The Transition

- Pooled-Fund study is coming to an end

- Calibration protocol is greatly improved by Cornell Local Roads Program

- AMRL will be taking over responsibility of Calibration Center Operator Certification this Fall

- AMRL has worked closely with Cornell to provide a smooth and seamless transition

- Oversight provided by Jane Jiang (FHWA)
Who is AMRL?

- AASHTO Materials Reference Laboratory
- Part of AASHTO’s Engineering Services Department
- Established under the sponsorship of the AASHTO Highway Subcommittee on Materials in 1965
- Primary vision is to be the center for promoting quality and achievement of excellence in materials testing
- Highly regarded as a leader in promoting quality in construction materials testing (CMT) world-wide
Why AMRL?

Knowledgeable
• 45 years of experience in construction materials testing and quality assurance

Experienced
• Over 2,000 laboratories participate in AMRL programs
• Long history of working with DOTs and FHWA

Formally Recognized
• Recognized for compliance to ISO 9001

Involved
• Highly involved in AASHTO and ASTM standards development processes
The Year in Review

- Extensive hands-on training from Cornell staff
- 8 centers visited by AMRL
- Over 200 cumulative hours of on-site training
- Participated in operator training at Minnesota Department of Transportation
- Developed evaluation guidelines with the help of Cornell staff
What to Expect

- Minor changes to program requirements
- Subject, focus, and frequency of the reviews will remain relatively unchanged
- Cornell staff available for technical support
- FHWA will continue to provide guidance and oversight
- For now, load cell calibrations will still be performed by Cornell Local Roads Program
Program Development

- Communication and Accessibility
- Focus on Customer Service
- Website
- Online Certification Directory
- Customer Feedback Formally Solicited
- Management Council Approach to Certification Decisions
AASHTO Accreditation
AMRL supports the AASHTO Accreditation Program (AAP) by utilizing data collected through the Laboratory Assessment Program (LAP) and the Proficiency Sample Program (PSP).

AMRL publishes the directory of accredited laboratories, which is used by
FWD Calibration Center Operator Certification Program

The Falling Weight Deflectometer (FWD) calibration procedure ensures that pavement analysis and deflection data is accurate and repeatable. The calibration system was developed in the early 1990s as part of the Strategic Highway Research Program's (SHRP) Long Term Pavement Performance (LTPP) program. Calibration center operator certification was initiated in 2004 as part of a pooled fund study by the Federal Highway Administration (FHWA).

The Cornell Local Roads Program at Cornell University developed the certification program and operated it from 2004 to 2010. The transition of the certification program from Cornell to AMRL took place in 2010 with oversight from the FHWA. The FHWA and Cornell Local Roads Program continue to provide oversight, guidance, and technical support for the program.

The On-Site Evaluation

In order to maintain certification, FWD calibration center operators must be evaluated by AMRL annually. An on-site evaluation typically takes about ½ day per operator evaluated. At the beginning of the evaluation, the calibration center operator, FWD operator, and the AMRL evaluator will meet to discuss the anticipated flow of the evaluation. This is an opportunity for the FWD calibration operator and other staff to ask questions about the evaluation, the calibration protocol, and the software and equipment.

The center and operator will be evaluated for compliance to AASHTO R 32, Standard Recommended Practice for Calibrating the Load Cell and Deflection Sensors for a Falling Weight Deflectometer. Each operator will be expected to perform the calibration independently, demonstrating proficieny in use of the calibration software and equipment. In addition, the evaluator will review reference load cell calibration records to ensure that the calibration is current. At the end of the evaluation, the AMRL evaluator will review their findings with the Calibration Operator and the Facility's Manager during a closing meeting. An Evaluation Report, documenting the evaluator's findings, will be distributed at that time.

Preparing for an Evaluation

In order to provide the best evaluation possible, the facility must arrange for a fully-operational FWD to be during the on-site evaluation. In addition, all required software and calibration equipment must be available and ready for use. In addition to the representative(s) from AMRL, the calibration operator(s) to be evaluated
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The On-Site Evaluation

In order to maintain certification, FWD calibration center operators must be evaluated by AMRL annually. An evaluation typically takes about 1/2 day per operator evaluated. At the beginning of the evaluation, the calibration center operator, FWD operator, and the AMRL evaluator will meet to discuss the anticipated flow of the evaluation. This is an opportunity for the FWD calibration operator and other staff to ask questions about the evaluation, the calibration protocol, and the software and equipment.

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Preparing for an Evaluation

In order to provide the best evaluation possible, the facility must arrange for a fully-operational FWD to be available during the on-site evaluation. In addition, all required software and calibration equipment must be available and ready for use. In addition to the representative(s) from AMRL, the calibration operator(s) to be evaluated must be present.

FWD LINKS
- Purchase AASHTO R 32
- Calibration Software
- Installation
- Calibrating the Falling Weight Deflectometer
- Video
- FWD User’s Group
- Cornell Local Roads Program
- LTTP FWD Manual
Program Requirements

- Describes program in great detail
- Available for download at [www.amrl.net](http://www.amrl.net)
- Awaiting approval from AMRL’s oversight group
- Carefully structured to uphold the quality and integrity of the program
- Covers certification requirements, scheduling procedures, on-site evaluation process, reporting format, decision-making process, fees, and other specific rules and limitations
Certification Criteria

- On-site evaluation of each operator
- Approximate interval of 12 months
- Attempts made to keep evaluations within the same month each year
- Intervals shall not exceed 14 months
- Reference load cell used by center must be calibrated annually (AASHTO R 33)
- All applicable fees must be paid (*does not apply to AASHTO Member Departments*)
Certification Decisions

- Management council approach
- Decisions made by Chair, AMRL Administrative Task Group (ATG) of the AASHTO Subcommittee on Materials (SOM)
- AMRL acts as technical advisor
- ATG currently provides similar services for AASHTO Accreditation Program

1. AMRL submits documentation to ATG Chair
2. Chair makes decisions on certification and notifies AMRL
3. AMRL sends notification to calibration center
Schedule

• Each center assigned an annual evaluation month

• Evaluations will take place within the assigned evaluation month (within reason)

• No more than 14 months between evaluations

• Centers already in the program will be contacted approximately two months before the assigned month
Evaluation Request Form

Must be submitted annually and will include:

• Up-to-date contact information for the center

• Operators to be evaluated

• Equipment information

• Summary of FWDs calibrated since last evaluation

• Opportunity to report problems or difficulties with the calibration procedure
Preparing for an Evaluation

- Center must have fully operational FWD available on the day(s) of the evaluation
- Software and calibration equipment shall be available and ready for use
- Additional guidance in “Recommendations for Success” document
- Delays resulting from inadequate preparation may lead to additional fees
On-Site Evaluation Process

- Each operator will be evaluated for compliance to AASHTO R 32
- Current published version will be used to complete evaluation
- A copy of the current version of R 32 must be available during the on-site evaluation
Report

Categories of Findings:
- Nonconformities
- Observations
- Comments

Possible Outcomes of Evaluation:
- Fully Compliant
- Partially Compliant
- Non-Compliant
Reporting - Types of Findings

**Nonconformity**
- A finding that indicates policy or practice contrary to the requirements of AASHTO R 32 or the AMRL program requirements

**Observation**
- A technically-related nonconformity that judgment and experience indicate is not likely to affect the calibration of the FWD
- A minor failure in some part of the calibration documentation

**Comment**
- Suggestions for improvement
- Information about pending changes to AASHTO R 32, AASHTO R 33, or AMRL program requirements
- Specific technical information provided for informational purposes only
Levels of Compliance

**Compliance Level**

**Fully Compliant**

**Definition**
Operator fully understands and demonstrates sound implementation of the calibration protocol and uses calibration equipment and software appropriately.

**Guidelines**
Generally, no nonconformities and up to three observations may be noted during the evaluation. Certification may be issued after any observations have been resolved.
Levels of Compliance

**Compliance Level**  
Partially Compliant

**Definition**  
Operator fully understands the calibration protocol. Some necessary changes in equipment, software use, and/or implementation of the calibration protocol may be required.

**Guidelines**  
Generally, one or more nonconformities and/or more than three observations are noted. Certification may be issued after these findings are resolved.
Levels of Compliance

**Compliance Level**: Non-Compliant

**Definition**: Operator does not demonstrate an adequate understanding of the calibration protocol or its implementation.

**Guidelines**: Generally, three or more nonconformities and/or observations are noted. It is recommended that the operator undergo further training before attempting to obtain certification again. A supplemental evaluation will likely be required in order for the operator to obtain certification.
Resolving Nonconformities and Observations

- Nonconformities and observations must be resolved
- On-Site Evaluation Response Form
- Must be resolved within thirty (30) days of report issuance
- Retraining for operator may be necessary
- In some cases, a follow-up on-site evaluation may be necessary
Center submits responses to AMRL

AMRL staff review responses
- If complete, sent to ATG
- If incomplete, more information requested

ATG reviews responses and makes certification decisions

Center may choose to appeal decision

AMRL informs center of certification decision
Fee Structure

Domestic Facilities (Within Continental United States)

• $1,500 for first day

• $750 for each additional day

• A “day” is no more than 9 hours within a calendar day

• Cancellation Fee of $500 (within 2 weeks of scheduled evaluation date)

International Facilities (Outside of Continental United States)

• Subject to fees above

• May be subject to additional fees for extraordinary travel expenses

• Contact us for more information

*AASHTO member departments are not subject to fee structure described above
Certificates

FWD Calibration Center Operator
This certifies that

Name of Operator

is hereby formally recognized for proficiency in calibration of falling weight deflectometers in accordance with AASHTO R.32
Evaluated at Center Name, Center City, Center State on Evaluation Date

AASHTO
The Voice of Transportation

AASHTO Materials Reference Laboratory

(Signature)
AASHTO Executive Director

(Signature)
Chair, AASHTO Highway Subcommittee on Materials

Example Only
What’s to Come

- Centers in the program will be contacted by AMRL shortly for scheduling
- Centers that have expressed interest in participating will be sent additional information
- Permanent solution to load cell calibrations to be determined
- Technical support from Cornell will continue to be available
- Continual improvement
We Want to Hear From You

- Let us know what you think
- We strive to be:
  - Professional
  - Accurate
  - Competent
  - Timely
Questions?

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