# **M-TRAC ANNUAL MEETING**

# **KANSAS CITY, MISSOURI**

# **SEPTEMBER 10-12, 2006**



## M-TRAC ANNUAL MEETING September 10-12, 2006 Kansas City, MO Agenda

#### Sunday, September 10

6:00 – 7:00 Reception – Westport Room, 2<sup>nd</sup> floor

## Monday, September 11 – Millcreek Room, 3<sup>rd</sup> floor

7:30 - 8:00	Registration
7:30 - 8:00	Continental Breakfast
8:00 - 8:15	Welcome and Introductions
8:15 – 9:30	State Updates
9:30 – 9:45	Break
9:45 – 10:15	Construction Inspection Certification and CFR Review and Update – Douglas Townes
10:15 - 10:45	ACI and NICET Updates
10:45 - 12:00	State Updates
12:00 - 1:00	Lunch
1:00 - 1:30	M-TRAC Update - Chris
1:30 - 2:30	State's Problem, Concerns, and Discussions - This is an opportunity for states to discuss
	areas of concern such as reciprocity, state trainers, warranty work, etc.
2:30 - 2:45	Break
2:45 - 4:00	Continue State's Problem, Concerns, and Discussions
	(If not all this time is need State Updates can fill in)

# Tuesday, September 12 – Millcreek Room, 3<sup>rd</sup> floor

- 7:00 8:00 Breakfast Buffet
- 8:00 8:45 TCCC Update Douglas Townes
- 8:45 9:30 Breeze WBT and WCT (The Sandbox Project) Debbie Gwaltney
- 9:30 9:45 Break
- 9:45 10:15 E-Learning and Certification Training Programs State Discussion
- 10:15 12:00 State Updates

## **M-TRAC Attendees 2006**

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## M-TRAC ANNUAL MEETING Marriott Country Club Plaza, Kansas City, Missouri September 10-12, 2006

A reception kicked off the 2006 M-TRAC meeting on Sunday, September 10<sup>th</sup>. This gave everyone an opportunity to say hello. Information sharing started off during the reception and lasted throughout the meeting.

The meeting began on Monday with a special thank you to Kansas DOT, Missouri DOT, and Kansas State University for the work they did as meeting hosts. Next there were introductions of the 26 participants representing 9 state DOT's or universities, organizations, and FHWA. The meeting began with state updates. If the state individual gave a Power Point presentation, those will be attached.

**Kansas DOT** – Rick Kreider – Kansas DOT dropped the certification for Superpave Design, it is for informational purposes only. They went to Kansas Test Methods in Aggregate Field instead of ACI. They added an advanced Construction Management Course.

Missouri DOT – Jeff Huffman - Power Point

New Mexico DOT - Brian Legan - Power Point

**Update on FHWA, Code of Federal Regulations, and Construction Inspection Certification.** – Douglas Townes, FHWA Atlanta -Douglas spoke on changes to the Code of Federal Regulations (CFR) 637 to require Construction Inspection. Douglas stated it is doubtful if the CFR will be changed since they really don't want to re-open the CFR. The FHWA will look at other ways to enforce the need for construction inspectors to be certified.

Douglas also spoke about certification cards and the need to have certification databases. Certification cards are easily counterfeited, so the only way to be certain an individual has a certification is through a database. With more private sector employees coming into our classrooms and many State DOT position descriptions requiring certifications, the temptation to "cheat" and/or forge certification documents is increasing. Douglas recommended that training managers put yourselves in the mind of a <u>dishonest</u> person then try to visualize how your State's training/certification program might be compromised.

NICET - Ahmed Farouki - Power Point

**ACI** – John Nehasil – "ACI Managing Director of Certification John Nehasil reported on new developments regarding ACI Certification. The ACI Laboratory Testing Technician Certification Committee is in the process of retooling the Laboratory Testing Technician programs to: more logically allocate the testing Standards into programs representing base materials (soils) testing, aggregate testing, and concrete testing; include the AASHTO test procedures alongside the ASTM procedures; eliminate the overlap in Standards that currently exists; reduce the number of Standards covered by each program; and facilitate the conversion of select programs from closed- to open-book exam format. This transition is expected to occur beginning January 1, 2008.

ACI is also poised to launch an Associate Concrete Transportation Inspector Certification program by January 1, 2007. This program is designed to meet the Level 2 requirements expressed on the Transportation Curriculum Coordination Council matrix for Inspection. While there are no work experience requirements for this level, ACI Field Testing Technician – Grade I is a prerequisite; also required for certification is the successful completion of a written inspection exam and a plan reading exam. The resources for the program are a subset of the full ACI Concrete Transportation Construction Inspector program and is tailored to meet the needs of DOT personnel who are not at the Project Engineer level felt to be targeted level of the full program.

ACI is also continuing its process improvement initiatives by conducting a Pilot Quality Review of its Sponsoring Group's examination sessions, alongside its continuing statistical analysis of exam materials performance."

eTEC- Susan Schemmel - Power Point

**M-TRAC Update** – Chris Anderson – Chris discussed materials developed by M-TRAC and that these materials have been updated. She asked for reviewers of these updated manuals before they are put on the website. These are being reviewed and will be placed on the website, hopefully in October. The PCC manual has been completed and is also being reviewed. Chris did not put capping cores in the manual, but the group felt this needed to be included so Rick Kreider agreed to complete this section for the manual. Thanks to George Perdue, Iowa DOT; John Hinrichsen, Iowa DOT; Mike Fritz, Missouri DOT; Jeff Huffman, Missouri DOT; Becky McDaniel, Superpave Center, Chris Anderson, Iowa DOT; and all others that have assisted with the updating of these manuals. Since the updates are being completed by the states it was decided to remove developed by FHWA from the front page. The FHWA logo will remain in the M-TRAC logo. The group also decided to remove development name lists, biographies, etc. from the documents.

From discussions at the 2005 M-TRAC meeting a spreadsheet has been developed to show state's programs, what test methods are included in the programs, etc. Any state that would like to have their materials included in this spreadsheet can contact Chris and she will send a blank for them to complete. A copy of the state information received to date is included in these minutes.

Chris discussed the relationship with the National Highway Institute (NHI) on obtaining materials. There is an agreement with NHI though the Transportation Curriculum Coordination Council (TCCC) that they will provide states with a copy of any of the NHI materials. Marty Ross is now the representative from NHI to the TCCC and at the last

TCCC meeting expressed concern that they would need to be responding to a number of individuals from the same state. She would like the states to have one person to request materials.

Chris Anderson, Iowa DOT and Cathy Betts, Minnesota DOT continue to represent M-TRAC at the TCCC meetings. Contact Chris or Cathy if you have any topics of discussion you would like to be discussed at the TCCC meetings or if you have any curriculum development requests. M-TRAC also has Ray Spellman, UW and Rick Krieder, Kansas DOT on TCCC committees. Thanks to all states for their responses when requests for participation or information is sent out from the TCCC representatives.

A special thank to Lynn Warble of the North Central Superpave Center for her support of the M-TRAC website.

The group decided to continue having the M-TRAC meetings annually. The following are the meeting locations for the next three years:

2007 – Wisconsin 2008 – South Dakota 2009 – New Mexico

## **QUESTION/ANSWER**

The next section covered question and discussion time by the attendees.

# Do supplemental examiners receive training? Do they get evaluated by the students?

KDOT – Will have proctor training this fall. They warn their examiners not to give hints or to be "buddies".

NMDOT – Has a database of proctors and their pass/fail rates.

MoDOT – Sends people from the lab to sit in on the classes to make sure content and testing methods are being followed.

Mn DOT – Uses their own people to observe the hands-on portion.

IDOT – All instructors are required to be certified in the areas they are instructing. Iowa uses one evaluation sheet for all instructors.

## Hands-on Testing:

MoDOT and KDOT have practice sessions before the hands-on testing. IDOT and MnDOT do not have practice.

MnDOT gives two tries, if they don't pass they have to retake the class. IDOT instructors help their students during the hanks-on portion if needed.

## Do states identify steps on the proficiency tests that the student must do to pass?

NMDOT allows student to make verbal correction if they do something wrong and realize it. ACI has guidelines

## What is the future of certification programs with warranted roads?

FHWA says it depends on the length of the warranty. KDOT did warranty on pavement marking – stopped after companies were going to go bankrupt...went away. MnDOT did short warranty, but because of this short period didn't get any testers out on the project.

#### How is your program controlled? Governing Authority?

IDOT – Specification WisDOT – Specification KDOT – Specification MoDOT – State Regulation

#### Who has year round training?

Arkansas – as needed MoDOT – November – May, but have waiting list and will schedule other times IDOT – similar to MoDOT KDOT and MoDOT charge a full class fee (12 Kansas) for classes outside normal training schedule.

#### Any testing standards?

KDOT – 70% pass
FHWA, Townes – Pass/Fail rate 85% is acceptable. Higher than 15% failure rate look at instructor, evaluations, etc. Florida 70% pass.
IDOT – Multiple choice, T/F, no partial credit questions, open book, 80%
FHWA suggestion: Have an appeal process for a "bad" question.

#### Who requires math?

KDOT has a test that everyone is required to take. Prerequisite for most classes. MoDOT and IDOT offer course but don't require it. MnDOT lists as prerequisite but doesn't enforce.

#### Any exams offered in Spanish?

ACI does – Mexican dialect. IDOT – AGC hired interpreters with prior notice. KDOT – talked about Spanish flipcharts from Pavement Center at ISU.

#### **Other items:**

ACI required doctor's note about disability and suggestion of accommodation. They must request prior to class.

KSU discussed giving out grades, other than to the student. FERPA states that you cannot give grades out, other than to the student. Students have to give a signed release to the give to the employer. KSU follows this policy as administrators.

MoDOT will release the score to the employer. MoDOT does the administration although the college teaches the classes.

IDOT works only with the certified technician since it is their certification not the companies. They list who has certifications on database, but no personal information.

MnDOT's certified database is not public record. Only posted on their intranet.

Florida lists by number on their website.

MnDOT and KDOT have watermarks on their ID cards.

Fraud Problems Presentation- Dennis Dvorak, FHWA - Chicago - Power Point

#### **TUESDAY, SEPTEMBER 12**

TCCC Update – Douglas Townes, FHWA – Power Point

**Sandbox Project** (Adobe Breeze web-based training and web-conferencing) – Debbie Gwaltney, NHI – Power Point

#### More state updates:

Arkansas – Francis Griffith – University of Arkansas - Power Point

**North Dakota** – Julie Rodriguez – North Dakota State University – Julie works with the Transportation Learning Network. Their website is <u>www.translearning.org</u>. This group consists of 4 DOTs and 5 universities. E-learning is very important because of travel restrictions, time constraints, especially when working with states such as Montana that are vast but not densely populated. They also are doing video conferencing learning -

graduate programs, peer exchange programs, interstate staff meetings, leadership, and management training. They will be able to achieve video conferences, as well as, stream to the web. They are experimenting with pod casting.

Wisconsin - Ray Spellman - University of Wisconsin Platteville - Power Point

**Minnesota DOT** – Cathy Betts – Our classes are held between November and May, Training schedule is posted online October 1 and registrations begin and all links to our partnerships for training are operational. We have 13 areas of Certification in a 2 Level format. Level 1 is testers and Level 2 is inspectors. Our program is currently 82% non-DOT and 18 % DOT, of which, 37% Contractor, 23% Consultant, 11% County, 8% City and 3% other. We have 9 recertification areas. Our certifications are for a five year term and then you must retake or recertify. Certification requirements apply to warranty and design build jobs as well. Registered Engineers must be certified if they are doing testing, if only inspection their registration classes and 36 Recertification classes. We have 9833 people in our database, 5640 have at least one certification. This year we sent out 5555 cards which included new as well as already certified persons. We issue new cards every May. Some are in active, but still remain in the database.

This year through our partnerships we offered Strength Technician certification and Concrete Finisher certification, Bridge Safety, Plan Reading and Contract 101. Training and utilizing Native American persons on projects in and around reservation lands was a big project this year. Our Signal & Lighting and Erosion Control training is directed by special provision. We have given various field personnel read only access to our database for ease in verifying certification status. We do have a provisional certification and do allow approved test out attempts, however, we do not have reciprocity.

**Iowa DOT** – Chris Anderson – Iowa DOT continues to work with Des Moines Area Community College (DMACC). The DOT handles all the registrations, certifications, material development. DMACC hires instructors, furnishes materials, locations, and equipment. Good relationship. Iowa is currently rearranging their QC/QA program, which is changing their certification program. Iowa's program has developed a Testing Protocol in an effort to make their testing procedures more uniform. Struggle with instructors to follow procedure. Iowa developed a Training Academy for the DOT employees with matrices for each classification describing job duties and required and available training. There is also maintenance, construction/materials, and safety training weeks of training for new employees included in the Academy. The Iowa Technical Training and Certification Program participated in the first sandbox project and the DOT has purchased Breeze for web-based and web-conference type training.

## Wrap-Up

A discussion on decertifying technicians was held.

The 2007 M-TRAC meeting will be held in Milwaukee, Wisconsin.



#### Overview

- Any acceptance testing for MoDOT projects is to be completed by a Certified Technician.
- Certification consists:
  - Classroom Instruction
  - Written Examination
  - Performance Demonstration

#### Overview

- Certifications are valid for 3 years.
- Reciprocity honors other states certifications, restricted to test methods in common.
  - May take supplemental test to receive unrestricted certification.

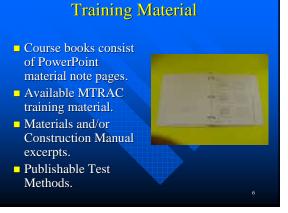
#### Overview

- Written examinations are open book.
- Students in first time courses allowed 1 re-test on written exam and performance demonstration.
- Re-certification consists of student self study, short review of any changes, written exam and performance demonstration.

## **Certification Courses**

- Level 1 Technician
- Plasticity Index -New
- Level 1 BituminousLevel 2 Concrete
- Level 2 Conclus
   Level 2 Soils
- Level 2 Bituminous
- HMA Aggregate -New
- Profilograph
- Aggregate Specific Gravity
- Low Slump
- TSR Tensile Strength Retained
- T85 Absorption New





#### **Course Locations**

- Linn State Technical College Linn MO
  - Level 1 Technician
  - Level 1 Bituminous
  - Level 2 Soils
  - Level 2 Concrete
  - Plasticity Index
  - Profilograph
- University of Missouri, Rolla (UMR)
   Level 2 Bituminous Superpave
  - HMA Aggregate
  - TSR
- Central Laboratory Jefferson City MO All Specialty Methods

#### **Certification Cards**

- Temporary cards issued upon successful completion of each class.
- Permanent cards issued July 1, each year, to include all of a technicians current certifications.

## **De-Certification**

- Any documented cases of fraud, abuse, willful negligence will be investigated and appropriate action taken to suspend or remove individual from the certification program.
- Demonstrated incompetence may require repeat of certification course.

## Changes!!

- Grade test upon completion.
   Review missed questions with student.
- Removed photo from card.
- Removed certification number from card.
   Certification number is generally SSN
- Centralized training

   Both 1<sup>st</sup> and 2<sup>nd</sup> Levels of certifications have been removed from Modot Districts and are now at one location.
- Recertification process shortened.
- Future Consideration 5 year certification period.

## Information

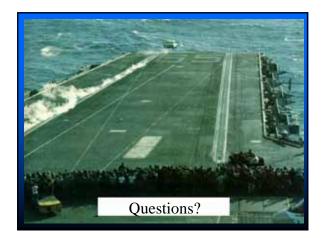
Calendar, Locations, Certification Levels, Specific Tests, Policy located on the web.

- <u>www.modot.mo.gov</u>
  - » Contractor Resources
  - » Technician Certification Program
  - » Tech Cert

## Information

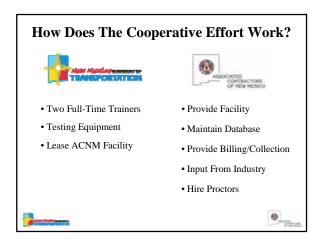
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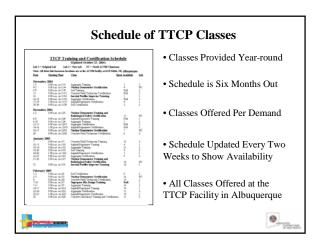


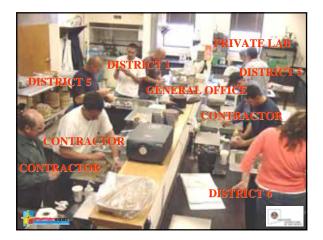


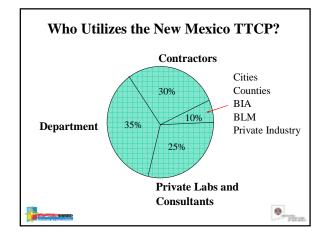




Modules:	Days: Cost:		Class Size:
Aggregate Training	- 5	- Free	- 16
<ul> <li>Aggregate Certification</li> </ul>	- 3	- \$350	- 12
Soil Training	- 2	- Free	- 16
Soil Certification	- 2	- \$300	- 16
<ul> <li>Asphalt/Superpave Training</li> </ul>	- 4	- Free	- 10
<ul> <li>Asphalt/Superpave Certification</li> </ul>	- 3	- \$350	- 10
<ul> <li>Concrete Field Technician Training</li> </ul>	- 1	- Free	- 20
<ul> <li>Concrete Field Technician Cert.</li> </ul>	- 1	- \$300	- 20
<ul> <li>Concrete Laboratory Train. &amp; Cert.</li> </ul>	- 1	- \$100	- 20
Nuclear Densometer Training	- 2	- Free	- 20
<ul> <li>Nuclear Densometer Certification</li> </ul>	- 2	-\$300	- 20
<ul> <li>Inertial Profiler Inspector Training</li> </ul>	- 1	- \$100	- 20
Inertial Profiler Operator Cert.	- 1	- \$100	- 10
<ul> <li>Superpave Mix Design Training</li> </ul>	- 4	- Free	- 8
TTCP Overview for Decision-Makers	- 3	- Free	- 16























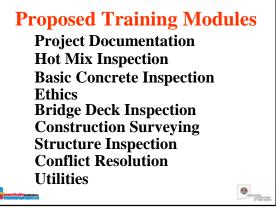












## What needs to happen?

• The Associated Contractors of New Mexico will begin construction on a third lecture/wet lab training facility – approximately 2000 square feet of additional space at TTCP/ACNM.

• The New Mexico DOT will provide funding for a third full-time trainer

• Development of materials (develop from scratch, utilize TCCC materials, nurture inhouse Subject Matter Experts (SME).

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- Traveling public
- Taxpayer

#### and the second

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# **TTCP Contacts**

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www.

## Mike Gibson

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# **QUESTIONS?**

Visit our Web Site at aconm.org Or at the Intrans web page.

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# 45 years of independent service...

- Over 32 national certification programs.
- Over 118,000 technicians certified.
- \* A database of over 38,000 active certificants.
- An expanding network of over 300
  - (regular & special) test centers.

## 2006 .... we continue to focus on

- Improving customer service.
- Building stakeholder relationships.
- Updating existing programs.
- Developing new programs.

#### Customer Service .... improved access

- NICET Customer Service Center:
- Call: 1 888 IS NICET Fax: (703) 682 2756 (1 888 476 4238)

Email:

- Certification questions ... cert@nicet.org Testing questions ... test@nicet.org Technical guestions ...
  - tech@nicet.org

## Customer Service .... in the works

- Candidates will be able to:
  - Complete & submit test applications.
  - Have protected access to:
    - Biographic data
    - Test history
    - Certification history

## Customer Service .... in the works

- Employers & stakeholders will be able to:
  - > Look-up candidate certification status.
  - > Order directories of certificants.
  - Access data of active certifications, nationally and/or by state.
  - Access listings of suspended & revoked certifications.

## Program Update .... underway

- Highway Construction
- Transportation System Maintenance & Preservation (available by 1/07)
- Stormwater & Wastewater Systems Construction Inspection (available by 7/06)
- Highway/Roadway Design
- Construction Materials Testing
- (Asphalt, Concrete & Soils)

# Highway Construction Inspection

#### **Steering Committee**

- \* J. Sorenson / FHWA
- \* D. Townes / FHWA
- J. Rapol / FAA
- J. Taylor / NHI
- D. Liston / VDOT
- T. Ferguson / PennDOT
   S. Bartos / Nebraska DOT
- J. Wathen / KY Trans Cabinet
- J. Twedt / MS DOT
- J. Gower / Oregon DOT
- E. Powell / NC DOT

- M. Phillips / PA Turnpike
- N. Syed / NY-NJ Port Auth.
- D. Buchek / Urban Engineers
  R. Hale / PBSJ
- R. Samson / Vollmer & Assoc.
- K. Fryer / Wilbur Smith
- ✤ J. Epps / Granite Construct.
- P. Kutt / APWA
- ♦ T. Giancola / NACE
- ◆ A. Shaw / Hampton Roads
  - M. Stark / CMAA
  - B. Deery / AGC

## Transportation & Public Works Construction Inspection Program

#### Four Tracks ....

- Highway Construction Inspection
- **\*** Airfield Construction Inspection
- Transit Systems Construction
   Inspection
- Public Works Construction Inspection

## Testing & Certification Levels ....

- Level I .... 6 months experience / generalist.
- Level II .... 2 years experience / generalist.
   (levels I & II are the same for all four tracks)
- Level III .... 5 years experience / specialist
- Level IV .... 10 years experience / specialist
- Level V (optional) ... 15 years experience / specialist

# Transportation System Maintenance & Preservation

Joint effort with Penn DOT, MS DOT, AASHTO Sub Committee On Maintenance & FHWA Transportation Curriculum Coordination Council (TCCC) ... available by 1/07

- General program update plus:
  - Adverse Weather Related Activities
  - Major Rehabilitation & Reconstruction
  - Construction Inspection & Materials Testing
  - Erosion & Sediment Control

## Stormwater & Wastewater Construction Inspection

A National Committee has finalized a New four level program. It is similar to the Water & Sewer Lines Construction Inspection Program except:

- Without water line inspection elements
- With the inspection elements of:
  - Stormwater systems.
  - Erosion & Sediment Control
  - Trenchless Technology
  - Confined Space & Trench Excavation

# **Highway Design**

- A National Committee Is Finalizing Delivery Of Two Updated Tracks:
- A Highway Design Track (includes both roadway, structural & bridge design elements)
- A Roadway Design Track (includes only roadway elements)
- Both tracks include added Erosion & Sediment Control, Traffic & Survey subject matter.

Update Of The Construction Materials Testing Program

## Program Development Groups

- National Steering Committee
- Soils & Aggregates Development Committee
- Concrete Development Committee
- Asphalt Development Committee
- Reciprocity / Hands-On
- Performance Exam Committee

## Steering Committee ...

- Set general development framework:
  - Three main specialties with lab & field tracks for each.
  - Four levels of certification for each track.
  - Inclusion of Hands-on testing and reciprocity with existing programs.

#### **Asphalt Development Committee**

- Randy Caley / FHWA Federal Lands
- John D'Angelo / FHWA OPT
- John Epps / Granite Construction - NAPA
- Sean Parker / Oregon DOT -WAQTC
- Greg Moore / MD DOT -MARTCP
- Chuck Hughes / Consultant
- Mansour Solaimanian / Penn State -NECEPT
- John Hinrichsen / Iowa DOT-MTRAC
- Jeffrey Rapol / FAA

- David Anderson / Consultant
   Mark Buncher / The Asphalt Institute
- Randy West / NCAT
- Mohammad Khan / PSI
- Todd Lynn / APAC
- Todd Trueblood / CTI Labs
- Glenn Wait / Western Rock -Old Castles
- Joe Kinnikin / AGC of New Mexico
- David Peshkin / Applied Pavement Technologies
- Tim Weltin / TTL Associates

## Two Testing & Certification Tracks Levels I, II, III & IV:

- Testing & Inspection of HMA Placement Operations
- Hot Mix Asphalt Laboratory Testing

#### The New CMT Tracks .... summary

- Aggregate Laboratory & Field Testing.
- Soils Laboratory Testing.
- Soils Field Testing & Inspection.
- Concrete Laboratory Testing.
   Concrete Field Testing & Inspection.
- Testing & Inspection of HMA Placement Operations
- Hot Mix Asphalt Laboratory Testing

## Aggregates, Soils, Concrete & Asphalt

#### next ....

- Synchronization of tracks & review by a group of subject matter experts ... underway.
- Finalize Hands-on Performance Testing & Reciprocity Implementation Procedures & Guidelines .... underway
- Final national validation ... by 1/07
- Question development ... start by 2/07
- Field Testing & Implementation ... Soils by 7/07
- Test Form:
- Paper & pencil
- Computer based

# The Construction Materials Testing Program

"The Hands-On Performance Exams & The Reciprocity Standards & Guidelines"

## Highlights .... General Requirements

- Hands-on Performance Exam Content:
  - > Aggregates Lab & Field Testing Levels I & II.
  - Soils Field Testing & Inspection Levels I & II.
     Soils Lab Testing Levels I & II.
  - Concrete Field Testing & Inspection Levels I.
     Concrete Lab Testing Levels I & II.
  - HMA Placement Operations Testing & Inspection Levels I, II & III.
  - HMA Lab Testing Levels I & II.

## Highlights .... General Requirements

- Responsibilities & Guidelines For Conducting The 'Hands-on' Performance Exams By NICET Partners.
- Exam Administration Requirements:
  - **> Exam Facility.**
  - Exam Staff (Qualifications & Responsibilities).
  - Testing Guidelines.
  - Test Scoring & Reporting.

## Highlights .... General Requirements

- Retesting Requirements & Guidelines.
- Appeals & Challenges.
- Due Process.
- Re-certification Criteria.
- Exam Staff Application Forms & Contracts.

# Highlights .... Waivers & Reciprocity

- Candidates qualified/certified by a recognized organization and/or a NICET partner in one or more of the listed AASHTO and/or ASTM test methods will be granted a waiver from those applicable sections of the NICET performance exam.
- Candidates qualified/certified (written plus performance) by a recognized organization and/or a NICET partner in all the AASHTO and/or ASTM test methods, as listed for a NICET Level I subfield, will be granted the equivalent NICET certification upon meeting the 6 months work experience requirement.

## Highlights .... Waivers & Reciprocity

- Candidates qualified/certified (written plus performance) in all the AASHTO and/or ASTM test methods by a recognized organization and/or a NICET partner, as listed for a NICET level II subfield, will be granted the equivalent NICET certification upon satisfaction of the two year work experience requirements for the subject subfield.
- For the waiver to be granted, proof of valid & current certification must be submitted by the candidates upon application for certification .

# Highlights .... Waivers & Reciprocity

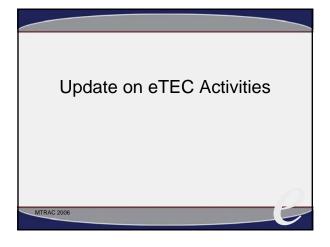
#### \* The NICET Advisory Committee:

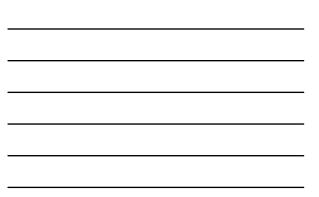
- All waivers & reciprocity issues & projects will be reviewed by a four member Advisory Committee for each subfield. Recommendations for acceptance or denial of waivers & reciprocity will be made to NICET for final consideration.
- Three members of the committee will be assigned by members of the CMT Development Committee to represent relevant industry sectors. A fourth member will be assigned by NICET as a coordinator. Committee members will serve for three year terms.

## at NICET we have been working hard on ....

- Improving our customers service levels.
- Updating our programs to satisfy current industry standards.
- + Developing new programs.
- Partnering with industry to provide credible national training resources.





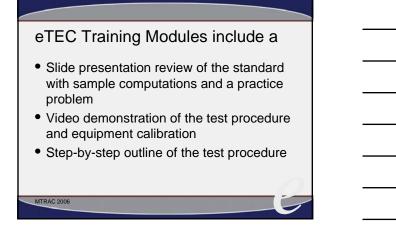


eTEC offers the latest in comprehensive training tools for construction material testing technicians.

# eTEC Training Products are

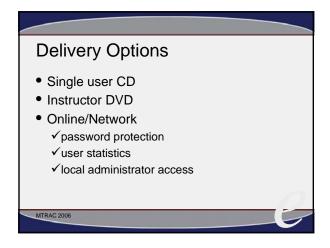
- Computer based, interactive, self-paced, and easy to use
- Based on ASTM, AASHTO, or State DOT standards
- Updated annually

MTRAC 2006



## eTEC Training Modules include a

- Graded practice quiz
- Glossary of important terms
- Printable study aides
- Tips from AMRL (?)





## **Nearing Completion**

- Soil Testing Laboratory Compaction √Fundamentals of the moisture-density
  - relationship
  - ✓ Standard and modified Proctor
  - ✓Moisture content

MTRAC 2006

✓ Correcting the moisture and density values

# **Nearing Completion**

- Aggregate Testing Series 1
  - ✓ Collecting a field sample
  - ✓ Reducing field samples to test specimen size

Ĩ

- ✓Moisture content
- ✓ Sieve analysis

- ✓ Material finer than No. 200
- ✓ Density and voids



## Modular Format

MTRAC 2006

- Allows us to bundle any combination of standards
- What are your preferences?

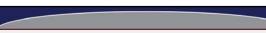
## NC DOT Receives Award

• Materials and Tests Unit received a costsavings award as a result of incorporating eTEC training products in their Concrete Field Testing Technician certification program.

# eTEC Now an ACI LSG

- Offering the concrete field and strength testing exams
- Hired by the SD DOT to train all state personnel
- www.sdconcrete.org

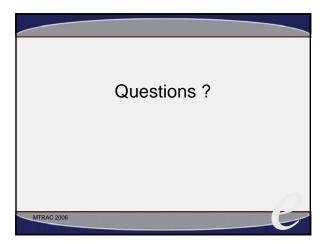
MTRAC 2006

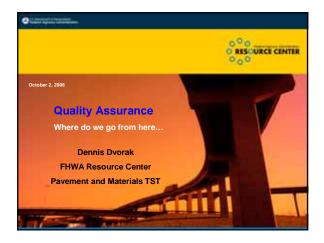


## Demo of Online Delivery

• Full versions of concrete field and strength testing online

- Contact eTEC for a username and password
  - ✓sschemmel@go2etec.com
  - √(605) 582-6864

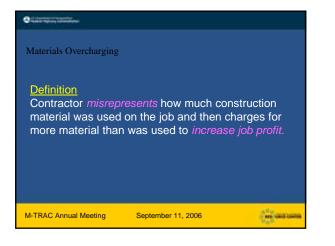


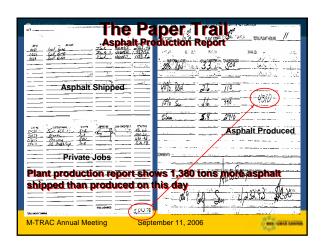




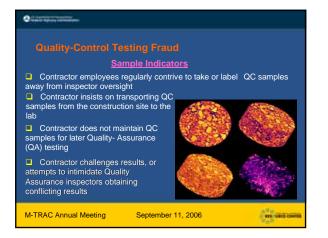
Common Types of ( Bid rigging & collus Materials overcharging Time overcharging Product substitution Minority-owned bus Quality-control testi Kickbacks Bribery	ion jing i iness fraud	
M-TRAC Annual Meeting	September 11, 2006	

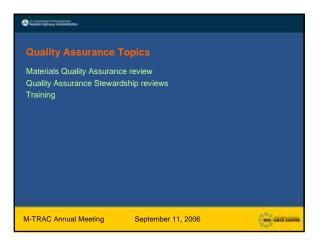
Common Types of C Bid rigging & collus Materials overcharg Time overcharging Product substitution Minority-owned bus Quality-control testi Kickbacks Bribery	ion ging n siness fraud	
M-TRAC Annual Meeting	September 11, 2006	And the second

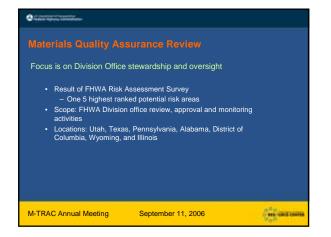


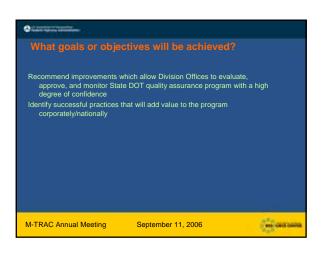


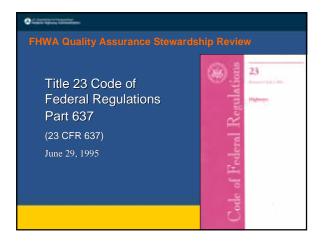












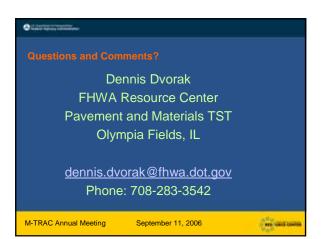
Background	
<ul> <li>Approved QA program</li> <li>Independent Assurance Program</li> <li>Laboratory and personnel qualification</li> <li>Use of Contractor's test results in the acceptance decision</li> </ul>	Code of Federal Regulations

# Background Focus on State DOT operations The reviews started in FY 2003 as part of routine stewardship Late 2003 FHWA received a report of fraud Raised concern about use of contractor results in the acceptance decision FY 2004 & 2005 reviews were performed in States that used contractor results in the acceptance Decision





used for acceptance •no independe •no statistical o •number of sar	he validation procedures of Con nt samples comparison mples for comparison tractor supplied data	ntractor's results
M-TRAC Annual Meeting	September 11, 2006	





Frances Griffith Arkansas Update All training performed in Fayetteville, AR 4 Instructors

- No tests graded during class!!
- AHTD promotions CTTP certifications
- ID card issued with CTTP assigned #

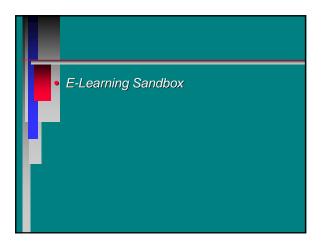
Basic Aggregates
Fresh Concrete Testing Technician
Asphalt Testing Technician
Soils Testing Technician







- Maintenance
  Design of Drilled Shafts
- Basic Design of Right-of-Way

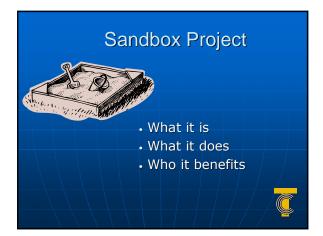






#### **TRAINING UNDER DEVELOPMENT**

- Environmental Factors in
- Inspection of Bridge Rehabilitation
- GIS Applications in Construction
- Quality Assurance in Construction





#### Sandbox Project #2

- - Currently taking applications
  - Will be starting in August
  - More information on website
  - http://www.nhi.fhwa.dot.gov/tcc c/sandbox.htm
  - Debbie Gwaltney 202-366-9379 or Debbie.Gwaltney@fhwa.dot.g



#### **USE OF TCCC**

- Examine TCCC curriculum vs. avaliable training to identify gaps.
- Utilize existing courses.
- Determine needed training for TCCC development.
- Contribution to Pooled Fund is desired but not mandatory to use training material



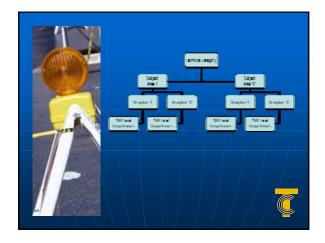
## **Five Technical Categories**

- 1. Construction
- 2. Employee Development
- 3. Maintenance
- 4. Materials
- 5. Safety



## **Two Types of Matrices**

- 1. Competency Matrix
- 2. Course Matrix





- Identifies Core Skill Competencies
- Provides basis for establishing curriculum
- Can be tailored to fit the needs of each agency.

#### Training courses designed to address Skill Level Competencies

- 1. Entry new employee with little to no experience in subject area / performs under direct supervision
- Intermediate Understands and demonstrates certain skills / performs under general supervision
- 3. Advanced Understands and demonstrates variety of skills / performs with little or no supervision
- 4. Project Management / Administrator / Superintendent

#### **Current Needs**

- Database of all known courses
- Compare competencies to courses
- Match to competencies
- Identify training needs
- Use by committees
- Additional Fields

#### **TCCC Training Data Fields**

- Current
  - Title
  - Area / Tech Category
  - Description
  - Objective
  - Audience
  - Length
  - Cost
  - Use
  - Notes
  - Contact

#### Needed for Evaluation

- Competencies Level
- Tests/Exams
- Course Exercises
- Visual Aides
- Instructors Manual
- Participant Manual

### **Training Data Coordination**

- National Interest:
  - TCCC, NTTD, TTC, LTAP
  - AASHTO, ITE, TRB
  - USDOT: FHWA, NTL, Volpe, PCB Programs
    - Roadway Safety Resource Database

#### TCCC

- Supports coordination efforts
- Improve existing database

#### **TCCC Database Needs**

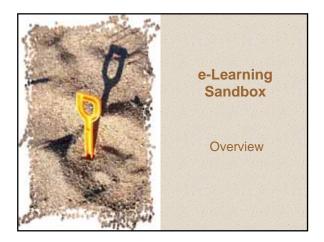
- Expand List of Titles (Matrix + Partners')
- Complete data on training courses
   Objectives, level, audience, tests,
  - manuals...
- Review and link to competencies by level
- Maintain searchable online training database
  - More than 50 subject areas, 100s of topics

#### **TCCC Resource Database**



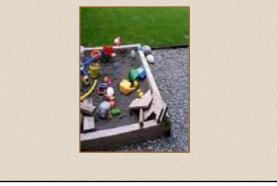








#### What's an eLearning Sandbox?



#### **Breeze Products and Services**

- Breeze Meeting – Synchronous Web conferences
- Breeze Presenter – Asynchronous Web based
- Breeze Training
   External learner management

## Why Should We Participate?

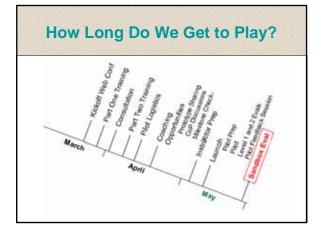
"Mommy, I'm building a road."



















#### M-TRAC MEETING KANSAS CITY

Sunday, Monday, Tuesday September 10, 11, & 12, 2006

M-TRAC MEETING KC
What's new in Wisconsin?



Historical Compa	rison Certification/Recertifi	cation	
	2004	2005	2006
ATTS	N/A	20	19
CCST	52	43	59
AGGTEC-IPP	104	96	115
AGG SAMPLING	85	74	86
AGGTEC-II	19	15	11
HMA-IPT	39	37	47
HMA-TPC	16	10	9
HMA-MD	11	8	7
PCCTEC-IA	190	142	225
PCCTEC-II	27	12	16
PROFILOGRAPH	19	9	13
GRADINGTEC-I	15	14	16
NUCDENSITYTEC-I	61	65	69
TOTAL	638	545	692
*Audits			
RECERTIFICATIONS	552	545	633
TOTAL	1190	1090	1325

WisDOT Employee/HTCP Instructor "conflict of interest" issue

Source Document:

The Transportation Administrative Manual (TAM)

#### WisDOT Employee/HTCP Instructor "conflict of interest" issue

IX. EMPLOYE RESPONSIBILITIES AND PERSONAL CONDUCT

WORK RULES

EMPLOYES OF THE DEPARTMENT OF TRANSPORTATION ARE PROHIBITED FROM COMMITTING ANY OF THE FOLLOWING ACTS:

#### PROHIBITED ACTIVITIES

20. Soliciting or accepting any unauthorized compensation, reward, or gift from outside sources for any matter related to the employes job as an employe of the state

## OUTSIDE ACTIVITIES AND APPEARANCE

 Engaging in outside employment without prior approval of the department, when so required. (Prior departmental approval must be obtained by employes assigned to classifications performing work of a confidential or critical nature.)

#### CONFLICTS OF INTEREST

Employes may not use their positions to engage in activities which result in personal gain...

#### PROHIBITED ACTIVITIES

 You may not accept fees or honoraria for talks, demonstrations, or appearances.
 NOTE: If presentations are given or consulting work done while you are on... vacation, a conflict of interest is less likely to occur. No conflict of interest exists if the presentation does not relate to your job.

# RESOLUTION OF CONFLICT OF INTEREST ISSUE

"A final decision regarding the WisDOT Employee/HTCP Instructor "conflict of interest" issue will be made near this calendar year end (2006).

# RESOLUTION OF CONFLICT OF INTEREST ISSUE

It is not a conflict of interest for a WisDOT Employee/HTCP Instructor to teach classes while on paid vacation.

# RESOLUTION OF CONFLICT OF INTEREST ISSUE

It is the WisDOT Employee's responsibility to get his /her supervisors approval prior to teaching HTCP classes while on the WisDOT payroll or when on paid vacation.

#### M-TRAC MEETING KC

FHWA NHI Training in Denver August 21-24, 2006 Instructor Development Course









#### M-TRAC MEETING Milwaukee 2007

August or September?

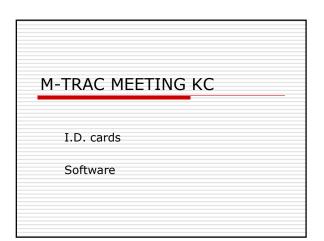
(Excluding the labor day holiday and the following weekend, Sept. 2-3-4 and Sept. 8-9)



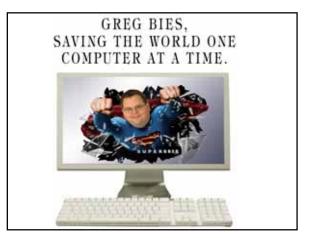


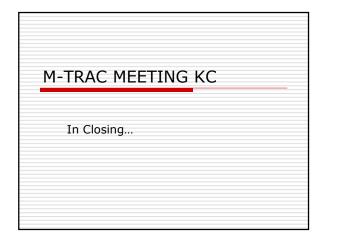


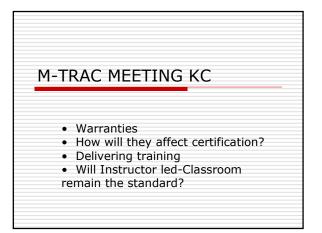


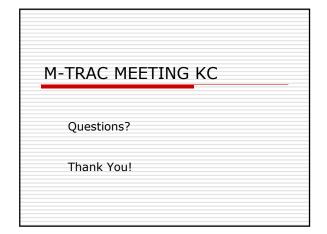












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	MoDOT - LEVEL 1 BITUMINOUS	MoDOT - LEVEL 2	MoDOT - TSR (T- 283)	KDOT - SF	KDOT-SD	NDOR - ASPHALT CONCRETE TEST TECHNICIAN	NDOR - BITUMINOUS (PG BINDER) MATERIAL SAMPLING TECHNICIAN	IDOT - HOT N IDOT - HOT MIX ASPHALT LE ASPHALT LEVEL 1 - MIX DESIGN TECHNICIAN TECHNICIAN	AIX VEL 2 -	IDOT - HOT MIX ASPHALT SAMPLER
DUTIES FOR LEVEL										
QUISITE	None	Level 1 Technician, Level 1 Bituminous	ACI, ACI, Level 2 Bituminous Math	ACI, AGF, Basic Math	ACI, AGF, AGL, Basic Math			Aggregate Level 2	Hot Mix Asphalt - Level 1	
SPECIFIC TESTS	T-40, T-166, T-168, T-269, T-328, T-329, TM-53, TM-54, TM- 20	T-209, T-308, T-312, 	Т-283	KT - 15, 25, 39, 56, 57 and 58	KT - 15, 25, 39, 56, 57 and 59	AASHTO T-166, T- 168, T-209, T-11, T- 30, T-84, T-85, T- 269, T-304, T-264, T- 312, T-308, T-269, ASTM D-5821	ASHTO T-40	IM-204, IM-208, IM- 216, IM-320, IM-321, IM-322, IM-323, IM- 325, IM-3250, IM- 337, IM-350, IM-357, IM-501, IM-508, IM- 509, IM-511, IM-514	IM-380, IM-510, AASHTO T-176, T- 304, ASTM D-4791	IM-322, IM-323
TRAINING MATERIALS	Manual, Equipment and samples for hands on proficiency	Manual, Equipment and samples for hands on proficiency	Manual	Kansas Test Methods	Kansas Test Methods			Manual, Equipment and samples for hands on proficiency	Manual, Equipment and samples for hands on proficiency	Manual, Equipment and samples for hands on proficiency
CLASS LENGTH	2 day initial, 1 day recert	5 day initial, 2 day recert	1 day					5 days		1/2 day
QUALIFICATION LENGTH				5 years	5 years	5 years	One time review		5 years	5 years
INITIAL WRITTEN TEST	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
INITIAL PROFICIENCY TEST	Yes	Yes	Yes, Verbal	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OTHER INITIAL REQUIREMENTS				AGF	AGF, AGL					
REQUALIFY WRITTEN TEST	Yes	Yes	None	Yes	Yes	Yes		Yes	Yes	Yes
REQUALIFY PROFICIENCY TEST	Yes	Yes	None	Yes	Yes	Yes		No	No	No
OTHER REQUALIFY REQUIREMENTS				Independent assurance witnessing in last 2 years	Independent assurance witnessing in last 2 years					

				4	AGGREGATE	ATE					
	MoDOT - LEVEL 1 TECHNICIAN	MoDOT - LEVEL 2 AGGREGATE	Modot - PLAST LEVEL 2 SOILS INDEX	MoDOT - PLASTICITY INDEX	MoDOT - AGGREGATE SPECIFIC GRAVITY	KDOT - ACI AGF	KDOT - KANSAS AGL	KDOT - SOILS	NDOR - SOIL TEST TECHNICAN	IDOT - AGGREGATE LEVEL 1	IDOT - AGGREGAT E LEVEL 2
DUTIES FOR LEVEL											
QUISITE	None	Level 1 Technician	None	None	Level 1 Technician	Basic Math	ACI-AGF, Basic Math	Basic Math			Aggregate Level 1
						Т-2, Т- 248, Т- 11, Т-27, т 266 т		Random			IM-216, IM- 202 IM 206
	T-2, T-11, T-27, T-248, T-255,		5, Т. 5, ТМ-	T-89, T-90,	Т-84, Т-85, Т- 100		КТ-5, КТ- 6, КТ-31, КТ-50, КТ			IM-204, IM 209	302, IIM-300, IM-307, IM- 308, IM-336, IM-344, IM-
	Manual,	902 I Manual,		Manual,	Manual,	4/31	ŝ	01, A3111-2400 2400		Manual,	343 Manual,
	Equipment and samples for	Equipment and Equipment and samples for	Equipment and samples for	Equipment and samples	Equipment and samples		Kansas	Kansas Test Methods,		Equipment and samples for	Equipment and samples
TRAINING MATERIALS	hands on proficiency	hands on proficiency	hands on proficiency	for hands on proficiency	for hands on proficiency	ACI AGF book	Test Methods	AASHTO, ASTM		hands on proficiency	for hands on proficiency
НΤ	2 Day Initial, 1 Dav recert	al, 1	al, 1	1 Dav	1 Dav					1/2 Dav	3 5 Davs
				() 	(5) -	5 years	5 years	5 years	5 years	5 years	5 years
VRITTEN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
INITIAL PROFICIENCY TEST	Yes			Yes	Yes	Yes	Yes		Yes	Yes	Yes
R INITIAL REMENTS							AGF				
REQUALIFY WRITTEN TEST	Yes	Yes	Yes	None	None	Yes	Yes	Yes	Yes	Yes	Yes
REQUALIFY PROFICIENCY TEST	Yes	Yes	Yes	None	None	Yes	Yes	Yes	Yes	ON	Q
R Alify Irements											

	MoDOT - LEVEL 2 CONCRETE	MoDOT - LOW SLUMP	MoDOT - PROFILOGRAPH	MoDOT - BINDER	KDOT - ACI CST	KDOT - ACI CF	NDOR - CONCRETE NDOR - CONCRETE NDOR - FIELD CONCR TEST TECH PLANT -LEVEL 1 TECHNI	ETE CIAN	NDOR - STRENGTH TESTING TECHNICIAN	IDOT - PORTLAND CEMENT CONCRETE LEVEL 1 - TESTING TECHNICIAN	IDOT - PORTLAND CEMENT CONCRETE CONCRETE LEVEL 2 - PLANT TECHNICIAN	IDOT - PORTLAND CEMENT IDO CONCRETE PRC CONCRETE PRC LEVEL 3 - GR/ MIX DESIGN TEC TECHNICIAN IAN	IDOT - PROFILO GRAPH TECHNIC	IDOT - PROFILO GRAPH IDOT - TECHNIC PRESTRESS IAN TECHNICIAN
LEVEL														
PREREQUISITE	N N N	Level 2 Concrete	e Co Z	Level 1 Basic Biturnious Math	Basic Math	Basic Math		Level 1		i	Aggregate Level 2 and PCC Level 1	PCC Level 2		PCC Level 1 or ACI Grade 1 (if the technician will be performing gradations, they Mail also need
SPECIFIC TESTS	T -23, , T - -148, , T - , T -	TM-36	85 MT	T-308	8 39 39	C - 1064, 172, 14, 3, 138, 231, 173 and 31	ASTM C-31, C138, C- 143, C-172, C-173, C- 231, C-1064	TO T-2, T-248, T-	ASTM C-39	IM-204, IM- 208, IM-216, IM-315, IM- 316, IM-317, IM-318, IM- 327, IM-328, IM-525, IOWA IM-525, IOWA IM-527, IM- AASHTO T-97, 528, IM-529		IM-530, IM- 531, IM-532	IM-341	IM-570
	Manual, Equipment and samples for hands on		Manual, Equipment for hands on		ACI CST		Ę	ç	Ţ	and	ent for n	for	<b>-</b>	
	2 day initial,	7	lericy	ericy	DOOK	AUUA				Licy.	licy	licy		Nallual
	I day recen	I day	1 uay	- day	6 years	5 years	5 years	5 years (	6 years	5 years	4 uays 5 years	4 uays 5 years	5 years	o uays 5 years
INITIAL WRITTEN TEST	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
INITIAL PROFICIENCY TEST OTHER INITIAI	Yes	Yes, Verbal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
REQUIREMENTS REQUALIFY														
WKILLEN LESI REQUALIFY PROFICIENCY	162	anorie	NOIe	NOIe	1 62	8	162		IES		165	Ies	8	165
TEST OTHER PEOLIALIEV	Yes	None	None	None	Yes	Yes	Yes	Yes	Yes	No	No	0N	No	No
REQUIREMENTS														

PCC

#### by shovel when over large sieve before the No. 12 sieve strength (IM-328) Allowance for consolidation Not screened **IDOT - MOD** determining used for opening IDOT - USE Yes, IM-315 Yes, IM-316 and IM-328 Yes Yes Yes Yes Yes Yes Yes å ≧ NDOR - USE NDOR - MOD ASTM C-39 ASTM C-31 Yes vigorously. Soak for a period of 24 +/- 4 hours. T-85 degrees C. KT-6 Changing the temperature to 25 +/-Surface Test, the use of "a worn oxidized" surface is T-85 requires dry sieving and then thorougly wash to remove dust or other coatings from the surface. KTstir vigorously. Soak for a period of 24 +/- 4 hours. T-85 requires the water temperature to be 23 +/- 1.7 represents the maximum size aggregate permitted. permitted and represents the method presented in 6 states thoroughly wash the sample over the no.4 prior to immersing in water for a period of 15 to 19 hrs. KT-6 states Immerse the sample in water and Rodding is the only permissible procedure in KT-5. sieve to remove dust and other adherent coatings. KT-6 states Immerse the sample in water and stir requires the sample to be dried to constant mass 1.0 degree C establishes a uniform temperature condition. KT-6 under note 2 states Provisional T-84 uses cone test for determination for SSD Under KDOT Aggregate Specifications 1 1/2 requirement on all water bath test-related procedures. ACI-AGF, KT-10 Allows for method "A" only. ACI-AGF, KT-10 Soils <u> Крот - Мор</u> d.2.b. ACI-AGF, KT-1 Soils Field ACI-CF, C-31 KDOT - USE KT-6, AGL KT-6, AGL ACI-AGF ACI-AGF ACI-CF KT-34 KT-26 Soils KT-5 ۶ å MoDOT Method for Aggregate Preparations (MoDOT TM-79) MoDOT - USE MoDOT - MOD Yes Yes Yes Yes Vo Yes Yes Yes Yes Yes Yes Yes ٩ å T-21 T-22 T-22 T-23 T-27 T-40 T-87 T-89 1-90 T-84 T-85 T-96 <u>1-1</u>

**TEST METHODS** 

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				1-99 references 1-19 to callorate the mold. 1-19 permits the use of varying temperatures with correction factors to compensate for the water			
Т-99	Yes		KT-12 Soils	density. By using the fixed temperature 25 +/- 1.0 degree C requirement, KDOT uses a single value 997 kg/m <sup>3</sup> for the density of water during the calibration of such apparatuses.			
T-100	Yes		No				
T-104	No		No	Yes	No		
						S	Sample combined all
T-112	No		ACI-AGF	NDR T-504	Yes	<u>t</u>	together
T_112	Q				200	ZU	Not brought to
T-110	Vec		C-143 ACI-CF	ASTM C-143		Vec IM-318	מר
T-121	S- ON		C-138, ACI-CF	ASTM C-138	Yes.	Yes, IM-340	
T-141	Yes		C-172, ACI-CF	ASTM C-172	Yes,	Yes, IM-327	
Т-152	Yes		C-231, ACI-CF	ASTM C-231	Yes,	Yes, IM-318	
T-166	sey Y		KT-15. SF/SD	T-166 and the test method using vacuum sealing require a 2 hour interval. KT-15 states the specimen shall initially be dried overnight at 52 +/- 3 degrees C and then weiched at 1 hour intervals.	, es		Do not wait 3-5 minutes in water bath before recording weicht
0.07		MoDOT stipulates sampling from one location vs. three described in the test			No.	рот	
1-168	Yes	method.	KI-25, SF/SU	Yes	IIM 322	77	
Т-176	Kes		KT-55, AGL	T-176 also includes a pre-wet method. The air dry method is the only method permitted for preparing the aggregate under KT-55. T-176 provide alternative means of shaking the sample, the manual and hand method, these alternatives are not options under KT-55.	Yes		
T-209	Yes		KT-39, SF/SD	KT-39 specifies the water bath be maintained at 25 +/- 1 degree C. T-209 provides an additional Section 8. This section is not addressed in KT-39.	Yes		
T-238	No		No	NDR T-238			
т-239	No		No 	No			
T-248	Yes		Soils, KT-1, ACI- AGF	Yes	Yes		
T-255	Yes		ACI-AGF	Yes	Yes		
T-269	Yes			Yes	Yes		
Т-272	Yes	MoDOT curves used per MoDOT test method (MoDOT TM-40)	No	NDR T-505	Specific to our soils.		
Т-283	Kes		KT-56, SF/SD	T-283 requires the material to be cured in an oven at 60 degrees C for 16 hours prior to curing. KT-56 states Place the mixture in a oven set at the appropriate compaction temperature and age the material for 2 hours.	Yes		
T-304	Yes		KT-50, AGL		Yes		
T-308	Yes		KT-57, SF/SD	Yes	Yes	o a s L	Limits on sample weight and time in oven
		-			-	-	Î

TEST METHODS	Still use original Gyratory Ndes table and compact to	No	(0)		No. Method spec for crushing Yes															M	W	WI
		No. 20, 31/30 No	ACI-CF	ACI-AGF	KT-31. AGL																	
								u l		Determination of Percentage of crushed particles in crushed gravel	Uncompacted void content of Fine Aggregate	Soils Field density tests of soils, treated base courses and water bound base courses	Soils	Method of test for density of compacted bituminous mixtures by nuclear method	Density of fresh concrete in bridge deck overlays by nuclear gauge	Density of fresh concrete in pavement by nuclear method	Determination of density and moisture content of Portland cement treated bases, aggregate bases and aggregate shoulders by nuclear method	Field density and moisture tests of soils by nuclear gauge				
	<b>1.310</b>		_		D-5821 Yes	T-231	T-265	1-310 T-328 Coming Soon	C-173	KT-31, AGL	KT-50, AGL	KT-13	ASTM D-2488	КТ-32	КТ-36	KT-38	KT-41	КТ-51	Bulk Chemistry on Carbonates for clay	content	Iowa Pore Index	Salt susceptibility quality number