

# Roadway and Structures

## Meeting Minutes

### AASHTO Subcommittee on Construction

**July 31 – August 4, 2011 Virginia Beach, Virginia**

2011-2012 Section Leadership

Chairman – David Ahlvers, Missouri DOT

Vice Chairman (Structures) – David Hoyne, Vermont AOT

Vice Chairman (Roadway) - Vacant

Secretary – Anthony Sarhan, FHWA

**Monday – August 1, 2011** (1:15 – 4:00 PM)

Meeting is brought to order by Mr. Ahlvers. Attendees include 17 representatives from State DOT's, 12 representatives from FHWA, 1 representative from TRB, and 7 representatives from Industry. An attendance list is attached for reference.

**Introductions:** Members briefly introduce themselves.

**Update Roadway & Structures Membership Contact Information:** Members are requested to provide any updates to their contact information.

**2010/2011 Work Plan:** Members discussed the 2010/2011 Work Plan items as outlined below.

1. Complete "Guideline for Development and Implementation of Comprehensive QA Programs" and "Improving Inspection for Construction QA"

Greg Doyle (FHWA) provided a presentation over viewing the status and purpose of the documents as well as an update on the DRAFT guidelines. The group discussed the merits of adding a section to the guide that discusses the role of inspection. The future of the TCCC was brought up with some discussion of NCHRP 20-07. The group discussion then moved to the use of contractor quality management programs. Consensus seems to be that right now they are being used more on Design-Build jobs, and there was an open discussion on whether anyone has instituted this approach more broadly. Virginia DOT indicated they have developed a comprehensive program for Design-Build (manual available on VDOT website). Massachusetts DOT has implemented inspection attributes for certain items into their standard specs – based on contractor QC Plans. Kansas DOT mentioned that the biggest challenge is the need to be proactive and address the issues of having inspectors that are not just serving the role of "observer". Arizona DOT uses an attribute checklist (discussed in Mr. Doyle's presentation) that references specifications, and prioritizes attributes.

2. Develop requirements for IRI to incorporated into the Construction Guide Specification publication.

This item was postponed to Thursday. Mr. Steve Mueller (FHWA) to give a presentation. Mr. Mueller gave a brief update on the status of the topic. The Sub-Committee on Materials is

driving the development of this item. The Sub-Committee on Construction may need some volunteers to review the guide spec as it continues to be developed. Mr. Ahlvers informally surveyed members of the group to get a sense of the number of states using IRI. The challenge on the applicability of IRI in certain situations was highlighted by Vermont's experience on rutted roads. Virginia DOT indicated they selectively use IRI based on route, with a bonus based on improvement in ride, but indicated that scheduling can be an issue. Florida DOT still uses Ride Number, but they are working on an IRI spec that will use an Incentive/Disincentive approach. Louisiana is also moving toward IRI as well. They currently break out IRI based on whether surface is asphalt, concrete, or bridge deck and take ADT of the route into consideration. SHRP2 is currently looking at the challenge of real time smoothness measurement during concrete paving (R06 E).

3. Performance Contracting Framework

Mary Huie (FHWA) provided a brief status update. Performance Contracting is essentially an approach in which the owner tells the contractor what they want but not how to build it. A framework (including guidance) was developed in 2006, including guidance on how to put an SEP-14 workplan together (in event Federal-Aid funds are used). Workshops have been conducted in Michigan, Florida, Colorado, Rhode Island, and Vermont. One project has been completed so far (in MI), and MI is trying this method on two other projects. Ohio DOT plans on using a performance based contract (possibly for a project on I-71) and received additional money from FHWA through Highways for LIFE. Ms. Huie indicated that FHWA has not received much more interest in pursuing performance contracting, so the lessons learned are going to be rolled up into the Design-Build workshops. Kansas DOT mentioned some experience with a performance related contract on a pavement marking job. The group discussed the differences and applications of warranties vs. performance contracting. Ms. Huie passed out a poster on Project Delivery Methods

4. Develop and deploy solutions to the problem of cracking in pre-stressed girders.

Dave Sadler (Florida DOT) led the discussion and highlighted the Florida experience. FDOT has essentially identified 2 approaches –

- a) Prevention – FDOT developed the Florida I-Beam which has a wider web, and thicker/wider flange). FDOT has also included a maximum release strength, increased the amounts of reinforcement, and required use of metal sole plates in specifications.
- b) Correction – FDOT has update specifications to include types of repairs for “minor cracking”. Non-minor cracking requires an engineering analysis. A system has been established so that FDOT can track cracking and report back to producers.

FDOT is seeing a lot less cracking since these changes have been put in place. The robustness of the Florida I-Beam is considered to a determining factor. Mr. Sadler noted that there has been a tremendous amount of collaboration with Florida producers. The Louisiana DOTD and other Gulf Coast state DOT's are all working together on this issue. LDOTD is currently looking at implementing the Florida I-Beam.

Roadway and Structures completed a survey on this topic last year. The results of the survey and Florida Specification will be provided to the group.

David Hoyne noted that VTrans has had cracking issues with all HPC, not just precast and prestressed items. Missouri DOT has experienced cracking at the ends of box beams.

5. Survey States on best practices or specifications to prevent cracking in mass pour concrete structures.

David Ahlvers opened this item for discussion among the group. There was a brief discussion on the different definitions of “mass” across the country. Mississippi DOT mentioned a study they had performed to address cracking in bridge decks. Group felt this discussion should be more focused on issues that arise due to mass pour configurations that cause thermal gradients that can affect concrete and create cracking. Louisiana DOTD currently has a mass pour spec and is working on a revision. Florida DOT requires contractors to model the mass pour and show how then intend to keep temperature differentials below 35°F. John Smythe (Iowa) recommended this as a possible presentation from a contractor for the conference next year.

6. Support the pilot and evaluate the performance of Safety Edge

Mr. Ahlvers mentioned that Missouri continues to evaluate the Safety Edge. It is not incorporated as a specification into every project, but is being incorporated in several areas. Missouri is moving towards some sort of adoption of the Safety Edge as a requirement in appropriate circumstances. Mr. Sadler indicated that FDOT is still looking at the Safety Edge, primarily in areas with no paved shoulders. The biggest use and benefit in Florida is likely by the counties. Mr. Sadler noted that Florida’s pavement sections are very thin, which limits the applicability.

Lee Gallivan (FHWA) recommended that guidelines be developed on the use of the Safety Edge as a work plan item. This should be coordinated with Chirrs Wagner.

Mr. Hoyne indicated that the Safety Edge is included on all plans in Vermont.

Mr. Smythe noted that the Iowa DOT currently uses the Safety Edge anywhere there is less than a 4’ paved shoulder. Iowa DOT has experienced challenges with thicker overlays because the Safety Edge cannot be stacked.

7. Develop solutions for excessive cracking in high performance concrete

This item is still being looked at primarily state to state. Vermont is experiencing cracking in almost all HPC and is currently looking at the pozzolans being used due to continued cracking even though cement content has been dropped. Mississippi DOT has begun putting in maximum psi requirements that seem to have some effect on controlling cracking. Louisiana DOTD is currently using a large amount of HPC, especially with loc permeability requirements, and has not noted any issues with cracking. Earlier issues with cracking observed by the LDOTD appear to have been addressed through improved curing processes.

8. Survey states on best practices for steel erection in large drilled shafts.

This issue came out of Washington State based on discussions between WSDOT and ADSC. Informal surveys and discussions over the past two years have indicated this may be a regional issue due to seismic influence on designs. Barry Siel (FHWA) to present at this year’s session on construction practices for drilled shafts.

9. Coordinate changes to HEC-2 calculations with Subcommittee on Bridge and Structures

Consensus of the group is that this is still an issue and that the scour depths coming out of HEC-2 are not realistic. Louisiana DOTD indicated they are still getting unrealistic scour lines from HEC-2. Missouri DOT is using HEC-2, but also running their own analysis in design. MODOT has conducted some research into the calculations. Roadway and Structures would likely need support for another group for this to go anywhere. The group has interest in this topic, but overall consensus is that Bridge and Structures is the appropriate place for it to be addresses

**Research Topics:** Members discussed the 2011/1012 Research Topics as follows

1. Synthesis on best practices for longitudinal joints  
Several members mentioned that the Asphalt Institute is coming out with a study (expected soon) and that the group may want to wait for it before further discussing research topics
2. Thin lift overlays on structures  
This item was briefly discussed by the members. There is no interest in pursuing this research topic from Roadway and Structures at this time.
3. Non destructive testing for post tension grouted tendons  
Briefly discussed by the members. Florida DOT mentioned need for this research is to assure full tendon coverage is being achieved. No resolution on this item as a research topic at this time.
4. Safety Edge design standards/applications/limitations synthesis study  
Not much discussion on this item. Eventually this synthesis may come forward, but right now overall Safety Edge status and applicability is being addressed through the group's workplan
5. Thinlift treatments  
Group noted that the Novachip patent has recently expired. Kansas DOT is conducting research in this field. Consensus among group is that DOT's are aware of the technology and processes.
6. 20-07 Research Proposal – Strategic Planning Workshop  
John Smythe discussed program funding to conduct facilitated planning workshops. This plan was put forward by the Sub-Committee on Maintenance and brought to the Subcommittee on Construction for endorsement. The plan will help set direction for future training. Item will be discussed at the Research meeting.

**Strategic Plan:** Members discussed the Strategic Plan as follows:

David Hoyne (Vermont) is working with a group of sub-committee members that are re-writing the plan. The current focus is on aligning the strategic plan for the Subcommittee on Construction with direction being taken by the Standing Committee on Highways. Steve Mueller provided an update on the direction the Sub-Committee on Maintenance is headed in re-writing their strategic plan as an example of the efforts going on within the various parts of the Standing Committee. Several members have indicated their commitment to the work being done on the plan. Mr. Hoyne will continue to coordinate for members of the Roadway and Structures group.

**Other Items:** Members discussed the following items:

1. Support of the Transportation Curriculum Coordination Council (TCCC)  
Roy Rissky (Kansas) read a proposed resolution that the Sub-committee on Construction recognizes the contributions of the TCCC and requests the AASHTO Board of Directors to request members to provide funds to support TCCC. FHWA is no longer providing funding. Members were supportive of the resolution. Mr. Ahlvers will forward to Claude Napier for consideration by the entire sub-committee.
2. Long term strategic research program  
Members indicated they are willing to participate in surveys.

3. Guidebook for Best Value Procurements, & Sustainable Practices and Procedures  
Members signaled their support for the efforts in putting these publications together.

**Adjourn:** Meeting was adjourned at 3:55pm

### **Thursday – August 4, 2011** (1:15 – 3:00 PM)

Meeting is brought to order by Mr. Ahlvers. Attendees include 11 representatives from State DOT's and 7 representatives from FHWA. An attendance list is attached for reference.

**Research:** Members discussed research topics as follows.

David Hoyne updated members on the Research Subcommittee's breakfast meeting. Four topics were discussed at the meeting:

1. Sustainability practices in Construction activities – This was the number one ranked item from the research subcommittee. Jeff Carpenter (Washington) will submit for consideration. The goal of this research is to determine what is required for a project to be considered sustainable. There was some discussion among members on whether this is a duplication of effort from NCHRP 25-25/47
2. Guidebook for best value procurement – Brenda O'Brien (Michigan) will be working on getting this item out. The focus is on fair and transparent evaluations of best value proposals
3. Trans XML – Endorsed
4. Non-destructive testing for post grout post tensioned members – Not much traction with the research group. If this is still a priority next year then Roadway and Structures will bring it up again. FDOT is currently looking at some technology coming out of Japan.

Carrying over from topics discussed on Monday afternoon John Smythe (Iowa) and David Hoyne (Vermont) are thinking about doing a quick survey of the States on longitudinal joints. Mr. Hoyne and Mr. Smythe are waiting on the report from the Asphalt Institute (discussed on Monday as well) before knowing the full scope of what the survey will cover.

Michael Arasteh (FHWA) mentioned a study that NAPA has completed on Warm Mix Asphalt. Mr. Arasteh is willing to do a presentation on WMA at next year's meeting.

Mr. Smythe noted that problem statements that are fully developed prior to the Research Subcommittee's breakfast meeting tend to have an advantage. As such Mr. Smythe intends to send out information on research topics approximately 6 months prior to the 2012 meeting in the anticipation that the group will be better prepared for discussion at the Monday afternoon meeting.

Mr. Hoyne signaled his intention to look at NCHRP Reports 390 and 391 (completed approximately 10 years ago. 390 is a Synthesis on Performance-Based Construction Contractor Prequalification, and 391 is Synthesis on Public Sector Decision Making for Public-Private Partnerships) to see if the issues studied need to be addressed again.

**SHRP 2:** Members discussed the following SHRP 2 projects. Except as noted these were identified as projects that pertain to Roadway and Structures. Mr. Ahlvers will work on getting the list out to members to see if anyone is interested in piloting or working on the research.

1. Modular Pavement Technology – Florida has one job, New York has done some – Tappan Zee Bridge was effective. Pennsylvania has done some, as well as New Jersey and Delaware. Mr. Ahlvers to look at these states as potential pilots.
2. High speed NDT for inspectors – Group is interested
3. High speed IR and GPR on HMA – Texas doing this.
4. NDT for delamination between HMA layers (R06-D) – Kansas is interested.
5. Real time smoothness measurement on PCCP during construction (R06-E) – Georgia has done a pilot.
6. Performance Specs for rapid highway renewal (R07)- Sid Scott performing this work (Trauner)
7. Bridges for service life beyond 100 years (R19-A) – University of Nebraska doing the study. Most participants noted they are using 75 year life currently.
8. Durable bridges for service life beyond 100 years (R-19B)
9. Composite pavement systems (R-21) – Question on whether any states have legislation requiring LCCA for pavement selection – Michigan known. Florida and Kansas doing this as part of practice but not legislated. No other members aware of it being an issue within their legislatures. Question on whether “composite pavement” only pertains to original pavement section, or whether maintenance activities and overlays that have made the pavements composite count. Arizona using some composite pavement designs.
10. NDT to ID concrete bridge deck deterioration (R-06 A)
11. Evaluating field spectroscopy devices to fingerprint commonly used materials (R06-B) - This could have some applicability. E.g. verifying type of limestone in a mix. Group also discussed use of RFID’s for tracking purposes. Katherine Petros (FHWA) looking at this for HMA. There has been some use in concrete already
12. Identification of Utility Conflicts and Solutions (R15-B) – Doesn’t really fit in the group
13. Rapid Embankment construction (R-02)
14. Using existing pavement in place and achieving long life (R23)
15. Preservation Approaches for High Traffic volume roadways (R26)

**2011/2012 Work Plan:** Members discussed the 2011/2012 work plan as follows.

#### **Old Items**

1. Draft Guideline for Transportation Construction QA  
**STATUS:** Draft completed.  
**ACTION:** Task force to finalize and coordinate with AASHTO (Jim McDonnell) for publication/post with SOC. (Greg Doyle)
2. Develop requirements for IRI to be incorporated into the Construction Guide Specification Publication  
**STATUS:** On-going. Item to remain on work plan  
**ACTION:** Group will follow up with Bob Orthmeyer (FHWA) who is leading this. Focus of this work plan item is to work with the group to suggest changes to the guidebook. Mr. Doyle has volunteered to assist Mr. Orthmeyer in development of the spec. Arizona DOT

possibly will assist. Members are requested to send IRI specs to either Mr. Ahlvers or Mr. Sarhan for distribution.

3. Performance Contracting Framework  
**STATUS:** No longer applicable  
**ACTION:** Item to be removed from work plan
4. Develop and deploy solutions to the problem of cracking in pre-stressed girders  
**STATUS:** Complete. Item will be removed from work plan  
**ACTION:** Mr. Ahlvers to distribute survey results and sample specs from Louisiana and Florida
5. Survey States on best practices or specifications to prevent cracking in mass pour concrete structures  
**STATUS:** On-going. Item will remain on work plan.  
**ACTION:** Florida and Louisiana to provide sample specs. Mr. Ahlvers to follow up with Mr. Smythe on possible presentation for next year's meeting.
6. Support the pilot and evaluate the performance of Safety Edge  
**STATUS:** Final determination pending.  
**ACTION:** Roadway and Structures to survey or poll states to get a sense of implementation. Mr. Ahlvers will contact Chris Wagner (FHWA) to find out whether any more guidance on Safety Edge is coming.
7. Develop solutions for excessive cracking in high performance concrete  
**STATUS:** This item originally from Vermont. Vermont no longer worried about carrying forward as a Roadway and Structures work item at this time.  
**ACTION:** This will come off the work plan.
8. Survey states on best practices for steel erection in large drilled shafts  
**STATUS:** Complete. Survey not conducted but this work item addressed by presentation from Barry Siel (FHWA)  
**ACTION:** This item will come off the work plan
9. Coordinate changes to HEC-2 calculations with subcommittee on structures  
**STATUS:** This is a SHRP2 item and a work item on Sub-Committee on Design.  
**ACTION:** Mr. Ahlvers will coordinate with SCOD

#### **New Items**

1. Longitudinal Joints – Survey of Best Practices  
Discussion among the group as to whether the use of adhesives and glues should also be included. Missouri DOT sees the use of adhesives as a good investment and is seeing prices of approximately \$1/ft. Michal Arasteh (FHWA) will provide HMA Longitudinal Joint Best Practices study.  
**STATUS:** Pending  
**ACTION:** Mr. Arasteh to provide HMA Longitudinal Joint Best Practices study
2. Bridge Ride Quality

Group members discussed status of states requiring ride quality measurements on bridges. Both Iowa and Louisiana are requiring ride quality measurements on bridges. West Virginia currently using straight edge, but acknowledges that this is a 20 year old approach. PennDOT and MassDOT are both including bridge decks in the updates to their IRI specs. Group members noted that the public doesn't differentiate between roadway and bridge when it comes to ride quality

**STATUS:** Pending

**ACTION:** Pending

3. Thin Bridge Overlays

Item came up for discussion during the General Session, in particular the use of thin overlay treatments that don't delaminate. There appears to be mixed practices across the country. Florida does not overlay bridge decks. Kansas is moving away from overlaying bridge decks and instead doing full depth bridge decks with polymer overlays immediately after the deck is ready. Rhode Island is also moving away from overlays to full depth bridge decks. There has been mixed success with thin overlays in Massachusetts.

**STATUS:** Possible survey of best practices

**ACTION:** Mr. Ahlvers will call up members for volunteers to head up this work item

4. Prefabricated Elements

**STATUS:** Viewed as a potential presentation topic for next year.

**ACTION:** Group will discuss as presentation topic.

5. Effect of Rumble strips/stripes on durability of pavement

Missouri currently placing edgeline and centerline striping on rumble strips; questions about affect on durability. Kansas DOT sees achieving joint density as vital to maintaining durability. Group discussion then focused on differences in competition across the country. No competition in Florida vs. high competition in Kansas. Louisiana DOTD gets some complaints from public that lives in area of rumble strips. Group discussion then focused on mixed applicability nationally. Some states are doing full length rumble strips, while others are only installing them in passing areas. There is a definite urban/rural split in the applicability. This work item has merit as a study of best practices for maintaining durability and public use considerations.

**STATUS:** Good work item to pursue

**ACTION:** Roadway and Structures will pursue this work item throughout the year

6. Camera inspection of pipes

This item was part of presentation from ACPA at this year's conference. Group discussion focused on merits of focusing on a camera inspection demonstration for next year.

**STATUS:** Possible presentation

**ACTION:** Looking for volunteers to work on this item

**Presentation Topics for Next Year's Meeting:** Group members discussed the following topics as possible presentations for next year's meeting.

1. Port of Miami Tunnel
2. Alaskan Way Viaduct Tunnel
3. SR 520 Floating Bridge

4. FAST 14 showcase in Boston (I-93 FAST 14) – Greg Doyle (FHWA) to provide contact information
5. AZDOT I-17 CM@R (CM/GC) job – Julio Alvarado (Arizona)
6. Ontario Ministry willing to discuss some of their projects – Maria or Tony Tuinstra
7. Longitudinal Joint Construction – Mr. Arasteh or presenter from Asphalt Institute.
8. Building smooth pavements (constructing and measuring) – Mr. Orthmeyer w/ new specs if they are ready
9. Thin hot mix overlays – Kent Hanson, Roy Rissky (Kansas)
10. Camera inspection demonstration
11. Full depth recycling – CIR, HIR, FDR – San Francisco MTC awarded a CIR job on air quality grounds. 85% reduction in GHG. CIR being used in KS. VT has done quite a bit of FDR.
12. Quality control procedures on inspection staff –CQIP (VDOT), KSDOT, and FDOT.
13. Two-lift concrete paving – KSDOT
14. Titanium Dioxide concrete – MODOT
15. High friction in horizontal curves with low superelevation – Frank Julian (FHWA)
16. National Tunnel Inspection Standards will be out by this time next year
17. Grading and earthwork

**Other Items:** Group members discussed the following items.

1. Use of vendor sponsors for next year's meeting. By a show of hands, Roadway and Structures members generally agreeable to having sponsors.
2. Implementation of quality control procedures by inspections staff. Question was raised by Mr. Hoyne. Kansas, Virginia and Florida all have process.
3. David Sadler (Florida) informally surveyed group on how many states groove bridge decks. Vermont, Iowa, and Arizona all groove longitudinally. Iowa diamond grinds first. Currently Florida is grooving bridge decks transversely.
4. Mr. Ahlvers opened up his position to anyone who is interested.

**Adjourn:** Meeting was adjourned at 3:00 pm

Attendance

**AASHTO Sub-Committee on Construction  
Roadway and Structures**

Name	Organization	E-mail	8/1/2011	8/4/2011
<b><u>State Agencies</u></b>				
Alden Allen	Louisiana DOTD	<a href="mailto:alden.allen@la.gov">alden.allen@la.gov</a>	x	x
Brian Buckel	Louisiana DOTD	<a href="mailto:brian.buckel@la.gov">brian.buckel@la.gov</a>	x	x
Chris Blevins	Virginia DOT	<a href="mailto:chirs.blevins@vdot.virginia.gov">chirs.blevins@vdot.virginia.gov</a>	x	
Curt Mueting	Nebraska DOR	<a href="mailto:curt.mueting@nebraska.gov">curt.mueting@nebraska.gov</a>	x	x
Dave Ahlvers	Missouri DOT	<a href="mailto:david.ahlvers@modot.mo.gov">david.ahlvers@modot.mo.gov</a>	x	x
David Hoyne	Vermont AOT	<a href="mailto:david.hoyne@state.vt.us">david.hoyne@state.vt.us</a>	x	x
David Lavado	Connecticut DOT	<a href="mailto:david.lavado@ct.gov">david.lavado@ct.gov</a>	x	
David Sadler	Florida DOT	<a href="mailto:david.sadler@dot.state.fl.us">david.sadler@dot.state.fl.us</a>	x	x
David Steele	Virginia DOT	<a href="mailto:david.steele@vdot.virginia.gov">david.steele@vdot.virginia.gov</a>	x	
John Smythe	Iowa DOT	<a href="mailto:john.smythe@dot.iowa.gov">john.smythe@dot.iowa.gov</a>	x	x
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Robert Guercia	Virginia DOT	<a href="mailto:robert.guercia@vdot.virginia.gov">robert.guercia@vdot.virginia.gov</a>	x	
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Thomas Howell	Georgia DOT	<a href="mailto:thowell@dot.ga.gov">thowell@dot.ga.gov</a>	x	x
<b><u>FHWA and TRB</u></b>				
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Barry Siel	FHWA RC	<a href="mailto:barry.siel@dot.gov">barry.siel@dot.gov</a>	x	x
Bryan Cawley	FHWA	<a href="mailto:bryan.cawley@dot.gov">bryan.cawley@dot.gov</a>	x	
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Katherine Petros	FHWA	<a href="mailto:katherine.petros@dot.gov">katherine.petros@dot.gov</a>	x	
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Lewis Harden	FHWA	<a href="mailto:lewis.harden@dot.gov">lewis.harden@dot.gov</a>	x	x
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Rob Elliot	FHWA RC	<a href="mailto:rob.elliott@dot.gov">rob.elliott@dot.gov</a>		x
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Brian Deery	AGC	<a href="mailto:Deeryb@agc.org">Deeryb@agc.org</a>	x	
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Kent Hansen	NAPA	<a href="mailto:khansen@hotmix.org">khansen@hotmix.org</a>	x	
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Tyson Hicks	Rinker Materials	<a href="mailto:thicks@cemexusa.com">thicks@cemexusa.com</a>	x	
Woody Rigdon	ACPA	<a href="mailto:wrigdon@concrete-pipe.org">wrigdon@concrete-pipe.org</a>	x	