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
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

![Graph showing proposed funding for FHWA, DOT, and Industry sources.](image-url)
PEM Pooled Fund Participants

12 States
+ FHWA
+ Industry

Industry
- PCA
- ACPA
- RMC Foundation
- State Chapters
- SCA
- ACA
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