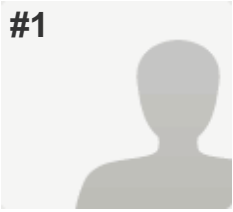


#1



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, July 27, 2016 11:42:36 AM
Last Modified: Wednesday, July 27, 2016 11:50:04 AM
Time Spent: 00:07:27
IP Address: 168.178.122.43

PAGE 1

Q1: State Representative

Name	Bryan Lee
Agency	UDOT
State / Province	Utah
Email	Bryanlee@utah.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related, BridgeRelated,
 Answer Here:
 Modifying PCC, PCCP standard specifications and are currently using a special provision for Bridge Decks.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated, Mix Design Related, Materials Related,
 Answer Here:
 Research being conducted on Shrinkage Ring Test for possible Mix Design shrinkage requirement.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, BridgeRelated,
 Answer Here:
 Bridge Deck Cracking is an on-going challenge.

Q5: What isnext on your research bucket list?

Developing durability testing that will lead to development of performance specification

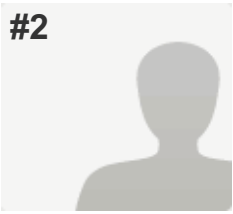
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Early age cracking	#1
Enhance durability with focus on SCM, air content and admixtures	#2
Mixture proportioning	#3
Percent Within Limits (PWL) Specifications	#4
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#5
Precast panels	#6
SCC (Precast and Cast-in-Place structures, how to monitor and regulate)	#7

Q7: Any additional comments?

Respondent skipped this question

#2



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, July 27, 2016 11:48:17 AM
Last Modified: Wednesday, July 27, 2016 12:57:27 PM
Time Spent: 01:09:10
IP Address: 63.66.64.244

PAGE 1

Q1: State Representative

Name	Neal Fannin
Agency	PennDOT
State / Province	PA
Email	nfannin@pa.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related, Mix Design Related, BridgeRelated,
 Answer Here:
 1) High performance concrete paving specification .
 2) High performance bridge deck concrete. 3) Anti-wash specification.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 The implications of implementing PP65 ASR requirements

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What isnext on your research bucket list?

The need to restrict polish susceptible coarse aggregates in concrete pavements.

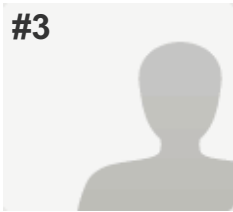
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

<p>Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?) Comment:</p>	<p>#6 Is there some research that quantifies the benefit of a geotextile separation layer for new / reconstructed pavements? Are inverted pavements a good idea for concrete pavements?</p>
<p>Early opening mixes for traffic control (strength, load restriction, time requirement)</p>	<p>#7</p>
<p>Formation Factor (resistivity and w/c ratio)</p>	<p>#5</p>
<p>IMCP Manual Web Training Comment:</p>	<p>#1 A good just in time training for inspectors would be of great use.</p>
<p>Joint durability Comment:</p>	<p>#4 for both new and patched joints.</p>
<p>Surface characteristics Comment:</p>	<p>#3 Skid resistance problems associated with polish prone coarse aggregates</p>
<p>Understanding air void systems in concrete pavements for long term performance Comment:</p>	<p>#2 Recommended SAM meter implementation strategy for now with an eye to when / if the data proves this meters true usefulness.</p>

Q7: Any additional comments?

Respondent skipped this question

#3



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, July 29, 2016 7:11:37 AM
Last Modified: Friday, July 29, 2016 7:23:25 AM
Time Spent: 00:11:47
IP Address: 156.75.176.37

PAGE 1

Q1: State Representative

Name	Rhonda Taylor
Agency	FDOT
State / Province	FL
Email	rhonda.taylor@dot.state.fl.us

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 We've developed a performance based concrete pavement specification.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 We are evaluating the use of alternate pozzolanic materials for use in concrete and concrete pavement. These include ground glass, sugar can baggash, rice hull ash, beneficiated fly ash. In additionwe are evaluating the use of lightweight fine aggregate for internal curing and shrinkage reducing admixtures to help control cracking in our bridge decks.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 the use of UHPC, the cost benefit ratio when used for repair and other construction applications. Its believed this materials has its applications but based on the price of the material and the time it takes to batch, it still seems hard to justify its use.

Q5: What isnext on your research bucket list?

Rapid methods of pavement repair without the associated cracking that occurs with HES concrete used for slab replacement.

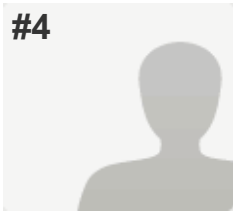
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Corrosion inhibitors Comment:	#7 not sure how effective these are based on their life expectancy of approximately 10 to 12 years
Early age cracking	#1
Enhance durability with focus on SCM, air content and admixtures	#6
IMCP Manual Web Training	#3
Joint durability	#4
Long life pavements	#2
Precast panels	#5

Q7: Any additional comments?

*Respondent skipped this
question*

#4



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 02, 2016 8:12:31 AM
Last Modified: Tuesday, August 02, 2016 9:22:02 AM
Time Spent: 01:09:30
IP Address: 130.39.255.10

PAGE 1

Q1: State Representative

Name	Amar Raghavendra
Agency	Louisiana DOT
State / Province	Louisiana
Email	amar.raghavendra@la.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related, Materials Related,
 Answer Here: Surface Resistivity

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 Early opening strength for pavement Roller Compacted Concrete

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here: Batching control of materials

Q5: What is next on your research bucket list?

- 1) Screening for potentially ACR-susceptible aggregate
- 2) Determining fatigue life of Roller Compacted Concrete in the lab

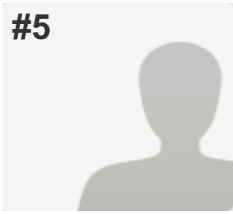
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

- | | |
|--|----|
| Early opening mixes for traffic control (strength, load restriction, time requirement) | #1 |
| Enhance durability with focus on SCM, air content and admixtures | #3 |
| Quality assurance | #4 |
| Roller compacted concrete | #2 |

Q7: Any additional comments?

Respondent skipped this question

#5



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 02, 2016 7:50:24 AM
Last Modified: Tuesday, August 02, 2016 9:22:25 AM
Time Spent: 01:32:01
IP Address: 163.191.102.70

PAGE 1

Q1: State Representative

Name	Steve Gillen
Agency	IL Tollway
State / Province	IL
Email	sgillen@getipass.com

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Probably the most of interest would be our success implementing performance related specifications (PRS) for concrete pavement construction (large volume). Implementation for JPCP occurred in 2015 and 2016 and will continue in 2018. Implementation of PRS for CRC pavements will begin possibly in 2018, in 2020 for sure. Specifications and standards for CRC pavements are in the process of being updated pending the results of numerous CRC test sections currently being built and under research study.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Materials Related, Pavement Related,

BridgeRelated, Design Related,

Answer Here:

1. The re-engineering of CRC pavements in order to reduce costs without impacting performance and make CRC pavements score better with life cycle cost analysis programs. Currently under a joint study with the U of I (Roesler), Texas A & M (Zollinger), and Oregon State (Weiss). 2. Finding the best way to more accurately predict the service life of a bridge deck using high performance concrete mixes. Tourney Consulting Labs and CTL Group are working together on this study. Tourney is finding the best way to evaluate existing decks of multiple ages to establish an accurate salt application rate to use with various software programs. CTL Group is working on further developing crack resistant HPC mixes to be more impermeable to chlorides or to resist corrosion for extended service life predictions. 3. CTL Group has been performing a lab evaluation of rapid setting calcium aluminate cement mixes produced with volumetric mixers to improve the durability and crack resistance of such mixes when used for pavement or bridge deck repair. 4. The University of Illinois (Fannestock & Lafave) is soon to begin a study on modular approach slabs for integral abutment bridges to better estimate when modular slabs will be needed to prevent stress cracking from developing off the abutments of integral abutment bridges. Recommendations for design modifications will be expected.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Pavement Related,

Answer Here:

The willingness of contractors to implement PRS specs for concrete pavement construction was shocking.

Q5: What is next on your research bucket list?

Barrier wall designs and standards. MASH TL4 temporary barriers and buried moment slabs for TL5 barriers will be studied.

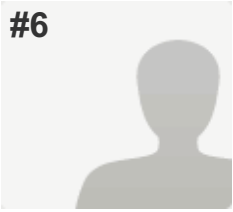
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

3-D stringless paving and 3-D models for highway design and construction Comment:	#6 How 3D modeling can be used to control material quantities and sources.
Corrosion inhibitors Comment:	#1 How the use of CI's along with other features (SRA's, SLA's, etc) extends the life of bridge decks in northern tier states.
Early age cracking Comment:	#3 What test method is most effective to predict early age cracking potential.
Early opening mixes for traffic control (strength, load restriction, time requirement) Comment:	#7 What is the lowest compressive / flexural strength most effective for opening pavements to construction and public traffic?
Enhance durability with focus on SCM, air content and admixtures Comment:	#4 How are durability enhancements most effectively measured for concretes of various applications.
Formation Factor (resistivity and w/c ratio) Comment:	#2 How and where do you specify the formation factor/
Quality assurance Comment:	#5 The importance of knowing PRS specifications and QA specifications have to be applied concurrently. PRS specifications for construction will never eliminate QA.

Q7: Any additional comments?

An update on the FHWA's/AASHTO's recent changes to controlling criteria for the design of concrete pavements needs to be summarized in order to get design manuals updated for large cost savings.

#6



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 02, 2016 9:28:08 AM
Last Modified: Tuesday, August 02, 2016 9:44:15 AM
Time Spent: 00:16:06
IP Address: 165.201.162.178

PAGE 1

Q1: State Representative

Name	Dave Meggers
Agency	Kansas Department of Trans
State / Province	Kansas
Email	dave.meggers@ksdot.org

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Mix Design Related, BridgeRelated,
 Answer Here:
 QC/QA Permeability & Air Voids Internal cureing
 PCCP Use of Surface Resistivity for QC/QA
 Overcome the effect of drying of the cores.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Mix Design Related, BridgeRelated,
 Answer Here:
 Durability of High Early Strength Concrete Concrete
 Pumpability Internal Curing on bridge decks.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What isnext on your research bucket list?

Guidelines fo use of SCMs to prevent ASR. PQL for mix designs without ASTM C-1567 Testing

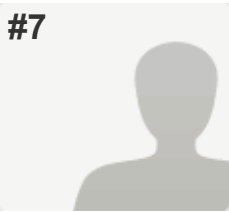
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Early age cracking	#5
Early opening mixes for traffic control (strength, load restriction, time requirement)	#1
Enhance durability with focus on SCM, air content and admixtures	#6
Joint durability	#2
Mixture proportioning	#7
SCC (Precast and Cast-in-Place structures, how to monitor and regulate)	#3
Understanding air void systems in concrete pavements for long term performance	#4

Q7: Any additional comments?

Respondent skipped this question

#7



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 02, 2016 1:22:07 PM
Last Modified: Tuesday, August 02, 2016 1:51:41 PM
Time Spent: 00:29:34
IP Address: 130.47.240.44

PAGE 1

Q1: State Representative

Name	CHAD HAYES
Agency	WIS.DOT
State / Province	WI
Email	chad.hayes@dot.wi.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Mix Design Related, Sustainability Related,
 Answer Here:
 Working on specifications for optimized aggregate gradation and mix design for concrete pavements.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Super Air Meter testing and Surface resistivity.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Answer Here:
 zoo pavement marking. salt covering up white pavement markings. Using orange.

Q5: What isnext on your research bucket list?

Determining the reasons for air content differences between before and after paver and In-Situ core samples.

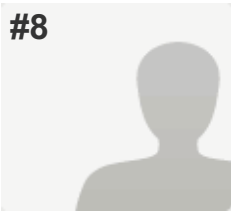
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

- | | |
|--|----|
| Early opening mixes for traffic control (strength, load restriction, time requirement) | #6 |
| Enhance durability with focus on SCM, air content and admixtures | #1 |
| Formation Factor (resistivity and w/c ratio) | #4 |
| Joint durability | #2 |
| Mixture proportioning | #5 |
| SCC (Precast and Cast-in-Place structures, how to monitor and regulate) | #7 |
| Understanding air void systems in concrete pavements for long term performance | #3 |

Q7: Any additional comments?

Respondent skipped this question

#8

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Tuesday, August 02, 2016 2:34:57 PM**Last Modified:** Tuesday, August 02, 2016 2:58:01 PM**Time Spent:** 00:23:03**IP Address:** 98.17.169.26

PAGE 1

Q1: State Representative

Name	Jason Waters
Agency	Georgia Department of Transportation
State / Province	Georgia
Email	watersj@windstream.net

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
Answer Here: Bag house dust in cement.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What is next on your research bucket list?

Respondent skipped this question

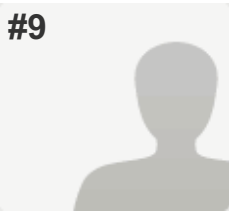
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Early opening mixes for traffic control (strength, load restriction, time requirement)	#1
Joint durability	#5
Roller compacted concrete	#2
SCC (Precast and Cast-in-Place structures, how to monitor and regulate)	#3
Segmental bridge construction practices	#4

Q7: Any additional comments?

Respondent skipped this question

#9



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, August 08, 2016 10:09:36 AM
Last Modified: Monday, August 08, 2016 2:20:41 PM
Time Spent: 04:11:04
IP Address: 165.234.252.170

PAGE 1

Q1: State Representative

Name	Clayton Schumaker
Agency	North Dakota DOT
State / Province	North Dakota
Email	cschumaker@nd.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related,
 Answer Here:
 Looking at the value of surface resistivity as a possible requirement for mix design.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Design Related,
 Answer Here:
 Joint layout as to minimum width between longitudinal joints and the width of tied pavements.

Q5: What is next on your research bucket list?

Respondent skipped this question

Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?)	#1
Early age cracking	#6
Early opening mixes for traffic control (strength, load restriction, time requirement)	#3
Enhance durability with focus on SCM, air content and admixtures	#2
Formation Factor (resistivity and w/c ratio)	#4
Joint durability	#7
Mixture proportioning	#5

Q7: Any additional comments?

Respondent skipped this question

#10



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 09, 2016 12:48:59 PM
Last Modified: Tuesday, August 09, 2016 1:06:29 PM
Time Spent: 00:17:30
IP Address: 149.136.17.252

PAGE 1

Q1: State Representative

Name	Mehdi Parvini
Agency	Caltrans
State / Province	CA
Email	mehdi.parvini@dot.ca.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 Precast Concrete Pavement (PCP) Roller Compacted Concrete (RCC)

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Composite Pavement with Two-lift Paving Recycled Concrete Aggregate (RCA) Glass Fiber Reinforced Polymer (GFRP) Dowels

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Rapid Strength Concrete (RSC)/High Early Strength Concrete (HESC) Performance Continuously Reinforced Concrete Pavement (CRCP) End Treatments

Q5: What is next on your research bucket list?

Pavement ME design Calibration and Implementation

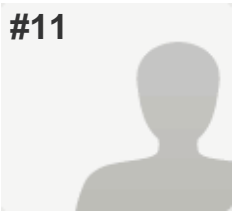
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking vs. joint spacing - is there a correlation?)	#1
Early age cracking	#2
Early opening mixes for traffic control (strength, load restriction, time requirement)	#4
Long life pavements	#5
Precast panels	#3
Quality assurance	#7
Roller compacted concrete	#6

Q7: Any additional comments?

Respondent skipped this question

#11

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Wednesday, August 10, 2016 6:08:33 AM**Last Modified:** Wednesday, August 10, 2016 6:23:55 AM**Time Spent:** 00:15:22**IP Address:** 204.24.68.74

PAGE 1

Q1: State Representative

Name	John Staton
Agency	Michigan DOT
State / Province	Michigan
Email	statonj@michigan.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated, Mix Design Related,
Answer Here:
Recently implemented high performance concrete mixtures for all bridge applications.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What is next on your research bucket list?

Respondent skipped this question

Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

3-D stringless paving and 3-D models for highway design and construction #2

Enhance durability with focus on SCM, air content and admixtures #1
 Comment:

Quality and availability of SCMs. How do we specify SCMs when we are not assured that we are getting what we currently specify when we rely solely on ASTM C 618. Progress relative to reclamation of waste fly ash. Next generation fly ash specs. What about Class N pozzolans?

Formation Factor (resistivity and w/c ratio) #5

IMCP Manual Web Training #6

Long life pavements #4

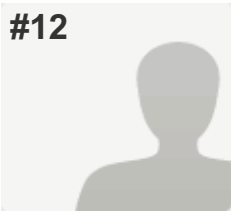
Percent Within Limits (PWL) Specifications #7

Segmental bridge construction practices #3

Q7: Any additional comments?

Respondent skipped this question

#12



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, August 10, 2016 8:11:50 AM
Last Modified: Wednesday, August 10, 2016 8:22:21 AM
Time Spent: 00:10:30
IP Address: 158.123.8.61

PAGE 1

Q1: State Representative

Name	Mark Felag
Agency	Department of Transportation
State / Province	RI
Email	mark.felag@dot.ri.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Moving more into QC specifications. The use of pavement smoothness has become the norm and we have done some projects with Intelligent Compaction.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated,
 Answer Here:
 The use of GPR and Infrared Thermography.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What is next on your research bucket list?

For concrete, longer durability.

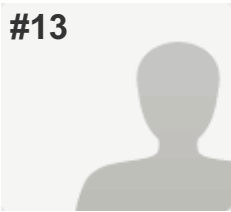
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Corrosion inhibitors	#7
Early age cracking	#3
Enhance durability with focus on SCM, air content and admixtures	#1
Formation Factor (resistivity and w/c ratio)	#6
Percent Within Limits (PWL) Specifications	#2
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#4
Quality assurance	#5

Q7: Any additional comments?

Respondent skipped this question

#13

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Wednesday, August 10, 2016 10:51:33 AM**Last Modified:** Wednesday, August 10, 2016 11:25:07 AM**Time Spent:** 00:33:33**IP Address:** 164.110.221.225

PAGE 1

Q1: State Representative

Name	Mark Russell
Agency	Washington State DOT
State / Province	Washington
Email	russelm@wsdot.wa.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 WSDOT is currently developing an IRI based smoothness specification for concrete pavement. The specification will replace the use of the profilograph.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 WSDOT is the lead state for the SPS 2 Pavement Preservation Experiment pooled fund. The phase 1 report is currently under review.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 This may not be unique but the issue of concrete pavement thickness deficiencies keeps on coming up. WSDOT requires HMA base on most of its new concrete pavement. The base often does not get paved to the required grade. This results in the concrete paving contractor using additional concrete to make up the difference if the HMA grade is low. If the HMA grade is high the concrete contractor is penalized for deficient thickness. We are being asked by the concrete paving industry to develop a specification that will insure they will not be penalized for work that they are not in control of. WSDOT's position has been that we base our acceptance of thickness on the final product and it is up to the contractor to provide the QC for the grades.

Q5: What is next on your research bucket list?

Recycled aggregate in concrete pavement.

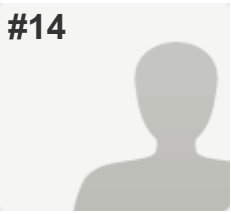
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking vs. joint spacing - is there a correlation?)	#3
Early opening mixes for traffic control (strength, load restriction, time requirement)	#1
Long life pavements	#4
Percent Within Limits (PWL) Specifications	#6
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#7
Precast panels	#2
Roller compacted concrete	#5

Q7: Any additional comments?

Respondent skipped this question

#14



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, August 11, 2016 2:07:54 PM
Last Modified: Thursday, August 11, 2016 2:34:29 PM
Time Spent: 00:26:35
IP Address: 199.90.35.12

PAGE 1

Q1: State Representative

Name	Nilesh Surti
Agency	NCDOT
State / Province	NC
Email	nsurti@ncdot.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 Concrete pavement for local roads and streets

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related, Sustainability Related,
 Answer Here:
 Durable and sustainable concrete pavements. Decreased permeability with lime and fly ash combination. Looking at current mix design in NC and ways to improve the pavement.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 Diamond grinding slurry disposal pilot program to dump slurry in medians and slopes

Q5: What is next on your research bucket list?

Long life concrete pavements

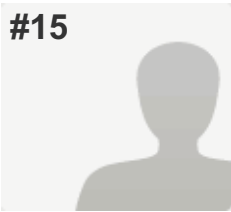
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

3-D stringless paving and 3-D models for highway design and construction	#5
Alternate bids challenges Comment:	#1 Bid adjustments, equivalent pavement designs
Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?)	#6
Enhance durability with focus on SCM, air content and admixtures	#7
Joint durability	#4
Long life pavements Comment:	#2 mix design and dowels
Understanding air void systems in concrete pavements for long term performance	#3

Q7: Any additional comments?

Respondent skipped this question

#15

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Thursday, August 11, 2016 2:56:29 PM**Last Modified:** Thursday, August 11, 2016 3:20:39 PM**Time Spent:** 00:24:09**IP Address:** 164.154.156.59

PAGE 1

Q1: State Representative

Name	Darin Hodges
Agency	South Dakota DOT
State / Province	SD
Email	darin.hodges@state.sd.us

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Preservation Related,
 Answer Here:
 We recently updated our specifications for partial depth repair. We now are using the MNDOT 3U18 materials and the chipping back of the sawed edges.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, BridgeRelated,
 Sustainability Related,
 Answer Here:
 We have research started looking at the following:
 Portland Limestone Cements for SD sulfate levels.
 Fibers in Concrete Structural Components.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Mix Design Related,
 Answer Here:
 A PCC Paving mix that consistently produced an "odd and somewhat unique" pattern of random cracking.

Q5: What is next on your research bucket list?

Respondent skipped this question

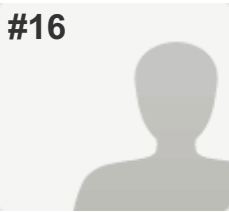
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Early age cracking Comment:	#1 In regard to Bridge decks by taking a holistic approach to the entire system. This would include mix design and materials, design features like girder type and integral abutments, Construction activities like temps etc.
Formation Factor (resistivity and w/c ratio)	#2
Joint durability	#3
Percent Within Limits (PWL) Specifications	#6
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#5
Quality assurance	#4
Surface characteristics	#7

Q7: Any additional comments?

Respondent skipped this question

#16



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, August 11, 2016 10:17:35 PM
Last Modified: Thursday, August 11, 2016 11:09:05 PM
Time Spent: 00:51:30
IP Address: 70.113.9.166

PAGE 1

Q1: State Representative

Name	Andy Naranjo
Agency	TxDOT
State / Province	TX
Email	andy.naranjo@txdot.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Answer Here: Nothing new at the point.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Mix Design Related,
 Answer Here:
 Durability of Type IL cement with greater than 15% limestone content. Direct determination of cement compositions (will begin this year) Evaluation of Alternate SCM Use of RAP and RAS in concrete mixtures Evaluation of chemical admixtures to improve durability Deflection based testing of base layers Concrete overlay type selection and design Measuring diamond grinding configurations and texture life

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related, Mix Design Related,
 BridgeRelated,
 Answer Here:
 Use of dowel bar inserter and MIT Scan to measure dowel bar alignment Use of rapid setting cement in a latex modified bridge deck overlay.

Q5: What is next on your research bucket list?

Respondent skipped this question

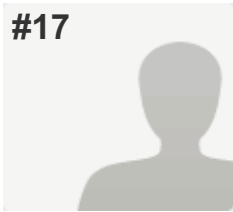
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Alternate bids challenges	#7
Early age cracking	#6
Early opening mixes for traffic control (strength, load restriction, time requirement)	#5
Enhance durability with focus on SCM, air content and admixtures	#3
Percent Within Limits (PWL) Specifications	#4
Quality assurance	#1
Surface characteristics	#2
Comment:	Improving ride quality for concrete pavements

Q7: Any additional comments?

Respondent skipped this question

#17



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, August 12, 2016 11:30:22 AM
Last Modified: Friday, August 12, 2016 12:05:48 PM
Time Spent: 00:35:25
IP Address: 163.191.13.70

PAGE 1

Q1: State Representative

Name	James Krstulovich
Agency	Illinois DOT
State / Province	Illinois
Email	James.Krstulovich@illinois.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated, Pavement Related,
 Materials Related,
 Answer Here:
 Most recently, we have implemented an internal curing special provision for new bridge decks. In the very near future, we will likely be implementing new guidelines for conditioning and testing cores for concrete items that did not make strength. Essentially, the new guidelines would have the core dried in front of a fan for 24 hours immediately prior to testing; the research this is based on suggests that wet conditioning (as specified in AASHTO T 24), although preferable with respect to within-lab or between-lab variations, produces significantly conservative results with respect to the 'actual' in-place strength.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 BridgeRelated,
 Answer Here:
 We are researching shrinkage mitigation materials for bridge deck concrete (i.e., shrinkage reducing admixtures, shrinkage compensating expansive cementitious materials, internal curing with lightweight fine aggregates, and micro-textured epoxy-coated reinforcement). We are also studying concrete's very early-age response to fatigue loading and damage in an effort to possibly allow earlier opening to traffic (i.e., less than 3 days).

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Materials Related,

Answer Here:

We recently had a cement significantly fail the standard quality autoclave test specified by AASHTO M 85. At the time of failure, the cement had already been incorporated into upwards of 40,000 cubic yards of concrete throughout a few of our Districts and the Illinois Tollway. Jobs were delayed as we scrambled to determine the potential risk of such a failure. What did not help matters was finding that there does not appear to be very much literature concerning the issue. Ultimately, we were able to make a call based on what little we could find, plus some insight from professionals and additional testing using a standard test more common in Europe and India. As rare an occurrence as this situation appears to be, our experience might be helpful for others down the road.

Q5: What is next on your research bucket list?

Alternative cementitious/supplementary cementitious materials

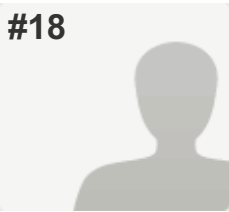
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Alternate bids challenges	#6
Early opening mixes for traffic control (strength, load restriction, time requirement)	#2
Enhance durability with focus on SCM, air content and admixtures	#1
Formation Factor (resistivity and w/c ratio)	#5
Percent Within Limits (PWL) Specifications	#7
Roller compacted concrete	#3
Surface characteristics	#4
Comment:	Particularly, transverse vs. longitudinal tined surfaces

Q7: Any additional comments?

Respondent skipped this question

#18



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, August 15, 2016 8:36:32 AM
Last Modified: Monday, August 15, 2016 11:23:34 AM
Time Spent: 02:47:02
IP Address: 170.141.177.57

PAGE 1

Q1: State Representative

Name	Jamie Waller
Agency	Tennessee Department of Transportation
State / Province	Tennessee
Email	Jamie.Waller@tn.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Mix Design Related, Sustainability Related,
 Answer Here:
 Tennessee DOT (TDOT) has recently (within the last year) implemented a new Self Consolidating Concrete (SCC) specification. TDOT has also implemented a new water specification for testing water sources that are from non-municipal sources. TDOT is looking at converting from the 2" x 2" grout cubes to having the acceptance testing be conducted using 4" x 8" cylinders.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Sustainability Related,
 Answer Here:
 Tennessee DOT (TDOT) is currently conducting Alkali-Silica Reactivity (ASR) for aggregates sources. TDOT is also looking at the implementation of recycled concrete aggregate (RCA) into our base structure of the roadway. Another topic that TDOT is researching is the amount of chlorides in our concrete mixtures as well as which method (water soluble, acid soluble, or Soxhlet) should be specified.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Mix Design Related, Sustainability Related,
Design Related,

Answer Here:

Tennessee DOT (TDOT) successfully completed an Accelerated Bridge Construction (ABC) project last year replacing eight (8) interstate bridges in thirteen (13) weekends. The bridge decks consisted of precast deck panels that were tied together by a 6,000 psi in 8-hour mix design. This allowed opening the roadway to traffic without delay to the motoring public. TDOT is moving to implement non-destructive testing for precast concrete products such as catch basins, manholes, junction boxes, etc.

Q5: What is next on your research bucket list?

Lightweight Aggregates - Absorption
Internal Curing

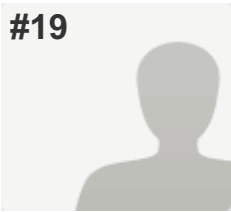
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

- | | |
|---|----|
| Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?) | #1 |
| Early opening mixes for traffic control (strength, load restriction, time requirement) | #2 |
| Enhance durability with focus on SCM, air content and admixtures | #3 |
| Optimized gradations (Tarantula curve, Power 45 curve, Shilstone) | #4 |
| SCC (Precast and Cast-in-Place structures, how to monitor and regulate) | #5 |
| Surface characteristics | #6 |
| Understanding air void systems in concrete pavements for long term performance | #7 |

Q7: Any additional comments?

Respondent skipped this question

#19

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Monday, August 15, 2016 10:42:08 AM**Last Modified:** Monday, August 15, 2016 11:46:57 AM**Time Spent:** 01:04:48**IP Address:** 164.119.50.99

PAGE 1

Q1: State Representative

Name	Lieska Halsey
Agency	Nebraska Department of Roads
State / Province	Nebraska
Email	lieska.halsey@nebraska.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Sustainability Related,
 Answer Here:
 Quality Assurance of Blended/Interground cements.
 Quality Control of lightweight pieces in aggregate.
 Recycled concrete passing the No. 200 sieve for soil stabilization with lime.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 The evaluation of the installation of tie bars (mechanical vs hand placement).

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Finding the acceptable percentage of lightweight pieces in aggregate and a appropriate test method for local aggregates from dry pits. Evaluation of tie bar placement (mechanical vs hand placement).

Q5: What is next on your research bucket list?

Evaluation of the SAM and future incorporation into the specifications.

Evaluation of the miniature concrete prism test for interground/blended cements acceptance.

Using chemistry for blended/interground cements for acceptance in place of physical testing for ASR.

Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Enhance durability with focus on SCM, air content and admixtures

#2

Comment:

Air entrainment and water reducers.

Formation Factor (resistivity and w/c ratio)

#1

Comment:

More explanation how to evaluate the data.

Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)

#4

Quality assurance

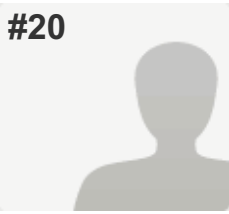
#3

Comment:

Towards performance specifications.

Q7: Any additional comments?*Respondent skipped this question*

#20



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, August 15, 2016 11:42:55 AM
Last Modified: Monday, August 15, 2016 12:01:39 PM
Time Spent: 00:18:43
IP Address: 164.165.251.4

PAGE 1

Q1: State Representative

Name	Clint Hoops
Agency	Idaho Transportation Dept
State / Province	Idaho
Email	clint.hoops@itd.idaho.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related,
 Answer Here:
 Idaho is currently reviewing our mix design spec with the intent it will be modified this fall

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Current research involves calibrating ME design for concrete in Idaho. Just starting a research project for concrete in a high salt environment.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 Still investigating this one. A long section of concrete barrier in a mountain area is deteriorating rapidly after the first year of service.

Q5: What is next on your research bucket list?

Follow up on ASR research on I84 near Mountain Home, ID.

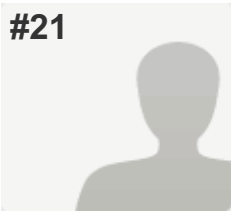
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Alternate bids challenges	#5
Early age cracking	#1
Early opening mixes for traffic control (strength, load restriction, time requirement)	#3
Enhance durability with focus on SCM, air content and admixtures	#2
Formation Factor (resistivity and w/c ratio)	#4
Percent Within Limits (PWL) Specifications	#6
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#7

Q7: Any additional comments?

Respondent skipped this question

#21



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, August 15, 2016 2:56:23 PM
Last Modified: Monday, August 15, 2016 3:07:24 PM
Time Spent: 00:11:01
IP Address: 204.62.25.101

PAGE 1

Q1: State Representative

Name	Kenny R. Seward
Agency	Oklahoma Department of Trans.
State / Province	Oklahoma
Email	kseward@odot.org

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related,
 Answer Here:
 About to introduce optimized gradation using the tarantula curve.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related,
 Answer Here: Currently researching resistivity.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated,
 Answer Here:
 We are having a problem with bridge joints closing to the point we a shearing the anchor bolts off.

Q5: What isnext on your research bucket list?

Nothing comes to mind.

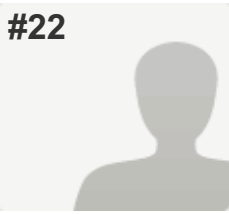
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?)	#4
Early age cracking	#5
Long life pavements	#6
Percent Within Limits (PWL) Specifications	#7
Quality assurance	#3
SCC (Precast and Cast-in-Place structures, how to monitor and regulate)	#2
Surface characteristics	#1
Comment:	IRI

Q7: Any additional comments?

Respondent skipped this question

#22



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Monday, August 15, 2016 3:21:17 PM
Last Modified: Monday, August 15, 2016 3:30:55 PM
Time Spent: 00:09:37
IP Address: 168.166.124.100

PAGE 1

Q1: State Representative

Name	Brett Trautman
Agency	DOT - Construction and Materials Div.
State / Province	Missouri
Email	Brett.Trautman@modot.mo.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).	Materials Related, Preservation Related
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Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).	Materials Related, BridgeRelated
--	----------------------------------

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).	Materials Related
--	-------------------

Q5: What is next on your research bucket list?

- Roller Compacted Concrete
- Internal Curing
- PCCP Mixtures Utilizing Large Coarse Aggregate (Plus 1 inch)

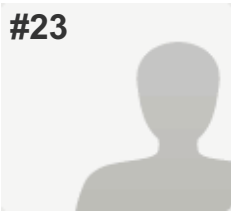
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Early age cracking Comment:	#3 - Guidance on reducing early age cracking - Performance Tests for Evaluating Mixture Proportions
Early opening mixes for traffic control (strength, load restriction, time requirement) Comment:	#1 - Speed up construction and encourage the use of concrete overlays
Enhance durability with focus on SCM, air content and admixtures	#2
Mixture proportioning	#5
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#4
Roller compacted concrete	#7
SCC (Precast and Cast-in-Place structures, how to monitor and regulate)	#6

Q7: Any additional comments?

*Respondent skipped this
question*

#23

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Monday, August 15, 2016 2:33:17 PM**Last Modified:** Monday, August 15, 2016 4:36:04 PM**Time Spent:** 02:02:46**IP Address:** 205.174.143.2

PAGE 1

Q1: State Representative

Name	Drew Waldrop
Agency	ALDOT
State / Province	AL
Email	waldropa@dot.state.al.us

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related, BridgeRelated,
 Answer Here:
 Upcoming firsts for Alabama: precast prestressed concrete pavement, and segmental bridge construction.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Mix Design Related,
 Answer Here:
 Ongoing research projects: "Friction & Texture Retention of Concrete Pavements after Diamond Grinding & Grooving" -- Eric Giannini (UA) & Nathan Klenke (UA alumnus, currently employed w/ LBYD of Birmingham, AL). Study to address post-diamond grinding friction loss on concrete pavements made from Alabama limestones. "Effect of Core Geometry & Size on Concrete Compressive Strength" -- Adam Carroll, Aaron Grubbs, Dr. Anton Schindler & Dr. Robert Barnes (all of Auburn Univ). This study hopes to establish a quantitative relationship between cylinder strength, core size, core age, and direction of coring relative to placement.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated,
 Answer Here:
 Successfully implemented our first "slide-in" bridge deck, as part of accelerated bridge construction project implementation.

Q5: What isnext on your research bucket list?

The projects in #3 are initial phases. Following these to completion, and ultimate spec implementation is our top priority w/ concrete right now.

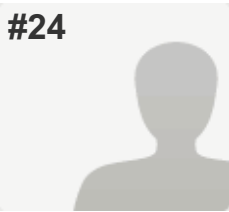
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Alternate bids challenges	#7
Early opening mixes for traffic control (strength, load restriction, time requirement)	#1
Formation Factor (resistivity and w/c ratio)	#2
Mixture proportioning	#3
Quality assurance	#4
SCC (Precast and Cast-in-Place structures, how to monitor and regulate)	#6

Q7: Any additional comments?

Respondent skipped this question

#24



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 16, 2016 7:13:32 AM
Last Modified: Tuesday, August 16, 2016 8:10:50 AM
Time Spent: 00:57:18
IP Address: 108.59.48.3

PAGE 1

Q1: State Representative

Name	Michael Nelson
Agency	INDOT
State / Province	Indiana
Email	mnelson@indot.in.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related,
 Answer Here:
 INDOT is following through on research by Dr. Jason Weiss that indicates that increased SCMs will improve pavement durability. Historically, fly ash and ggbfs have been optional in pavement. The new specification mandates the use of at least one SCM and allows the use of up to two SCMs. The provision allows fly ash, ggbfs and silica fume with an allowable amount up to 40% of cementitious.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 INDOT research project SPR-4003 includes a task by Dr. Jason Weiss to follow up on previous research that involved resistivity measurement in concrete. Specifically, this research is intended to implement the use of "formation factor" as a rapid durability measure on concrete.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What is next on your research bucket list?

Find a cost effective replacement for fly ash that would have similar effects

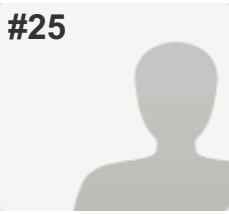
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking vs. joint spacing - is there a correlation?) Comment:	#5 base support/drainage system
Early opening mixes for traffic control (strength, load restriction, time requirement)	#2
Enhance durability with focus on SCM, air content and admixtures	#3
Formation Factor (resistivity and w/c ratio)	#6
IMCP Manual Web Training Comment:	#7 Items specifically related to construction personnel (i.e. plastic testing, control W/C ratio, proper CURING)
Long life pavements	#1
Precast panels	#4

Q7: Any additional comments?

Respondent skipped this question

#25



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 16, 2016 8:20:03 AM
Last Modified: Tuesday, August 16, 2016 8:28:52 AM
Time Spent: 00:08:49
IP Address: 165.206.209.230

PAGE 1

Q1: State Representative

Name	Kevin M. & Todd H.
Agency	Iowa DOT
State / Province	IA
Email	todd.hanson@dot.iowa.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

BridgeRelated, Preservation Related,
 Answer Here:
 Bridge - UHPC connections for ABC bridges
 Preservation - Partial depth PCC patching

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q5: What is next on your research bucket list?

Respondent skipped this question

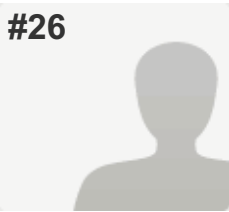
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?)	#1
Enhance durability with focus on SCM, air content and admixtures Comment:	#2
	What to do with diminishing fly ash sources. Look at ground glass or other alternatives. Mining fly ash waste fills.
Formation Factor (resistivity and w/c ratio)	#3
Joint durability	#4

Q7: Any additional comments?

Respondent skipped this question

#26



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 16, 2016 11:48:54 AM
Last Modified: Tuesday, August 16, 2016 11:58:09 AM
Time Spent: 00:09:14
IP Address: 63.225.17.34

PAGE 1

Q1: State Representative

Name	Eric Prieve
Agency	Colorado DOT
State / Province	CO
Email	Eric.Prieve@state.co.us

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Pavement Related,
 Answer Here:
 Implementing maturity meters for acceptance to replace cast cylinders. Pilot specification being developed for 2017 construction season. Looking at replacing beam testing with split tensile testing for accepting concrete pavement strength. Also looking at maturity meter flexural strength to replace beam testing.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Respondent skipped this question

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 Fly ash shortages and substituting other sources when aggregates are known to be ASR susceptible.

Q5: What is next on your research bucket list?

Factors that affect lab developed maturity curves vs field testing. IE, how much affect does allowable mix variance affect the strength vs maturity curve.

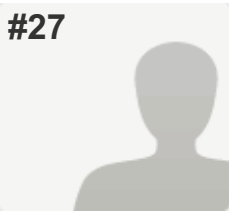
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Enhance durability with focus on SCM, air content and admixtures	#1
IMCP Manual Web Training	#2
Joint durability	#3
Long life pavements	#4
Mixture proportioning	#5
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#6
Understanding air void systems in concrete pavements for long term performance	#7

Q7: Any additional comments?

Respondent skipped this question

#27



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 16, 2016 11:08:23 AM
Last Modified: Tuesday, August 16, 2016 1:18:00 PM
Time Spent: 02:09:36
IP Address: 199.168.151.87

PAGE 1

Q1: State Representative

Name	Don Streeter
Agency	NYS DOT
State / Province	New York
Email	donald.streeter@dot.ny.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Pavement Related, Materials Related,
 Answer Here:
 Materials - reduction in w/c ratio from max of 0.44 to 0.40. Pavement - switch from PI to IRI for ride quality.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Mix Design Related, Materials Related,
 Answer Here:
 Currently progressing performance based specifications for all PCC applications that would rely on strength, air content, freeze/thaw durability, shrinkage, and permeability / resistivity without any control of cement content, water content, w/c ratio, or slump.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Respondent skipped this question

Q5: What is next on your research bucket list?

Performance and cost effectiveness of various dowel bar materials and coatings.

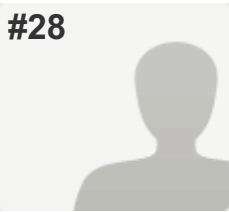
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Early opening mixes for traffic control (strength, load restriction, time requirement)	#4
Formation Factor (resistivity and w/c ratio)	#2
Optimized gradations (Tarantula curve, Power 45 curve, Shilstone)	#1
Precast panels Comment:	#7 durability of closure materials used between precast panels - particular to accelerated materials meeting strength in less than 4 hours
Quality assurance Comment:	#3 QA methods for Design-Build PCC applications when contractor data may be used for acceptance (statistical considerations)
Roller compacted concrete Comment:	#5 Freeze / thaw durability
Understanding air void systems in concrete pavements for long term performance	#6

Q7: Any additional comments?

Respondent skipped this question

#28



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, August 16, 2016 3:58:50 PM
Last Modified: Tuesday, August 16, 2016 4:02:58 PM
Time Spent: 00:04:07
IP Address: 161.7.59.18

PAGE 1

Q1: State Representative

Name	Paul Bushnell
Agency	Montana Department of Transportation
State / Province	Montana
Email	pbushnell@mt.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related,
 Answer Here:
 The Montana Department of Transportation has incorporated surface resistivity requirements for concrete used for deck placement and repair. There are mix design requirements and acceptance requirements with associated pay factor with possibility for incentive/disincentive during production. For several years Rapid Chloride Ion Penetration testing was used to determine acceptability. The change was made to use SR as it dramatically saved manpower and resources and seemed to yield repeatable results.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, BridgeRelated,
 Answer Here:
 Shrinkage Reducing Admixtures and associated bridge deck cracking. Three pairs of bridge decks were placed in 2014. One deck within each pair was placed with our current class deck mix which incorporates a max. cement content of 564 lb/yd, inclusion of silica fume and either fly ash or GGBFS and a w/c ratio of 0.42. The other deck within each pair contained macrofiber and Shrinkage Reducing admixture. Ongoing comparison of the two structures will be performed until at least 2017 at which time a report will be generated.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Materials Related, Mix Design Related,
BridgeRelated, Design Related,

Answer Here:

Bridge Deck cracking and early failure. We have noted in the last year that many bridge decks in a particular corridor and time period (2006-2012) have shown an unacceptable level of transverse and in many instances longitudinal cracking. Several decks had portions of concrete literally fall out which required full depth repair that extended well beyond the distressed areas of the decks. This has spurred additional data gathering regarding the conditions of the bridge decks throughout our State.

Q5: What is next on your research bucket list?

Shrinkage Testing. We plan to perform Length Change of Hardened Hydraulic –Cement Mortar and Concrete (ASTM C157) testing on our existing approved Deck mix designs. We hope this will help establish a baseline on our materials and potential shrinkage of concrete in our state.

Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?) #1
Comment: shrinkage cracking vs joint spacing

Early age cracking #2

Early opening mixes for traffic control (strength, load restriction, time requirement) #5

Enhance durability with focus on SCM, air content and admixtures #6

Joint durability #3

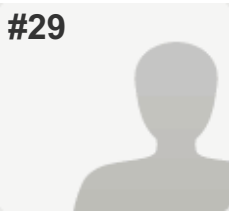
Quality assurance #7

SCC (Precast and Cast-in-Place structures, how to monitor and regulate) #4

Q7: Any additional comments?

Respondent skipped this question

#29



COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, August 10, 2016 8:15:45 AM
Last Modified: Friday, August 19, 2016 6:32:24 PM
Time Spent: Over a week
IP Address: 156.63.133.8

PAGE 1

Q1: State Representative

Name	Craig Landefeld and Dan Miller
Agency	Ohio DOT
State / Province	Ohio
Email	craig.landefeld@dot.ohio.gov

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 Smoothness specifications for pavements.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Pavement Related,
 Answer Here:
 Premature failures of Ohio unbonded concrete overlays. Currently looking at adding aggregate fines as a mineral filler for concrete mix designs. We were holding back on adding this to wait for the ASTM Standard to be adopted and granted a number which it recently received as of this survey being completed. The document is under final review. Any advice or word of caution is appreciated. Internal curing research has wrapped up and is being implemented on a project as a plan note to continue the research and evaluation of the use of lightweight fine aggregate for IC. Carbon Fiber Composite Cable (CFCC) as prestressing strand is currently being researched to produce long life prestressed members. The current project is using 17x48 box beams with CFCC strand and stainless steel reinforcement. The facility in Decatur, IN has completed similar work for Michigan and we have heard both good and bad with the material.

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Pavement Related,

Answer Here:

Tie bar misalignment on several projects when blindly inserted. Fast set concrete mix designs not setting as intended. With tight timeframes on lane closures contractors and ready mix producers have had a hard time with getting mixes to set up. Our current specification calls for either our fast set mix with 900 lb. of cement or our rapid repair concrete mix (RRCM), which requires the use of a specialty admixture system (BASF 4x4, Sika Rapid -1, etc.). What are other states doing with fast set mixes and/or lane closure times?

Q5: What is next on your research bucket list?

Uniformity of air entrainment in pavement concrete.

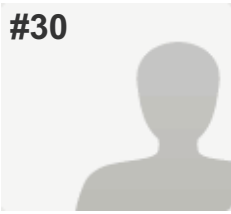
Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

- | | |
|---|----|
| 3-D stringless paving and 3-D models for highway design and construction | #5 |
| Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?) | #2 |
| Early opening mixes for traffic control (strength, load restriction, time requirement) | #3 |
| Enhance durability with focus on SCM, air content and admixtures | #7 |
| Joint durability | #4 |
| Optimized gradations (Tarantula curve, Power 45 curve, Shilstone) | #6 |
| Understanding air void systems in concrete pavements for long term performance | #1 |

Q7: Any additional comments?

Fast set concrete mix designs not setting as intended. With tight timeframes on lane closures contractors and ready mix producers have had a hard time with getting mixes to set up. Our current specification calls for either our fast set mix with 900 lb. of cement or our rapid repair concrete mix (RRCM), which requires the use of a specialty admixture system (BASF 4x4, Sika Rapid -1, etc.). What are other states doing with fast set mixes and/or lane closure times?

#30

**COMPLETE****Collector:** Web Link 1 (Web Link)**Started:** Wednesday, August 17, 2016 5:39:09 PM**Last Modified:** Friday, August 19, 2016 6:50:37 PM**Time Spent:** Over a day**IP Address:** 108.171.131.160

PAGE 1

Q1: State Representative

Name	Maria Masten
Agency	MnDOT
State / Province	Minnesota
Email	maria.masten@state.mn.us

Q2: What spec are you currently implementing or have you recently implemented that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Mix Design Related,
 Answer Here:
 We have recently implemented 100% Contractor/Producer mix designs for all concrete ready-mix and bridges (standard not HPC). We have already been 100% contractor designed for concrete pavements for almost 20 years.

Q3: What are you currently researching that may be of interest to other NCC members? Select the topic your answer is most related to (maychoose more than 1).

Materials Related, Mix Design Related,
 Answer Here:
 The University of Minnesota Duluth (UMD) is currently conducting a research study titled, "Performance Comparison of Structural Fibers and Development of a Specification for using Structural Fibers in Thin Concrete Overlays" for MnDOT to determine appropriate fiber selection criteria and optimum dosages. The performance of fiber reinforced concrete (FRC) in terms of toughness and load transfer efficiency with different fiber types and dosage rates will be studied. Looking at what volumetric properties the existing HMA pavement should have for a successful thin whitetopping project

Q4: What is one unique construction issue that you have encountered in the last year that may be of interest to other NCC members? Select the topic your answer is most related to (may choose more than 1).

Preservation Related,

Answer Here:

Over the last few years we have investigated the methods used to anchor dowel bars into full depth repairs. We have confirmed the dip and stick method will not hold up and actually because more prescriptive with our installation process than we had ever been before. We now require pre-packaged grout capsules that are soaked in water and then pushed into the hole before the dowel bar. We do also allow use of epoxy. We require demonstration of installation and coring to validate that the materials completely filled the voids around the dowel bars. Longitudinal cracking in thin whitetopping where the PCC thickness is greater than the plan thickness

Q5: What is next on your research bucket list?

I would like to see a quick and easy field test that would measure how well the dowel bar basket assembly was anchored into the substrate.

Q6: Please prioritize what you would like the CP Tech Center to focus on next? Select your top 7 choices.

- | | |
|---|---|
| 3-D stringless paving and 3-D models for highway design and construction | #3 |
| Design features (widened lanes, tied shoulders, base support, critical features, shrinkage cracking cracking vs. joint spacing - is there a correlation?)
Comment: | #1
How to successfully deploy cracks at every transversely sawed joint quicker |
| Early opening mixes for traffic control (strength, load restriction, time requirement) | #2 |
| Enhance durability with focus on SCM, air content and admixtures | #5 |
| Joint durability | #6 |
| Percent Within Limits (PWL) Specifications
Comment: | #7
Cases studies of how PWL is being used in DOT's currently - the pros and cons of how it has worked out. |
| Understanding air void systems in concrete pavements for long term performance | #4 |

Q7: Any additional comments?

Respondent skipped this question