

Performance Engineered Mixtures TPF-5(368)

NCC Project Update

September 19, 2017



Today's Agenda

- TPF-5(368) Status Update
- Overview of FHWA Support – Mike Praul
- Update on AASHTO PP 84-17 – Steve Tritsch
- What's coming with Task 3 – Tyler Ley & Jason Weiss
- Panel: Answer your questions?
 - Mike Praul, Tyler Ley, Jason Weiss, Tom VanDam, Tom Cackler



PEM - The Path to Implementation

The Vision:

- Concrete mixtures that are **engineered** to meet or exceed the design requirement, are predictably durable, with increased sustainability.
- Keys:
 - ✓ Design and field control of mixtures around engineering properties related to performance.
 - ✓ Development of practical specifications.
 - ✓ Incorporating this knowledge into an implementation system (design, materials, construction, maintenance).
 - ✓ Is validated and refined by performance monitoring.



PEM - The Path to Implementation

- Development Team

- Dr. Peter Taylor, Director CP Tech Center
- Cecil Jones, ACI/Diversified Engineering Svcs
- Dr. Jason Weiss, Oregon State University
- Dr. Tyler Ley, Oklahoma State University
- Dr. Tom VanDam, NCE
- Mike Praul, FHWA
- Tom Cackler, CP Tech Center

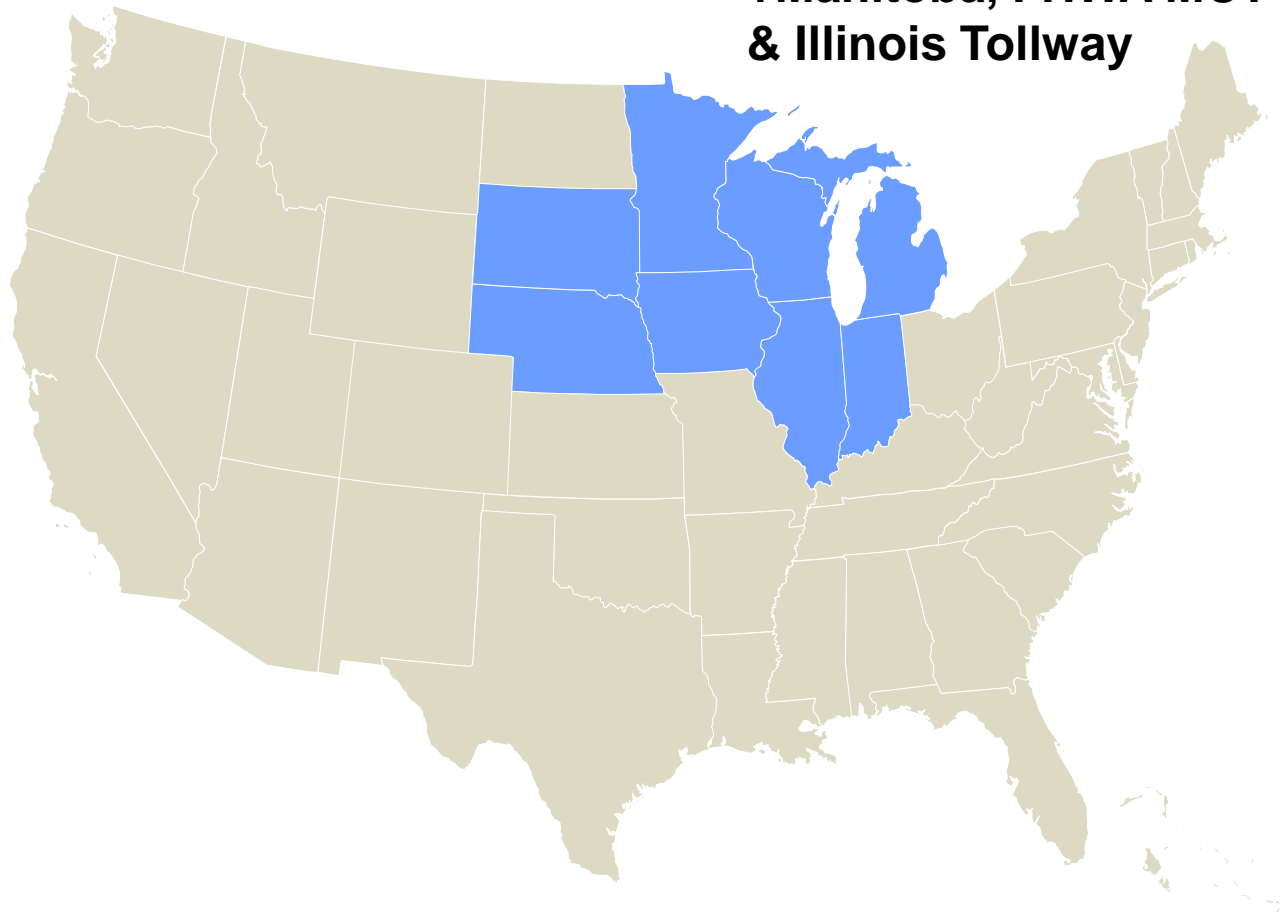
- Industry Participants/Reviewers

- Champion States & ACPA Chapter Execs
- ACPA National
- PCA
- NRMCA



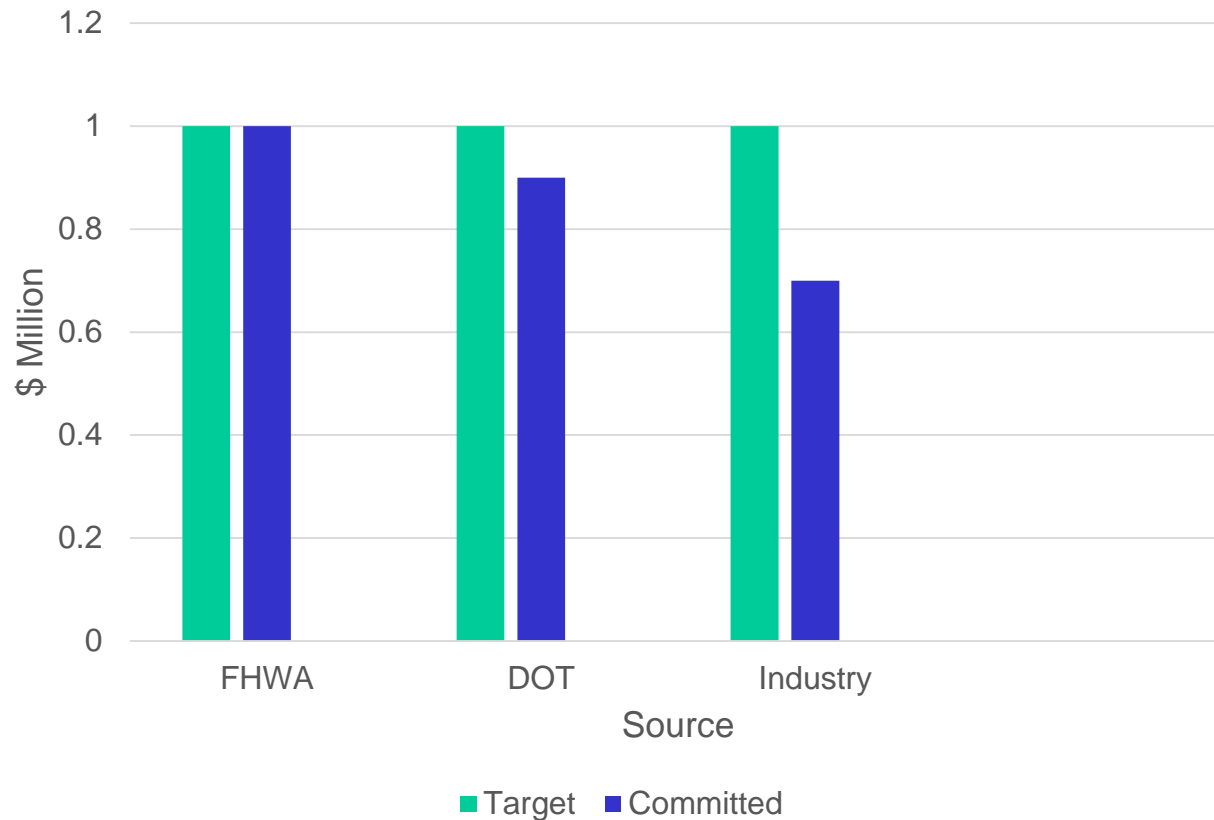
PEM Champion States

**+Manitoba, FHWA MCT
& Illinois Tollway**

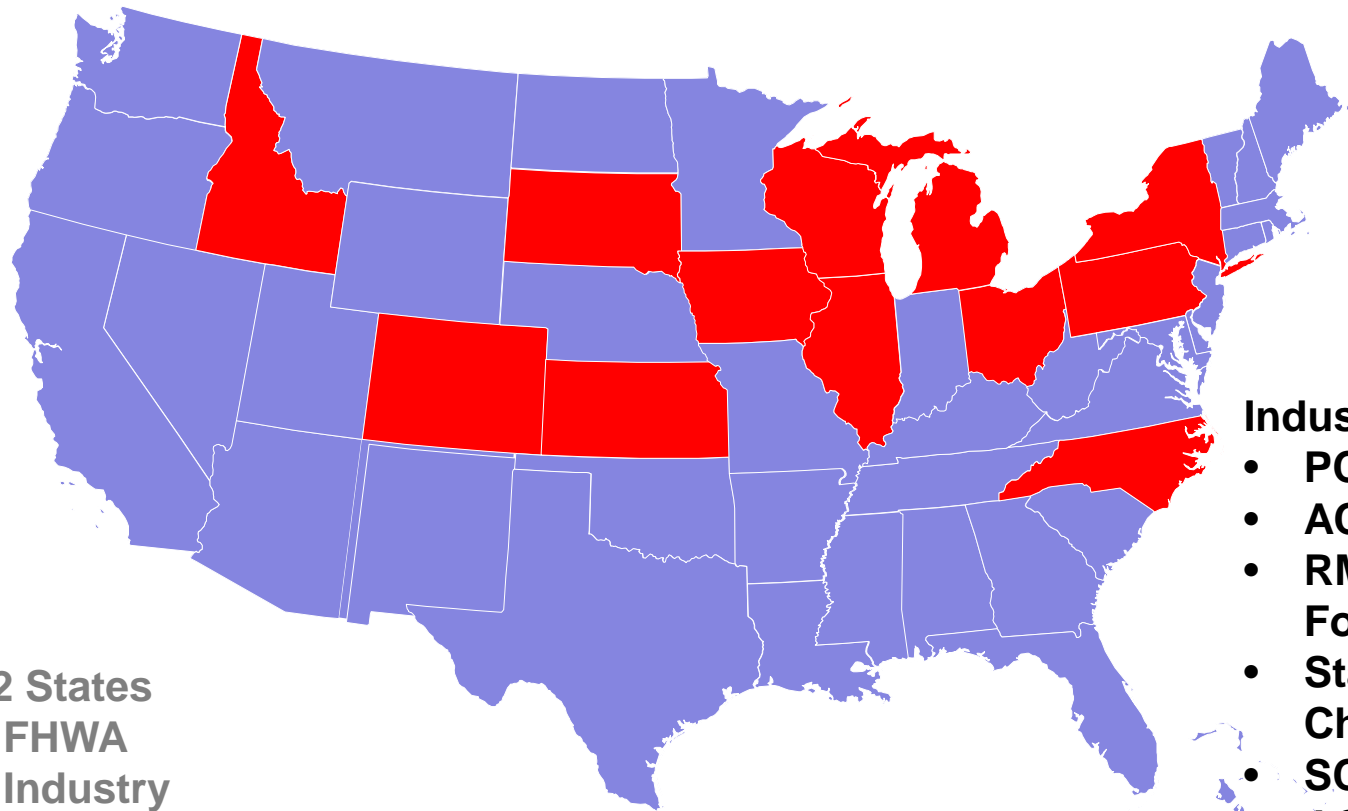


PEM Implementation – TPF-5(368)

Proposed Funding : \$3 million over 5 years



PEM Pooled Fund Participants



12 States
+ FHWA
+ Industry

- Industry**
- PCA
 - ACPA
 - RMC
 - Foundation
 - State Chapters
 - SCA
 - ACAA

Overview of TPF Deliverables

Task 1: Implementation Technical Support

- Standard Test Procedures
- Specification support
 - ✓ AASHTO Standard Test Procedure
 - ✓ Coordination with FHWA “Pave Spec”
 - ✓ Consultation on state specifications
- Contractor Quality Plan Recommendations
- Quarterly TAC meetings
 - ✓ One physical meeting/year
 - ✓ Travel support for 2 representatives



Overview Of TPF Deliverables

Task 2: Performance Monitoring & Specification Refinement

- Data collection protocols
- Web site with data base
 - ✓ Project information
 - ✓ Typical binders analysis
 - ✓ Fly ash & slag improved performance correlation
- Annual performance assessment by states
- LTPP data integration
- Specification refinement based upon actual performance
- Annual report to SOM



Overview Of TPF Deliverables

Task 3: Measuring & Relating Early Age Properties to Performance

- Transport properties
- Thermodynamic models
- Moisture movement
- Water content
- Impact of construction practices
- VKelly test method and calibration

