

PEM TAC Meeting
Chicago, Illinois
Feb 27-28, 2018

FHWA				Associations			
✓	Ahlstrom	Gina	FHWA	✓	Voigt	Jerry	American Concrete Pavement Assoc
✓	Ardani	Ahmad	FHWA	✓	Degraaf	Dan	Michigan Concrete Association
✓	Petros	Katherine	FHWA	✓	Zeller	Matt	Concrete Paving Assoc. of Minnesota
✓	Praul	Mike	FHWA	✓	Mulder	Greg	Iowa Concrete Paving Association
✓	McDaniel	Lisa	FHWA-Iowa	✓	Cuerdon	Bill	ACPA-New York State Chapter
State DOT Reps					Burwell	Brent	OK/AR Chapter - ACPA
	Tanner	Philip	Arkansas DOT	✓	McMullen	Kevin	Wisconsin Concrete Pavement Assoc
✓	Prieve	Eric	Colorado DOT	✓	Lobo	Colin	NRMCA
	Hoops	Clint	Idaho DOT		Obla	Karthik	NRMCA
✓	Krstulovich	James	Illinois DOT	✓	Tennis	Paul	Portland Cement Association
phone	Hanson	Todd	Iowa DOT		Innis	Al	Slag Cement Association
✓	Megggers	Dave	Kansas DOT	✓	Jones	Cecil	Diversified Engineering Services
✓	Staton	John	Michigan DOT	✓	Van Dam	Tom	NCE
phone	Masten	Maria	Minnesota DOT	Team			
✓	Golish	Rob	Minnesota DOT sub	✓	Ley	Tyler	Oklahoma State University
	Dennis	Dan	New York State DOT	✓	Weiss	Jason	Oregon State University
✓	Hunter	Brian	North Carolina DOT	✓	Cunningham	John	CP Tech/Snyder & Associates
	Miller	Dan	Ohio DOT	✓	Smith	Gordon	National CP Tech Center
✓	Romero	Matt	Oklahoma DOT	✓	Taylor	Peter	National CP Tech Center
✓	Baer	Patricia	Pennsylvania DOT	✓	Prochnow	Sharon	National CP Tech Center
✓	Hodges	Darin	South Dakota DOT				
✓	Hayes	Chad	Wisconsin DOT				

PEM Need and Vision: Gina Ahlstrom

FHWA is looking to the PEM program for real change in performance. FHWA has reorganized the division offices, combining the asphalt and concrete programs in order to promote a cohesive program for pavement materials. Gina emphasized the benefit of cooperation between FHWA, state DOTs, industry, and academia as exemplified by the PEM project.

TPF-5(368) PEM Strategy – Dr. Peter Taylor, CP Tech Center (See PPT)

The funding is in place from 3 sources: FHWA, TPF 15 states with several more considering; industry 90% of the 1M and should be at goal soon. This first TAC meeting is indication of interest and commitment from federal, state, and associations.

PEM Overview See PPT

- Summary of Deliverables – John Cunningham, Snyder & Associates
- Why PEM and New Tests – Dr. Jason Weiss, Oregon State
- More Tests for Tomorrow’s Concrete – Dr. Tyler Ley, Oklahoma State
- AASHTO PP-84: The Guide – Cecil Jones, Diversified Engr Services, Inc.
- The Data – Dr. Tom VanDam, NCE

Discussion/Comments

- Consistency is a big problem
- Working on the seal issue on the SAM
- Microwave test is considered too time consuming for field work; Tyler Ley has a new test to replace it
- Minnesota has provided Jason Weiss with cores from 1992 and 2003
- Jason Weiss has reports/papers on the 300 cores that have been tested
- Data on pavement that is deteriorating needs to be sent to Tom Van Dam
- Tom Van Dam will send out a template of data he needs. For use by participating states to use in reporting project data

Additional comments/points indicated below:

- Jason Weiss emphasized the importance of training the right people early in the process on the new test methods.
- Tyler Ley proposed that we might benefit from “super users”, which would be well-trained people within each of the participating states. “Super users” would be the local resource on PEM test methods.
- Tom Van Dam spoke of the necessary logistics associated with accessing construction projects. This would include agency and contractor approval, traffic control, and extraction of cores.
- The group discussed the purpose of the PEM website. There were questions about the intended audience for the site. Is it only for use by those involved with the PEM project? Would there be a site for those that are not directly involved, but are interested?

FHWA Briefings (see PPTs)

- State Demo Visits Schedule/Procedure – Mike Praul
- Quality Control Goals – Mike Praul
- Response to PEM Incentive Program – Mike Praul. Mike noted that the program had been extended to allow more states to take advantage of the incentives.
- Parallel/Related FHWA Research – Ahmad Ardani/Katherine Petros

State Highway Agency Briefings — State Reps

- Current needs in understanding PEM. The focus of the discussion was on the developmental timelines for each and how they impact each other.
- Experience with tests. John Staton (MI) credited partnership between industry and agency as a key component in their quality improvement efforts. Michigan has experience with the SAM and resistivity meter. They’ve had assistance from members of the project team on training for use of the SAM, and they now have about 20 SAM meters in the state.
- Strategy for initial implementation
- PEM Goals/Expectations/Concerns/Timetables – group discussion
 - The group discussion included a general appreciation for the idea of “super trainers”.
 - Oklahoma DOT is in the early stages of implementing a system similar to that of “super trainers”. They are developing and training liaisons that are working with Tyler Ley to provide technical support throughout the state.
 - The Kansas DOT is most interested in reliability of the test methods and in their relationship to actual pavement performance.

Discussion/Comments

Testing program

- Testing needs to be practical, reliable, repeatable and simple
- Test variability due to material variability will need a process for examination. When to do what tests.
- One page guidance docs, all tablet friendly, are needed. This will also help contractors who work in multiple states.
- States want the team to give them the simplest, best way to get PEM
- Consider using PP84 with a test check list
- Are there prequalification type tests that should be administered before using testing equipment?
- Acceptance tests are ready for usage
- Q/A implementation test equipment is not expensive

Certification Program

- There will be a need for a certification program in order to ensure the tests are being done correctly.
- A standard set of test methodologies is needed, as well as troubleshooting information for when results are clearly inaccurate.
- ACI needs a stable standard before developing a certification program.
- Most states require ACI, plus state specific endorsement classes added.
- States with their own classes/own certification will need background, and certification protocol.
- ACI certs on SAM? Additional SAM cert now and later add it to standard ACI certs?
- Need to get current certification regulations from each states and industry.
- Maybe the super users will become the certifiers? When should train the trainer begin?
- Start with Q/A tests and expand it to include Q/C and prequalification.
- This pooled fund project does not have a certification program in its scope – training can be accomplished but not a national certification program.

Website

- The new website will show team members responsibility
- Website will gather data from lead states that will help other states. Consistency of data collection is needed to make the data trustworthy and therefore more useable
- Raw data needs to be summarized for the website
- Who is the audience for the website? Resource for team or DOTs?
- The website should contain general information and have a secure tab for PFS participants.
- Testing protocol, videos of running the tests
- Validation data base from Tom Van Dam

Shadow Projects

- Right now there are @20 different methods for testing within PP84. What will be the scope of testing for the shadow project?
- Minnesota's and New York's applications for the incentive program had clear information on how they intended to integrate the procedures. This information would be valuable for other states.
- The incentive program will focus on box tests, SAM, SR

What is needed

- Contractors need clear information on each of the parameters in PP84. If they achieve it, what will be the result? Is there an economic incentive for the contractor?
- PRS is only as good as the model, but should it be the end game? Is it the goal?
- PEM spec is the link for tests and validation that will lead to PRS; parallel tracks right now
- Contractors need to be comfortable with PEM before accepting PRS.
- You can't sell PEM with PRS but you can sell PRS with PEM
- How do we get local agency buy-in as well
- Variability is still the trump card. We have data and test methods, but process control is needed
- Long term maintenance needs to be added.
- Need to take a look at what is disincentive to the contractor; their incentive needs to be more than to not get disincentives.
- What is fair? Are agencies will to pay for higher quality product? PRS will work if contractors get paid for it.
- Need the goal spec for PEM – what does it look like. May need changing, but right now what does the final spec look like.

Association Briefings

ACPA: There will be challenges but supportive of moving forward. Jerry Voigt (ACPA) emphasized that the result of the PEM process is to build durable concrete pavements “every time”.

Need to encourage people to stay with it and trust the process.

We have to make sure that we are showing the benefit of the PEM process to those states that do NOT have a durability issue.

PCA: PCA's goal has always been to make better concrete and is supportive of this initiative. The association is smaller than in the past, but the labs are still interested in being involved in round robin testing, in being part of determining how this will affect PCA and their clients. Website with training videos will be very helpful and make everyone feel connected and involved.

NRMCA: Supportive but still feels there are questions. Quality assurance seems to be established, but mix-qualifications/tests are not clear. There seems to be lots of variability in the options and the options are not all equivalent. The methods need to be more clearly defined: which tests are sufficient for each specification? How long will it take to have a new mix approved? Will the material still be available?

New York State Chapter - ACPA: Redi-mix side is skeptical so although the pavement side is ready to go there is work to be done to get together. State wants to have the template in place, information on tests, help in developing a quality control plan so they can get going.

Wisconsin Concrete Pavement Assoc: Supportive but recognizes change is often perceived as just change. When contractors are shown how PEM would work for them, they are supportive. The message needs to be put into a business model. Contractors need to be shown how it will positively impact their business.

Iowa Concrete Paving Association: Need a clear set of what tests are needed. The education component is critical for everyone, including counties and cities. Super Users can't just be DOTs. DOTs need to also have more than just one person involved in the PEM effort.

Greg also mentioned that cities are watching this process, as they have been harder hit than other agencies with joint durability issues.

Concrete Paving Assoc. of Minnesota: Minnesota changed specs to contractor design in the mid-90s with great success. Life cycle cost analysis is needed. With the budget situation, too often the current methodology looks at initial costs and since initially 50 year concrete costs more than 15 year asphalt, in Minnesota there is less concrete work being done. Plus concrete is lasting longer so there is more asphalt work because they need rehab. DOTs need to understand pavement surface life models and long-life models. Michigan Concrete Paving Assn. emphasized that some PEM tests might be better suited for Quality Control (QC) rather than for Quality Assurance (QA).

Dan DeGraaf also noted that the QC process cannot rely on one test from a certain lot; it needs to include several tests as verification.

Strategy and Plan – Peter Taylor

- Each agency will be contacted as to their need:
 - DOT Executive briefing (*if desired*)
 - Specification review
 - Workshop for DOT office staff
 - Construction, demonstrate tests, collect data, train field staff
 - Open Houses (w/ industry, for all to learn and see)
 - Review data/report findings/provide recommendations
 - Ongoing data collection w/DOT assistance
 - Data processing and storage
 - Ongoing specification support
- CP Tech Center has a small trailer equipped with the testing equipment; it can be onsite for field work if a state is not on FHWA's trailer schedule
- Schedule an open-house for anyone interested (DOTs, industry, contractors); demonstrate the tests and allow anyone to "play" with the equipment.
- Provide a report on what was found and what could be changed.

Discussion/Comments

- Structures and redi-mix industry should be invited to a field open-house.
- Could an open-house be part of group meetings to increase exposure to the testing equipment
- Have the team evaluate the specs from the PFS states – what are the similarities and differences
- A spread sheet with that evaluation would help states see where they are and know which state might be able to give them advice.

- Maturity testing
 - Jason Weiss promoted using a 3 day maturity test to help contractors get paid quicker.
 - Skepticism as to whether states are willing to accept a 3 day maturity testing.
 - Maturity needs to be part of PEM; industry will use it when DOTs allow it.
 - Two values: Maturity A for opening; Maturity B for acceptance.
 - Contractors value the latitude, start where states are with usage and acceptance criteria
- F-Factor
 - Four options are included in the guidelines – are all four options needed?
 - Guidance as to when to choose each should be included.

- One page guidance document that is tablet friendly

Final Thoughts

- Lots of states have good ideas and are on different paths but are getting the job done.
- Success stories need to be shared; one page highlight flyer.
- Everyone needs to share success stories with the team. The CP Tech Center will get this information on the website and into flyers.
- NCC discussion on implementation from states with successes
 - Fall meeting will highlight summer incentive program and capture that information for the website.
- Spring (April) NCC meeting will focus on discussions with individual states to help them move forward.

Future meetings

- Quarterly conference calls
- One live meeting – before or after NCC? To discuss later in the summer.

ACTION ITEMS:

- PEM website
- Tom Van Dam will send out a template of data he needs
- Get specs from each PFS state and tabulate similarities and differences.
- One page flyers on state's implementation success stories
- Minnesota and New York had very good apps that showed how they intended to integrate the procedures. Add their apps to notes.

PERFORMANCE ENGINEERED MIXTURES FOR CONCRETE PAVEMENTS

TPF-5(368) TAC MEETING

**February 27-28, 2018
Rosemont, IL**

**ACPA Offices
Hilton Hotel**



AGENDA

Tuesday, February 27, 1:00 p.m - 5:00 p.m. (ACPA 3rd floor conference room)

1:00 Welcome – Gordon Smith, CP Tech Center

- PEM Need and Vision – Gina Ahlstrom, FHWA
- TPF-5(368) PEM Strategy – Dr. Peter Taylor, CP Tech Center

1:25 TPF-5(368) PEM Overview

- Summary of Deliverables – John Cunningham, Snyder & Associates
- Why PEM and New Tests – Dr. Jason Weiss, Oregon State
- More Tests for Tomorrow's Concrete – Dr. Tyler Ley, Oklahoma State
- AASHTO PP-84: The Guide – Cecil Jones, Diversified Engr Services, Inc.
- The Data – Dr. Tom VanDam, NCE

- How PEM TAC can assist the Team – group discussion

2:30 FHWA Briefings

- State Demo Visits Schedule/Procedure – Mike Praul
- Quality Control Goals – Mike Praul
- Response to PEM Incentive Program – Mike Praul
- Parallel/Related FHWA Research – Ahmad Ardani/Katherine Petros
- PEM goals/Expectations/Concerns/Timetables – group discussion




AGENDA

Tuesday, February 27, 1:00 p.m - 5:00 p.m. (ACPA 3rd floor conference room)

3:45 State Highway Agency Briefings — State Reps

- Current needs in understanding PEM
- Experience with tests
- Strategy for initial implementation
- PEM goals/Expectations/Concerns/Timetables – group discussion



Wednesday, February 28, 8:00 a.m. – 11:00 a.m.
(Hilton Hotel, Garros Room: 2nd Floor)

7:30 Breakfast

8:00 Industry Briefings — Jerry Voigt, ACPA; Paul Tennis, PCA; Colin Lobo, NRMCA; Chapter/State Associations

- Current needs in understanding PEM
- Experience with tests
- Strategy for initial implementation
- PEM goals/Expectations/Concerns/Timetables – group discussion


8:30 Group Discussion

- Discussion
- Strategy and action plan
- Collaborations

10:50 Other Business

- Future meeting schedule
- Upcoming events of interest
- NC² – focus session on PEM, Tuesday, April 24, 2018 in Coeur d'Alene, ID

11:00 Adjourn



TAC MEMBER PRESENTATION TOPICS

- Current needs in understanding PEM
- Experience with tests
- Strategy for initial implementation
- PEM goals/Expectations/Concerns/Timetables
- Discussion Topics



DISCUSSION TOPICS WORKSHEET

- What do we want to include on our Performance Engineered Mixtures Website?



STRATEGY/ACTION PLAN

- 2018 site visits



COLLABORATIONS

- SHA/ACPA CHAPTERS – Orientation/Open Houses/Training



**THE PARTNERSHIP TO ADVANCE
PERFORMANCE ENGINEERED CONCRETE
MIXTURES IS CRITICAL TO THE CONTINUED
USE OF CONCRETE PAVEMENTS ACROSS
OUR NATION .**

Thank You



*Delivering concrete to survive
the environment*



STATE REPORTS

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