

# Performance Engineered Mixtures – Where We've Been and Where We're Going

National Concrete Consortium  
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# Performance Engineered Mixtures

- A quick look back
- AASHTO Subcommittee on Materials
- Current status
- Next steps
- Schedule moving forward



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Pavements & Construction



# PEM - A Look Back

- ETG Established 2013
- Identified elements needing to be addressed
  - Strength
  - Cracking
  - Freeze-thaw resistance
  - Aggregate Stability
  - Workability



# PEM - A Look Back

- Discussed at NC<sup>2</sup>
- Reno meeting April 2015
  - Identify champion states
  - FHWA & team to develop a PEM framework
- Columbus meeting April 2016
  - Presented proposed framework
  - Dinner meeting with champion states to solidify direction



# PEM - A Look Back

- May – June 2016
  - Put standard together
  - Submitted to AASHTO TS 3c
- Preparation for AASHTO SOM
  - TS 3c Review and ballot
  - Addressing comments
- August AASHTO Meeting
  - Discussed in opening session and TS meeting
  - TS 3c voted to proceed



# PEM - A Look Back

- Post AASHTO meeting
  - Revised Standard – Industry & DOT comments
  - Submitted Ballot Ready Standard September 9, 2016
- Ballot results published early November
  - One negative and several comments
  - Resolved negative and comments
  - Web meeting November 21, voted to publish
  - Revisions made with many assisting



# **Provisional AASHTO Standard Practice for Developing Performance Engineered Concrete Pavement Mixtures & Commentary AASHTO PP 84-17**

**Available from AASHTO now!**





# AASHTO SOM

- **Three SOM Committee Chairs**
  - Mark Felag until Fall of 2016
  - Andy Babish Transitioning off now
  - Brian Eagan new chair
- **Staff support**
  - Instrumental in helping with final details
  - CP Tech Center staff also provided editorial support



# Did We Meet NCC Priority Needs?

Ranking	Subject	Addressed Directly by PEM
1	Enhance durability with focus on SCM, air content and admixtures	✓ Yes
2	Early opening mixes for traffic control (strength, load restriction, time requirement)	
3	Early age cracking	✓ Yes
4	Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking, cracking vs. joint spacing – is there a correlation?)	✓ Yes
5	Formation Factor (resistivity and w/c ratio)	✓ Yes
6	Joint durability	✓ Yes



# PEM - Current Status

## ➤ Identifying Revisions

- Before document was published (Word copy from AASHTO staff received March 22, 2017)
- Incorporating Industry comments
- Referencing Dual Ring (T 363) and Calcium Oxychloride (T 365) standards
- Other minor modifications
- Desire to keep stable to allow evaluations this construction season



# PEM - Next Steps and Schedule

- Updated standard to TS 3c by May 12, 2017
- TS planning to ballot prior to August meeting
- Participate in August AASHTO SOM meeting
- Evaluate this construction season
- Revise this Fall as needed



# Performance Engineered Mixtures

The Key to Predictable Long-Life  
Pavement Performance

# Thank You!

