

CP Tech Center Update

TTCC Pooled Fund States Meeting
Little America Hotel, Salt Lake City
April 25, 2017 – 7:30 – 9:30 am

National Concrete Pavement
Technology Center



IOWA STATE UNIVERSITY
Institute for Transportation

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Technical Products Approved by the TTCC for 2016/2017

Inspector Training for Concrete Pavement

- Develop a 3 part webinar series of 2 hours each for a total of 6 hours. (This will take the course developed under the Coop and turn it into a webinar series.)
- Provide inspector checklists - **complete**



Technical Products Approved by the TTCC for 2016/2017

Mitigating Bridge Deck Cracking

- Develop an overall tech brief on approaches to mitigate bridge deck cracking. **MAP Brief November 2016**
- Internal Curing (IC), fibers, special cements, SRAs, and proper mixture proportioning. **MAP Brief December 2015**
- 3 webinars and a YouTube will be available.
- IC specification is under development and should be completed by the end of May, 2017.



Technical Products Approved by the TTCC for 2016/2017

Using Fibers in Bridge Decks

- Develop a software tool for calculating fiber dosage rates.
- Develop a tech brief on this topic – 6 ± pages.
- Provide specifications guidance.
- Develop a 90-minute webinar.

To be addressed in research project.



Technical Products Approved by the TTCC for 2016/2017

Using Fibers in Thin Concrete Overlays

- Develop a software tool for calculating fiber dosage rates.
- Develop a tech brief on this topic - pages \pm .
- Provide specifications guidance.
- Develop a 90-minute webinar.

To be addressed in research project



Fiber Reinforcement for Concrete Overlays and Bridges

Outcomes and Deliverables

Overlays: A fiber software tool to assist pavement and material engineers select the appropriate fiber content in conjunction with the structural design inputs for FRC pavement overlays. A technical brief will also accompany the software to give basic and pertinent background information on fiber reinforcement technology applied to concrete overlay solutions. A series of webinars will be presented to give the overview of fibers, impact on concrete slab performance, and application of the software tool to concrete overlays.

Bridge Decks: A document will be developed to conclude the feasibility of developing software to calculate the required amounts of fibers to add to the concrete mixture to enhance bridge deck performance. The document will include the findings of the benefits, practical application, testing, design enhancements, and performance of fibers for concrete bridge decks.

Researchers: Jeff Roesler, PhD, University of Illinois; Amanda Bordelon, PhD, University of Utah; Armen Amirkhanin, PhD, University of Illinois

Fiber Reinforcement for Concrete Overlays and Bridges

Start Tasks

- May Technical Advisory Committee (TAC)
- July Software tool
- July Tech brief for pavement
- Aug FRC bridge deck summary
- Nov Fiber reinforced concrete overlay webinar
 - Basics of reinforcement and properties
 - Effects on behavior and performance
 - Software tool and integration with design methods
- Dec Specification Guidance

Completion Date – Feb 2018

Aug 2016 Survey - The Top 6

Ranking	Moving Average	Total Votes	Subject
#1	3.42	22	Enhance durability with focus on SCM, air content and admixtures
#2	3.29	20	Early opening mixes for traffic control (strength, load restriction, time requirement)
#3	2.10	13	Early age cracking
#4	2.06	12	Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking, cracking vs. joint spacing - is there a correlation?)
#5	1.97	14	Formation Factor (resistivity and w/c ratio)
#6	1.84	13	Joint durability

Aug 2016 Survey - 7 – 12

Ranking	Moving Average	Total Votes	Subject
#7	1.35	9	Understanding air void systems in concrete pavements for long term performance
#8	1.35	11	Quality assurance
#9	1.32	8	Long life pavements
#10	1.19	11	Optimized gradations (Tarantula curve, power 45 curve, Shilstone)
#11	0.97	9	SCC (Precast and cast-in-place structures, how to monitor and regulate)
#12	0.84	7	Roller compacted concrete

Aug 2016 Survey - Not addressed by PEM

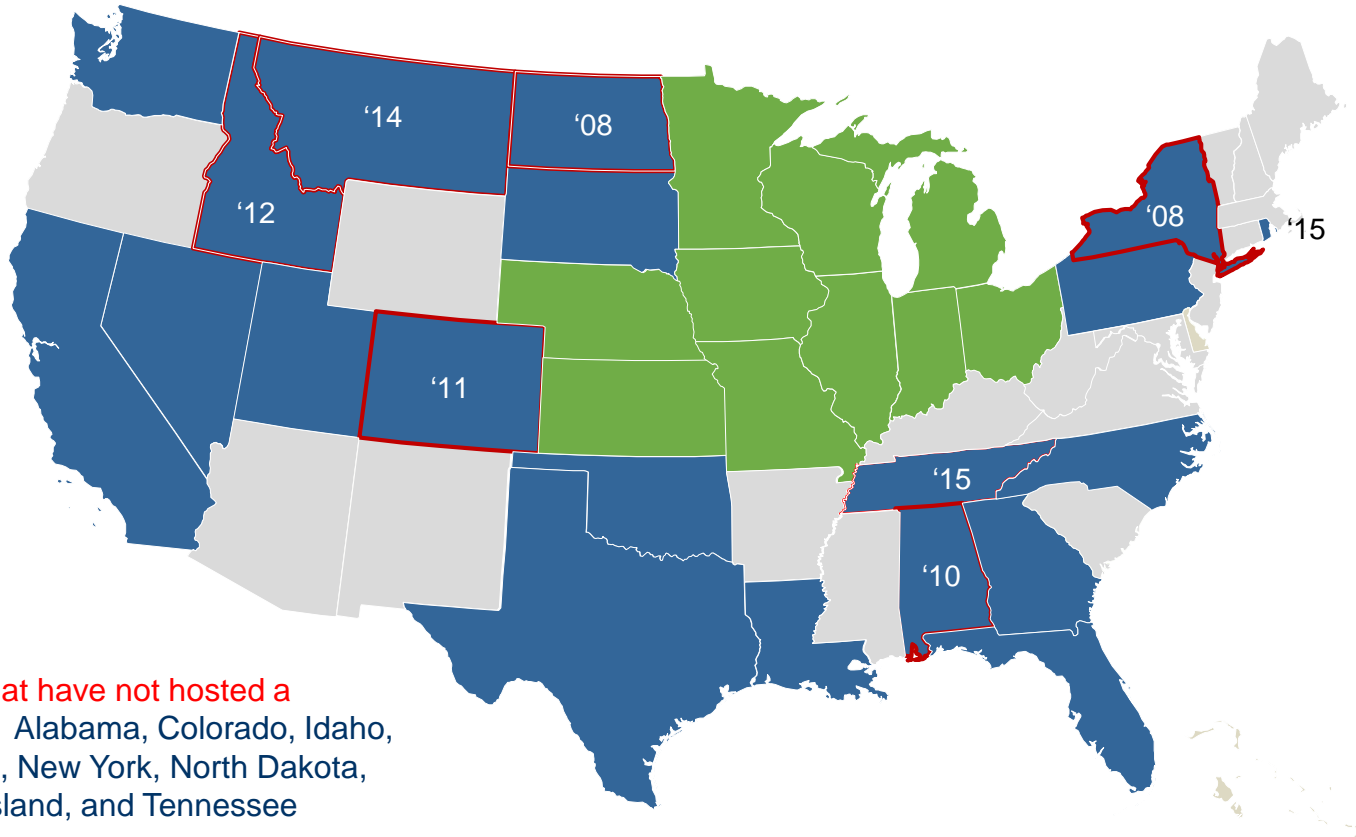
Ranking	Moving Average	Total Votes	Subject
#4	2.06	12	Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking, cracking vs. joint spacing - is there a correlation?)
#11	0.97	9	SCC (Precast and cast-in-place structures, how to monitor and regulate)
#12	0.84	7	Roller compacted concrete



Map Brief 8-1, September 2010
 Guide for Roller Compacted
 Concrete Pavements, 2010 PCA
 Map Brief May 2016



States



States that have not hosted a meeting: Alabama, Colorado, Idaho, Montana, New York, North Dakota, Rhode Island, and Tennessee

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	2016	available
Income		
TPF states 2015		\$31,506
FHWA & TPF states 2016	\$420,000	\$94,738
FHWA & TPF states 2017		\$420,000
		\$546,244
Expenses		
Columbus (Spring 2016)	\$75,171	
Travel	\$54,510	
Registration	\$16,761	
State handouts	\$3,900	
San Antonio (Fall 2016)	\$98,475	
Travel	\$68,626	
Registration (\$450/)	\$26,649	
State handouts	\$3,200	
CP Tech Center	\$45,516	
<ul style="list-style-type: none"> - meeting support - website development and maintenace - Listserve maintenance - webinar support - technical document support 		
Technical Products	\$106,100	
<ul style="list-style-type: none"> - E-news - MAP briefs - Internal Curing spec - Internal Curing webinars - Aggregates (Gradation Fundamentals) 		
2016 Total	\$325,262	

