon in writing by the vendor, TxDOT district POC and the TxDOT CM. Instructors shall adhere to the agreed upon work schedule.

7.7. Conduct certification and recertification classes at a time and location mutually agreed upon by the TxDOT district POC, TxDOT CM and the vendor.

7.7.1. Coordinate the locations, dates, and times for the certification classes with the TxDOT CM. The vendor and the TxDOT CM shall mutually agree upon the location, date, and time for each certification and recertification classes 90 days prior to the certification and recertification classes being scheduled.

7.7.2. Coordinate the certification and recertification classes with the designated TxDOT POC at each location and include all correspondence with the TxDOT CM.

7.7.3. Ensure instructor(s) and participants sign the roster provided for each class.

7.7.4. Ensure each participant completes an evaluation form.

7.7.5. Provide a copy of the original class roster and evaluation forms to the TxDOT CM via email.

7.7.6. NOTE: TxDOT will not make payment to the vendor until the required forms are received with the invoice.

8. CERTIFICATION CATEGORY

8.1. DURATION: The maximum class duration is 5 days for certification and 3 days for recertification.

8.2. SPECIFICATIONS: Provide copies of the specifications listed below including special provisions or special specifications or as requested by the TxDOT CM. Review critical specification requirements related to the test procedures reviewed in class.

8.2.1. Item 5 Control of the Work;

8.2.2. Item 6 Control of Materials;

8.2.3. Item 340 Dense-Graded Hot-Mix Asphalt (Small Quantity);

8.2.4. Item 341 Dense-Graded Hot-Mix Asphalt;

8.2.5. Item 342 Permeable Friction Course (PFC);

8.2.6. Item 344 Superpave Mixtures;

8.2.7. Item 346 Stone-Matrix Asphalt;

8.2.8. Item 347 Thin Overlay Mixtures (TOM);

8.2.9. Item 348 Thin Bonded Friction Courses;

8.2.10. Item 350 Microsurfacing, and

8.2.11. Item 585, Ride Quality for Pavement Surfaces.

8.3. TEST PROCEDURES. Review, demonstrate, and evaluate the procedures listed below. Performance evaluation shall consist of an observational assessment of each procedure or as deemed necessary by the TxDOT CM.

8.3.1. LEVEL 1A TRAINING, HMA PLANT SPECIALIST

8.3.1.1. Tex-200-F Sieve Analysis of Fine and Coarse Aggregates, Parts I and II;

8.3.1.2. Tex-204-F Design of Bituminous Mixtures, VMA calculation only;

8.3.1.3. Tex-206-F Compacting Specimens Using the Texas Gyratory Compactor (TGC);

8.3.1.4. Tex-207-F Determining Density of Compacted Bituminous Mixtures, Parts I, VI and VIII;

8.3.1.5. Tex-212-F Determining Moisture Content of Bituminous Mixtures, Part II;

8.3.1.6. Tex-217-F, Determining Deleterious Material and Decantation Test for Coarse Aggregates;

8.3.1.7. Tex-221-F Sampling Aggregate for Bituminous Mixtures, Surface Treatments, and Limestone Rock Asphalt;

8.3.1.8. Tex-222-F Sampling Bituminous Mixtures;

8.3.1.9. Tex-225-F Random Selection of Bituminous Mixture Samples;

8.3.1.10. Tex-227-F Theoretical Maximum Specific Gravity of Bituminous Mixtures;

8.3.1.11. Tex-233-F Preparing Control Charts for Asphaltic Concrete Paving Projects;

8.3.1.12. Tex-235-F Determining Draindown Characteristics in Bituminous Materials;

8.3.1.13. Tex-236-F Determining Asphalt Content from Asphalt Paving Mixtures by the Ignition Method;

8.3.1.14. Tex-241-F Superpave Gyratory Compacting of Test Specimens of Bituminous Mixtures;

8.3.1.15. Tex-400-A Sampling Flexible Base, Stone, Gravel, Sand, and Mineral Aggregates;

8.3.1.16. Tex-500-C Sampling Bituminous Materials, Pre-Molded Joint Fillers, and Joint Sealers, Parts II and III; and

8.3.1.17. Tex-530-C Effect of Water on Bituminous Paving Mixtures.

8.3.2. LEVEL 1B TRAINING AND RECERTIFICATION, HMA ROADWAY SPECIALIST.

8.3.2.1. Tex-207-F Determining Density of Compacted Bituminous Mixtures, Parts I, IV, V, VI and VII;

8.3.2.2. Tex-222, Sampling Bituminous Mixtures;

8.3.2.3. Tex-225-F Random Selection of Bituminous Mixture Samples, Part II;

8.3.2.4. Tex-244-F Thermal Profile of Hot Mix Asphalt

8.3.2.5. Tex-246-F Permeability or Water Flow of Hot Mix Asphalt

8.3.2.6. Tex-500-C Sampling Bituminous Materials, Pre-Molded Joint Fillers, and Joint Sealers, Parts II and III;

8.3.3. LEVEL 2, HMA PLANT PRODUCTION SPECIALIST.

8.3.3.1. Tex-107-E Determining the Bar Linear Shrinkage of Soils;

8.3.3.2. Tex-203-F Sand Equivalent Test;

8.3.3.3. Tex-204-F Design of Bituminous Mixtures;

8.3.3.4. Tex-205-F Laboratory Method of Mixing Bituminous Mixtures;

8.3.3.5. Tex-206-F Compacting Specimens Using the Texas Gyratory Compactor (TGC);

8.3.3.6. Tex-207-F Determining Density of Compacted Bituminous Mixtures;

8.3.3.7. Tex-217-F Determining Deleterious Material and Decantation Test for Coarse Aggregates;

8.3.3.8. Tex-226-F Indirect Tensile Strength Test;

8.3.3.9. Tex-227-F Theoretical Maximum Specific Gravity of Bituminous Mixtures;

8.3.3.10. Tex-235-F Drain-down

8.3.3.11. Tex-236-F Determining Asphalt Content from Asphalt Paving Mixtures by the Ignition Method, Ignition Correction Factors;

8.3.3.12. Tex-237-F Minimum Standards for Acceptance of a Laboratory for Hot Mix Testing;

8.3.3.13. Tex-241-F Superpave Gyratory Compacting of Test Specimens of Bituminous Mixtures

8.3.3.14. Tex-242-F Hamburg Wheel-Tracking Test;

8.3.3.15. Tex-245-F Cantabro Loss;

8.3.3.16. Tex-280-F Determining Flat and Elongated Particles;

8.3.3.17. Tex-408-A Organic Impurities in Fine Aggregate for Concrete; and

8.3.3.18. Tex-460-A Sampling Flexible Base, Stone, Gravel, Sand, and Mineral Aggregates.

8.3.3.19. Tex-461-A Degradation of Coarse Aggregate by Micro-Deval Abrasion.

9. CERTIFICATION AND RECERTIFICATION CLASS CANCELLATION:

9.1. The TxDOT CM or the vendor may cancel or postpone any scheduled certification or recertification class within 30 days written notice.

9.2. The TxDOT CM or the vendor responsible for the cancellation or postponement of a certification or recertification class shall verbally notify the other party and the designated TxDOT POC of the cancellation or postponement and follow-up with written notification within one business day via email.

9.3. Any certification or recertification class terminated for reasons beyond the control of either TxDOT or the vendor may be rescheduled for completion at a later date. All scheduled certification and recertification classes shall be mutually agreed to by the vendor and the TxDOT CM.

9.4. In the event a scheduled certification or recertification class is started, or a scheduled certification or recertification class is terminated for reasons beyond the control of either TxDOT or the vendor, after the instructor has traveled, TxDOT will reimburse the vendor for the instructor's travel and per diem. For reimbursement of travel, the following shall apply:

9.4.1. The vendor shall submit an invoice for payment of the travel within fifteen working days of cancellation of the certification or recertification class via email. A copy of all receipts for travel shall be submitted with the invoice .

9.4.2. TxDOT CM will determine the validity of the claim. The travel and per diem payment will be evaluated and actual expenses will be paid at the allowable state rate .

10. CERTIFICATION CATEGORY PRICING: The respondent shall submit pricing per participant for the category(ies) in which certification and recertification will be provided.

10.1. Level 1A Training

10.2. Level 1A Recertification

10.3. Level 1B Training and Recertification

10.4. Level 2 Training

10.5. Level 2 Recertification

11. VENDOR PERFORMANCE: TxDOT reserves the right to monitor any certification or recertification class at random to assure conformity to requirements. Vendor performance will be monitored on a regular basis by TxDOT. TxDOT may consider the following performance by the vendor as unsatisfactory performance. An unsatisfactory performance determination includes, but is not limited to:

11.1. One instance of vendor not covering the areas identified in the certification or recertification categories.

11.2. Any valid unresolved negative statement made by a participant on the Evaluation Form.

11.3. Any instance when participant Evaluation Form indicates nothing was gained from the certification or recertification and no satisfactory resolution is reached.

11.4. Any instance of unprofessional behavior with TxDOT staff.

NOTE: Unsatisfactory performance will result in a negative vendor performance report, or cancellation of the purchase order or both.

11.5. Any unresolved issues or concerns provided by the TxDOT CM.

12. PERSONNEL CONTINUITY AND REPLACEMENT

12.1. TxDOT recognizes that events beyond the control of the vendor such as the death, physical or mental incapacity, long-term illness, or the voluntary termination of employment of the lead instructor will require the vendor propose a replacement. In the event such a replacement is necessary, vendor agrees that personnel shall not begin work on the project without prior written approval from TxDOT CM. The TxDOT CM will arrange an onsite assessment of the replacement personnel; consisting of a written test and performance evaluation for each TxDOT procedure within the specified certification categories (Ref. para. 8.3.1-8.3.3). A minimum score of 80% is required on the written test. Performance evaluation shall consist of an observational assessment of each test procedure or as deemed necessary by TxDOT/CST-M&P personnel.

12.2. If TxDOT determines any instructor is unable to perform in accordance with the service requirements or to communicate effectively, the vendor shall immediately remove that person.

12.3. Proposed replacement personnel shall meet minimum qualifications and have experience comparable to the person(s) being replaced. Replacement personnel shall be provided at no additional cost to TxDOT. Resume(s) and reference(s) will be requested for the proposed replacement(s). TxDOT may reject any replacement if references or past working performance is questionable or unfavorable. TxDOT will have final approval on the qualifications of the proposed replacement personnel.

13. CONFLICT OF INTEREST: The vendor, vendor's personnel and vendor's subcontractor(s) shall affirm not to have, nor acquire any interest during the term of the purchase order that would conflict in any manner with the performance of the vendor's obligations in regards to services authorized.

14. INVOICING INSTRUCTIONS: The vendor shall provide a comprehensive and detailed invoice with reference to the basis for each item charged. Each certification and recertification class shall be billed on a separate invoice. The invoice for each class taught shall be submitted by the vendor within 30 calendar days of the completion of the certification or recertification class and not more than 90 calendar days after the costs are incurred. Original documentation that validates the charges shall be attached. The original invoice shall be sent to FIN_Invoices@txdot.gov unless otherwise shown on the purchase order to ensure timely payment and shall include the following:

    14.1. Complete 16-digit purchase order number.

    14.2. Vendor Employer Identification Number (EIN).

    14.3. TxDOT request number.

    14.4. Date, time, and name of certification or recertification class

    14.5. Location of certification/recertification site.

    14.6. Participants' name and ID number.

    14.7. Original class roster.

    14.8. Original class evaluation forms.

    14.9. The invoice shall be calculated by multiplying the unit cost of the soils and base category by the number of participants certified.

        NOTE: Invoices requiring correction shall be re-submitted with a new invoice date.

    14.10. COPY OF INVOICE AND SUPPORTING DOCUMENTATION: A copy of the invoice and original documentation that validates the invoice charges shall be e-mailed to the designated TxDOT representative to include but not be limited to:

        14.10.1. Copies of the evaluation form and sign-in sheet.

15. PAYMENT REQUIREMENTS: Payment will be based on the following:

    15.1. Receipt of the Evaluation Form and class roster confirming the certification or recertification was successfully completed.

    15.2. Conducting certification or recertification using an unapproved instructor will lead to denial of payment for the service provided.

16. TxDOT RESPONSIBILITIES: TxDOT will:

    16.1. Provide a TxDOT CM.

    16.2. Provide a designated TxDOT POC for each certification or recertification location.

    16.3. Schedule participants to attend the certification or recertification classes for each location.

    16.4. Provide 30 days notification to vendors of certification or recertification dates.

    16.5. Approve instructors in writing within fifteen days of receipt of request from vendor

16.6. Provide vendor with a finalized Evaluation Report when the evaluator's assessment is approved

16.7. Monitor the quality of the vendor's work by conducting audits of the certification and recertification classes.

17. RESPONSE SUBMISSION

17.1. The following **shall** be submitted with the response. Failure by the respondent to submit the documentation listed below **will** disqualify the respondent from further consideration:

17.1.1. Original signed, dated and completed Invitation for Bid.

NOTE: If addendums are generated as part of this solicitation, include the original signed and dated addendum(s) in Section 1.

17.1.2. Schedule 1 – Pricing

Schedule 2 – Company Qualifications and Experience: The respondent shall demonstrate successful past performance through submission of documentation of relevant qualifications and experience to include:

17.1.2.1. Name, address, phone number and email address of the person TxDOT should contact with any questions regarding the response submission.

17.1.2.2. A brief description of related or similar services performed within the last three years.

17.1.2.3. Managing related or similar services of comparable size and scope to the services within the solicitation.

17.1.3. Schedule 3 - Lead Instructor Qualifications and References: The respondent shall provide a resume or brief profile. The profile shall include:

17.1.3.1. Individual's name and title.

17.1.3.2. Education.

17.1.3.3. Description of qualifications and number of years of experience for the past three years (Ref. Para. 5).

17.1.4. Schedule 4 - Additional Instructor Qualifications and References: The respondent shall provide a resume or brief profile. The profile shall include:

17.1.4.1. Individual's name and title.

17.1.4.2. Education.

17.1.4.3. Description of qualifications and number of years of experience for the past three years

17.2. The following **should** be submitted with the response. Failure by the respondent to submit the documentation listed below may disqualify the respondent from further consideration.

17.2.1. Respondent References

17.2.2. Financial Standing: Statement from the president, owner or financial officer on company letterhead certifying that the company is in good financial standing, current in payment of all taxes and fees.

18. AWARD: Single Award: One purchase order awarded to a single vendor.

19. CONTRACT ADMINISTRATION: Administration of the purchase order is a joint responsibility of the TxDOT Contract Administrator and TxDOT Purchasing. TxDOT Purchasing staff will be responsible for administering the contractual business relationship with the vendor.

19.1. Any proposed changes to work to be performed, whether initiated by TxDOT or the vendor, must receive final written approval in the form of a Purchase Order Change Notice signed by the authorized TxDOT purchasing agent.

19.2. Upon issuance of purchase order, TxDOT will designate an individual who will serve as the Contract Manager and point of contact between the agency and the vendor. The Contract Manager does not have any express or implied authority to vary the terms of the purchase order, amend the purchase order in any way or waive strict performance of the terms or conditions of the purchase order. This individual's contract management and contract administration responsibilities include, but are not limited to:

19.2.1. Monitoring the vendor's progress and performance and ensuring services conform to established specification requirements.

19.2.2. Managing the financial aspects of the contract including approval of payments.

19.2.3. Meeting with the vendor as needed to review progress, discuss problems and consider necessary action.

19.2.4. Identifying a breach of contract by assessing the difference between contract performance and non-performance.

19.2.5. Other areas as identified by the Comptroller of Public Accounts Contract Management Guide, latest edition.