

## PRACTICE AND PROCEDURE DIRECTIVE

<b>TO: ALL MANUAL HOLDERS</b>	<b>PPD NO. 19b</b>
<b>SUBJECT:</b>	<b>EFFECTIVE DATE:</b>
<b>ADOT SYSTEM FOR THE EVALUATION OF TESTING LABORATORIES</b>	<b>May 22, 2023</b>

### 1. GENERAL

1.1 This Practice and Procedure Directive specifies the requirements which materials testing laboratories must meet in order to be approved by ADOT to perform sampling and testing activities for the Department.

1.2 This *ADOT System for the Evaluation of Testing Laboratories* incorporates the procedures and requirements of the *AASHTO Accreditation Program (AAP)* in conjunction with *AASHTO R 18, "Establishing and Implementing a Quality Management System for Construction Materials Laboratories"*, as part of the requirements for a laboratory to demonstrate competency in the performance of specific tests on construction materials. Laboratories which are approved by ADOT must obtain and maintain AASHTO accreditation for any AASHTO or ASTM test method specified or referenced by a contract document. In addition, AASHTO accreditation is required for any AASHTO or ASTM test method which an Arizona Test Method modifies.

1.3 On all projects advertised/awarded by ADOT, the materials testing laboratory must satisfy the qualification criteria as specified herein and be approved by ADOT Materials Group prior to performing materials sampling and testing activities for the Department. For Certification Acceptance projects that are advertised/awarded by a local government agency, AASHTO accreditation in applicable test methods is sufficient. Those laboratories submitting asphaltic concrete mix designs must also meet the requirements of *Materials Group Practice and Procedure Directive No. 4, "Asphaltic Concrete Mix Design Proposals and Submittals"*, and be approved by the Materials Group Bituminous Engineer. Approved laboratories will be periodically evaluated to verify compliance with this system. This system is administered by the ADOT Materials Group Quality Assurance Section, under authority delegated by the State Engineer. This system will apply to any laboratory performing sampling and testing activities for the Department, directly or as a subconsultant.

1.4 The *ADOT System for the Evaluation of Testing Laboratories* is revised periodically. The latest version of this Practice and Procedure Directive can be obtained by accessing the ADOT Materials Group website.

## 2. ADOT SYSTEM CRITERIA

2.1 The following requirements are in addition to Section 5, “Management Requirements”, of the *AASHTO Accreditation Program Procedures Manual for the Accreditation of Construction Materials Testing Laboratories* (hereinafter referred to as the “AAP Procedures Manual”):

2.1.1 **Subsection 5.1 “Quality Management System Criteria”** of the AAP Procedures Manual is modified to add the following:

2.1.1.1 The laboratory shall have and maintain the current ADOT Materials Testing Manual. The manual shall be readily accessible to all laboratory personnel.

2.1.2 **Section 4 “Significance and Use”** of the AAP Procedures Manual is modified to add the following:

2.1.2.1 Any laboratory performing materials sampling and testing in Arizona, or within 100 miles of its borders, for ADOT projects shall be open for inspection by Arizona Department of Transportation personnel at any time. ADOT Materials Group Quality Assurance Section shall regularly schedule and conduct periodic on-site equipment and procedural inspections at all approved permanently based laboratories. The laboratory shall demonstrate the capability to perform tests according to the current ADOT Materials Testing Manual for those testing services offered under the scope of this system.

*Please reference R-61, Section 5.4 ~ 7.4 for definitions of “**Establishing Requirements for Equipment Calibrations, Standardizations, and Checks**”.*

2.1.2.2 Approval will be given for those AASHTO/ASTM test methods which the laboratory has obtained AASHTO accreditation and which are successfully demonstrated during the ADOT inspection. Approval will be given for those Arizona Test Methods which modify AASHTO/ASTM methods, if the laboratory has AASHTO accreditation for the AASHTO/ASTM methods, and the Arizona Test Methods are successfully demonstrated during the ADOT inspection. Approval will also be given for unique Arizona Test Methods that are successfully demonstrated during the inspection.

2.1.2.3 A written response to any deficiencies noted during ADOT inspections shall be submitted to the ADOT Materials Group Quality Assurance Manager within 30 days of notification. **Failure to respond to noted deficiencies within the 30 day limit will be grounds for revocation of ADOT approval.**

2.1.2.4 Laboratory inspections performed by ADOT Materials Group Quality Assurance Section will be conducted according to **Table 1.**

<b>TABLE 1                      INDEPENDENT LABORATORY INSPECTION                      REQUIREMENTS</b>						
TYPE OF LAB	Evaluate personnel, Quality Management System Manual, etc.	<b>INSPECT                      Procedures                      and                      Equipment                      on a                      Regular                      Schedule                      or As                      Needed</b>	Approve via Acceptance Letter	Include in the ADOT Directory of Approved Testing Labs	Performing Acceptance Sampling and Testing for ADOT:  <b>INSPECT                      Procedures                      and                      Equipment                      PER                      PROJECT</b>	Performing Quality Control Sampling and Testing for the Contractor:  <b>INSPECT                      Equipment                      PER                      PROJECT</b>
AASHTO Accredited Independent Labs within Arizona* <sup>1</sup> which are ADOT Approved	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>		
Project Labs* <sup>2</sup> within Arizona* <sup>1</sup> of an ADOT Approved Independent Lab					<b>X*<sup>3</sup></b>	<b>X*<sup>3</sup></b>
Project Labs* <sup>2</sup> within Arizona* <sup>1</sup> of an out-of- state AASHTO Accredited Independent Lab which is not ADOT Approved	<b>X</b>				<b>X*<sup>3</sup></b>	<b>X*<sup>3</sup></b>
* <sup>1</sup> Operating within Arizona or within 100 miles of Arizona borders.						
* <sup>2</sup> Any portable or permanently based lab facility operating under the authority, and AASHTO accreditation of a main laboratory facility ("parent" lab).						
* <sup>3</sup> The Resident Engineer shall notify the ADOT Materials Group Quality Assurance Manager in writing to request an inspection (See Subsection 2.1.2.8).						

2.1.2.5 To perform materials acceptance or quality control sampling and testing on a project, a lab facility must be located within a reasonable distance from the project site. Project personnel, which may include the Resident Engineer and the Regional Materials Engineer, will ensure that the distance is such that the integrity of the sample is maintained. In addition, the lab must be completely equipped for all phases of project-related materials sampling and testing, as required by the contract specifications.

2.1.2.6 All ADOT laboratories operate within the confines established by AASHTO and CCRL protocols. Each laboratory conforms to annual inspections and proficiency sample testing administered by the ADOT Materials Quality Assurance group. The Regional Materials Engineer shall notify the ADOT Materials Group Quality Assurance Manager, in writing, to request the inspection.

2.1.2.7 Any Project laboratory, as described in **Table 1**, which is contracted to perform materials acceptance or quality control sampling and testing must be inspected by ADOT Materials Group Quality Assurance personnel at least 10 working days prior to performing the required testing. The Resident Engineer shall notify the ADOT Materials Group Quality Assurance Manager, in writing, to request the inspection.

2.1.2.8 Any AASHTO accredited independent laboratory within Arizona which is not ADOT approved, which is contracted to perform materials acceptance or quality control sampling and testing must become an ADOT approved laboratory. The laboratory shall contact the ADOT Materials Group Quality Assurance Manager, in writing, at least 20 working days prior to performing the required testing to request an inspection of the laboratory procedures and equipment. In addition, the personnel, Quality Management System Manual, etc. will also be evaluated.

2.1.2.9 When multiple ADOT projects use the same laboratory for materials acceptance or quality control sampling and testing, the Quality Assurance Manager will decide if an inspection of the laboratory is necessary for each project.

2.1.2.10 As an addendum to their AAP Quality Management System Manual, each approved lab shall submit, for review and acceptance by ADOT, written practice and procedures that address the following issues:

1. How project laboratories maintain test method and specification compliance while sampling and testing materials for ADOT projects.
2. How inspection and calibration of sampling and testing equipment at project laboratories are performed and documented.
3. How the correlation testing program is performed between the accredited "parent" laboratory and its project laboratories.

2.1.2.11 **Copies of AASHTO (FORMERLY AMRL) and CCRL inspection reports and responses to any deficiencies shall be transmitted to the ADOT Materials Group Quality Assurance Manager within 30 days of receipt of the inspection report.**

2.1.3 **Subsection 3.3 “Proficiency Testing Criteria”** of the AAP Procedures Manual is modified to add the following:

2.1.3.1 The laboratory shall participate in the ADOT Proficiency Sample Program, performing at least those test methods for which ADOT approval has been granted. A written response to any noted deficiencies shall be submitted to the ADOT Materials Group Quality Assurance Manager within 30 days of notification. **Failure to respond to noted deficiencies within the 30 day limit will be grounds for revocation of ADOT approval.** If a laboratory does not perform testing on two consecutive sets of proficiency samples of the same material type, that laboratory will be removed from the ADOT Proficiency Sample Program entirely. If that laboratory is also an ADOT approved laboratory, it will lose ADOT approval to perform sampling and testing on ADOT projects.

2.1.3.2 Additional information regarding the ADOT Proficiency Sample Program can be found by accessing the ADOT Materials Group website. This website also provides information specifically related to the program. Click the link below to be redirected to ADOT’s Proficiency Sample Program web pages:

[Proficiency Sample Program](https://azdot.gov/business/engineering-and-construction/construction-and-materials/proficiency-sample-program)

<https://azdot.gov/business/engineering-and-construction/construction-and-materials/proficiency-sample-program>

2.1.4 **Subsection 3.4 “Personnel Qualification Criteria”** of the AAP Procedures Manual is modified to add the following:

2.1.4.1 **An individual who is responsible for supervising sampling and testing** shall meet the requirements given in **Table 2** for the appropriate field in which sampling and testing is being performed.

2.1.4.2 **Individuals who perform actual sampling and testing** shall meet the requirements given in **Table 3** for the appropriate field in which sampling and testing is being performed, and shall be supervised by an individual who meets the requirements of **Table 2** for the appropriate field in which sampling and testing is being performed.

2.1.4.3 **Any ADOT employee who performs actual sampling and testing** shall maintain ATTI and/or ACI certification(s) for the appropriate field in which sampling and testing is being performed, and shall be supervised by an individual appointed by ADOT for the appropriate field in which sampling and testing is being performed.

2.1.4.4 Additional information regarding certification requirements can be obtained from ADOT Materials Group Quality Assurance Section, or by accessing the ADOT Materials Group website.

<b>TABLE 2</b>	
<b>REQUIREMENTS FOR SAMPLING AND TESTING SUPERVISORS</b>	
<b>Soils and Aggregate</b>	
<u>Field</u>	<u>Laboratory</u>
Arizona Technical Testing Institute (ATTI) "Field" certification plus one of (a) through (h) below.	Arizona Technical Testing Institute (ATTI) "Laboratory Soils/Aggregate" certification plus one of (a) through (h) below.
<b>Asphaltic Concrete</b>	
<u>Field</u>	<u>Laboratory</u>
Arizona Technical Testing Institute (ATTI) "Field" certification plus one of (a) through (h) below.	Arizona Technical Testing Institute (ATTI) "Asphalt" certification plus one of (a) through (h) below.
<b>Concrete</b>	
<u>Field</u>	<u>Laboratory</u>
American Concrete Institute (ACI) "Concrete Field Testing Technician Grade I" certification plus one of (a) through (h) below.	American Concrete Institute (ACI) "Concrete Strength Testing Technician" certification plus one of (a) through (h) below.
<p><b>(a)</b> Professional Engineer, registered in the State of Arizona, with one year of highway materials sampling and testing experience acceptable to the Department.</p> <p><b>(b)</b> Engineer-In-Training, certified by the State of Arizona, with two years of highway materials sampling and testing experience acceptable to the Department.</p> <p><b>(c)</b> Obtained a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology, Construction, or related field acceptable to the Department; and with three years of highway materials sampling and testing experience acceptable to the Department.</p> <p><b>(d)</b> Certified by the National Institute for Certification in Engineering Technologies (NICET) in the Construction Materials Testing field as an Engineering Technician (Level III) or higher in the appropriate subfield in which sampling and testing is being performed.</p> <p><b>(e)</b> Certified by NICET in the Transportation Engineering Technology field as an Engineering Technician (Level III) or higher in the Highway Materials subfield.</p> <p><b>(f)</b> Certified by NICET as an Engineering Technician, or higher, in Civil Engineering Technology with five years of highway materials sampling and testing experience acceptable to the Department.</p> <p><b>(g)</b> An individual with certified experience (minimum of eight (8) years) of highway materials sampling and testing, and construction experience shall be acceptable to the Department.</p>	

<b>TABLE 3</b>	
<b>REQUIREMENTS FOR SAMPLING AND TESTING TECHNICIAN</b>	
<b>Soils and Aggregate</b>	
<u>Field</u>	<u>Laboratory</u>
Arizona Technical Testing Institute (ATTI) "Field" certification.	Arizona Technical Testing Institute (ATTI) "Laboratory Soils/Aggregate" certification.
<b>Asphaltic Concrete</b>	
<u>Field</u>	<u>Laboratory</u>
Arizona Technical Testing Institute (ATTI) "Field" certification.	Arizona Technical Testing Institute (ATTI) "Asphalt" certification.
<b>Concrete</b>	
<u>Field</u>	<u>Laboratory</u>
American Concrete Institute (ACI) "Concrete Field Testing Technician Grade I" certification.	American Concrete Institute (ACI) "Concrete Strength Testing Technician" certification.

2.1.5 **Subsection 3.5 "Additional General Criteria"** of the AAP Procedures Manual is modified to add the following:

2.1.5.1 Copies of a laboratory's notification to or from AASHTO of any major change in its quality management system, capability to perform tests for which it is accredited, laboratory ownership, location (for permanent facilities), managerial personnel, facilities, and any other change which may affect the scope of its accreditation shall be transmitted to the ADOT Materials Group Quality Assurance Manager within 30 days of when the change occurs.

2.1.5.2 The ADOT Materials Group Quality Assurance Manager must be notified within 30 days of changes in supervisory and key technical personnel.

2.1.5.3 To be eligible to perform referee testing on ADOT projects as an independent testing laboratory, the laboratory must provide proof to the Department of their independent status by submitting a letter to the ADOT Materials Group Quality Assurance Manager indicating all individuals and corporations that have ownership of the laboratory. In addition, the letter must indicate that each of the owners of the laboratory is devoid of any ownership in contracting firms or materials suppliers who perform work for the Department.

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Brent Conner, PE  
 Assistant State Materials Engineer  
 Materials Group