

CP Tech Center Update

TTCC Pooled Fund States Meeting
Crowne Plaza Hotel, Minneapolis
September 19, 2017 – 7:30 – 9:30 am

National Concrete Pavement
Technology Center



IOWA STATE UNIVERSITY
Institute for Transportation

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CP Tech Update

- New Staff
- Planning for CP Roadmap
- NCC Technical Products

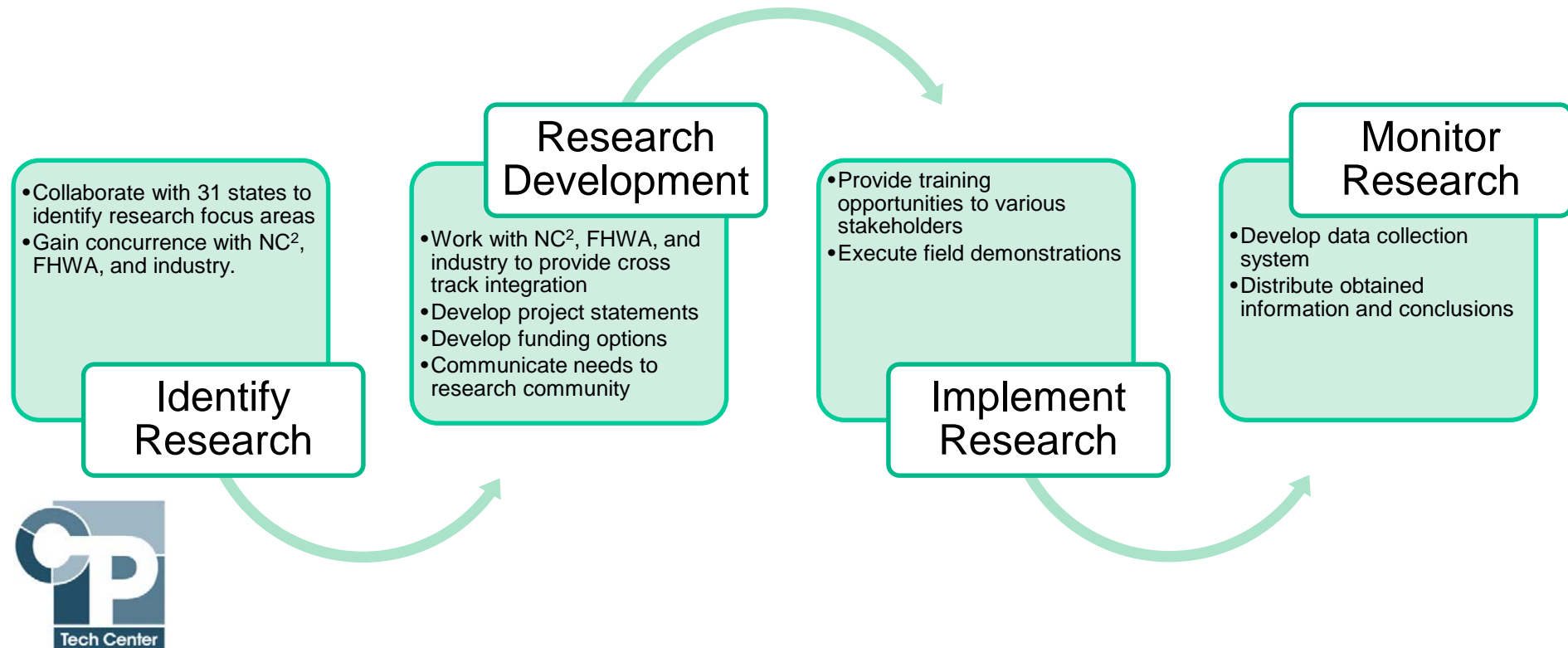
CP Tech Staff Update

- Gordon Smith - Associate Director
 - PEM
- Seyedhamed Sadati – Post Doc
 - NCHRP Air Void Study

CP Roadmap

- TPF-5 (286)
 - Current TPF (Georgia, Iowa, Michigan, Oklahoma, Pennsylvania) supporting the Roadmap ends September 14, 2018
- CP Tech Center is starting to develop a plan on how to address key features of the Roadmap in the future.
 - Will bring plan to the Spring 2018 meeting

CP Road Map Process



TTCC Technical Products

- Sponsored through TPF-5(313) – 31 states
- NCC Identifies Priorities
- CP Tech Center Manages Development
 - Retains national subject matter experts

NCC Priority Identification Schedule

- Approximately 2 year cycle
- First Assessment fall 2015
- Last Assessment in August 2016
- Next Priorities fall/winter 2017/18 for action at Spring 2018 meeting



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**



Fiber Reinforcement for Concrete Overlays and Bridges October 2017-July , 2018

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 Alabama

Technical Products Approved by the TTCC for 2016/2017

Using Fibers in Thin Concrete Overlays

- Setup Technical Advisory Committee
- 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



Technical Products Approved by the TTCC for 2016/2017

Using Fibers in Bridge Decks

- Setup Technical Advisory Committee
- Develop a Technical Summary Report (in tech brief form) which includes:
 - Findings for Literature Search
 - Relationship between Bridge Reinforcement and Fibers
 - Practical and Current Experience
 - Material Design and Testing Objectives
 - Performance Overtime
 - Construction Specification Guidance

To be addressed in research project.



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
 2011 – Guide to RCC Pavements

