MEETING MINUTES
AASHTO Subcommittee on Construction
Annual Meeting
August 9, 2015 – August 14, 2015
Little Rock Marriott Hotel
Little Rock, Arkansas

Monday August 10

8:00 AM – 9:30 AM  Opening Session

Moderator – Malcolm Dougherty, Subcommittee Chair, CalTrans
Mr. Mike Sebren introduced Mr. Malcolm Dougherty, Director of CalTrans and Chair of the AASHTO Subcommittee on Construction. Mr Dougherty welcomed AASHTO members and special guests to the 2015 annual SOC Meeting. He expressed his appreciation to Mr. Emanuel Banks, Mr. Sebren, and Mr. Scott Bennet of the Arkansas State Highway & Transportation Department (AHTD) for their efforts in hosting and conducting the meeting. He also acknowledged Mr. David Hoyne, Vice Chair of the SOC and each of the SOC Technical Section Chairs for all of the hard work they do for the SOC. Mr. Dougherty also expressed his appreciation to all of the SOC members and sponsors in attendance. He noted the value of this meeting in sharing information to address the issues we all face in transportation construction. He then introduced Mr. Scott Bennett, Director of the AHTD.

Arkansas State Highway & Transportation Department Welcome – Scott E. Bennett, Director; Emanuel Banks, Deputy Director and Chief Engineer
Mr. Bennett welcomed all attendees to Arkansas. He provided a brief overview of Arkansas, the “Natural State”. He noted that a number of Fortune 500 companies are headquartered or located in Arkansas. The only diamond mine in the US is located in Arkansas. There are many “famous faces” who are from or live in Arkansas, including actors, politicians, and musicians. AHTD still prints about 1 million highway maps annually and the public loves these. Arkansas has 16,500 + miles of highways and AHTD has 3600 employees. There are two major highway programs in progress by AHTD: Interstate Rehabilitation Program + Connecting Arkansas Program (CAP). AHTD currently only has $3Billion dollar available for their programs. Mr. Bennett again thanked all attendees as well as all of the meeting sponsors. Mr. Banks also provided a brief welcome to attendees. He commended Mr. Mike Sebren and all of the AHTD staff that have worked behind the scenes in planning and hosting the meeting. He noted that there is a great program put together and thanked attendees.
FHWA Welcome – Angel Correa, Acting FHWA Arkansas Division Administrator
Mr. Dougherty then introduced Mr. Angel Correa, Acting Division Administrator for the FHWA Arkansas Division Office. Mr. Correa welcomed delegates to the SOC Meeting on behalf of FHWA. He noted that FHWA and AASHTO have developed and maintained a strong partnership. FHWA is working with AHTD and other State DOTs to advance innovations that improve safety, save lives and make construction more efficient. FHWA is supporting our State partners to implement e-Construction and 3-D Modeling. AHTD is implementing Design-Build, including Alternate Technical Concepts (ATCS). The collaborative relationship between AASHTO, the State DOTs and FHWA is the key to deploying such initiatives. He thanked and noted the efforts of Mr. Bennett, Mr. Banks, Mr. Sebren, and his staff in putting together the SOC Meeting. He also noted a few FHWA staff attending the SOC the meeting.

SOC Chair Welcome – Malcolm Dougherty, Director, CalTrans
Mr. Dougherty again thanked everyone for their role in the meeting. He noted that we should all keep in mind the following topics this week: Safety, Partnering, Alternative Project Delivery, Efficient Implementation of dollars, and Communication. He stated that there are between 35 and 40 State DOTs represented at the meeting.

SOC Self Introductions – Subcommittee Members
At this point, Mr. Dougherty invited delegates to provide self-introductions. Thirty-nine (39) State DOTs and one Canadian Province (ON) were represented at the meeting, as well as representatives from AASHTO, FHWA, AGC, ARTBA, ACPA, NICET, Academia, and the consulting and contracting industry. Representatives from the following member States were present: AK, AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, IA, ID, KS, KY, LA, MI, MN, MO, MS, MT, NC, ND, NE, NV, OH, OK, OR, PA, SC, TN, TX, UT, VA, VT, WA, WI, WV, WY.

AASHTO Update – King Gee, P.E., Director of Engineering and Technical Services
Mr. Dougherty then introduced Mr. King Gee, AASHTO Director of Engineering and Technical Services. Mr. Gee provided an overview presentation on the following AASHTO topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Challenges** – Mr. Gee noted several challenges that AASHTO committees and State DOTs have been facing: including the ET Plus Terminal issue. Nimbleness and resiliency are keys to States in addressing challenges.
- **Reauthorization of Federal Transportation Bill** – Congress passed a 3-month extension through Oct 31, 2015. The Senate passed a 6-year bill at end of July; however, this is awaiting action by the Congress.
- **New AASHTO Strategic Plan** – The Plan provides direction to AASHTO (not the State DOTs). The Strategic Plan has a Vision, Mission statement, and 4 Goals. The Plan will help prioritize actions of AASHTO over the next 5 years and provide direction for the AASHTO Technical Services programs. There is a Comprehensive Committee Review (CCR) Steering Committee looking at gaps, overlaps, priorities of the AASHTO committees, and the best way to structure the committees.
- **Cross-Cutting/Emerging Topics** – AASHTO is looking at Transformational Technology, Multi-modal considerations, Performance and other key areas.
- **New Technical Services Programs** – AASHTO training programs, including TCC and the National Operations Center of Excellence, continue to move forward.
• **World Road Association/PIARC** – The US has participated in PIARC since early 1990s. This is the international road version of AASHTO.

• **SHRP2 Implementation** – 63 products have been bundled into 40 implementation efforts. Round 7 is coming out soon with a number of new products.

• **NCHRP Problem Statements** – For 50 years now research proposals have come out from committees such as the SOC. NCHRP is focusing on three strategic areas: Resiliency, Freight Transportation, and Transformational Technologies.

---

9:30 AM – 9:45 AM **Break**
At this point, a 15 minute break was taken.

---

9:45 AM – 11:30 AM **General Session**

**Moderator** – David Hoyne, Subcommittee Vice Chair, VAOT

Mr. David Hoyne, Vermont AOT and Vice Chair of the Subcommittee opened the General Session. He introduced the speakers below.

**Overview of the Connecting Arkansas Program (CAP)** – Keli Wylie, AHTD, Connecting Arkansas Program Administrator

The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Arkansas Highway System** – AHTD maintains 16,416 miles of highways and 7,335 bridges. Central Office and 10 Districts Statewide. Primary Highway Network (APHN) system is about 8,000 miles (50% of system) and carries about 92 percent of all travel.

- **4-Lane Grid System** – System is comprised of Interstate Highways, High Priority Corridors, and regionally significant routes. Improvements to system were estimated to be roughly $11.3 billion.

- **AHTD Program Challenges** – AHTD has 12th largest system in US, but is only 44th in highway revenue per mile. Estimated needs over next 10 years were $8.0 billion, but only $3.6 billion revenue available.

- **Revenue Proposals** – Blue Ribbon Committee established in 2009. Funding proposals that were approved included GARVEE Bonds for Interstate Rehabilitation and temporary one-half cent General Sales Tax to fund multi-year Construction Program.

- **Connecting Arkansas Program (CAP)** – One of largest programs by AHTD. $1.8 billion with 35 projects in 19 corridors. CAP improves connections to all four corners of AR, increases highway capacity (widening to 4 lanes), and improves traveler safety.

- **CAP Projects Implementation** – Consultant (Garver) assisting AHTD with program and projects. 29 projects in Design or design completed. 4 projects are under Construction. Projects include: Bella Vista Bypass ($52.6 Million - includes 6 bridges); Hwy 365/I-430 Widening & I-430 Interchange (5.1 miles - $38.4 Million); I-30 River Crossing (6.7 miles through Little Rock and North Little Rock - Design-Build delivery).
Water: The Enemy of Construction – Richard Coffman, Ph.D., University of Arkansas
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Overview** – Topics presented: Compaction; Expansive Soils; Drilled Shaft Foundations.
- **Compaction** – Traditional soils target density is based on maximum density at optimum moisture content (3-point proctor curve). Recommend using 5-point proctor curve. Recommend using additional laboratory testing (permeability and shear strength) to develop zone of acceptance. Should perform field verification and require rework or rejection of locations where results are outside of this zone of acceptance.
- **Expansive Soils** – Different laboratory techniques to measure expansive soils were presented. Remote sensing instruments can be applied to measure expansive soils. There is a need for determining unsaturated soil parameters.
- **Drilled Shaft Foundations** – Discussed the Turrell Arkansas Test site located in northeastern Arkansas (at interchange of US-63 and I-55). There is a need for additional full-scale load testing. Slurry density/viscosity is important. Need to plan for contingences.

Federal Highway Administration Update – Bryan Cawley, FHWA
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Rule Makings** – Rule makings have been completed for: Value Engineering; Major Project Guidance; Engineering & Design Related Services; and National Tunnel Inspection. NPRM closed in July for Design Standards. The NPRM for CM/GC is still open. A number of NPRMs related to Performance Measures have closed or are planned to be issued.
- **Alternative Contracting Methods** – FHWA EDC2 initiative has closed, but assistance from FHWA on ACMs is still available.
- **e-Construction** – EDC3 initiative is underway. Currently 10 States identified as National Leaders and 37 States are exploring. FHWA has developed an e-Construction Implementation Plan that is aligned with related AASHTO support activities. Implementation activities include e-Construction Peer Exchanges, webinars, development of a “How-to” Guide, and example specifications.
- **3D Engineered Models** – Currently about10 States are identified as National Leaders and 29 States are exploring. There is a national website.
- **Smarter Work Zones** – Addressing Project Coordination related activities and a number of Technology Applications to make work zones safer.
- **MAP-21 and Emergency Relief** – State DOTs should be aware that many changes happened in MAP-21 related to Emergency Relief.
- **Other Items** – These include: Best Practices in Partnering; Best Practices in Micro-Surfacing, Slurry Seals & Chip Seals; and Validating Index Based Cost Estimation Models.
- **Training** – NHI Training courses include Contract Core Curriculum and Federal Aid Essentials courses. Other web-based training modules include: 3D Engineered Models Stringless Paving, ISSA training, and ACPA Partnered Construction Training.

Q. Will this presentation be available?
A. All SOC Meeting presentations will be posted on the AASHTO SOC website.
11:30 AM – 12:00 PM  State Discussion Topics

Moderator – David Hoyne, Subcommittee Vice Chair, Vermont AOT
At this point, Mr. Hoyne opened up the meeting for State Discussion Topics (See Appendix C-1 for Questions and Answers discussed). The Subcommittee then adjourned for lunch.

12:00 PM – 1:15 PM  Lunch

1:15 PM – 4:00 PM  Section Group Meetings

After lunch, Section meetings were held as follows:
• Environmental & Human Resources  Lafayette Room
• Computers & Technology  Hoffman Room
• Roadways & Structures  Manning Room
• Contract Administration  Salon A/B

4:00 PM – 5:00 PM  Section Chair Reports

NOTE: Section Breakout Meeting minutes are contained in Appendices D, E, F and G of these minutes. Mr. Hoyne called the meeting to order at 4:00 pm. Each of the Section Chairs provided a summary report for their respective Section Breakout Meeting.

Contract Administration (CA): Brenda O’Brien (Michigan DOT)
Ms. O’Brien reported that the Contract Administration (CA) Section had a very productive session today. The CA Section named Gary Angles (OH DOT) as the new Chair of the CA Section. Andy Long will stay on as one of the Vice-Chairs. Some Work Plan activities the Section worked on include:
• Incentives & Disincentives Questionnaire
• Updated Survey on Price Indexing Clauses
• Performance Bond Minimum Requirements
• Environmental Costs (referred this to E&R Section)
• Scheduling Practices
• D-B Work Practices
• Maximum Payment Provisions
• Construction Practices to Ensure Longevity of Pavements

Some possible Presentations discussed by the CA Section included:
• Performance Bond Payments
• IDIQ and Job Order Contracting
• Performance Based Contractor Prequalification
• Evolution of Quality Management
• Quantification of Costs/Benefits of ACMs
Environment and Human Resources (E&HR): Rob Wight (Utah DOT)
Mr. Wight reported that the Environment and Human Resources (E&HR) Section had a productive session. They are looking for a Vice-Chair. Some Work Plan items discussed, by the E&HR Section included:
- Best Practices for Inspector Training & Certification
- Workforce Development & Recruitment
- Costs & Time for Environmental Mitigation
- Constructability in the NEPA Process
- Coordination with the AASHTO Center for Environmental Excellence
The Section also discussed Safety and including “Safety” in the Section name. Some issues discussed included Work Zone Safety and Variable Speeds in Work Zones.

Roadways and Structures (R&S): Marc Mastronardi (Georgia DOT)
Mr. Mastronardi reported that the R&S Section had a lot of new faces and participation. Last year’s Work Plan activities were reviewed, including:
- Risk Based Inspection (Section Panel to meet on Wednesday at 5:00pm)
- Porous Pavements (MAP-21 Provisions)
- AASHTO Guide Specifications Update (began reviewing Table of Contents & prioritizing topics for updating)
- Post Installation Inspection (PII) of Culverts
- Establishing Contract Time (Q&A Session on Tuesday Afternoon)
- Updating the 2003 Guide to Major Types of Transportation Construction Specifications
Some roundtable topics that were discussed included:
- Drilled Shafts & Cross-Hole Sonic Logging
- Mass Concrete Requirements
- Pavement Structure/Type Selection
- The Migratory Bird Treaty Act
- High Friction Surface Treatments
- Increased Contractor Defaults
A preliminary Research topic identified is Two-lane/Two Way Traffic Control Options.

Computers and Technology (C&T): Emanuel Banks (Arkansas HTD)
Mr. Banks reported that the Computers and Technology (C&T) Section had a great meeting with good participation. Greg Mulder (IA DOT) will be the new C&T Section Chair. The Section is also looking for a new Vice-Chair. They discussed the roles and responsibilities of the Section, including: Monthly Conference Calls, Work Plan Items and selecting topics for 2016 Presentations. Tom Ravn will continue as Research Steering Committee representative for the C&T Section. Last year’s Work Plan activities were reviewed, including the following:
- Advanced Civil Integrated Management (CIM)
- Promoting Asset Management
- Construction Performance Measures
They brainstormed the process for next year’s Work Plan items. Potential activities include:
- Return on Investment for Electronic Systems
- Railroad & Utility Relocations and Partnering
- e-Construction Best Practices Synthesis
- Technology Language (communication across devices)
Some possible Research ideas that were discussed included lessons in transitioning from 2D to 3D systems. The C&T Section also discussed the update of the AASHTO Guide Specifications for Highway Construction and will be looking for further guidance from David Hoyne on the specific approach to this effort.

**AASHTO Guide Specifications for Highway Construction Update** – David Hoyne (Vermont AOT)

Mr. Hoyne explained that the Guide Specifications update will be a focused effort; not a complete update of the specifications. There are five individuals identified, including Mr. Hoyne, who will take the lead in reviewing the existing Guide Specifications. There will be a NCHRP 20-7 funded contract to support this update anticipated to be in place by October.

**4:45 PM ADJOURN**

The meeting was adjourned for the day by Mr. Hoyne at 4:45 pm.

**5:00 PM – 6:00 PM Optional Session**

**Differing Site Conditions: Problems in Hiding** - Scott Lowe, Trauner Consulting Services, Inc.

This optional session by Mr. Lowe provided a presentation and discussion on the above topic for interested attendees.
Tuesday August 11

8:00 AM – 9:30 AM  Contract Administration Session

 Moderator – Brenda O’Brien, Section Chair, Michigan DOT
The session was called to order by Ms. O’Brien. She introduced the session speakers prior to their respective presentations below.

Calculating Liquidated Damages Rates: Alabama DOT’s Current Review Procedure –
Dr. Wesley Zech, Auburn University
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Definition** – A liquidated damage (LD) charge is a daily monetary assessment that is used to compensate the agency for costs incurred as a result of a non-excusable delay. LDs cannot be a penalty. LDs cannot arbitrarily be determined.
- **Court Tests** – To be defensible, LDs should: 1) be a reasonable pre-breach estimate of probable losses, and 2) have a basis in injuries or damages.
- **Objectives of the Research** – The objectives of the research were to develop: 1) a robust methodology (statistically justifiable, without subjectivity, accepted in a court of law), 2) defined procedures (data collection, classification), and 3) specific guidelines for use of LDs.
- **Statistical Analysis** – The research utilized statistical analysis to calculate the daily engineering and inspection costs for various size contracts, both for working day and calendar day contracts.
- **Results** – The research resulted in a process that: 1) dealt with agency record data inaccuracies, 2) automated the process of updating LDs, and 3) developed an objective, statistically valid and legally defensible process for updating LD rates.

Q. Were there any issues that defined the outliers?
A. No.

**Comment:** Nebraska provided comments on their simple LD chart which was not based on statistical analysis. Another commenter questioned whether this would be legally defensible.

Q. If you are bidding a project you think is an outlier do you have a procedure for determining a LD rate?
A. No, but you could use the same procedure to develop a project specific rate.

Q. Do you have a schedule for post construction LDs?
A. No.

Q. Has Alabama had to defend the process in court?
A. Not to date.

Q. When do you charge your LDs - substantial completion or final completion?
A. Substantial Completion.
Comment: New York State DOT assesses a road user cost on a separate basis from engineering and inspection costs.

Comment: Montana uses a similar methodology as described in the research. It was challenged and upheld at the State Supreme Court.

Construction of the New NY Bridge – Keith Sommer, Director, Fluor; Robert J. Allen, Design Services During Construction Manager, HDR, Inc.

The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Background** – The existing bridge is a 3.1 mile crossing of the Hudson River and carries about 140,000 vehicles/day. Various preliminary solutions were proposed at a cost of $10 to $16 billion. During the procurement process, the owner Agencies (NYSDOT and NYSTA) wanted to encourage innovative design concepts and only provided 16 drawings in the RFP documents. Three teams were shortlisted and the owner Agencies designed the procurement process to maximize innovation in design, scheduling and construction.

- **Tappan Zee Constructors (TZC) Approach** – One of the recurring themes in Design-Builder’s technical solution was the use of standard precast elements as much as possible to take advantage of the repetitive nature of such a large project. TZC relied on 3D modeling and 3D design which quickly translated the design into shop drawings and construction drawings. Interchangeable standard pile caps provided great flexibility in the scheduling and placement of the structural members.

- **Innovative Construction Management** – “Bluebeam Revu” is an innovative software program that allowed TZC’s various offices, located in different locations around the world, to review approximately 9,500 drawings simultaneously in a web-based environment. There were 59 “Released-for-Construction packages.” Designers and construction staff around the world were able to use the software to provide timely reviews and comments on all aspects of design and construction. “Elvis”, an electronic tracking system was used to track daily work reports, testing reports, design comments, non-conformance reports and constructability reports. Building Information Modeling (BIM) databases were used to model the entire project - approximately 2 million pieces of information.

- **Contracting Approach** – The TZ Bridge was NY’s first major application of their D-B legislation. The contract included about 8,000 pages of requirements. The performance requirements in the RFP led to significant risk transfer and innovation. The owner Agencies kept the risk for hazardous materials and right-of-way. They share the risk of differing site conditions and permits. LDs based on $100K/day; lane closures up to $250K/day. Payment and performance bonds were required at $1.5 billion each.

- **TZC’s Take-Away’s** – Lengthy contracts result in lengthy agreements. These contracts are challenging to administer and to interpret by all parties. Not all events are foreseeable. Partnering is essential. The contract included over 60 environmental performance commitments for: air/water quality; construction noise/vibration; underwater noise, etc. As an example, bubble curtains were used for all pile driving to protect the sturgeon.
Q. What kind of tolerances were used on the precast elements?
A. Given the large size of some of the precast elements, the owner Agencies’ existing tolerances would not work. TZC came up with modified tolerances that were acceptable to the Agencies.

Q. What is the current status? Is it completely funded?
A. The project schedule has been difficult. We had some issues with the piles and unexpected winter weather. River swells as high as 8’ were encountered. The Contractor is incentivized but aiming to get back on schedule. For years the Governor has been reluctant to announce a full funding program; however, TZC is not concerned about funding shortages as it relates to contract completion.

Q. How is Quality Assurance (QA) being handled in steel fabrication?
A. All steel fabrication Quality Control (QC) is performed by TZC. For fabrication, there is a State presence due to the complexity and size. The majority of precast and offsite facilities have State presence to perform Acceptance (verification) inspection & testing.

Q. Colorado: What is the allowable markup on change orders?
A. It is not defined in the contract.

Q. Why is there a need for a change order on a Design-Build project?
A. The owner Agencies had changes to the 8,000 page contract and additional work items.

Q. Was the 5 month post-award negotiation anticipated by the parties and was there a cost component?
A. It was driven by the owner Agencies. They liked elements of multiple designs and wanted to negotiate options above the base bid of $3.1B. It was all abandoned at the end. It was also necessary to clarify issues in the Technical Proposal. TZC’s proposal was more than 2,000 pages and clarifications were helpful to the owner Agencies.

9:25 AM – 9:45 AM Break
At this point, a 20 minute break was taken.

9:45 AM – 11:30 AM Contract Administration Session (Continued)

Moderator – Brenda O’Brien, Section Chair, Michigan DOT
The session was called to order by Ms. O’Brien. She introduced the speakers for the presentations and subsequent panel discussion on CM/GC below.

CM/GC Panel Discussion: Utah’s Experience – Moderator: John Haynes, FHWA Utah Division; Rob Wight, Utah DOT; Mike Seare, Kiewit; Brandon Squire, Ralph L. Wadsworth Construction; Jeff Clyde, W.W. Clyde
The Panelists provided presentations addressing the following topics (See AASHTO SOC Annual Meetings web page to view presentations), followed by an open discussion with Questions & Answers:
FHWA Overview of CM/GC Delivery (John Haynes, FHWA Utah Division) – CM/GC is an integrated project delivery approach that fosters an atmosphere of collaboration and innovation. Owner Agencies benefit from appropriate risk sharing, innovation, early procurement, optimized phasing/scheduling and the ability to limit budget/cost growth. CM/GC is a collaborative process where the Agency benefits from having Contractor involvement in various aspects of the project development process. Currently there are 13 states that have some degree of CM/GC experience. The keys to success include: State DOTs need to make a solid business case to use CM/GC; the selection process needs to be transparent; a mature partnering environment is necessary; DOTs should have dedicated staff and a champion; small pilot projects are desirable; education is necessary for Agency and Industry representatives.

A State DOT Perspective (Rob Wight, Utah DOT) – Why did UDOT use CM/GC? Cost certainty, enhanced risk management, optimized solutions, ability to meet public/political expectations and enhanced partnering. Utah’s experience has been that the discussions that take place with the CM/GC firm reduce the risk for both Agency and Contractor thereby lowering the overall risk and agreed price. What is a fair price? The Engineer’s estimate and Independent Cost Estimate (ICE) are used to compare with the Contractor’s proposed price to ensure price reasonableness. UDOT uses “blinded” proposals (deleting contractor names) during their selection process. Some lessons learned include the need for: clear project goals, well-defined scope, consistent RFP “boilerplate” provisions, and well-defined scoring and selection criteria. Best practices include: having an Agency champion, open communications, understanding proposal differences, and trusting team relationships. When is CM/GC use appropriate? Projects include: highly complex projects with an opportunity for early Contractor input, necessary owner Agency control of the design, early procurement of long lead items, and the potential for third party risk or variable scope.

A Contractor’s Perspective (Brandon Squire, Ralph L. Wadsworth Construction) – Approximately 30-50% of Wadsworth Construction projects are alternative delivery projects. Each project is unique in the phasing, scheduling, site access, utilities and potential third party involvement issues. CM/GC provides a great process for both the Contractor and owner Agency to achieve innovative solutions. Some keys to success include: early Contactor involvement, addressing ICE/Contractor prices at each milestone, and the Agency’s need to understand that this is not Design-Build. The owner Agency remains responsible for the design.

Another Contractor’s Perspective (Jeff Clyde, W.W. Clyde) – Many ARTBA members have come to the conclusion that CM/GC is a worthwhile delivery process. W.W. Clyde’s experience has been positive on their CM/GC projects. The ability to bring a team together early in the process has tremendous advantages in understanding the Agency’s goals and in developing the Contractor’s means and methods to meet those goals. Risk allocation is key and shared risks which reduce the Contractor’s contingencies. CM/GC has application to a wide range of project types and scopes.

Open Forum (All Panel Members) – A Panel discussion with Questions and Answers ensued.

Q. Now that UDOT has been using CM/GC for a while, what is it that UDOT would change about their process?
A. Time spent arguing about unit prices was not productive. There is a need to focus more on the concept of a fair price. Owner Agencies need to focus more on: the overall risk reduction, putting the right team together, and having the right “champion” to advocate for the Agency.

Q. Have we defined the role of the owner Agency (tasks, responsibilities)?
A. Wight: It’s been more a matter of defining the process to date. Specific responsibilities have not been defined.
Gransberg: There is an NCHRP proposed project to define roles and responsibilities that is still being balloted.
Squire: Responsibilities change from project to project.

Q. Alaska DOT: The software for estimating costs does not always align between Agency, ICE and Contractor. Was this a concern to the Contractor?
A. Squire: It really doesn’t matter what software is used; it’s a matter of being consistent with the input data and assumptions used in the estimating process.

Q. Caltrans: How did you settle on an overhead rate to pay the CM/GC firm?
A. UDOT: Based on time like a consultant contract.

Q. Caltrans: Do you ever do design in-house?
A. UDOT: Yes, it can be done; it is beneficial for Agency’s staff.

Q. Caltrans: What type of projects would you prefer to use Design-Build?
A. UDOT: Projects where the Agency does not have the capability or staff to administer the design. For UDOT, D-B offers advantages on large projects where there may be staffing issues.
Squire: If it is a fast paced project, then D-B is probably more appropriate.

Q. Tennessee: Do you vary team members? Is it the same team used for each project?
A. UDOT: We do not use the same team. There are always lessons learned and we try to transfer those lessons. We do have an alternative contracting specialist that has the role of sharing lessons learned and bringing consistency from team to team.

Q. WSDOT: What is the incentive for the Contractor?
A. Squire: If the CM/GC process drags on for a long time, then it is difficult to maintain an incentive or profitability. CM/GC projects are often more challenging, but frequently more rewarding from both an individual and company viewpoint.

Q. WSDOT: How do you incorporate DBE provision in CM/GC?
A. Squire: It is a relatively simple process. You can prequalify subcontractors and solicit quotes.
UDOT: In a lot of ways the DBE process becomes easier with CM/GC.

Q. Louisiana: Do you have any work packages that were investigative (borings, geotechnical investigations)?
A. UDOT: Yes, definitely.
Q. Louisiana: Is the contract a lump sum type contract?
A. UDOT: It is generally a unit price contract and very similar to traditional contracts. Standard Specifications govern.

Q. Alaska DOT: Do you get many protests?
A. UDOT: Only two over a ten year period (approximately 80 CM/GC projects have been completed or are currently underway). Protests are very rare.

Q. Is the Utah AGC still supportive of CM/GC?
A. Clyde: Yes, speaking only for Utah’s AGC - Yes.
UDOT: UDOT spent a lot of time coordinating with Industry early in the process informing the Industry and getting input.

Q. ConnDOT: Relative to ICE and GMP, how do you manage the ICE process? When do you start comparing prices?
A. UDOT: “Approach to Price” is used in the selection process. An open book process is key. A 30% comparison of the ICE, the Agency’s estimate and the Contractor’s open book price is important.
Squire: Early agreement on cost factors is important (material sources, methods, etc.). The ICE is typically low, the Contractor is typically high, but they come together as the design proceeds and risk is discussed. Risk can be priced separately if necessary.

Q. Florida: How does CM/GC compare to D-B-B and D-B?
A. UDOT: The feeling is that CM/GC performance is good. Cost growth and change order performance is good.

Q. Florida: Does UDOT have self-performance criteria?
A. UDOT: There are no limitations for self-performance on State-funded projects.

Q. Haynes: What safeguards can be taken in selection?
A. UDOT: Industry representation on the selection panel (lends to transparency). The procurement process must be open and transparent; it must be a defined process, including the selection criteria and the rating criteria. The opportunity for one-on-one follow-up meetings (de-briefing meetings) are important after selection. This lends credibility to the whole process.
Clyde: When we are not proposing on a project, being involved in the selection panel has been eye-opening and very important.

Q. Haynes: Is there a concern with smaller Contractors not being competitive with larger firms?
A. Clyde: The concern is that smaller Contractors don’t have the same opportunities as large Contractors. However, the CM/GC process can be used on any size project and the smaller firms may be more competitive on smaller projects. There are a lot of opportunities for smaller Contractors in Utah.
Q. Michigan: What are the challenges for the Contractors in working with the Agency’s Designer?
A. Squire: With CM/GC, the Contractor has no control over the selection of the Designer. Issues sometimes come in with schedule and the Designer may not completely understand these issues.
UDOT: Partnering with the consultant industry is also an important part of the process.

11:30 AM – 11:45 AM AASHTOWARE Update

AASHTOWare Project Construction & Materials Software Update – Jim Johnson, AASHTO
Ms. O’Brien introduced Mr. Johnson. Mr. Johnson’s presentation addressed the following information (See AASHTO SOC Annual Meetings web page to view presentation):

- **AASHTOWare 3.00 Development Participation** – Released Dec 2014. Product updates in April and August 2015 to provide defect fixes.
- **AASHTOWare 3.01 Development** – Seven States participating in this effort. Some highlights include modules for: Force Accounts; Stormwater Environmental Compliance; Contract Documents; Design Evaluation; Inspector Dashboard; and other improvements.
- **Project 3.01 Highlights** – Features include: Authorization Manager Service; Crystal Reports; Data filtering/sorting; System administration enhancements (XML documentation, Active Reports tool).
- **Project 3.01 Beta Testing** – Conducted from April to June 2016 with six States.
- **Other Project Offerings** – AASHTOWare Sync Service and Mobile Inspector will be available.

11:45 PM – 12:00 PM SOC Chair Discussion Topics

Moderator – Malcolm Dougherty, Subcommittee Chair, CalTrans
At this point, Mr. Dougherty opened up the meeting for some Chair Discussion Topics. The following topics were presented:

- **Reauthorization** – This continues to be discussed at the CEO level. CalTrans and many States not certain of funding that will be available. Long-Term Bill is anticipated to provide 3 years of funding. It is hoped that this can be passed before the current extension expires.
- **Rulemakings Updates** – There is a lot of interest by AASHTO and State DOTs on Performance Management rulemakings and they will continue to be engaged.
- **AASHTO Committee Structure** – AASHTO is evaluating the current committee structure and assessing whether there are modifications that could improve committee business.
- **AASHTO Guide Documents** – AASHTO is moving to publishing documents only electronically recognizing the high cost of printing these documents.
- **Safety** – A high number of accidents in CA are attributed to DUI. CalTrans is moving to full closures of roadways to enhance safety and improve Contractor productivity.
- **Partnering** – We have been losing the Partnering way. It is important to move back to applying Partnering in light of its many benefits.
- **Alternative Project Delivery** – This is very different from the traditional Design-Bid-Build process. We need to train our workforce to be prepared for this.
• **Staff Attrition** – Many State DOTs are facing loss of staff. CalTrans is 25% smaller than they were 8 years ago. 1/3 of Caltrans staff is eligible for retirement. Skills for Transportation Data and similar skills will be needed in the workforce of the future.

• **Communications** – It is important for customer service that our maintenance and construction staff have the right skills to communicate with the motorist. CalTrans is also working on getting out the good news on what they are doing.

• **Road User Fee** – CalTrans is implementing a Pilot to evaluate this approach to revenue. The gas tax is not going to provide the funding needed in the future.

• **CalTrans Vision, Mission** – A key part of CalTrans’ mission is to support the economy. CalTrans has also updated their Goals and condensed their Strategic Plan.

**12:00 PM – 1:30 PM  Lunch**

**1:30 PM – 3:00 PM  Roadways & Structures Session**

*Moderator – Marc Mastronardi, Section Chair, Georgia DOT*

The session was called to order by Mr. Mastronardi. He introduced the session speakers prior to their respective presentations below.

**Post-Tensioning and Prestressing of Carbon Fiber Elements** – Mark Chaput, Michigan DOT; Alan Saunders, Virginia DOT

The presentation addressed the following topics (See [AASHTO SOC Annual Meetings web page to view presentation]):

• **CFRP in Michigan** – Two main applications: internal reinforcement and pre-stressing beams in concrete box beams.

• **Why use CFRP?** – Pursuing longest service life, advancing innovative materials. Pursuit of 100 year bridge design.

• **Research History** – Developing specifications, details, stressing procedures.

• **Advantages** – Higher ultimate stressing strength, non-corrosive, lightweight, similar construction processes as steel alternatives, failure warning characteristics - deforms earlier than steel, no grout required for ducts in post-tensioning, ability to re-tension if necessary. Potential 60% reduction in overall life cycle cost.


• **MI 2011 Deployment** – Pembroke over M-39. Overview of jacking procedure. Also used CFRP deck grid in place of steel. The CFRP grid consisted of a series of lightweight 6’x10’ grids placed by 1 ironworker with no crane.

• **MI 2012 Deployment** – M-50/US 127 over NS RR. Cables stressed to 75 kips, deck poured, then cables stressed to 150 kips. Manufacturer required to provide material documentation

• **MI 2013 Deployment** – M-102 over Plum Creek. This was a high ADT route near Detroit. Unlike the Pembroke over M-39 deployment, the mat was field tied. This was very time intensive. For beam fabrication, pay attention to the amount of waste material generated
during tendon stressing for accurate quantity estimation. Also, be aware of the difference in the coefficient of thermal expansion between CFRP and steel.

- **A.I.I. – AASHTO Innovation Initiative (formerly the AASHTO TIG).** The A.I.I. is pursuing a 3 year program to market CF technologies. Current work includes peer exchanges, webinars and technical assistance from Lead States available for a limited time. The Lead states are Michigan, Ohio, Virginia, California, and Maine.

- **Virginia DOT** – Two different applications: pre-stressed piles and bulb-T girders. CFRP has been used in Virginia for years. Except for minor details, the construction methods haven’t changed. The use of CFRP in Virginia is one method of the several approaches VDOT has taken to deal with corrosion. Carbon fiber does have a weak axis, but since it is an engineered product you can design around it.

- **CFCC Applications:**
  - More than 130 applications since 2009.
  - Shinmiya Bridge in Japan since 1988.

- **Nimmo Parkway** – Used CFRP pre-stressed piles. Located near Virginia Beach. VDOT used two fabrication facilities to construct the pre-stressed piles used for the structure foundation. Presentation highlighted the need to use couplers to properly tension the strands. The couplers include a temperature sensitive high friction webbing that needed to be protected during steam curing. The result of CFRP instead of steel is a corrosion free pile. Other than the tensioning procedures, construction and installation of the piles follows tradition methods. The Fabricator and Contractor did use some precautionary procedures such as rubber tipped vibrators.

- **Aaron’s Creek** – Used CFCC Beams. The carbon fiber reinforcement includes low stress strands to give the beam ductility. The reinforcement can be bent into any shape, but it is fabricated, not field bent.

**Q.** What is the cost difference?
**A.** Right now, more than twice as much. For VDOT though, cost is based on only 2 structures, so we don’t have good data. Our goal is to get at twice cost of stainless. Michigan: Originally cost differential was about 10 times. Tokyo Rope looking at opening a manufacturing facility in Michigan which will reduce cost.

**Q.** Why are you casting outdoors?
**A.** The fabricating facilities were outdoors.

**Q.** Can you modify the piles in place?
**A.** You can clip them. All the anchorages were fabricated in the piles.

**The Big Rock Interchange** – Mark Headley, Arkansas HTD
The presentation addressed the following topics (See [AASHTO SOC Annual Meetings web page to view presentation]):

- **Background** – Originally built in the 1970’s with construction of I-430. Little Rock and the surrounding area has seen rapid growth to the west since then. This section now sees approximately 200,000 ADT with growth of 70,000 ADT in next 20 years. It was obvious that the current cloverleaf design wasn’t going to work.
• **4 Initial Phases in Confined Space** – Phase 1 approx. $18M. Phase 2 approx. $19M. Phase 2 and Phase 1 contracts underway at same time. The 3rd phase was the largest and most complex phase. The third phase was approximately $78M, but AHTD was able to add superstructure work originally anticipated to be constructed in the 4th phase through a $10.8M change order. At the time the 3rd phase was the largest contract ever let by AHTD (has since been eclipsed). The $10.8M change order is the largest change order ever for AHTD and was reviewed by the Highway Commission. The 4th phase being handled by City.

• **“Big Rock” Name** – The interchange is named for a large conglomerate of sandstone and quartz weighing approximately 5M pounds. Contractor requested to leave rock in place. AHTD agreed and took credit. While it is not the official name of the interchange it gained traction in the media and has quickly been adopted by the public.

• **Aesthetic Treatments** – The interchange includes the first substantial use of aesthetic treatments in Arkansas. AHTD wanted the interchange to look iconic and chose a simple design including pine cones and pine tree imagery (Pine tree is the Arkansas state tree). AHTD has received many compliments for the aesthetic treatments.

• **Maintenance of Traffic (MOT)** – Original plan for Phase 3 had 11 stages and several needed sub-stages. Due to the complexity a MOT committee was formed. The committee streamlined the decision making process when MOT changes were needed. The changes were also reviewed by AHTD maintenance staff.

• **Public Information Office (PIO)** – More involvement by PIO on this project than any previous project, and first use of a simulation video by AHTD.

• **In-Lane Route Markings** – First use of Interstate shields on pavement. No previous use of in-lane route marking because Arkansas does plow snow frequently enough that there has been concern over the long term durability.

Q. Were route shields in-laid or on the surface?
A. On pavement surface.

Follow-up (Utah): We inlaid some and they are holding up well.

**Arizona DOT’s Experiences with the Use of Rubber in HMA Courses** – Chad Auker, AZ DOT

The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

• **Terminology** – CRA (Crumb Rubber Asphalt); ARAC (Asphalt Rubber Asphaltic Concrete); AR-ACFC (Asphalt Rubber - Asphaltic Concrete Friction Course).

• **History** – Over 25 years of use in Arizona. First use was actually City of Phoenix which developed the MacDonald Process or wet process in the 1960’s. ADOT began using rubber shortly after the city of Phoenix in the 60’s. First started using in HMA in 1989 (AR-ACFC on I-19). This location used 10% asphalt rubber on plain jointed concrete pavement. First reflection cracks not noted for 8 years. Two years later (1990) ADOT followed up with first ARAC on I-40 near Flagstaff. This application consisted of a 2” Structural Overlay over a severely cracked and deteriorating concrete pavement. The ARAC application was just one application that was being tested, and it out-performed all the other materials being tested.

• **What is Asphalt Rubber (AR)?** – AR is a mixture of aggregate and either crumb rubber or terminal blend (fully digested rubber). Crumb rubber must be added at very high temperatures (350 - 400F).
• **Types of CRA** – Arizona DOT currently uses 3 types of CRA:
  o Type 1; Hot Climate (PG 64-16)
  o Type 2; Moderate Climate (PG 58-22)
  o Type 3; Cold Climate (PG 52-28)

• **Use of Mixes** – Each type of AR mix is used for different applications. AR-ACFC is used for wearing surface and is not suitable for structural applications. AR-ACFC (Terminal Blend) is used as a wearing surface. This mix has shown better performance in areas of heavy snowplowing and de-icing. ARAC is a gap-graded material that is primarily used for structural purposes. Limited use recently (mainly due to budget).

• **What Does the Asphalt Rubber Do for ADOT?** – One primary advantage is that it gets more binder in the mix. In ADOT’s experience the elastic properties of the CRA slow the rate of reflective cracking in overlay applications. The mix also does not seem to age as rapidly due to the higher binder content. The mix is also very quiet. From an environmental perspective, the use of CRA keeps a lot of tires out of landfills (1000 tires per lane-mile).

• **Placement** – CRA is very sensitive to proper placement conditions. Seasonal - not too hot, not too cold. Not as workable as traditional mixes so placing outside of appropriate conditions can cause problems. Application of lime water can be used after paving to help “cure” the surface - cuts down on tracking.

• **Performance** – Smoothness improvement. Resists rutting and permanent deformation. AZDOT has experienced lower maintenance costs due to less crack sealing and decrease in fog seal frequency due to high binder content.

• **When Things Go Wrong** – Very sensitive mix. Placement temperatures have to be perfect. Cold placement leads to raveling. The mix is also susceptible to moisture damage, and several applications that were placed when it was too cold showed significant issues with shoving, pushing, and rutting. One of the ways AZDOT addressed this was to overhaul the specifications. Originally AZDOT had a method specification, and several of the failed areas that were observed had been constructed per the method spec. New specification is more performance-based.

**Q.** Does the name friction course compare to HFST, or is it just a name?
**A.** Just a name.

**Q.** Have you done anything with the dry process?
**A.** No, we haven’t experimented with dry process.

**Q.** We have permissive use of crumb rubber in our state, but not used because of expense. Do you know how much more you are paying?
**A.** Not sure, but in the 20% to 40% range. That primarily comes from increased amount of binder.

**3:00 PM – 3:15 PM Break**
At this point, a 15 minute break was taken.
**3:15 PM – 4:30 PM  Roadways & Structures Session** (Continued)

**Washington’s SR520 Floating Bridge** – Chris Christopher, Washington DOT

The presentation addressed the following topics (*See AASHTO SOC Annual Meetings web page to view presentation)*:

- **Background** – 12 mile corridor that carries a lot of traffic and commerce. Corridor essentially runs from I-405 on the East and runs to I-5 on the west. The total project cost is approximately $4B, which is large enough to affect the cash flow of the Agency. Funding through a mix of State, Tolling, TIFIA, Federal-Aid, and Local funds.

- **Why Are We Working On the Bridge?** – Bridge is vulnerable to wave action and has a draw span. The fixed span also has hollow columns which are susceptible to damage.

- **Why a Floating Bridge?** – Lake Washington is deep with unstable material. This would make footing costs substantial, and there are significant aesthetic issues with something like a cable stay bridge.

- **Pontoons** – The bridge is constructed on 3 types of pontoons (cross, longitudinal, and supplemental). The pontoons were constructed at two different sites (Aberdeen, WA and Tacoma, WA). Crews floated the pontoons which were designed to just fit through a set of locks (approximately 70’ wide) to Lake Washington.

- **Issues With the First 4 Pontoons** – WSDOT was the Engineer of Record for the pontoons. Tried to strike a balance between size and strength, but the first 4 pontoons experienced issues with cracking and leaking that required new transverse post-tensioning to address. Two of the pontoons were repaired in dry docks, and two repaired in a large coffer cell on Lake Washington.

- **Hollow Wells** – New bridge uses hollow wells in the middle of the supplemental pontoons as part of the storm water approach. Unfortunately cormorants get stuck in well. The birds couldn’t take flight and had to add bird ramps for the cormorants to get out.

**Q.** Did you have a DRB on the project, and did the leaky pontoon issue go to the DRB?

**A.** The Pontoon Construction Project in Aberdeen was a Design-Build contract, but WSDOT was the Engineer of Record for the pontoons. So, yes, we had DRBs on the contracts, but this issue did not go to the DRB. We did have a DRB issue on the Eastside project. Design-Builder was building a wall WSDOT wasn’t comfortable with. DRB ultimately determined that some of WSDOT’s actions amounted to directing the Design-Builder.

**Overview of the AASHTO NTPEP Technical Service Program** – Katheryn L. Malusky, AASHTO, NTPEP Program Manager

The presentation addressed the following topics (*See AASHTO SOC Annual Meetings web page to view presentation)*:

- **What is NTPEP** – Established in 1994 and reports to SCOH, and the primary goal is to provide evaluations to the States. NTPEP does not evaluate new products, rather the purpose is to simplify the product evaluation process. By serving as a one-stop-shop, this makes the evaluation process more cost effective for both the manufacturer and DOTs.

- **Audit Programs** – Construction, Traffic Safety, and Maintenance.

- **How does NTPEP Function?** – Products are evaluated to national standards. If no national standard, NTPEP develops one.
• Top 5 Reasons Why DOTs Should Consider Using NTPEP Data for QPL:
  o Evaluation criteria meet national standards
  o Products are tested side-by-side
  o All submitted products have undergone testing under DOT control
  o Validate product benefits or disclosure of defects
  o Peer communication
• NTPEP Benefits:
  o Cost savings
  o Time savings
  o Quality
  o Sophisticated testing
  o Quick and predictable product evaluation schedules
  o Reduced user cost to traveling public
• Current Status – There are currently 24 Technical committees and 21 products are being evaluated. To date 450 products have been submitted (since January 1, 2015). 160 audits are scheduled to be completed in 2015.
• New Technical Committees and Task Forces – NTPEP members have requested new committees and task forces to address the following items:
  o Epoxy and Resin Based Adhesive Bonding systems
  o Guardrail/Guiderail
  o Elastomeric Bridge Pads
  o Warm Mix Asphalt Additives
• 2016 NTPEP Meeting – The meeting will be held in Grand Rapids, MI (May 5-8, 2016).

Q. How do you decide what is audited vs. evaluated?
A. Surveys identify what the states want to have evaluated. If there is further interest from the States requesting the evaluation then NTPEP starts the audit.

Q. What happens if a Manufacturer fails to correct deficiencies within the 15 days?
A. They are determined to be non-compliant, and voting members of each State are notified of Manufacturer’s status.

Q&A Session: Influences of Environmental Constraints in the Establishment of Contract Time and Lettings – Moderator: Marc Mastronardi, Georgia DOT
Mr. Mastronardi provided a brief synopsis/background of the topic and related issues, followed by an open discussion of the topic, which generated the following Questions and Answers:

Q. What, if anything is your State doing to address aquatic or other T&E species?
A. OR: Faced with many T&E species. Biggest success has been issues with in-water work windows for stream work. Also have programmatic for Salmon. Now have a programmatic with state DFW to replace a culvert and so allowed to work on ends of other culverts.

Q. Does anyone schedule their work with species windows in mind?
A. A few hands raised.
In Georgia they do not, and it has caused issues.
Q. Has anyone pre-empted with work like exclusionary netting?
A. Some hands raised.

Q. Is anyone identifying construction of coffer dams before cut off to allow in water work?
A. A few hands raised.

Q. Is anyone letting multiple contracts?
A. OK: Starting to let clearing and grubbing because of long-eared bats.
    FL: Doing this for utilities, but not for environmental reasons.
    Unknown State: Cut trees below 5 ft. Doesn't trigger storm-water because no grubbing.
    In Georgia cutting the trees is considered clearing and grubbing and triggers the permitting process. Also triggered by removal of the tree canopy and thermal impacts on stream.

Q. Has anyone done any reassignment of the SWPPP’s?
A. In Georgia, no. GDOT is required to submit the plans.

Q. In terms of estimate, how often are productivity based estimates produced? When doing so are you including the restraints?
A. UT: It is part of the constructability review. Plus all contracts are bid A+B so need to establish minimum and maximum windows and determine if Contractor has enough time to complete the project.

Q. OR (follow-up question): Durability of stripes in late season striping?
A. GA: Build in 30 days of cure time.
    VT: Using polyurea and having good cold season durability. We have not had any issues with environmental concerns with any of our markings.

4:30 PM – 5:00 PM State Discussion Topics

Moderator – David Hoyne, Subcommittee Vice Chair, Vermont AOT
At this point, Mr. Hoyne opened up the meeting for State Discussion Topics (See Appendix C-1 for Questions and Answers discussed).

5:00 PM ADJOURN
The meeting was adjourned for the day by Mr. Hoyne at 5:00 pm.
Wednesday, August 12

8:00 AM – 9:05 AM  Research Subcommittee Session

Moderator – Gary Angles, Section Chair, Ohio DOT
The session was called to order by Mr. Angles. He introduced the speakers during the session prior to their respective presentations below.

NCHRP Studies Update – Douglas Gransberg, Iowa State University (on behalf of David Reynaud, National Academy of Science)
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Ongoing NCHRP Projects Relevant to the AASHTO SOC:**
  - NCHRP 10-96 – Guide for Civil Integrated Management (CIM) in Departments of Transportation. This project was presented as a part of the Computers & Technology portion of the Agenda (See Below).
  - NCHRP 10-92 – Optimizing the Risk and Cost of Materials QA Programs
  - NCHRP 10-91 – Guidebook for Selecting and Implementing Sustainable Highway Construction Practices
  - NCHRP 10-89 – Best Practices Guidebook for Optimal Construction Inspection
  - NCHRP 10-83 – Alternative Quality Management Systems for Highway Construction. This has been completed and is published as NCHRP Report 808.

- **NCHRP Projects Just Getting Underway:**
  - NCHRP 12-105 – Proposed AASHTO Seismic Specifications for ABC Column Connections
  - NCHRP 19-10 – AASHTO Partnering Handbook, Second Edition. Doug Gransberg, the project PI, distributed a survey to the SOC participants to gather their input on the use and effectiveness of Partnering. Participants were asked to submit their completed sheets at the end of the session.
  - NCHRP 1-57 – Standard Definitions for Comparable Pavement Cracking Data
  - Synthesis Topic 47-09 – Effective Practices for Establishing Contract Completion Dates for Highway Projects

SHRP2 Implementation/FHWA Research Update – Richard Duval, FHWA
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Recently Completed Projects:**
  - Note: Links to Project Reports were provided within the presentation.
  - Performance-Based Contractor Prequalification as an Alternative to Performance Bonds. This report relates to the previous day’s discussion on contractor prequalification and describes a three-tiered system. Copies of the TechBrief from this project were placed at the registration table.
  - Intelligent Compaction Quality Assurance for In-Place Density Acceptance
  - Construction Quality Assurance Procedures on Federally Funded Local Public Agency Projects
• **Minnesota DOT Led Pooled Fund (Pooled Fund Solicitation 1381)** – Will be enhancing the intelligent compaction data analysis software, VETA (formerly VEDA). Currently MN, CA, and PA are participating and others wanting a seat at the table can still join.

• **Upcoming Webinars** – Automation in Highway Construction (Aug 19th); Feasibility of Mapping and Marking Underground Utilities by State Highway Agencies (Sept 9th); Index-Based Cost Estimation with Accuracy and Precision Analysis (Sept). Reports from these projects should be available later this year.

• **Ongoing FHWA Research Projects** – See slides. One activity highlighted was ultra-high performance concrete (UHPC) and TechBriefs were made available at the registration desk. Other studies of note:
  o Return on Investment (ROI) for Paperless Project Delivery (e-Construction) – Eight States have provided numbers which are currently being analyzed.
  o 3D Digital Design Data in Highway Construction Case Studies – Will be documenting five projects ranging in project cost from $20M - $250M. It was a deliberate decision not to focus on the large mega-projects.
  o Performance Related Specifications for Asphalt and Concrete Pavements – The Illinois Tollway is using what was developed on nine concrete paving projects.

• **Overview of SHRP2** – The final round of implementation activities (Round 7) will be opened in the Spring 2016 and there will be webinars held Feb-March 2016 to overview the SHRP2 products included in this round.

Q. Is there a contact for the Illinois Tollway?
A. Steve Gillen.

Q. Has the Buy America issue related to UHPC been resolved?
A. There is now a US supplier in Georgia.

**Transportation Construction Management Pooled Fund Project** – Keith Molenaar, Ph.D., University of Colorado at Boulder

The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

• **History** – The TCM Pooled Fund evolved from earlier FHWA led efforts that followed an international scan on construction management. Over the six years that FHWA supported activities a Risk Allocation Guide was produced and it’s still relevant today.

• **Benefit** – The pooled fund program allows Agencies to leverage a relatively modest individual investment to address issues of common interest.

• **Scope** – The activities of this pooled fund are meant to bridge the gap between what the SOC can do as a volunteer organization and the longer term activities in the NCHRP and FHWA research programs. The scope is to focus on construction efficiency without sacrificing quality and to improve risk management and risk allocation.

• **Accomplishments** – To date, the following have been developed: Guidebook on Alternative Contracting Methods that has been adopted by a number of States; Guide on Construction Engineering and Inspection Practices; and Best Practices for Community Outreach. The latest effort is to develop a guide and tool to effectively estimate contract time for future construction projects. The advisory panel is forming now and is open to additional volunteers.
• **Availability** – All the products of this pooled fund are freely available (no copyrights) and can be modified by Agencies to address their particular needs.

• **Invitation** – The presentation concluded with the announcement that the TCM Pooled Fund Committee would be meeting in the same room later this afternoon.

Q.  Can you please expand on the production rate project?
A.  The emphasis will be on how to more accurately estimate rates based on data. They plan to develop parametric models. KY has had some success and this will be explored.

**Roller Compacted Concrete Experiences in Arkansas** – Stacy Williams, Ph.D., University of Arkansas

The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

• **Background** – The impetus for this project was the impact that energy industry vehicles have had on lower volume roads that weren’t designed to carry the loads they are experiencing. They were seeking a way to quickly achieve structural enhancements for those pavements.

• **Test Matrix** – Two test sections were placed. One was a 7” RCC overlay on a cement treated base. The other was an 8” overlay of an existing asphalt pavement. RCC is constructed like an asphalt pavement but with a zero slump concrete. It is compacted with a roller.

• **Construction** – The placement of the first section had issues with slow progress and marginal densities. Changes were made prior to placing the second section that included a new plant, new paver, and elimination of the use of fly ash.

• **Strength Tests** – The testing of cylinders revealed that the strengths achieved on Section 1 were lower than expected but were satisfactory for Section 2. Possible reasons for the difference were the influence of air temperature during placement and the effect of fly ash.

• **Ride Quality** – Smoothness was a concern as RCC is known to be rough. IRI values were 230-280 in/mi, however, they diamond ground the sections and achieved IRI values of 70-76 in/mi. These values have held up over the three years since construction.

• **Safety** – Skid resistance has not been an issue. They measured a skid number of 58.

• **Performance** – Though the appearance is different from conventional concrete (more pronounced texture), the ride feels OK. Cracking has been minimal, but there was paver induced segregation in the center of the lane that is developing into a longitudinal crack. Cost-effectiveness depends on whether the long-term impact of structural improvements are considered. This could be an effective option for low to medium volume roadways.

Q.  Was the skid number measured after diamond grinding?
A.  Yes.

Q.  Has the skid number been checked since then?
A.  No, but it’s on the schedule to be done.

Follow up comment: You may see some polishing.
Moderator – Gary Angles, Section Chair, Ohio DOT
Gary Angles concluded the Research Subcommittee Session by soliciting the SOC membership for a volunteer to take over as Chair of the Research Subcommittee. He is taking over the chairmanship of the Contract Administration Technical Section and will be stepping down as the Research Subcommittee Chair.

9:05 AM – 9:35 AM Computers & Technology Session

Moderator – Emanuel Banks, Section Chair, Arkansas HTD
The session was called to order by Mr. Banks. He introduced the speakers during the session prior to their respective presentations below.

NCHRP 10-96 - Guidebook for Implementing Civil Integrated Management (CIM) in Departments of Transportation – Paul M. Goodrum, Ph.D., University of Colorado at Boulder
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Project Team** – University of Texas, Austin and University of Colorado, Boulder.
- **Definition of CIM** – A term applied to an assortment of practices and tools entailing collection, organization, and management of information in digital formats about a highway construction project. Tools for digital project delivery and asset management.
- **Objectives** – Identify which CIM tools and processes to implement; identify particular benefits, obstacles, and cost; and identify practical strategies to assist with implementation.
- **What are Agencies Doing (Survey)?** – 40 states involved. Results follow.
- **How is CIM Being Used?** – 2D; 3D/nD: Push a schedule through a 3D model; 5D/nD modeling; Sensing; Data Management: Electronic archiving, materials management, etc.
- **3D/nD Usage** – The most used is 3D CADD. The team developed an nD e-map to show what States are using. There are many similarities between users.
- **Sensing - GPS, GIS** – The least used application is for utility coordination. An advantage of using when utility work is involved is that it will show conflicts.
- **Data Management Usage** – Electronic plan updating space and time activity. Rely on cell towers and faster Wi Fi data. Similar results are revealed among States shown by e-Map.
- **Phases of Use** – The bar chart peaks at the design phase and shows the least use in the operations and asset management phase.
- **How Does Cumulative Use Vary by DOT?** – A State budget size comparison divided into 4 quartiles indicates there isn’t a large difference based on budget. The percent of design performed in or out of house indicates no variation. CM/GC: No difference; Design-Build: Higher usage in D-B States, but not significant; P3 States see higher use; Higher use where states developed contractual language; Return on Investment vs. Maturity: Greater use.
- **Lessons Learned** – Technical implementation planning of CIM is vital at the organizational level. It must be phased and detailed. Most used on roadway projects for 3D design. 4D and 5D is mostly on complex interchange projects. Used for advanced survey methods such as LiDAR and UAVs. Auto machine guidance usage shows huge productivity gains in the field. Data management is mostly in the areas of document submittals and management. There are still contractual issues such as most documents are still in 2D. Legal issues include the uncertain role of digital signatures on projects.
• **Implementation Guide** – A road map. Looked at case studies and noted best practices. No DOT is using all of the tools. The guide shows what is possible. Developed an implementation framework that DOTs can use and ease into the process. Stage I, Stage 2: Helps to understand both the cost involved and the aspect of training. Stage III: Synthesizing of implementation considerations that can lead to success.

Q. Will we have access to the information on-line?
A. The report is still in the process of going to NCHRP and isn’t ready for release.

9:35 AM – 9:45 AM  Break
At this point, a 10 minute break was taken.

9:45 AM – 11:45 AM  Computers & Technology Session  (Continued)

**Construction Contract Finals: Vermont’s Cloud-Based Process Improvement Solution** – David Hoyne, VTrans
The presentation addressed the following topics (*See AASHTO SOC Annual Meetings web page to view presentation*):

- **Point of the Presentation** – If you focus only on the solution you will miss the important points.
- **Vermont’s Project Finals Process** – Begins when the project is complete and the files are boxed and shipped and ends with a final voucher.
- **Issue** – Vermont’s Project Finals Process took too long and no one knew how many projects were in the que. A major problem in gaining improvement is because a culture is hard to change.
- **Who is managing your process?**
- **The Solution** – There are several options. Vermont chose Business Process Management: Step-by-step re-engineering of workflows.
- **Objective** – Efficient and effective work flow and document management.
- **Step 1: Document the “As-Is” Work Flow** – Assess step-by-step to capture existing processes. Collect the artifacts.
- **Step 2: Analysis Phase** – Capture all problems and reach out to all stakeholders. Understanding is key. Research why each process exists and if it is needed.
- **Step 3: Design** – Develop new work flow; identify implementation requirements; design monitoring and control requirements; and report.
- **Step 4: Implementation**
- **Step 5: Monitor**
- **Value** – Engage all stakeholders in the process. The journey adds the value.
- **Getting Started** – Hire a Business Process Analyst; find a process in need of improvement. Vermont’s Finals process duration is down from 18 months to 6 months; find the right Manager; start documenting the existing work flows.
- **Demonstration** – David provided a live demonstration.

**Comment:** Wisconsin used the same process on their Project Finals process with success.
Q. Is this off-the-shelf software that was customized due to the improvement findings?
A. It is configurable software. Appian allows the business owner to configure the software to meet business requirements. One catch - it is a licensing structure where the licensee pays a monthly fee based on the number of users.

Q. Do Contractors submit their reports, etc. through the system?
A. No, it is only used for the Finals process.

Q. What is the internal cost and do Contractors have to purchase a license?
A. Everyone that logs in must have a license. Thinks it is $15/month/license. It is costly if Appian configures the software to your needs.

Q. Do they offer an enterprise license?
A. Not aware of any.

Q. Will you carry it through other processes?
A. Yes. We can take any process and develop it, so we can begin to plug in other processes in little chunks and improve them.

e-Construction: Panel Discussion – Moderator: Emanuel Banks, AHTD; Bryan Cawley, FHWA; Amy Tootle, Florida DOT; Charles “Chuck” Jahren, Iowa State University; Steven Thomas, AHTD; Rob Wight, Utah DOT; Tom Zagorski, Michael Baker International
The Panelists provided a brief overview of the following topics, followed by an open discussion with Questions & Answers:
• Introduction (E. Banks) – Emanuel discussed the process for the panel discussion. Each panel member will describe their e-Construction implementation, challenges, and where they are going next. He encouraged audience interaction.
• FHWA Perspective / Update (B. Cawley) – FHWA has tools to assist in implementation. First is the Peer Exchange tool that will pay for up to 4 DOT employees to travel to another state. There is also a virtual component if you wish to focus in one area. At the conclusion of the Peer Exchange process a consultant will share the information nationwide. Documentation and return on investment will be by FHWA Turner-Fairbanks Research Center. WA, TX, and MN looked at time savings. FLDOT is working on a “how to” manual. Example specifications will be placed on the FHWA web site. Regional workshops are planned to focus on the technology and processes. Michigan DOT will host a series of four (4) webinars. The first webinar will occur in November 2015 and 3 more will be held next year.
• Lead & Exploring States Roundtable Discussion (A. Tootle / R. Wight / S. Thomas):
  o FLDOT (Amy Tootle) – The Florida Transportation Secretary encouraged innovation and modernization. FLDOT realized they needed a system outside of the firewall for Contractor use. They chose to use ProjectSolve - SharePoint. Digital signatures were a major hurdle. Form automation was an important aspect. Now forms are pre-populated. The move to Bluebeam for as-built drawings was significant.
  o FLDOT Key Challenges – Fear factor. Employees like face to face training and interaction. Also, getting the Office of Information Systems to open up and be more flexible. They must realize that there could be a need for different security platforms.
**UDOT’s Road Map (Rob Wight)** – UDOT had a system to manage construction processes in place, but it was old and costly to maintain. In 2010-2011 they started looking at options and at a change to automation. The principle was to make the workforce more efficient. They first secured funding in 2013. A Contractor communication portal was developed. They started last year with 6 -7 projects. They are still awaitting final development. UDOT selected Origo as an e-Construction provider. They are beta testing 6 projects in the field module. 150 pads were purchased - both i-pads and windows-based. Next will come the contract management module. They intend to have complete construction management in place by July 1, 2016. They are also looking at a new, electronic bidding system and a new materials database. System integration will be key.

**UDOT Challenges** – IT is a hurdle. Must change the model to software as a service and not internal development. IT is concerned about job security. In the future there will be business analysts and not software developers. They use external servers now. Funding was also a challenge. It took special funding outside of the normal construction budget.

**AHTD (Steve Thomas)** – Arkansas is an “exploring” state. In 2004 AHTD decided they would go paperless. They implemented AASHTO Site Manager. A task force implemented a materials module. The goal is still paperless, but they still require wet signatures. They then used Access to develop an in-house system to replace Site Manager. In 2010 they allowed electronic bidding. In 2015 all contracts must use Bid Express. In April electronic contracts were piloted. At this time they are using Doc Express for document management. To date all implementation has been in-house. Early in the process they included Internal Audit and this helped management see the need.

**AHTD Next Steps** – The goal is paperless. AHTD must get past the wet signature and electronic contract hurdles. Next they will need to address electronic signatures on change orders and more. A need is to determine a way to allow Contractors to submit data electronically. They are working on setting up a Peer Exchange. They intend to move pre-construction to a web-based system and continue to explore other implementation opportunities.

- **e-Construction Peer Exchanges** (T. Zagorski) – A “Lead State” is one that has successfully deployed a phase of e-Construction. An “Exploring State” has begun the process, but wants to learn more. The FHWA and Lead States developed a plan to share with other states. FL, IA, MI, MN, NC, TX, UT, and WV are Lead States. To initiate a Peer Exchange a State must submit an application indicating what they are in need of. Lead State profiles are available and States are matched based on need and profile. Several exchanges are set up and 10 more are available. Slots for 15 virtual exchanges for singular needs are available. AR and WV are one match. ND and IA, and MT and TX are others. Results of the exchanges will be posted on the FHWA web site.

- **Future of Civil Integrated Management** (C. Jahren) – CIM applies to the whole life cycle of a constructed facility and this makes it different from e-Construction. Much information that is collected in design, construction, etc. can go into a data pool and users, such as Maintenance, can extract the information later for use. Likewise systems that are set up can be used by others in the future.

- **Open Forum** (All Panel Members) – A Panel discussion with Questions and Answers ensued:
Q. LA uses Site Manager and SharePoint. How do you use those in e-Construction?
   A. AR: The idea is to get all information into a database. This resulted in statewide consistency for Contractors.
   FL: You will still need Site Manager, but ProjectSolve will extract the info from Site Manager and documents then move to the appropriate parties. FL has adopted national rules for digital signatures.
   UT: Digital signatures are as valid as wet signatures. Also many documents don’t need a signature, so identifying those reduced the number of signatures.

Q. Are you using Site Manager for testing data?
   A. FL: All materials will go into a MAC system and not ProjectSolve.
   AR: Field testing results are entered into Site Manager.

Q. CT - Exploring State: As we explore we meet the IT hurdle. How did you work around the firewall issue?
   A. FL: We decided to work outside the firewall and selected a product to facilitate that. We still have security measures in place even though we are working outside the firewall. The site is temporary and then shut down upon project completion. After project completion, documents housed in the temporary site move through the firewall.
   UT: We included in the RFP that IT would develop the security requirements for any software used, so that put IT at ease, but they are still nervous.

Q. What was the driver to go to a third party?
   A. UT: Resources. We aren’t great software developers. We wanted to focus staff on building transportation systems and not on software development and maintenance.

Q. Who owns the cloud and data?
   A. FL: Company owns the cloud but FL owns the data.

Q. OR: A concern is if the system goes down. Are you looking at backups?
   A. FL: Everything is off site. By contract they must be functioning at 98% all of the time and must be back up after an outage within a specified time frame.

Comment: For Bryan - Would someone gather all related PowerPoints and training materials for dispersal?

Comment: PA - All e-Construction is inside their firewall, so IT has control.

Comment: GA - A key was getting buy-in from the Internal Audit Section. They see the benefit and potential process improvement. This helped secure the resources to implement.

Q. TX: Spending about $500,000 per year for data plans. Is anyone requiring Contractors to provide Wi Fi for the DOT to avoid data plans?
   A. UT: RFP required that software must have off-line capabilities and will sync when in the office. Sometimes in a remote area they require the contractor to provide connectivity.
   AR: Requires Wi Fi in their field offices.
FL: Looking at a mobile device policy. Have a hot spot on only one device if an employee has a phone and i-pad. Contract personnel will do many of the inspections so connectivity responsibility will fall to them and not the DOT.

Comment: VT - Getting IT on board; Stress that these are not IT projects, but business projects, then IT comes on board more readily.

Q. What is your experience with an e-audit. Getting info back out?
A. UT: We use Projectwise. Field person can log in and auditor can see the information.
FL: We haven’t done one, but will have that capability. Now, few have full access to the system, so access will need to be granted.
FHWA: FHWA is using this in business practices.
IA: Auditors call to get permission to access the system.

Q. Are you using Apple or Microsoft?
A. UT: Use a platform that works on either system. Can’t predict the future, so be prepared.
FL: Web-based, so can connect in any manner.

11:45 AM – 12:15 PM Lunch
Box Lunches (to go) were provided to attendees.

12:15 PM – 5:00 PM Technical Tours:
The following Technical Tours were available for interested attendees that had registered:
- Caterpillar® Motor Grader Assembly Plant Tour North Little Rock
- Murray Lock and Dam – Hydroelectric Power Plant Tour North Little Rock

1:00 PM – 5:00 PM Optional Meeting
Transportation Construction Management (TCM) Study Advisory Committee Meeting
SOC Meeting attendees not attending the Technical Tours were welcome to participate in the TCM Advisory Committee Meeting.

5:00 PM ADJOURN
The meeting adjourned for the day at 5:00pm.

5:15 PM – 6:00 PM Optional Meeting
Risk-Based Inspection Meeting
A joint meeting of the Roadway & Structures Section and Environmental & Human Resources Section was held for interested attendees to discuss the topic of Risk-Based Inspection.
Thursday August 13

8:00 AM – 9:45 AM  Environmental & Human Resources Session

Moderator – Rob Wight, Section Chair, Utah DOT
The session was called to order by Mr. Wight. He stated that Work Zone Safety is part of the E&HR Section topics and that the E&HR Section is looking for new members as only 8-10 people attended Monday’s Section Breakout session. Mr. Wright then introduced the speakers during the session prior to their respective presentations below.

Construction Stormwater Best Management Practices (BMP) Flipbook – Rob Wight, Utah DOT
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Background** – Center for Environmental Excellence has created a Practitioner’s Handbook. It can be used to prepare for a stormwater audit which Caltrans has already been through. Utah just went through that too and now has a lot of work to follow-up on.
- **Personal Use** – Rob previously worked in the UT DOT Environmental group where he had to check BMP’s on projects. This new Flipbook is ideal for that activity.
- **Purpose** – Center for Environmental Excellence helps States promote Environmental Stewardship. It hosts a website with everything you would like to know and is searchable by topic and products.
- **AASHTO Representative** – Rob now sits on the Center’s Board and is the contact if you have issues you would like to get addressed.
- **Handbooks in General** – Handbooks provide advice from planning though operations. They serve as a quick reference guide with photos to visualize scenarios with various Do’s and Do Not’s. They can fit in one’s back pocket and are bound at the top. It has 96 pages and allows State to add additional pages.
- **BMP Flipbook Status** – It is not out for use yet, but will be well worth it when it is. It has been reviewed and balloted by SCOC with any comments incorporated into next version.
- **Questions** – No questions were asked by the attendees.

Making Environmental Compliance Work for Design-Build Projects – Stephanie Blanco, Parsons Transportation Group, Inc.
The presentation addressed the following topics (See AASHTO SOC Annual Meetings web page to view presentation):

- **Project Lead** – Stephanie is the Environmental Manager for SR-91 Riverside County Corridor Improvement Project.
- **Audience D-B Experience** – There was a good show of hands of attendees that have knowledge/experience with D-B projects.
- **Importance of Commitments** – Delays, violations, water quality, out of state Contractors do not understand local issues, ownership and interpretation of permits in contract, etc. So, we need to make sure entire project Team understands the importance of environmental commitments.
- **Project Specifics** – Presented on three CA projects in District 8, Riverside County: 1) Cajon Pass Project (pavement rehab); 2) Devore Interchange; and 3) SR-91 widening. Two of the projects were contracted by State and one by a LPA.
• **Cajon Pass Project (pavement rehab)** – NEPA type was a CE:
  o Issues – Cultural, air, noise, biological, and NPDES.
  o Paving within existing roadway. Needed a staging/field office area, ideally in the middle of project. Most of Caltrans R/W is on Forest Service (FS) easement. DOT biologist helped develop a restoration plan, enabling the DOT to obtain a staging/field office area within a few months vs. FS originally did not want to allow one at all.

• **Devore Interchange** – NEPA type was an Initial Study / Environmental Assessment:
  o Issues – Permits, biological, cultural, and storm water BMP compliance.
  o ESA fencing was used throughout R/W for kangaroo rat from entering work area.

• **SR 91 project** – NEPA type was an EIR/EIS (Environmental Impact Report/Environmental Impact Statement):
  o A video showed how local Corona history was included in the project aesthetics for: plants, structures, and an illuminated city name spelled out on bridge railing.
  o 60% of environmental commitments have been completed to date.
  o Issues – Biological resources, cultural, hazardous waste, sound walls/construction noise, construction storm water BMPs, and Section 4f - Chino Hills State Park.
  o Contractor would gather information and State would coordinate with resource agency to get permits.
  o Nesting birds in the bridge falsework, so monitoring was needed along with tree removals.
  o Night work and biological constraints – Originally no work was allowed within 500 feet, but biologist worked with resource agency to avoid any direct light into area allowing Contractor to gain closer operations.
  o Drilling/fill and ESA/silt fencing combination used to address SWPPP.
  o Night work and biological constraints – Temporary walls and/or people placed in motels for pile driving noise if it affected their sleep patterns.
  o DOT/Contractor co-located offices with qualified environmental staff.

• **Improving Commitments so they Work:**
  o Shared risk on securing permits.
  o Flexibility in implementation.
  o Consistent documentation.
  o Embracing the “Protect our House” attitude.
  o Improve Environmental commitments implementation including incentive for environmental compliance.
  o Coordination between stakeholders.

Q. VT: How are invasive species addressed?
A. Using herbicides and getting resource agency’s buy-in. It can be labor intensive. It is also a challenge to clean equipment in and out of operations.

Arkansas T&E Species and Project Compliance – Josh Seagraves, AHTD
The presentation addressed the following topics (See [AASHTO SOC Annual Meetings web page to view presentation]):
• **Federal Law** – Endangered Species Act (ESA) of 1973 in which Section 7 Consultation is required.
• **Maps of Species** – Map of general distribution of threatened and endangered species across US was presented. There are 42 species in AR as follows: 28 endangered; 10 threatened; 3 candidate; and 1 delisted. All counties in AR have at least one species.

• **AR Northern Long-Eared bat (NLEB)** – The NLEB was listed as endangered April 2, 2015. They nest in trees during the summer, but live in caves during the winter. During active season (Oct 15th – April 1st) no work allowed that impacts them. Cutting down trees greater than 3” diameter may also affect the bats.

• **Project Schedule Impacts** – AHTD Looking at STIP to determine scheduling of projects that may be affected with limiting tree cutting. Also, with the FHWA EDC Initiative, working with FWS to help reduce time frame to obtain permits to support expediting project delivery.

• **Website Interactive Demonstration for IPaC** (Go to IPaC) – Information for Planning and Coordination where a list of: endangered species, migratory birds, wildlife refuges, and wetlands can be requested for any project based on entered location. IPaC provides a thorough account of the administrative record for conservation recommendations.

**Q.** GA: We use IPaC. If we go through the process and later a change occurs, we might have to go back and adjust conservation recommendations. It is less of a binding list than suggested to be.

**A.** Realize that the environmental consultations still need to be followed through on for the species identified and adjust accordingly.

**Transportation Curriculum Coordination Council (TC3) Update** – Darby Clayton, West Virginia DOT; Mark Chaput, Michigan DOT

The presentation addressed the following topics (See [AASHTO SOC Annual Meetings web page to view presentation]):

• **Background** – TC3 has been around since 2000. It was originally a FHWA pooled-fund program and was made a AASHTO Technical Service Program (TSP) in 2013. There are various benefits of the AASHTO Partnership which presently has 6 committees.

• **Tools** – TC3 mobile app was rolled out in 2014. Launching a new learning management system (LMS) August 17th, 2015.

• **Expanding** – The Council has grown to 33 states since losing FHWA funding. This is allowing TC3 curriculum to move forward and remain self-sustaining. TC3 has 100 online courses available 24/7 with 20 hours of new courses in development.

• **General Goals:**
  - Increase supporting States.
  - Increase state sharing program.
  - Increase volunteer base and SMEs.
  - Increase industry partnerships.

**Q.** What is name of the mobile app?

**A.** Search under TC3 and look for logo.

**Q.** Who do we reach out to at the Council?

**A.** Either Mark Chaput or Darby Clayton, or anyone at AASHTO.
9:45 AM – 10:00 AM  Break
At this point, a 15 minute break was taken.

10:00 AM – 12:00PM Environmental & Human Resources Session
(Continued)

“AWARE” Worker Protection System and Positive Protection – Panel & Demonstration
John Obr, Texas DOT; Kevin Groeneweg, Mobile Barriers; Lee Cole, Oldcastle Materials; Nathan Creech, Oldcastle Materials
Presentations were provided by the panel addressing the topics summarized below
(See AASHTO SOC Annual Meetings web page to view presentations).
The presentations were followed by an open discussion with Questions & Answers. An outdoor demonstration of the AWARE system was then provided.

• **Mobile Barriers System** (Kevin Groeneweg) – The idea for this system came following several worker fatalities. This system provides positive worker protection using a trailer similar to a low-boy, but with bed turned vertical to form a wall. The trailer mounted barrier end sections are interchangeable so a semi-tractor can attach to either end to move it to desired location. A video on “Highly Mobile Protection” was shown (See presentation).

• **AWARE System** (Nathan Creech) – AWARE stands for Advanced Warning and Risk Evacuation. The system provides an audible alarm to workers if there is an intrusion into the work zone. ARGIS is a military system provider that has moved into transportation products. It is not a final solution yet - early Spring 2016. Texas A&M starting phase 1 and Phase 2 testing – now through December. A video on the AWARE system was shown (See presentation).

• **Work Zone Safety** (Lee Cole) – A Pocket Guide on “Work Zone Intrusion Prevention” was passed around last year at SOC Meeting in Portsmouth, NH. Best Practices alone can get us only so far. The journey – we feel the numbers are getting worse due to work zone intrusion. Tragedy drives change so we need to think differently.

• **Open Discussion** – A Panel discussion with Questions and Answers ensued:

  Q. MI: How do you retrain Contractor personnel?
  A. Developing a training program with the unit for workers. The unit can detect speed of vehicle intrusion and does not want to give workers a false sense of security. It notifies those individuals potentially in the “departure” area.

  Q. CT: What about using with sweeping or similar applications?
  A. It can be attached to those mobile operations. It can also be used for flagger operations.

  Q. OR: Does it rely on receiving a GPS signal?
  A. It does rely on GPS but it is compatible with other redundancy products to assist its signal.

• **AWARE System Demonstration** – A demonstration of the AWARE system was provided.
12:00 PM – 1:15 PM  Lunch

1:30 PM – 3:00 PM  Section Group Meetings

After lunch, Section meetings were held as follows:

- Environmental & Human Resources  
  Lafayette Room
- Computers & Technology  
  Hoffman Room
- Roadways & Structures  
  Manning Room
- Contract Administration  
  Salon A

3:00 PM – 3:15 PM Break
At this point, a 15 minute break was taken.

3:15 PM – 4:45 PM  Closing Session – SOC Business Meeting

Section Chair Reports
Mr. Hoyne called the meeting to order at 3:15 pm. Each of the Section Chairs provided a summary report for their respective Section as described below. NOTE: Section Meeting minutes are contained in Appendices D, E, F and G of these minutes.

Contract Administration (CA): Brenda O’Brien (Michigan DOT)
Ms. O’Brien reported that the Contract Administration (CA) Section had a very productive session today. New Work Plan activities discussed for the CA Section include:

- Update Price Adjustment Clauses, including on D-B Projects
- Performance Warranty & Insurance Bonds Requirements (how they are set)
- CPM Schedules and Analyzing During Construction
- AASHTO Guide Specifications Division I review (CA Section will provide support)

Presentation topics for next year were discussed, including: Use of Drones in Construction; ID/IQ Contracting; NM DOT Contractor Pre-Qualification Procurement; Benefits of Partnering; and Quantification of Benefits of Alternative Contracting Methods. There are several Research proposals they will be recommending at tomorrow’s Research Steering Committee meeting.

Roadways and Structures (R&S): Marc Mastronardi (Georgia DOT)
Mr. Mastronardi reported that the R&S Section had a great turnout and plenty of things to consider for Work Plan items. New Work Plan items considered include:

- Allowance of traffic on new pavement surfaces
- Risk Based Inspection (will focus on a Survey)
- Use of MASH-08 vs. NCHRP350
- AASHTO Guide Specifications Update
- Speed Reductions through Work Zones

Some proposed Research items include: Traffic Control in Two-lane/Two way traffic and the Use of Drones in Construction.
Environment and Human Resources (E&HR): Rob Wight (Utah DOT)
Mr. Wight reported that the Environment and Human Resources (E&HR) Section had a productive session. They have changed the Section name to: Safety, Environment and Human Resources. Mr. Wight reported that the Section Work Plan items will focus on the following:

- Recycling and Re-use of materials.
- Continue to work with the AASHTO Center for Environmental Excellence.
- Survey on Nationwide Certification of Inspectors
- Domestic Scan Tour of Inspector Training, Certification and Accreditation

Some presentation topics for 2016 include: Traffic Control in Two-lane/Two way traffic; Safety in Work Zones and OSHA Construction Safety Issues. Possible Research topics include the Cost of Environmental Commitments.

Computers and Technology (C&T): Greg Mulder (IA DOT)
Mr. Mulder reported that the Computers and Technology (C&T) Section congratulated and expressed appreciation to Mr. Banks for his service as the outgoing C&T Section Chair. They had good meeting turnout and the group was very interactive. They reviewed their Work Plan items for next year. They thought the Panel this year went over very well. 2015-2016 Work Plan activities that were identified include:

- 3-D Modeling
- Civil Integrated Management (CIM)
- Inspector “Gadgets” being used for Quality Measurement
- Intelligent Compaction
- Tying Construction Data into Asset Management
- Public Relations Information Sharing
- Electronic Ticketing
- ROI for e-Construction

Some possible presentations topics include Drones in Construction (OR DOT).

State Discussion Topics – David Hoyne, Subcommittee Vice Chair (VT AOT)
At this point, Mr. Hoyne opened up the meeting for State Discussion Topics (See Appendix C-1 for Questions and Answers discussed).

SOC Meeting Summary by George Raymond (OK DOT) – Mr. Raymond provided the attendees an entertaining summary of the meeting using the various acronyms that occurred in the presentations during the week.

2018 SOC Host State Selection – The first item addressed was selection of a host state for the 2018 meeting. Two State DOTs proposed to host the 2018 meeting (CT DOT and PennDOT). They each provided presentations for their respective States. Mr. Mark Rolfe (CT DOT) presented a promotional video for the State of CT. Mr. Rolfe stated that Hartford, CT is proposed as the meeting location. Mr. Joe Robinson (PennDOT) proposed Pittsburgh, PA as the 2018 meeting location and presented a promotional video on Pittsburgh. There were 29 States present to vote. The votes of SOC members were tallied by Mr. Hoyne and it was decided to host the 2018 meeting in Pennsylvania (14 votes for CT; 15 votes for PA).
2016 SOC Host State Presentation – Mr. Kevin Christensen (MT DOT) provided a brief PowerPoint presentation on Big Sky, MT; the location of the 2016 AASHTO SOC Meeting. Mr. Christensen also described the spectacular sites, transportation access, and various facilities around Big Sky. He looks forward to everyone attending the SOC Meeting in Big Sky next year.

Final Announcements – Mr. Mike Sebren announced the arrangements for the evening’s Closing Business Meeting and Dinner Banquet. The Reception will begin at 6:30 pm. Mr. Sebren passed the SOC Bell on to Mr. Christensen.

5:00 PM   ADJOURN
The meeting was adjourned by Mr. Hoyne at 5:00pm.
Friday, August 14

8:00 AM – 12:00 PM  Research Steering Committee Meeting

NOTE: The Research Steering Committee Minutes are contained in Appendix H of these minutes.
APPENDICES


Appendix B – Meeting Attendees List

Appendix C – State Discussion Topics (Questions & Answers)
   Appendix C-1 – SOC Meeting Attendee Responses (During Meeting)
   Appendix C-2 – Caltrans Responses (Submitted Post-Meeting)
   Appendix C-3 – PennDOT Responses (Submitted Post-Meeting)

Appendix D – Contract Administration Section Report

Appendix E – Roadways and Structures Section Report

Appendix F – Computers and Technology Section Report

Appendix G – Environment and Human Resources Section Report

Appendix H – Research Steering Committee Report

Appendix I – SOC Resolutions
   • AASHTO Subcommittee On Construction Recognizing the Arkansas Highway & Transportation Department, Host of the 2015 AASHTO SOC Summer Meeting in Little Rock, AR
Appendix A

AASHTO SOC Officers

2014-2015

and

2015-2016
## AASHTO Subcommitte on Construction Officers 2014 - 2015

<table>
<thead>
<tr>
<th>Administration</th>
<th>Chair</th>
<th>Vice Chair</th>
<th>Vice Chair-Elect</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Malcolm Dougherty, CalTrans</td>
<td>David Hoyne, VTRANS</td>
<td></td>
<td>VACANT (TBD), FHWA</td>
</tr>
</tbody>
</table>
|                | malcolm.dougherty@dot.ca.gov | David.Hoyne@state.vt.us | 802-828-2593 | Email Address 202-366-????
|                | 916-654-6130 | | | Greg Doyle, FHWA (Asst.) Gregory.J.Doyle@dot.gov 617-494-3279 |

<table>
<thead>
<tr>
<th>Sections</th>
<th>Chair</th>
<th>Vice Chair(s)</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers &amp; Technology</td>
<td>Emanuel Banks, Arkansas HTD</td>
<td>Donald Greuel, WisDOT</td>
<td>VACANT (TBD), FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:emanuel.banks@ahtd.ar.gov">emanuel.banks@ahtd.ar.gov</a></td>
<td><a href="mailto:donald.greuel@dot.state.wi.us">donald.greuel@dot.state.wi.us</a></td>
<td>Email Address 608-267-7774</td>
</tr>
<tr>
<td></td>
<td>501-569-2221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract Administration</td>
<td>Brenda O’Brien, MIDOT</td>
<td>Andy Long, WY DOT</td>
<td>Jerry Yakovenko, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:obrienb2@michigan.gov">obrienb2@michigan.gov</a></td>
<td><a href="mailto:andy.long@wyo.gov">andy.long@wyo.gov</a></td>
<td><a href="mailto:Gerald.Yakowenko@dot.gov">Gerald.Yakowenko@dot.gov</a> 202-366-1562</td>
</tr>
<tr>
<td></td>
<td>517-322-1085</td>
<td>(307) 777-4425</td>
<td></td>
</tr>
<tr>
<td>Environment &amp; Human Resources</td>
<td>Jeff Shapiro, Nevada DOT</td>
<td>Rob Wight, Utah DOT</td>
<td>Jeff Lewis, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:jshapiro@dot.state.nv.us">jshapiro@dot.state.nv.us</a></td>
<td><a href="mailto:rwright@utah.gov">rwright@utah.gov</a></td>
<td><a href="mailto:Jeff.Lewis@dot.gov">Jeff.Lewis@dot.gov</a> 916-498-5035</td>
</tr>
<tr>
<td></td>
<td>775-888-7065</td>
<td>801-633-6252</td>
<td></td>
</tr>
<tr>
<td>Roadways &amp; Structures</td>
<td>Marc Mastronardi, GADOT</td>
<td>Kevin Christensen, MT DOT</td>
<td>Anthony Sarhan, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:mmastronardi@dot.ga.gov">mmastronardi@dot.ga.gov</a></td>
<td><a href="mailto:kechristensen@mt.gov">kechristensen@mt.gov</a></td>
<td><a href="mailto:Anthony.Sarhan@dot.gov">Anthony.Sarhan@dot.gov</a> 360-753-9412</td>
</tr>
<tr>
<td></td>
<td>404-631-1971</td>
<td>406-444-6008</td>
<td></td>
</tr>
<tr>
<td>Research Steering Committee</td>
<td>Jeff Carpenter, WSDOT</td>
<td>Gary Angles, Ohio DOT</td>
<td>Katherine Petros, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:carpernj@wsdot.wa.gov">carpernj@wsdot.wa.gov</a></td>
<td><a href="mailto:Gary.angles@dot.state.oh.us">Gary.angles@dot.state.oh.us</a></td>
<td><a href="mailto:Katherine.Petros@dot.gov">Katherine.Petros@dot.gov</a> 202-493-3154</td>
</tr>
<tr>
<td></td>
<td>(360) 705-7821</td>
<td>614-466-7057</td>
<td></td>
</tr>
</tbody>
</table>

AASHTO Liaison: Greta Smith (202) 624-5815 gsmith@aashto.org

Arkansas HTD Contact - 2015 Annual Meeting: Mike Sebren, State Construction Engineer, (501) 569-2251; mike.sebren@ahtd.ar.gov
# AASHTO Subcommittee on Construction Officers 2015 - 2016

<table>
<thead>
<tr>
<th>Administration</th>
<th>Chair</th>
<th>Vice Chair</th>
<th>Vice Chair-Elect</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Malcolm Dougherty, CalTrans</td>
<td>David Hoyne, VTrans</td>
<td></td>
<td>Rob Elliott, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:malcolm.dougherty@dot.ca.gov">malcolm.dougherty@dot.ca.gov</a></td>
<td><a href="mailto:David.Hoyne@vermont.gov">David.Hoyne@vermont.gov</a></td>
<td></td>
<td><a href="mailto:Rob.Elliott@dot.gov">Rob.Elliott@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td>916-654-6130</td>
<td>802-828-2593</td>
<td></td>
<td>404-562-3941</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Matthew DiGiovanni, FHWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Asst. Secretary)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:Matthew.DiGiovanni@dot.gov">Matthew.DiGiovanni@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>802-224-1368</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sections</th>
<th>Chair</th>
<th>Vice Chair(s)</th>
<th>Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers &amp; Technology</td>
<td>Greg Mulder, Iowa DOT</td>
<td>Donald Greuel, WisDOT</td>
<td>John Haynes, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:greg.mulder@dot.iowa.gov">greg.mulder@dot.iowa.gov</a></td>
<td><a href="mailto:donald.greuel@dot.state.wi.us">donald.greuel@dot.state.wi.us</a></td>
<td><a href="mailto:John.Haynes@dot.gov">John.Haynes@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td>515-239-1843</td>
<td>608-267-7774</td>
<td>801-955-3526</td>
</tr>
<tr>
<td>Contract Administration</td>
<td>Gary Angles, Ohio DOT</td>
<td>Andy Long, WY DOT</td>
<td>Jerry Yakowenko, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:Gary.angles@dot.state.oh.us">Gary.angles@dot.state.oh.us</a></td>
<td><a href="mailto:andy.long@wyo.gov">andy.long@wyo.gov</a></td>
<td><a href="mailto:Gerald.Yakowenko@dot.gov">Gerald.Yakowenko@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td>614-466-7057</td>
<td>307-777-4425</td>
<td>202-366-1562</td>
</tr>
<tr>
<td>Environment &amp; Human Resources</td>
<td>Rob Wight, Utah DOT</td>
<td>VACANT (TBD), XX DOT</td>
<td>Jeff Lewis, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:rwight@utah.gov">rwight@utah.gov</a></td>
<td>Email Address</td>
<td><a href="mailto:Jeff.Lewis@dot.gov">Jeff.Lewis@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td>801-633-6252</td>
<td>???-???-????</td>
<td>916-498-5035</td>
</tr>
<tr>
<td>Roadways &amp; Structures</td>
<td>Marc Mastronardi, GADOT</td>
<td>Kevin Christensen, MT DOT</td>
<td>Anthony Sarhan, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:mmastronardi@dot.ga.gov">mmastronardi@dot.ga.gov</a></td>
<td><a href="mailto:kechristensen@mt.gov">kechristensen@mt.gov</a></td>
<td><a href="mailto:Anthony.Sarhan@dot.gov">Anthony.Sarhan@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td>404-631-1971</td>
<td>406-444-6008</td>
<td>360-753-9487</td>
</tr>
<tr>
<td>Research Steering Committee</td>
<td>Charlie Bauer, Wyoming DOT</td>
<td>Jon Stayton, CalTrans</td>
<td>Katherine Petros, FHWA</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:charlie.bauer@wyo.gov">charlie.bauer@wyo.gov</a></td>
<td><a href="mailto:jon.stayton@dot.ca.gov">jon.stayton@dot.ca.gov</a></td>
<td><a href="mailto:Katherine.Petros@dot.gov">Katherine.Petros@dot.gov</a></td>
</tr>
<tr>
<td></td>
<td>307-777-4927</td>
<td>916-????-????</td>
<td>202-493-3154</td>
</tr>
</tbody>
</table>

**AASHTO Liaison:** Evan Rothblatt; (202) 624-3648; erothblatt@aashto.org

**Montana DOT Contact - 2016 Annual Meeting:** Kevin Christensen, Construction Engineer; (406) 444-6008; kechristensen@mt.gov
Appendix B

Meeting Attendees List
2015 AASHTO SOC Annual Meeting
Meeting Attendees List

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Company</th>
<th>Job Title</th>
<th>Email</th>
<th>Work Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahlvers</td>
<td>David</td>
<td>Missouri Department of Transportation</td>
<td>State Construction and Materials Engineer</td>
<td><a href="mailto:david.ahlvers@modot.mo.gov">david.ahlvers@modot.mo.gov</a></td>
<td>573-751-3689</td>
</tr>
<tr>
<td>Allen</td>
<td>Robert</td>
<td>HDR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allen</td>
<td>Alden &quot;Casey&quot;</td>
<td>LA DEPT. OF TRANSPORTATION</td>
<td>STRUCTURAL FABRICATION ENGINEER</td>
<td><a href="mailto:Alden.Allen@la.gov">Alden.Allen@la.gov</a></td>
<td>(225) 379-1563</td>
</tr>
<tr>
<td>Angles</td>
<td>Gary</td>
<td>Ohio DOT</td>
<td>Construction Engineer</td>
<td><a href="mailto:gary.angles@dot.state.oh.us">gary.angles@dot.state.oh.us</a></td>
<td>614-466-7057</td>
</tr>
<tr>
<td>Arnold</td>
<td>Gene</td>
<td>Ergon Asphalt and Emulsions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asher</td>
<td>Mark</td>
<td>Jacobs Engineering</td>
<td></td>
<td><a href="mailto:mark.asher@jacobs.com">mark.asher@jacobs.com</a></td>
<td></td>
</tr>
<tr>
<td>Auker</td>
<td>Chad</td>
<td>AZ DOT</td>
<td>Assistant District Engineer</td>
<td><a href="mailto:cauker@azdot.gov">cauker@azdot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Banks</td>
<td>Emanuel</td>
<td>Arkansas Highway and Transportation Department</td>
<td>Deputy Director and Chief Engineer</td>
<td><a href="mailto:emanuel.banks@ahtd.ar.gov">emanuel.banks@ahtd.ar.gov</a></td>
<td>501-569-2214</td>
</tr>
<tr>
<td>Barr</td>
<td>James</td>
<td>HDR</td>
<td>Vice President</td>
<td><a href="mailto:james.barr@hdrinc.com">james.barr@hdrinc.com</a></td>
<td></td>
</tr>
<tr>
<td>Bartos</td>
<td>Steven</td>
<td>NEBRASKA DEPARTMENT OF ROADS</td>
<td>ASST. CONSTRUCTION ENGINEER</td>
<td><a href="mailto:steve.bartos@nebraska.gov">steve.bartos@nebraska.gov</a></td>
<td>402-479-4455</td>
</tr>
<tr>
<td>Bates</td>
<td>Kerry</td>
<td>Virginia Department of Transportation</td>
<td>State Construction Engineer</td>
<td><a href="mailto:Kerry.Bates@vdot.virginia.gov">Kerry.Bates@vdot.virginia.gov</a></td>
<td>804-371-4312</td>
</tr>
<tr>
<td>Bauer</td>
<td>Charlie</td>
<td>WVDOH</td>
<td>Construction Staff Engineer</td>
<td><a href="mailto:charlie.bauer@wv.gov">charlie.bauer@wv.gov</a></td>
<td>307-777-4927</td>
</tr>
<tr>
<td>Beer</td>
<td>Michael</td>
<td>MnDOT</td>
<td>Construction Engineer</td>
<td><a href="mailto:michael.beer@state.mn.us">michael.beer@state.mn.us</a></td>
<td></td>
</tr>
<tr>
<td>Bennett</td>
<td>Scott</td>
<td>AHTD</td>
<td>Director</td>
<td><a href="mailto:scott.bennett@ahtd.ar.gov">scott.bennett@ahtd.ar.gov</a></td>
<td>501-569-2211</td>
</tr>
<tr>
<td>Bestgen</td>
<td>Jay</td>
<td>MoDOT</td>
<td>Assistant State Construction/Materials Engineer</td>
<td><a href="mailto:jay.bestgen@modot.mo.gov">jay.bestgen@modot.mo.gov</a></td>
<td></td>
</tr>
<tr>
<td>Blanco</td>
<td>Stephanie</td>
<td>Parsons Transportation Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blankenship</td>
<td>Jason</td>
<td>TDOT</td>
<td>Assistant Director of Construction</td>
<td><a href="mailto:Jason.Blankenship@tn.gov">Jason.Blankenship@tn.gov</a></td>
<td></td>
</tr>
<tr>
<td>Bogggs</td>
<td>Steve</td>
<td>WVDOH</td>
<td>Specification Engineer</td>
<td><a href="mailto:steve.d.boggs@wv.gov">steve.d.boggs@wv.gov</a></td>
<td>304-558-3304</td>
</tr>
<tr>
<td>Boyd</td>
<td>Jason</td>
<td>WVODH</td>
<td>Director - Contract Administration</td>
<td><a href="mailto:jason.m.boyd@wv.gov">jason.m.boyd@wv.gov</a></td>
<td>304-558-3304</td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>---------</td>
<td>-----------</td>
<td>------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Burns</td>
<td>Rebecca</td>
<td>Department of Transportation, Bureau of Project Delivery, Innovation and Support Services Division</td>
<td><a href="mailto:reburns@pa.gov">reburns@pa.gov</a></td>
<td>717-787-6989</td>
<td></td>
</tr>
<tr>
<td>Burns</td>
<td>Mike</td>
<td>Crafton Tull</td>
<td>Senior Vice President</td>
<td><a href="mailto:mike.burns@craftontull.com">mike.burns@craftontull.com</a></td>
<td></td>
</tr>
<tr>
<td>Catalanotte</td>
<td>A. J.</td>
<td>CH2M HILL</td>
<td>Regional Construction Manager</td>
<td><a href="mailto:aj.catalanotte@ch2m.com">aj.catalanotte@ch2m.com</a></td>
<td>414-491-9938</td>
</tr>
<tr>
<td>Cawley</td>
<td>Bryan</td>
<td>FHWA</td>
<td>Construction Management Team Leader</td>
<td><a href="mailto:bryan.cawley@dot.gov">bryan.cawley@dot.gov</a></td>
<td>202-366-1333</td>
</tr>
<tr>
<td>Chandran</td>
<td>Ravi</td>
<td>Connecticut DOT</td>
<td></td>
<td><a href="mailto:ravi.chandran@ct.gov">ravi.chandran@ct.gov</a></td>
<td>860-258-4601</td>
</tr>
<tr>
<td>Chaput</td>
<td>Mark</td>
<td>Michigan DOT</td>
<td>Deputy Director Bureau of Field Services</td>
<td><a href="mailto:chaputm@michigan.gov">chaputm@michigan.gov</a></td>
<td>517-322-3331</td>
</tr>
<tr>
<td>Chisolm</td>
<td>Richard</td>
<td>MS Department</td>
<td>State Construction Engineer</td>
<td><a href="mailto:rchisolm@mdot.ms.gov">rchisolm@mdot.ms.gov</a></td>
<td>601-359-7301</td>
</tr>
<tr>
<td>Christensen</td>
<td>Kevin</td>
<td>Montana Department of Transportation</td>
<td>Construction Engineer</td>
<td><a href="mailto:kechristensen@mt.gov">kechristensen@mt.gov</a></td>
<td>406-444-6008</td>
</tr>
<tr>
<td>Christman</td>
<td>Jennifer</td>
<td>Advanced Drainage Systems, Inc.</td>
<td>Zone Engineer</td>
<td><a href="mailto:jennifer.christman@ads-pipe.com">jennifer.christman@ads-pipe.com</a></td>
<td>678-427-1712</td>
</tr>
<tr>
<td>Christopher</td>
<td>Chris</td>
<td>Washington Department of Transportation</td>
<td></td>
<td><a href="mailto:christc@wsdot.wa.gov">christc@wsdot.wa.gov</a></td>
<td>360-705-7821</td>
</tr>
<tr>
<td>Clayton</td>
<td>Darby</td>
<td>WVDOH</td>
<td>Regional Engineer</td>
<td><a href="mailto:darby.j.clayton@wv.gov">darby.j.clayton@wv.gov</a></td>
<td>304-558-3304</td>
</tr>
<tr>
<td>Clyde</td>
<td>Jeff</td>
<td>W.W.Clyde &amp; Co.</td>
<td>President</td>
<td><a href="mailto:ebench@wwclyde.net">ebench@wwclyde.net</a></td>
<td></td>
</tr>
<tr>
<td>Cochran</td>
<td>Ernie</td>
<td>Housman and Associates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td>Daniel</td>
<td>Luster National Inc.</td>
<td>Program Director/Transportation</td>
<td><a href="mailto:dcoffee@luster.com">dcoffee@luster.com</a></td>
<td>661-869-0157</td>
</tr>
<tr>
<td>Coffman</td>
<td>Richard</td>
<td>University of Arkansas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cole</td>
<td>Lee</td>
<td>Oldcastle Materials Inc.</td>
<td>V.P. Environmental, Health &amp; Safety</td>
<td><a href="mailto:lee.cole@oldcastlematerials.com">lee.cole@oldcastlematerials.com</a></td>
<td>770-392-5392</td>
</tr>
<tr>
<td>Conrad</td>
<td>Don</td>
<td>Hanson Pipe &amp; Precast</td>
<td></td>
<td><a href="mailto:don.conrad@lehghanson.com">don.conrad@lehghanson.com</a></td>
<td>504-439-5627</td>
</tr>
<tr>
<td>Costello</td>
<td>Christopher</td>
<td>Delaware Department of Transportation</td>
<td>Group Engineer</td>
<td><a href="mailto:chris.costello@state.de.us">chris.costello@state.de.us</a></td>
<td>302-326-4401</td>
</tr>
<tr>
<td>Creech</td>
<td>Nathan</td>
<td>Old Castle</td>
<td></td>
<td><a href="mailto:nathan.creech@oldcastlematerials.com">nathan.creech@oldcastlematerials.com</a></td>
<td>571-228-7421</td>
</tr>
<tr>
<td>Crockett</td>
<td>Howe</td>
<td>Western Federal Lands Highway Division</td>
<td>Construction Operations Engineer</td>
<td><a href="mailto:Howe.Crockett@dot.gov">Howe.Crockett@dot.gov</a></td>
<td>360-619-7750</td>
</tr>
<tr>
<td>Dearmont</td>
<td>Andy</td>
<td>Nebraska Department of Roads</td>
<td>Assistant Construction Engineer</td>
<td><a href="mailto:andy.dearmont@nebraska.gov">andy.dearmont@nebraska.gov</a></td>
<td>402-479-4451</td>
</tr>
<tr>
<td>Deery</td>
<td>Brian</td>
<td>AGC of America</td>
<td>Senior Director</td>
<td><a href="mailto:deeryb@agc.org">deeryb@agc.org</a></td>
<td>703-837-5319</td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>----------------------------------------------</td>
<td>----------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Diaz</td>
<td>Marcil</td>
<td>AGC Arkansas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dickinson</td>
<td>Thomas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domogalla</td>
<td>Kevin</td>
<td>Nebraska Department of Roads</td>
<td>District Engineer</td>
<td><a href="mailto:kevin.domogalla@nebraska.gov">kevin.domogalla@nebraska.gov</a></td>
<td></td>
</tr>
<tr>
<td>Donoho</td>
<td>David</td>
<td>Smith Seckman Reid, Inc.</td>
<td>Director</td>
<td><a href="mailto:ddonoho@ssr-inc.com">ddonoho@ssr-inc.com</a></td>
<td>615-383-1113</td>
</tr>
<tr>
<td>Dougherty</td>
<td>Malcolm</td>
<td>California Department of Transportation</td>
<td>Director</td>
<td><a href="mailto:Malcolm.Dougherty@dot.ca.gov">Malcolm.Dougherty@dot.ca.gov</a></td>
<td></td>
</tr>
<tr>
<td>Doyle</td>
<td>Greg</td>
<td>Federal Highway Administration</td>
<td>Construction Quality Engineer</td>
<td><a href="mailto:gregory.j.doyle@dot.gov">gregory.j.doyle@dot.gov</a></td>
<td>617-494-3279</td>
</tr>
<tr>
<td>Duval</td>
<td>Richard</td>
<td>FEDERAL HIGHWAY ADMINISTRATION</td>
<td>Pavements Engineer</td>
<td><a href="mailto:richard.duval@dot.gov">richard.duval@dot.gov</a></td>
<td>720-963-3748</td>
</tr>
<tr>
<td>Effinger</td>
<td>Rob</td>
<td>AASHTO</td>
<td>Engineering Fellow</td>
<td><a href="mailto:reffinger@aashto.org">reffinger@aashto.org</a></td>
<td></td>
</tr>
<tr>
<td>Eiseman</td>
<td>Susan</td>
<td>Kansas Dept of Transportation</td>
<td></td>
<td><a href="mailto:susan.eiseman@ksdot.org">susan.eiseman@ksdot.org</a></td>
<td>785-250-7839</td>
</tr>
<tr>
<td>Ericsson</td>
<td>Christer</td>
<td>Greenman-Pedersen, Inc.</td>
<td>Sr. Vice President</td>
<td><a href="mailto:cericsson@gpinet.com">cericsson@gpinet.com</a></td>
<td>(978) 570-2999</td>
</tr>
<tr>
<td>Falsetti</td>
<td>Rachel</td>
<td>Caltrans</td>
<td>Construction Chief</td>
<td><a href="mailto:rachel.falsetti@dot.ca.gov">rachel.falsetti@dot.ca.gov</a></td>
<td>916-654-2157</td>
</tr>
<tr>
<td>Fitzpatrick</td>
<td>Jamie</td>
<td>TDOT</td>
<td>Assistant Director of Construction</td>
<td><a href="mailto:jamie.fitzpatrick@tn.gov">jamie.fitzpatrick@tn.gov</a></td>
<td></td>
</tr>
<tr>
<td>Flack</td>
<td>Michael</td>
<td>Volkert, Inc.</td>
<td>Vice President</td>
<td><a href="mailto:mike.flack@volkert.com">mike.flack@volkert.com</a></td>
<td>717-645-2290</td>
</tr>
<tr>
<td>Flowers</td>
<td>Tom</td>
<td>Ergon Asphalt &amp; Emulsions Inc.</td>
<td>Technical Marketing Manager</td>
<td><a href="mailto:tom.flowers@ergon.com">tom.flowers@ergon.com</a></td>
<td>903-258-6186</td>
</tr>
<tr>
<td>Foerschler</td>
<td>Sharon</td>
<td>State of Nevada Dept. of Transportation</td>
<td>Professional Engineer</td>
<td><a href="mailto:sfoerschler@dot.state.nv.us">sfoerschler@dot.state.nv.us</a></td>
<td></td>
</tr>
<tr>
<td>Fowlds</td>
<td>Chad</td>
<td>Minnesota Dept of Transportation</td>
<td>Assistant District Engineer</td>
<td><a href="mailto:Chad.Fowlds@state.mn.us">Chad.Fowlds@state.mn.us</a></td>
<td>507-304-6102</td>
</tr>
<tr>
<td>Frisbee</td>
<td>Steve</td>
<td>Arkansas Highway and Transportation Department</td>
<td>District Engineer</td>
<td>steve.frис<a href="mailto:bee@ahtd.ar.gov">bee@ahtd.ar.gov</a></td>
<td>870-777-3457</td>
</tr>
<tr>
<td>Garcia</td>
<td>Roxana</td>
<td>TxDOT</td>
<td>Construction Section Director</td>
<td><a href="mailto:roxana.garcia@txdot.gov">roxana.garcia@txdot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Garris</td>
<td>Randy</td>
<td>NC Department of Transportation</td>
<td>State Contract Officer</td>
<td><a href="mailto:rgarris@ncdot.gov">rgarris@ncdot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Gee</td>
<td>King</td>
<td>AASHTO</td>
<td></td>
<td><a href="mailto:kgee@aashto.org">kgee@aashto.org</a></td>
<td>202-624-5812</td>
</tr>
<tr>
<td>Gendreau</td>
<td>Cal</td>
<td>North Dakota DOT</td>
<td>Construction Engineer</td>
<td><a href="mailto:cgendrea@nd.gov">cgendrea@nd.gov</a></td>
<td>701-328-2563</td>
</tr>
<tr>
<td>Glenn, Jr.</td>
<td>Earl</td>
<td>MS Department of Transportation</td>
<td>Assistant State Construction Engineer</td>
<td><a href="mailto:eglenn@mdot.ms.gov">eglenn@mdot.ms.gov</a></td>
<td>601-359-7301</td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>----------------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Goodrum</td>
<td>Paul</td>
<td>University of Colorado Boulder</td>
<td>Professor</td>
<td><a href="mailto:paul.goodrum@colorado.edu">paul.goodrum@colorado.edu</a></td>
<td>303-492-0475</td>
</tr>
<tr>
<td>Graham</td>
<td>Durwood</td>
<td>Mississippi Department of Transportation</td>
<td>District Construction Engineer</td>
<td><a href="mailto:dgraham@mdot.ms.gov">dgraham@mdot.ms.gov</a></td>
<td></td>
</tr>
<tr>
<td>Gransberg</td>
<td>Douglas</td>
<td>Iowa State University</td>
<td>Professor</td>
<td><a href="mailto:dgran@iastate.edu">dgran@iastate.edu</a></td>
<td>515-294-4841</td>
</tr>
<tr>
<td>Greuel</td>
<td>Mary</td>
<td></td>
<td></td>
<td><a href="mailto:MGreuel@KLEngineering.com">MGreuel@KLEngineering.com</a></td>
<td></td>
</tr>
<tr>
<td>Greuel</td>
<td>Donald</td>
<td>WI Department of Transportation</td>
<td>Chief Project Services Engineer</td>
<td><a href="mailto:donald.greuel@dot.wi.gov">donald.greuel@dot.wi.gov</a></td>
<td>608-516-1793</td>
</tr>
<tr>
<td>Groeneweg</td>
<td>Kevin</td>
<td>Mobile Barriers</td>
<td></td>
<td><a href="mailto:kevin@mobilebarriers.com">kevin@mobilebarriers.com</a></td>
<td>714-457-7100</td>
</tr>
<tr>
<td>Hancock</td>
<td>Ron</td>
<td>NC Department of Transportation</td>
<td>State Construction Engineer</td>
<td><a href="mailto:rhancock@ncdot.gov">rhancock@ncdot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Harper</td>
<td>Fred</td>
<td>Michael Baker International</td>
<td></td>
<td><a href="mailto:Fred.Harper@mbakerintl.com">Fred.Harper@mbakerintl.com</a></td>
<td></td>
</tr>
<tr>
<td>Harper</td>
<td>Christofer</td>
<td>Louisiana State University</td>
<td>Assistant Professor</td>
<td><a href="mailto:charper@lsu.edu">charper@lsu.edu</a></td>
<td>225-578-0131</td>
</tr>
<tr>
<td>Haynes</td>
<td>John</td>
<td>FHIWA</td>
<td>Transportation Specialist</td>
<td><a href="mailto:John.Haynes@dot.gov">John.Haynes@dot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Headley</td>
<td>Mark</td>
<td>Arkansas State Highway &amp; Trans Dept.</td>
<td>District Engineer</td>
<td><a href="mailto:mark.headley@ahtd.ar.gov">mark.headley@ahtd.ar.gov</a></td>
<td>501-569-2173</td>
</tr>
<tr>
<td>Hedgecock</td>
<td>Richard</td>
<td>AGC Arkansas</td>
<td></td>
<td><a href="mailto:rhedgecock@agcar.net">rhedgecock@agcar.net</a></td>
<td></td>
</tr>
<tr>
<td>Henning</td>
<td>David</td>
<td>Arkansas State Highway &amp; Transportation Dept.</td>
<td>District Engineer-Dist. 2</td>
<td><a href="mailto:david.henning@ahtd.ar.gov">david.henning@ahtd.ar.gov</a></td>
<td>870-534-1612</td>
</tr>
<tr>
<td>Hewatt</td>
<td>Jason</td>
<td>Hanson Pipe &amp; Precast</td>
<td>Technical Resource Engineer</td>
<td><a href="mailto:Jason.Hewatt@LehighHanson.com">Jason.Hewatt@LehighHanson.com</a></td>
<td>706-286-5080</td>
</tr>
<tr>
<td>Hill</td>
<td>D.B.</td>
<td>AGC Arkansas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hite</td>
<td>Jeffery</td>
<td>Rinker Materials Concrete Pipe Division - CEMEX</td>
<td>Director Technical Promotions</td>
<td><a href="mailto:jefferya.hite@cemex.com">jefferya.hite@cemex.com</a></td>
<td>813-220-4076</td>
</tr>
<tr>
<td>Hoff</td>
<td>Trygve</td>
<td>American Concrete Pipe Association</td>
<td>Northeast Regional Engineer</td>
<td><a href="mailto:thoff@concrete-pipe.org">thoff@concrete-pipe.org</a></td>
<td>614-506-4867</td>
</tr>
<tr>
<td>Hoffman</td>
<td>Paul</td>
<td>District Department of Transportation</td>
<td>Program Manager</td>
<td><a href="mailto:paul.hoffman@dc.gov">paul.hoffman@dc.gov</a></td>
<td></td>
</tr>
<tr>
<td>Hogan</td>
<td>Al</td>
<td>American Concrete Pipe Association</td>
<td>Southeast Region Engineer</td>
<td><a href="mailto:ahogan@concrete-pipe.org">ahogan@concrete-pipe.org</a></td>
<td></td>
</tr>
<tr>
<td>Hollis</td>
<td>Chip</td>
<td>NICET</td>
<td>Director, Communications</td>
<td><a href="mailto:chollis@nicet.org">chollis@nicet.org</a></td>
<td></td>
</tr>
<tr>
<td>Hoyne</td>
<td>David</td>
<td>Vermont Agency of Transportation</td>
<td>State Construction Engineer</td>
<td><a href="mailto:david.hoyne@state.vt.us">david.hoyne@state.vt.us</a></td>
<td>802-828-2593</td>
</tr>
<tr>
<td>Icenogle</td>
<td>Gary</td>
<td>Michael Baker Corp</td>
<td>Engineer</td>
<td><a href="mailto:Gary.Icenogle@mbakerintl.com">Gary.Icenogle@mbakerintl.com</a></td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Ingram III</td>
<td>John</td>
<td>Idaho Transportation Dept.</td>
<td>Associate Construction Engineer</td>
<td><a href="mailto:john.ingram@itd.idaho.gov">john.ingram@itd.idaho.gov</a></td>
<td>208-334-8436</td>
</tr>
<tr>
<td>Ishee</td>
<td>Mark</td>
<td>Ergon Asphalt &amp; Emulsions Inc.</td>
<td>Vice President Pavement Preservation</td>
<td><a href="mailto:mark.ishee@ergon.com">mark.ishee@ergon.com</a></td>
<td>601-933-3000</td>
</tr>
<tr>
<td>Jagoda</td>
<td>Paul</td>
<td>Montana Department Transportation</td>
<td>Construction Engineering Services Engineer</td>
<td><a href="mailto:pjagoda@mt.gov">pjagoda@mt.gov</a></td>
<td>406-444-2413</td>
</tr>
<tr>
<td>Jahrens</td>
<td>Charles</td>
<td>Iowa State University</td>
<td>Professor</td>
<td><a href="mailto:cjahrens@iastate.edu">cjahrens@iastate.edu</a></td>
<td>(515) 294-3829</td>
</tr>
<tr>
<td>James</td>
<td>Bernard</td>
<td>Ministry of Transportation</td>
<td>Head, Construction Contracts</td>
<td><a href="mailto:bernard.james@ontario.ca">bernard.james@ontario.ca</a></td>
<td>905-704-2197</td>
</tr>
<tr>
<td>Jeffers</td>
<td>Matt</td>
<td>ERGON ASPHALT &amp; EMULSIONS INC</td>
<td>TECHNICAL MARKETING MANAGER</td>
<td><a href="mailto:matt.jeffers@ergon.com">matt.jeffers@ergon.com</a></td>
<td>615-504-1312</td>
</tr>
<tr>
<td>Johnson</td>
<td>James</td>
<td>AASHTO</td>
<td>AASHTOWare Project Business Manager</td>
<td><a href="mailto:jjohnson@aashto.org">jjohnson@aashto.org</a></td>
<td>850-570-4935</td>
</tr>
<tr>
<td>Juliano</td>
<td>Rich</td>
<td>American Road &amp; Transportation Builders Association</td>
<td>Senior Vice President, Managing Director of the Contractors &amp; P3 Divisions</td>
<td><a href="mailto:rjuliano@artba.org">rjuliano@artba.org</a></td>
<td>202-289-4434</td>
</tr>
<tr>
<td>Katara</td>
<td>Si</td>
<td>Pavia Systems, Inc.</td>
<td>President</td>
<td><a href="mailto:si@paviasystems.com">si@paviasystems.com</a></td>
<td></td>
</tr>
<tr>
<td>Kerness</td>
<td>Eric</td>
<td>Dispute Resolution Board Foundation</td>
<td>Pres-Elect</td>
<td><a href="mailto:eric@kerness.com">eric@kerness.com</a></td>
<td>518-928-9433</td>
</tr>
<tr>
<td>Lawrence</td>
<td>Kelli</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawrence</td>
<td>Steve</td>
<td>Arkansas Highway &amp; Transportation Department</td>
<td>District Engineer</td>
<td><a href="mailto:steve.lawrence@ahtd.ar.gov">steve.lawrence@ahtd.ar.gov</a></td>
<td>870-743-2100</td>
</tr>
<tr>
<td>Lawrence</td>
<td>Kelli</td>
<td></td>
<td></td>
<td><a href="mailto:steve.lawrence@ahtd.ar.gov">steve.lawrence@ahtd.ar.gov</a></td>
<td></td>
</tr>
<tr>
<td>Lawton</td>
<td>Joe</td>
<td>HNTB</td>
<td></td>
<td><a href="mailto:jlawton@hntb.com">jlawton@hntb.com</a></td>
<td></td>
</tr>
<tr>
<td>Lech</td>
<td>Marvin</td>
<td>Nebraska Department of Roads</td>
<td>District Construction Engineer</td>
<td><a href="mailto:Marvin.Lech@nebraska.gov">Marvin.Lech@nebraska.gov</a></td>
<td></td>
</tr>
<tr>
<td>Ledger</td>
<td>Jonathan</td>
<td>Delaware Department of Transportation</td>
<td>Civil Engineer Program Manager II</td>
<td><a href="mailto:jonathan.ledger@state.de.us">jonathan.ledger@state.de.us</a></td>
<td>302-894-6329</td>
</tr>
<tr>
<td>Lenz</td>
<td>Russel</td>
<td>Raba Kistner Infrastructure, Inc.</td>
<td>Senior Vice President &amp; COO</td>
<td><a href="mailto:rlenz@rkci.com">rlenz@rkci.com</a></td>
<td>512-904-9177</td>
</tr>
<tr>
<td>Lewis</td>
<td>Jeff</td>
<td>FHWA - Resource Center</td>
<td>Construction Program Management Engineer</td>
<td><a href="mailto:jeff.lewis@dot.gov">jeff.lewis@dot.gov</a></td>
<td>(916) 498-5035</td>
</tr>
<tr>
<td>Long</td>
<td>Andy</td>
<td>Wyoming Department of Transportation</td>
<td>State Construction Engineer</td>
<td><a href="mailto:andy.long@wyo.gov">andy.long@wyo.gov</a></td>
<td>307-777-4425</td>
</tr>
<tr>
<td>Lory</td>
<td>Chris</td>
<td>HNTB</td>
<td></td>
<td><a href="mailto:clory@hntb.com">clory@hntb.com</a></td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>---------</td>
<td>-----------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Lowe</td>
<td>Scott</td>
<td>Trauner Consulting Services, Inc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lutz</td>
<td>Robert</td>
<td>AASHTO</td>
<td>Area Engineer</td>
<td><a href="mailto:rlutz@amrl.net">rlutz@amrl.net</a></td>
<td></td>
</tr>
<tr>
<td>Lyons</td>
<td>Cordell</td>
<td>FHWA - Arkansas Division</td>
<td>Area Engineer</td>
<td><a href="mailto:cordell.lyons@dot.gov">cordell.lyons@dot.gov</a></td>
<td>501-324-6434</td>
</tr>
<tr>
<td>Mailhot</td>
<td>Gary</td>
<td>HDR</td>
<td>CE&amp;I Manager</td>
<td><a href="mailto:gary.mailhot@hdrinc.com">gary.mailhot@hdrinc.com</a></td>
<td></td>
</tr>
<tr>
<td>Malusky</td>
<td>Katheryn</td>
<td>AASHTO</td>
<td>Associate Program Manager, NTPEP</td>
<td><a href="mailto:kmalusky@aashto.org">kmalusky@aashto.org</a></td>
<td></td>
</tr>
<tr>
<td>Martin</td>
<td>Blake</td>
<td>Garver</td>
<td>R</td>
<td><a href="mailto:RBMartin@GarverUSA.com">RBMartin@GarverUSA.com</a></td>
<td></td>
</tr>
<tr>
<td>Mastronardi</td>
<td>Marc</td>
<td>Georgia Department of Transportation</td>
<td>State Construction Engineer</td>
<td><a href="mailto:mmastronardi@dot.ga.gov">mmastronardi@dot.ga.gov</a></td>
<td></td>
</tr>
<tr>
<td>Matocha</td>
<td>David</td>
<td>Hanson Pipe &amp; Precast</td>
<td>Technical Resource Manager</td>
<td><a href="mailto:david.matocha@hanson.com">david.matocha@hanson.com</a></td>
<td>512-914-0674</td>
</tr>
<tr>
<td>Matteson</td>
<td>Ron</td>
<td>Ergon Asphalt &amp; Emulsions</td>
<td>Technical Marketing Manager</td>
<td><a href="mailto:ron.matteson@ergon.com">ron.matteson@ergon.com</a></td>
<td>785-577-6990</td>
</tr>
<tr>
<td>McNally</td>
<td>Craig</td>
<td>Washington State Department of Transportation</td>
<td></td>
<td><a href="mailto:mcdanic@wsdot.wa.gov">mcdanic@wsdot.wa.gov</a></td>
<td>368-705-7823</td>
</tr>
<tr>
<td>McDonnell</td>
<td>Jim</td>
<td>AASHTO</td>
<td></td>
<td><a href="mailto:jmcdonnell@aashto.org">jmcdonnell@aashto.org</a></td>
<td>202-624-5448</td>
</tr>
<tr>
<td>McGarrah</td>
<td>Shannon</td>
<td>Garver</td>
<td>R</td>
<td><a href="mailto:RBMartin@GarverUSA.com">RBMartin@GarverUSA.com</a></td>
<td></td>
</tr>
<tr>
<td>McMillan</td>
<td>Walter</td>
<td>Arkansas State Highway and Transportation Dept.</td>
<td>District Engineer</td>
<td><a href="mailto:walter.mcmillan@ahtd.ar.gov">walter.mcmillan@ahtd.ar.gov</a></td>
<td>870-239-9511</td>
</tr>
<tr>
<td>Meadors</td>
<td>Alan</td>
<td>OK/AR Chapter ACPA</td>
<td>Arkansas Promotional Director</td>
<td><a href="mailto:ameadors@pavement.com">ameadors@pavement.com</a></td>
<td>501-326-2575</td>
</tr>
<tr>
<td>Molenaar</td>
<td>Keith</td>
<td>University of Colorado</td>
<td>Professor</td>
<td><a href="mailto:keith.molenaar@colorado.edu">keith.molenaar@colorado.edu</a></td>
<td>303-735-4276</td>
</tr>
<tr>
<td>Mott</td>
<td>Earl</td>
<td>Garver</td>
<td></td>
<td><a href="mailto:RBMartin@GarverUSA.com">RBMartin@GarverUSA.com</a></td>
<td></td>
</tr>
<tr>
<td>Mueting</td>
<td>Curt</td>
<td>Nebraska Department of Roads</td>
<td>District Construction Engineer</td>
<td><a href="mailto:curt.mueting@nebraska.gov">curt.mueting@nebraska.gov</a></td>
<td></td>
</tr>
<tr>
<td>Mulder</td>
<td>Greg</td>
<td>Iowa Department of Transportation</td>
<td>Director, Office of Construction and Materials</td>
<td><a href="mailto:greg.mulder@dot.iowa.gov">greg.mulder@dot.iowa.gov</a></td>
<td>515-239-1843</td>
</tr>
<tr>
<td>Myers</td>
<td>Bob</td>
<td>Michael Baker</td>
<td></td>
<td><a href="mailto:BMyers@mbakerintl.com">BMyers@mbakerintl.com</a></td>
<td></td>
</tr>
<tr>
<td>Nedbalek</td>
<td>Will</td>
<td>Oklahoma Dept of Trans</td>
<td>Asst. State Construction Engineer</td>
<td><a href="mailto:wnedbalek@odot.org">wnedbalek@odot.org</a></td>
<td></td>
</tr>
<tr>
<td>Neyman</td>
<td>Michael</td>
<td>Michael Baker Corp</td>
<td>Construction Manager</td>
<td><a href="mailto:Michael.Neyman@mbakerintl.com">Michael.Neyman@mbakerintl.com</a></td>
<td></td>
</tr>
<tr>
<td>Nutter</td>
<td>Perry</td>
<td>Greenman-Pedersen, Inc.</td>
<td>Sr. Vice President</td>
<td><a href="mailto:pnutter@gpinet.com">pnutter@gpinet.com</a></td>
<td>410-880-3055</td>
</tr>
<tr>
<td>Obr</td>
<td>John</td>
<td>TxDOT</td>
<td>Director of Construction Division</td>
<td><a href="mailto:John.Obr@txdot.gov">John.Obr@txdot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>---------</td>
<td>-----------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>O’Brien</td>
<td>Brenda</td>
<td>Michigan Department of Transportation</td>
<td>Engineer of Construction Field Services</td>
<td><a href="mailto:obrienb2@michigan.gov">obrienb2@michigan.gov</a></td>
<td>517-322-1085</td>
</tr>
<tr>
<td>Owens</td>
<td>Brian</td>
<td>LA Department of Transportation and Dev.</td>
<td>Engineer 6 (DOTD)</td>
<td><a href="mailto:brian.owens@la.gov">brian.owens@la.gov</a></td>
<td>(225) 379-1590</td>
</tr>
<tr>
<td>Patel</td>
<td>Shailendra</td>
<td>Virginia Department of Transportation</td>
<td>Director, VDOT Alternate Project Delivery Office</td>
<td><a href="mailto:Shailendra.Patel@vdot.virginia.gov">Shailendra.Patel@vdot.virginia.gov</a></td>
<td>804-692-0476</td>
</tr>
<tr>
<td>Pawlowski</td>
<td>Gregory</td>
<td>Delaware River &amp; Bay Authority</td>
<td>Senior Project Engineer</td>
<td><a href="mailto:gregory.pawlowski@drba.net">gregory.pawlowski@drba.net</a></td>
<td>302-571-6380</td>
</tr>
<tr>
<td>Petros</td>
<td>Katherine</td>
<td>Federal Highway Administration</td>
<td>Team Leader, Pavement Design &amp; Performance Modeling</td>
<td><a href="mailto:katherine.petros@dot.gov">katherine.petros@dot.gov</a></td>
<td>202-493-3154</td>
</tr>
<tr>
<td>Proctor</td>
<td>Ryan</td>
<td>Ergon Asphalt &amp; Emulsions, Inc</td>
<td>Technical Marketing Manager</td>
<td><a href="mailto:ryan.proctor@ergon.com">ryan.proctor@ergon.com</a></td>
<td>303-243-4607</td>
</tr>
<tr>
<td>Ravn</td>
<td>Tom</td>
<td>MN DOT</td>
<td></td>
<td><a href="mailto:tom.ravn@state.mn.us">tom.ravn@state.mn.us</a></td>
<td></td>
</tr>
<tr>
<td>Ray</td>
<td>Alex</td>
<td>Smith Seckman Reid, Inc.</td>
<td>Senior Project Manager</td>
<td><a href="mailto:aray@ssr-inc.com">aray@ssr-inc.com</a></td>
<td>(901) 683-3900</td>
</tr>
<tr>
<td>Raymond</td>
<td>George</td>
<td>Oklahoma Department of Transportation</td>
<td>Assistant Director of Operations</td>
<td><a href="mailto:graymond@odot.org">graymond@odot.org</a></td>
<td></td>
</tr>
<tr>
<td>Reid</td>
<td>Will</td>
<td>TDOT</td>
<td>Director of Construction</td>
<td><a href="mailto:amy.letner@tn.gov">amy.letner@tn.gov</a></td>
<td></td>
</tr>
<tr>
<td>Ridley</td>
<td>Joe</td>
<td>ERGON ASPHALT &amp; EMULSIONS INC.</td>
<td>TECHNICAL MARKETING MANAGER</td>
<td><a href="mailto:joe.ridley@ergon.com">joe.ridley@ergon.com</a></td>
<td></td>
</tr>
<tr>
<td>Rigdon</td>
<td>Woodrow</td>
<td>American Concrete Pipe Association</td>
<td>Central Region Engineer</td>
<td><a href="mailto:wrigdon@concrete-pipe.org">wrigdon@concrete-pipe.org</a></td>
<td></td>
</tr>
<tr>
<td>Robb</td>
<td>Douglass</td>
<td>Greenman-Pedersen, Inc.</td>
<td>Resident Engineer</td>
<td>dроб<a href="mailto:b@gpinet.com">b@gpinet.com</a></td>
<td>410-880-3055</td>
</tr>
<tr>
<td>Robinson</td>
<td>Joe</td>
<td>Penn Dot</td>
<td>Section Chief</td>
<td><a href="mailto:josrobinso@pa.gov">josrobinso@pa.gov</a></td>
<td>717-787-3311</td>
</tr>
<tr>
<td>Rogers</td>
<td>Jerry</td>
<td>Jacobs Engineering</td>
<td></td>
<td><a href="mailto:jrog023@gmail.com">jrog023@gmail.com</a></td>
<td>501-765-6725</td>
</tr>
<tr>
<td>Rolfe</td>
<td>Mark</td>
<td>Connecticut Department of Transportation</td>
<td>District Engineer</td>
<td><a href="mailto:mark.rolfe@ct.gov">mark.rolfe@ct.gov</a></td>
<td>203-389-3100</td>
</tr>
<tr>
<td>Rothblatt</td>
<td>Evan</td>
<td>AASHTO</td>
<td>Associate Program Manager, Materials</td>
<td><a href="mailto:erothblatt@aashto.org">erothblatt@aashto.org</a></td>
<td>202-624-3648</td>
</tr>
<tr>
<td>Ryburn</td>
<td>Kevin</td>
<td>Colorado Department of Transportation</td>
<td>PE II, Area Engineer</td>
<td><a href="mailto:kevin.ryburn@state.co.us">kevin.ryburn@state.co.us</a></td>
<td>303-757-9364</td>
</tr>
<tr>
<td>Saborio</td>
<td>Brad</td>
<td>Delaware Department of Transportation</td>
<td>Group Engineer - Group 3 Construction</td>
<td><a href="mailto:bradford.saborio@state.de.us">bradford.saborio@state.de.us</a></td>
<td>(302)760-2420</td>
</tr>
<tr>
<td>Sadler</td>
<td>David</td>
<td>Florida DOT</td>
<td>Director, Office of Construction</td>
<td><a href="mailto:heather.hicks@dot.state.fl.us">heather.hicks@dot.state.fl.us</a></td>
<td></td>
</tr>
<tr>
<td>Sarhan</td>
<td>Anthony</td>
<td>FHWA</td>
<td></td>
<td><a href="mailto:anthony.sarhan@dot.gov">anthony.sarhan@dot.gov</a></td>
<td>360-753-9412</td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>---------</td>
<td>-----------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Saunders</td>
<td>Alan</td>
<td>Virginia Department of Transportation</td>
<td>Assistant State Construction Engineer</td>
<td><a href="mailto:alan.saunders@vdot.virginia.gov">alan.saunders@vdot.virginia.gov</a></td>
<td>804-371-0661</td>
</tr>
<tr>
<td>Scott</td>
<td>Sidney</td>
<td>Hill International</td>
<td>Senior Vice President</td>
<td><a href="mailto:sidscott@hillintl.com">sidscott@hillintl.com</a></td>
<td></td>
</tr>
<tr>
<td>Seagraves</td>
<td>Josh</td>
<td>AHTD</td>
<td>Section Head - Environmental Studies</td>
<td><a href="mailto:josh.seagraves@ahtd.ar.gov">josh.seagraves@ahtd.ar.gov</a></td>
<td>501-569-2083</td>
</tr>
<tr>
<td>Sebren</td>
<td>Mike</td>
<td>AHTD</td>
<td>State Construction Engineer</td>
<td><a href="mailto:mike.sebren@ahtd.ar.gov">mike.sebren@ahtd.ar.gov</a></td>
<td>501-569-2251</td>
</tr>
<tr>
<td>Sickels</td>
<td>Jon</td>
<td>ADS</td>
<td>State Construction Engineer</td>
<td><a href="mailto:jon.sicklen@ads-pipe.com">jon.sicklen@ads-pipe.com</a></td>
<td>904-347-3311</td>
</tr>
<tr>
<td>Sommer</td>
<td>Keith</td>
<td>Fluor</td>
<td>State of Alaska Department of Transportation</td>
<td><a href="mailto:anthony.sprague@alaska.gov">anthony.sprague@alaska.gov</a></td>
<td>907-269-0450</td>
</tr>
<tr>
<td>Sprague</td>
<td>Anthony</td>
<td>Oregon Department of Transportation</td>
<td>Group Chief</td>
<td><a href="mailto:joe.squire@odot.state.or.us">joe.squire@odot.state.or.us</a></td>
<td>503-986-3123</td>
</tr>
<tr>
<td>Squire</td>
<td>Joe</td>
<td>AHTD</td>
<td>Director of Construction</td>
<td><a href="mailto:steagallrt@scdot.org">steagallrt@scdot.org</a></td>
<td>803-315-2493</td>
</tr>
<tr>
<td>Stokes</td>
<td>Thomas</td>
<td>Mississippi Department of Transportation</td>
<td>Assistant District Engineer - Construction</td>
<td><a href="mailto:fstokes@mdot.ms.gov">fstokes@mdot.ms.gov</a></td>
<td>601-683-3341</td>
</tr>
<tr>
<td>Sullivan</td>
<td>Tony</td>
<td>Arkansas Highway and Transportation Department</td>
<td>Assistant Chief Engineer - Operations</td>
<td><a href="mailto:tony.sullivan@ahtd.ar.gov">tony.sullivan@ahtd.ar.gov</a></td>
<td>501-569-2221</td>
</tr>
<tr>
<td>Thomas</td>
<td>Steven</td>
<td>AHTD</td>
<td>District Engineer</td>
<td><a href="mailto:Jeff.Venable@ahtd.ar.gov">Jeff.Venable@ahtd.ar.gov</a></td>
<td>870-836-6401</td>
</tr>
<tr>
<td>Thornsberry</td>
<td>Scott</td>
<td>Ergon Asphalt &amp; Emulsions Inc.</td>
<td>Vice President Southeast Region</td>
<td><a href="mailto:larry.tomkins@ergon.com">larry.tomkins@ergon.com</a></td>
<td>601-933-3000</td>
</tr>
<tr>
<td>Tommer</td>
<td>Sandra</td>
<td>Kansas Department of Transportation</td>
<td>Bureau Chief of Construction &amp; Maintenance</td>
<td><a href="mailto:sandrat@ksdot.org">sandrat@ksdot.org</a></td>
<td>785-845-8493</td>
</tr>
<tr>
<td>Tootle</td>
<td>Amy</td>
<td>Florida DOT</td>
<td>Construction Final Estimates Engineer</td>
<td><a href="mailto:Amy.Tootle@dot.state.fl.us">Amy.Tootle@dot.state.fl.us</a></td>
<td></td>
</tr>
<tr>
<td>Venable</td>
<td>Jeffrey</td>
<td>Arkansas Highway &amp; Transportation Department</td>
<td>District Engineer</td>
<td><a href="mailto:Jeff.Venable@ahtd.ar.gov">Jeff.Venable@ahtd.ar.gov</a></td>
<td>870-836-6401</td>
</tr>
<tr>
<td>Vincent</td>
<td>Curtis</td>
<td>ALDOT</td>
<td>State Construction Engineer</td>
<td><a href="mailto:vincentc@dot.state.al.us">vincentc@dot.state.al.us</a></td>
<td>334-242-6208</td>
</tr>
<tr>
<td>Vines</td>
<td>Rex</td>
<td>Arkansas State Hwy &amp; Trans Dept</td>
<td>District Engineer</td>
<td><a href="mailto:rex.vines@ahtd.ar.gov">rex.vines@ahtd.ar.gov</a></td>
<td>870-238-8144</td>
</tr>
<tr>
<td>Vosburg</td>
<td>Michael</td>
<td>LA Department of Transportation and Dev.</td>
<td>Chief, Construction Division Engineer</td>
<td><a href="mailto:Mike.Vosburg@LA.Gov">Mike.Vosburg@LA.Gov</a></td>
<td>(225) 379-1503</td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Company</td>
<td>Job Title</td>
<td>Email</td>
<td>Work Phone</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>----------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Waits</td>
<td>Lyndal</td>
<td>Arkansas Highway and Transportation Department</td>
<td>District Engineer</td>
<td><a href="mailto:lyndal.waits@arkansas.ar.gov">lyndal.waits@arkansas.ar.gov</a></td>
<td></td>
</tr>
<tr>
<td>Walls</td>
<td>Mark</td>
<td>Kentucky Transportation Cabinet</td>
<td>Transportation Engineer Branch Manager</td>
<td><a href="mailto:mark.walls@ky.gov">mark.walls@ky.gov</a></td>
<td>502-782-5150</td>
</tr>
<tr>
<td>Weaver</td>
<td>Don</td>
<td>AGC Arkansas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>George</td>
<td>Pavia Systems</td>
<td>CEO</td>
<td><a href="mailto:george@paviasystems.com">george@paviasystems.com</a></td>
<td>206-428-3094</td>
</tr>
<tr>
<td>Wight</td>
<td>Rob</td>
<td>Utah Department of Transportation</td>
<td>Director of Construction and Materials</td>
<td><a href="mailto:rwight@utah.gov">rwight@utah.gov</a></td>
<td>801-633-6252</td>
</tr>
<tr>
<td>Williams</td>
<td>Stacy</td>
<td>University of Arkansas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Williams</td>
<td>Stan</td>
<td>ERGON ASPHALT &amp; EMULSIONS INC.</td>
<td>TECHNICAL MARKETING MANAGER</td>
<td><a href="mailto:stan.williams@ergon.com">stan.williams@ergon.com</a></td>
<td>662-322-8707</td>
</tr>
<tr>
<td>Winters</td>
<td>Victor</td>
<td>DOT</td>
<td>Southcoast Regional Construction Engineer</td>
<td><a href="mailto:victor.winters@alaska.gov">victor.winters@alaska.gov</a></td>
<td>907-465-8884</td>
</tr>
<tr>
<td>Wright-Kehner</td>
<td>Elisha</td>
<td>Arkansas State Highway and Transportation Department</td>
<td>Staff Research Engineer</td>
<td><a href="mailto:Elisha.Wright-Kehner@ahtd.ar.gov">Elisha.Wright-Kehner@ahtd.ar.gov</a></td>
<td></td>
</tr>
<tr>
<td>Wylie</td>
<td>Keli</td>
<td>AHTD</td>
<td>Program Administrator</td>
<td><a href="mailto:keli.wylie@ahtd.ar.gov">keli.wylie@ahtd.ar.gov</a></td>
<td>501-569-2247</td>
</tr>
<tr>
<td>Yakovenko</td>
<td>Jerry</td>
<td>FHWA</td>
<td></td>
<td><a href="mailto:gerald.yakovenko@dot.gov">gerald.yakovenko@dot.gov</a></td>
<td>202-366-1562</td>
</tr>
<tr>
<td>Yancey</td>
<td>Seth</td>
<td>Garver</td>
<td></td>
<td><a href="mailto:RBJMartin@GarverUSA.com">RBJMartin@GarverUSA.com</a></td>
<td></td>
</tr>
<tr>
<td>Zagorski</td>
<td>Tom</td>
<td>Michael Baker International</td>
<td>Senior Vice President</td>
<td><a href="mailto:TZagorski@mbakerintl.com">TZagorski@mbakerintl.com</a></td>
<td></td>
</tr>
<tr>
<td>Zech</td>
<td>Wesley</td>
<td>Auburn University</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

State Discussion Topics

(Questions & Answers)

Appendix C-1 – SOC Meeting Attendee Responses (During Meeting)

Appendix C-2 – Caltrans Responses (Submitted Post-Meeting)

Appendix C-3 – PennDOT Responses (Submitted Post-Meeting)
Appendix C-1

AASHTO Subcommittee on Construction
2015 Annual Meeting
STATE DISCUSSION TOPICS

SOC Meeting Attendee Responses (During Meeting)
PROJECT SCHEDULING

(Rob Wight – Utah DOT)
Q. What process does each state use to determine allowable work windows for construction projects?
A. PA – It is event based. We do not make it Contractor performance based.
GA – There is some performance based expectations in terms of queue lengths.
FL – Contractor can show an alternative time and traffic control plan if a benefit can be shown to the State. Set time limits where work can’t occur in lanes at certain times. No lane closures between certain times. If they can demonstrate a benefit then the DOT will allow exceptions to the lane closure times.
CA – We use work windows based on traffic plans. There are some projects where we have completely shut down highway to reduce construction time. This works well with a good communications strategy.
WA – We have done similar to CA with penalties using 15 minute windows.
UT – Also have good luck with closures.

(David Hoyne – SOC Vice Chair, VTrans)
Q. With respect to Design-Build contracts, what is your state’s experience with the work being completed on time (percentage of contracts complete on-time)? And if the Design Builder does not complete on time, how do you handle the assessment of liquidated damages? VTrans has been approached by two Design-Builders looking to buy the contract time in lieu of being assessed LD’s. They state in part that having to acknowledge being late will hurt their prospects of bidding future Design-Build contracts.
A. [*Question Skipped*]

Q. Is your State experiencing a skilled craft shortage such that it is limiting what a contractor can accomplish? This year VTrans has experienced several contractors limited by the availability of skilled craft such that the progress of the work is impacting the completion date and any extra work added cannot be accommodated. Does your state have any programs to incubate new skilled workers?
A. A quick show of hands identified 8 to 10 States that are experiencing a shortage of skilled craft labor.
FL – We have been holding “Construction Career Days” for several years to introduce High School Seniors to the Contractor hiring programs and Construction industry. Industry is there teaching as well. It has been beneficial and they are beginning to track students to see if it is paying dividends. They are reaching out to younger population to replace retiring workers. Some contractors have commented that they are having problems staffing up.
UT Contractor – It is biggest concern he has right now. Back in 2007-2008 we started to see a lot of people leave the industry. Workers were tired of the cyclical nature of construction and went to other industries. Younger workers are looking to other technology industries such as Google. Issue is not just with craft labor but professional staff as well. There is a high learning curve for new grads that have CM degree but no experience in CM. Draining the unions and hiring off the streets. We need things like career fairs, but need to go beyond. Contractors are competing for qualified CM’s. We need to get through to High School counselors as we are losing out on students who are pursuing college and not interested in skilled crafts. We are pushing the younger generations to get a college degree and they are bypassing the crafts. We need to show students that craft programs are desired and needed and the benefits of pursuing craft work. WW Clyde is looking into developing a career path for skilled crafts people and providing mentoring.
TX – We saw a lot of skilled folks move to the Energy sector. They lost folks making $15/hr to the oil fields to make $25/hr. Contractors starting to see some workers come back with dip in energy prices and as highway funding has become more stable. The sell is that workers can spend more time with their families in the local construction market and not have to go off and work away from home in the oil and gas fields. Contractors are also starting to see wages going up. They are also seeing more claims against TxDOT if a TxDOT issue delays a project and causes a Contractor to lose a worker.
SC – We are seeing same issue with cyclical nature. New trucking regulations are an issue. Trucks are available in the state, but Contractors have a shortage of truck drivers. Contractors are losing workers in the winter time and folks aren’t coming back. This is especially an issue with the truckers.
AASHTO (Jim McDonnel) – the TRAC program is geared toward Middle School and High School students to promote engineering and science. TRAC has self-contained modules that schools can purchase to get kids interested in transportation and engineering. There are 15-20 States that contribute per year, but would like to see more. Michigan and Mississippi have a good program with TRAC.
WA – State law requires them to track OJT hours (15% goals). Reaching out to the High Schools is a key strategy.

(Brenda O'Brien – Michigan DOT)
Q. Do you maintain critical path scheduling expertise in the central office? Who prepares complex critical path schedules for projects? Does anyone have a critical path scheduling spec that they feel works especially well?
A. VT – We adopted a specification about 12 months ago. There has been some pushback from industry, but hopeful it will pay off. They recently changed the pay item to ‘Each’ so Contractor gets paid per update.
OH – Contractors are required to develop a schedule in Primavera. They have Central Office expertise for Primavera. Each District should have a specialist to help out the project engineers. The Contractor generates the baseline schedule and updates regularly. It is very useful for resolving claim issues.
CO – We just rewrote our scheduling specification requiring Primavera. A Committee with Contractors updated specification to reflect current practice with Primavera. Contractors are required to prepare CPM schedule for every contract. However, CDOT does not have the in house capability to review and use Primavera. No one at CDOT has ever had a copy of Primavera (P3). They now have 6 copies of P3 and will be looking at training staff to use it. They had to hire a consultant to review the schedule.
UT – We retain one expert at Central Office as a P6 scheduling expert. Not all Contractors use the same schedule software. They found that not one size fits all projects. In some cases on smaller projects it is acceptable to use simple programs such as MS Project or Bar Charts.
FL – DOT just lost in-house scheduling specialist to retirement. Challenge with training is to find Primavera training that is geared towards linear projects (training is all for vertical). They just developed training and will roll that out statewide to approximately 40 FDOT District personnel to help in reviewing Contractor schedules. Next step will be in-depth training for Districts as “go to” resources. FDOT can provide their specifications and training.
GA – NHI offers training on CPM schedules put on by Trauner. GDOT does not have scheduling expertise so they use consultants. They do not see a value to require CPM schedules for all projects.
LA – We are rewriting our schedule specifications and will be providing training to staff. Current specification is 20 years old. In the past they hired consultants because didn’t have expertise in-house. Project Engineers have neither expertise nor access to Primavera. They can’t train staff until the specification is up to date. They want to bring CPM to project level, not global level. Contractor prepares baseline schedule and updates.
MT – Has a fairly robust specification requiring P6. They developed in-house expertise over 6 years in Central Office and in Districts. They use Primavera and don’t require CPM with the exception of large complex projects. They don’t require it on all projects. Their training covers forensics and they have 25 licenses that they ship around the state and use a consultant. They hired a college professor that teaches this, as a resource to assist in evaluating claims.

TN – We revised specifications earlier this year (effective March), however, no specific software is being specified. It is too early to tell how successful. They divided projects into 3 categories (0-90 days; 90 days to 24 months; 24+ months), with corresponding requirements. They have expertise in Nashville, ability to get consultants, and also use train the trainer. Emphasis is on making sure field personnel know how to read schedules.

TX – We just revised our specification and it is fairly open-ended on software. TXDOT has 2,000 primavera licenses. They start schedules in design then use them in construction. Contractors primarily use Primavera, but can use either CPM or Bar Chart depending on the project complexity. As far as expertise, not everyone needs to be a scheduler and analyze claims. Some of the less seasoned staff work on less complex schedules while the more experienced staff work on CPM schedules with the help of consultants. They use a multi-level approach to training for project engineers to evaluate baseline schedules. Training curriculum is focused on type of schedule user. They use a consultant to train personnel and to assist with specification re-write.

CT – They have been really challenged and are on 3rd or 4th generation of scheduling specifications. They required minimum bids and put penalties in contracts with mixed results. They have established levels of project scheduling types ranging from P3 down to Bar Charts depending on the complexity of the project. There is some central support through a consultant for the complex CPMs, but generally try to push it down the agency. Training is provided (every winter) for different levels of user.

Trauner (Scott Lowe) – NHI Course is currently in a rewrite mode. As far as scheduling specifications, check out the NHSW. MN and ND both have newer specifications that may be suited to smaller programs. He agrees that the basic scheduling knowledge is there, but with the more complex issues providing updates and showing that the Contractor is behind schedule can be a challenge. NYSDOT has developed an enterprise wide specification for scheduling software. NYSDOT has very detailed manuals and a lot of experience. With respect to manpower and availability there’s a huge shortage in qualified scheduling experts.

WA – Scheduling is managed at the project office. Their specification is tied back to AGC text book and they distributed the specification book to their field offices.

VA – They are following NY State’s model and have developed their own training. One of the impediments is having the contract setup with the proper software settings that are compatible with state systems. They gave Contractors access to state system and solved the problem. The off the shelf Primavera training isn’t enough, so they have developed their own training which they can share with other States.

**BIDDING AND SELECTION**

(Rob Wight – Utah DOT)

Q. What is each state using for e-Bidding? We are looking for something out of the box (as much as possible).

A. VT – We are using Bid Express.
Appendix C-1
STATE DISCUSSION TOPICS
SOC Meeting Attendee Responses (During Meeting)

(Greta Smith – AASHTO)
Q. Please refer to the last page in this document for the topic of using performance-based
prequalification systems to replace the use of the performance bond (SEE ATTACHMENT ON LAST
PAGE).
A. [*SEE ATTACHMENT ON LAST PAGE*]

(Jeff Lewis – FHWA)
Q. FHWA would like to let all states know that though FHWA EDC2 has sunset, the Alternative
Contracting Methods (ACM) team is still very active. There are still some funds available until the end of
2015 CY for additional ACM training, workshops, peer exchanges, etc. FHWA would like to see a show of
hands of those interested in additional assistance in these areas of D-B and/or ATC’s and/or CM/GC
and/or other methods (P3, ID/IQ, etc.). Those who are interested should contact one of the FHWA reps
attending SOC.
A. The DC DOT is interested in having technical assistance for CM/GC. No other interest identified
by States.

CONTRACT ADMINISTRATION

(Rob Wight – Utah DOT)
Q. What software is each state using for Federal Civil Rights Tracking?
A. GA, OH, KS, NE, SC, MO, MT, KY – They are using AASHTO Project Civil Rights & Labor (CRL)
system.
FL – State is using AASHTO CRL, but is developing a new system.
WA, OR – States have a homegrown system.
WI – They have own program, but will be shifting to AASHTO CRL.
ID, OK, TX – States are using B2G system.
MI – Piloted B2G system and LCP on a project. Civil Rights office didn’t care for B2G, but Field Office
loved LCP Tracker system.

Q. How do you enforce the prompt payment requirement? Do you track every supplier and
subcontractor?
A. GA, FL – The process is complaint driven. GA tries to avoid the default option. FL posts
Contractor bonds on their website.
VT – Find it is about getting the parties together to work things out.
WA – Process was complaint driven, but now has a process where Contractor needs to notify State if
they are deferring payment.

Q. Do you have a penalty mentioned for going over the 30% self-perform requirement in federal
law?
A. VT – does not have a penalty requirement.
MO, MT, FL – Uses 40% criteria.
OK – Uses Contract amount and does not hold out specialty items.
Most States using 40-50% criteria.
CA – Holds Contractor to 25% withholding if they do not comply.
UT - UDOT withholds payment until they bring up their self-performance to 30%. The Resident Engineer tracks it in their office. If the work has increased under the contract, then they raise the Contractor’s self-performance amount.
KS – Approves the subcontracts ahead of time.

(Brenda O’Brien – Michigan DOT)
Q. Does anyone use construction software systems for file sharing with contractors, such as Project Wise or Doc Express?
A. UT, KS, GA, ID, CA – States are using ProjectWise (for design).
    GA – State is using e-Builder for D-B projects.
    CT – They use ProjectWise for design and Contract Manager for construction, but are probably moving to ProjectWise.

(Chris Christopher – Washington State DOT)
Q. 1) Design-Build Disadvantaged Business Enterprise challenges – Are other States having challenges with DBE commitment, reporting, handling changes, and good faith efforts on Design-Build Contracts?
A. OR – Entered into a dispute with a major Contractor. They are developing standards for DBEs delivering fuel oil or HMA to projects. They will be putting out a new spec within next 6 to 9 months.
    GA – State is establishing minimum requirement and using a best value point system to evaluate. The verification element is very difficult.
    CA – The Design-Builders have done a very good job of meeting DBE goals.

Q. 2) Maximum payment curves for construction contracts – Do you use them? Are they legal?
A. FL – State uses a cash availability schedule requirement.
    AK – Has a 30 day clause in which they have to pay interest, unless the DOT doesn’t have the funding in place (based on AK statute).

Q. 3) Subcontracting prompt payment effort – What is the State’s role?
A. [*This Question was addressed by an earlier Question above*]

Q. 4) Disputes Resolution Process -- What do you do if the Contractor wants to skip the Disputes Review Board (or other alternative dispute resolution process) and go straight to court?
A. MO – We do not force the issue.
    CO, PA, CA – DRB specification prohibits any litigation until Contractor has used DRB process and/or claims process.
    FL – Have had challenges, but have prevailed.

Q. 5) Recycling – Is there anything new or innovative being done to increase recycling?
A. [*Question Skipped*]

Q. 6) Overhead and Profit – WSDOT is finding that our standard mark-ups for profit and overhead on force account or change order work are being challenged by the Contractors – they say the mark-ups are insufficient. Are other DOTs seeing this as an issue?
A. [*Question Skipped*]
**CONSTRUCTION/MATERIALS ISSUES**

*(Joseph Robinson – Pennsylvania DOT)*

Q. 1) Bridge Deck final surface texture:
   - Are states doing longitudinal sawed grooves?
   A. OK, VT – Yes, they are doing longitudinal.
   - If so what spacing are they using and what is their experience?
   A. No States responded.
   - If your state is doing have they experienced any breaking of the tines?
   A. No States responded.
   - Is anyone just performing diamond grinding of the bridge decks and not regrooving the deck?
   A. No States responded.
   - Is anyone considering the Next Generation Concrete Surface NGCS for bridge decks?
   A. No States responded.

Q. 2) Construction Quality:
   - How are states measuring quality of work performed?
   A. [*Question Skipped*]

Q. 3) Warranties – for pavements, structures, paint, etc.:
   - Who is utilizing?
   - What length of time?
   - Warranty is dealing with materials, workmanship, or both?
   - How is bonding being handled?
   A. [*Question Skipped*]

Q. 4) 100-year design life pipe tolerances:
   - How are other states addressing tolerance issues?
   - What tolerances are other states accepting?
   A. [*Question Skipped*]

*(Gary Angles – Ohio DOT)*

Q. What have other states done to use Lightweight Deflectometers (LWD) for soil compaction acceptance?
A. NE – Yes they are using LWD.
   MO is working on a project evaluating various options for in-place density testing.

Q. Have they applied LWD testing to areas other than subgrade, aggregate base, or pavement layers?
A. [*Question Skipped*]

Q. Have they established criteria for the general embankment compaction?
A. [*Question Skipped*]
(David Hoyne – SOC Vice Chair, VTrans)

Q. Does your State require a contractor to submit notarized material certifications, stating that the materials are in conformance with the material specifications? What systems or solutions has your state implemented to manage the certification documents and quality thereof?

A. VT – State requires this.
KY – Requires this for some items such as steel.
PA – They require secure electronic signatures.

ASPHALT PAVEMENT

(Gary Angles – Ohio DOT)

Q. How do you typically test/accept asphalt pavement density on your secondary (2 lane) system (i.e. Cores, gauges, other)?

A. VT, MI – Yes, they use cores. Local Agencies in MI require minimum number of rollers and passes.
SC – Only requires cores only on Interstate.

Q. Who performs testing used for acceptance? (i.e. Contractor, DOT, Contractor QC results w/ DOT Verification, other)? If you accept Contractor QC results how does the DOT perform Verification for Acceptance?

A. UT, FL, MO – Contractor obtains cores, but State performs Acceptance testing.

Q. Could you provide a link to your specification / testing procedures?

A. Above States – Yes, they can provide a link.

(Jeff Benafield – Alabama DOT)

Q. How many States are using (or intend to use in the near future) thermal imaging devices such as Moba’s Pave-IR to combat segregation and repetitive stopping of the paver? I believe Texas is leading the way in this effort, with a few States following.

A. TX – We require the Contractor to use a camera.
FL – State identifies segregation by texture and appearance.
VT – Requiring Contractor to use MTV.

Q. We continue to see our tack being tracked off the project on the tires of haul trucks. Have any States made recent specification changes that have helped reduce tracking? I believe Florida started allowing only reduced-tracking tacks this year and has seen some success. Do any States require vacuuming of milled surfaces prior to tack application in order to remove dust and get better adhesion of the tack?

A. GA, TX – Yes, they have required trackless tack.
VT – Requires vacuuming.
AK – Require milled surface cleaning.
CONCRETE PAVEMENT

(Joseph Robinson – Pennsylvania DOT)
Q. How are other states handling Concrete longitudinal joint repairs? We know Michigan has a spec for 3 foot and 4 foot removal on both sides of the concrete joint.
A. UT – Finds that requiring circular repair is better than a square.

(Gary Angles – Ohio DOT)
Q. Has your state had any issues with concrete durability due to poor quality air systems?
A. MI – Working right now with industry to develop a spec that evaluates quality of air.
NE – Has had some serious problems with air and are looking at using the Super Air Meter.
CT – Worked with Industry and have included a pay factor for Air Content.
TX – Something unique, they are going to construct two-lift concrete pavement.

Q. Does your DOT perform any testing to validate air entrainment behind the finishing operations? What kind of testing is performed? Frequency? (i.e. Plastic Air, Hardened Air, AVA, SAM etc.)
A. [*Question Skipped*]

AUDITING

(Joe Squire – Oregon DOT)
Q. Does any State DOT conduct periodic peer reviews of their construction offices? If so can you share the procedure, questions, reports, and best practice approaches that you glean from these?
A. VT, AK – Uses retired employee with a checklist and visits 30% of the field offices to audit.

(Brenda O’Brien – Michigan DOT)
Q. What type of project documentation review do you do at project closeout? Who does this (project, region/district, central office)? Do you have a certification process for your engineers that streamlines the closeout of a project?
A. VT – Has a project checklist and can share this with MI. VT has this process documented in their Construction Manual.
ID, WA, NE – Audit is done by District Records Inspector.

(Mike Sebren – Arkansas HTD)
Arkansas currently audits 100% of the items on 100% of our construction projects at the completion of the project. This includes Federal-Aid projects as well as State-Funded projects, State-Aid (City Street and County) Projects, overlay program, etc. We’d like to know what other state DOT policies are regarding the final audit of construction project. Specifically, we are curious to learn about the experiences/challenges faced by states with more selective auditing policies.
Q. How often, and to what extent, do other states audit construction projects? Have other states experienced difficulties/resistance in implementing these audit policies? Have other states encountered unforeseen problems since implementing these policies?
A. MI – We do a certification process on all of our Engineers. We sample 10% of the Pay Items and evaluate a sampling of all types of measures and work for these items. Engineers are then certified based on this, good for 1 year. Brenda feels as if there needs to be a better way.
GA, OK, MT, AR – Perform 100% review of all items.
WORKZONE SAFETY

(David Hoyne – SOC Vice Chair, VTrans)

Q. Please describe any new strategies that your state has employed to improve the safety of the work zone; what is working and what is not. What trends are you experiencing and what steps is your state taking to address these issues?

A. WI – Flaggers getting hit so talked about using temporary rumble strips.
UT – State is using temporary rumble strips with mixed results of staying in place. They haven’t had any trouble with people driving around them.
ID – Has an item in some contracts requiring enhanced State Police patrols. Many States pay State Police to patrol through Work Zones.
TX – Costs of Off-duty police rates can be high. They use local Peace Officers at a cost of $100/hour. The portable rumble strips work well. They have moved from multi-piece to the single piece. They do feel that they safe lives.
ID – State Police reported someone driving over 105 mph through Interchange.
TN – Has implemented “Protect the Queue” program and has seen a 30% reduction in secondary crashes in work zones.
KY – Is using iPhones with radar to communicate with each other and record the speeds coming to alert motorists of slowdown and rerouting to reduce the queing lengths.
FL, UT – They are using radar feedback signs.
AK – Observation: Put up vanity shielding and found it reduced rubbernecking.
UT – Have done some queue length detection in Work Zones to monitor traffic, use variable speed limits, and warn drivers at the back of the queue so they know that they’re approaching a work zone. In locations where paving for a long time, it is better to cut in rumble strips into the pavement.

CM/GC NOTICE OF PROPOSED RULE MAKING

(David Hoyne – SOC Vice Chair, VTrans)
The Federal Highway Administration (FHWA) issued proposed regulations formalizing the Construction Manager/General Contractor (CM/GC) process in regulations. Originally called out in MAP-21, this two-phase contracting alternative has so far been implemented in SEP-14 projects. With this action, CM/GC will be in Title 23 of the Code of Federal Regulations section 630 Preconstruction Procedures as an available alternative contracting method. The proposal addresses:

• Competitive selection of Contractors
• FHWA concurrence on a state’s CM/GC procedures, contract documents, price estimates, and awards. The contract documents and awards may be assumed by the states
• Ensuring the NEPA process is not impacted
• Intent to blend the requirements with those already in place for Design-Bid-Build and Design-Build

Q. AASHTO would like to influence the implementation of this process by providing a response to the proposal. Comments positive or negative are welcome. Proposals for revised language in cases where the proposed language will not work are also sought. Any comments for discussion purposes?

A. FHWA (J. Yakowenko) – Jerry Confirmed that the address to submit comments is provided in the Notice of Proposed Rulemaking (NPRM).
With transportation investment constrained across virtually all levels of governments, the players involved in highway and bridge improvement projects - including public owners and industry- must be fully committed to safety, efficiency; innovation and quality. This is especially critical given the continued use of alternative project delivery methods, which often revise the traditional allocation of risks and responsibilities among the parties.

In this context, the Federal Highway Administration (FHWA) and some state DOTs have explored the concept of performance-based prequalification for contractors. Under such a system, a DOT utilizes a given set of factors to evaluate a contractor's ability to complete a specific project, beyond just the contractor's financial capacity. While contractors have been subject to a myriad of ratings systems for various purposes, performance-based prequalification is distinctive in that it can be designed to affect the outcome of the procurement process itself.

In researching this initiative, FHWA noted the possibility of states' using this type of prequalification as a replacement for performance bonds, at least for projects under a certain dollar threshold. FHWA sees this as a potential cost savings given the relatively rare instances of default. Other advocates of performance-based prequalification view it as an incentive for improved performance by contractors, especially in that "marginal" contractors would need to improve their ratings to remain competitive. Moreover, several highway agencies outside the U.S. have utilized similar ratings mechanisms for many years. An FHWA international scan report on construction management practices noted that in at least one case (the U.K.), the system reflects the public owner's explicit preference to work with a limited number of experienced, "better quality" contractors on an ongoing basis. The same report acknowledges this rationale could conflict with the long-standing values in the U.S. of maximizing competition and inviting participation by qualified firms of varying sizes and profiles.

Recently, the New Mexico Department of Transportation (NMDOT) received FHWA's approval for its new Contractor Performance-based Prequalification and Procurement (CPPP) System. Through this process, NMDOT will rate several elements of a prime contractor's past performance and calculate a "prequalification factor," which it will apply to future bids on projects costing more than $5 million. The factors include liquidated damages, disincentives, non-conformances, subcontractor prompt payment, claims and safety. In announcing its approval of New Mexico's CPPP System in March 2015, FHWA noted the state's highway projects previously "have gone to the lowest bidder with the risk of increased costs in latter phases of the project." The new system would "provide an incentive for contractors to be more reliable with cost - with an eye towards winning future bids." For many months, there has been a spirited dialogue among the industry, NMDOT and FHWA on the particulars of this system, most notably the treatment of out-of-state or other firms without a track record in New Mexico from which a prequalification factor could be calculated.

Given all these developments, the Joint Committee is seeking feedback on the suitability of performance-based contractor prequalification and the forms it could take in the different states, starting with the following:

Q.  • Is your state considering a performance-based prequalification system, or currently using one?
A.  [PA, WA, UT – Yes. Utah is using for all projects over $3 million.
      FL – is thinking about implementing.
      PA – uses it to consider whether a Contractor is go/no go for bidding, but they still require performance bonds.

Q.  • What are the factors a state DOT should legitimately use as part of such a system?
A.  [*AASHTO will send these questions out again to SOC members and ask for their comments/responses*]
AASHTO-ARTBA-AGC Joint Committee
"Issues Relating to Performance-Based Contractor Prequalification"
ARTBA 2015 Discussion Paper

Q. How can these factors be calculated with maximum objectivity and transparency?
A. [*AASHTO will send these questions out again to SOC members and ask for their comments/responses*]

Q. In your state, would this type of system ultimately reduce claims and/or costs on projects?
A. [*AASHTO will send these questions out again to SOC members and ask for their comments/responses*]

Q. Is it possible to balance the interests of existing contractors in a state with those of new contractors or firms that have not yet done business the state, who essentially start with a "blank slate?"
A. [*AASHTO will send these questions out again to SOC members and ask for their comments/responses*]
Appendix C-2

AASHTO Subcommittee on Construction
2015 Annual Meeting
STATE DISCUSSION TOPICS

Caltrans Responses (Submitted Post-Meeting)
PROJECT SCHEDULING

(Rob Wight – Utah DOT) What process does each state use to determine allowable work windows for construction projects?

Caltrans Response (Andy Alvarado): In order to prevent unreasonable traffic delays resulting from planned work on a daily basis, Traffic Management Plans (TMPs) are developed and implemented to maintain acceptable levels of service and safety during all work activities on the SHS. This is consistent with Federal Work Zone Safety and Mobility regulations (23 Code of Federal Regulations 630, Subpart J) which require Caltrans to adopt a policy for the systematic consideration and management of work zone impacts on all federally funded highway projects.

To prevent impacts to the environment, work windows restricting work during certain months of the year are developed in concert with federal and state regulatory agencies.

(David Hoyne – SOC Vice Chair, VTrans) With respect to Design Build contracts, what is your state’s experience with the work being completed on time (percentage of contracts complete on-time). And if the Design Builder does not complete on time, how do you handle the assessment of liquidated damages? VTrans has been approached by two Design Builders looking to buy the contract time in lieu of being assessed LD’s. They state in part that having to acknowledge being late will hurt their prospects of bidding future Design-Build contracts.

Caltrans Response (Ray Tritt): Caltrans is the middle of a 10-project demonstration program and so data is limited. We currently have 4 projects which have been completed. None of the four projects were completed within the original contract working days. However, all four projects were completed within the contract time as modified by change orders. Caltrans assesses LD’s the same as on design-bid-build projects. One modification we have made is to have different levels of LD’s during construction (prior to substantial completion) and a lower level of LD’s during the project close-out phase (prior to final acceptance).

Is your State experiencing a skilled craft shortage such that it is limiting what a contractor can accomplish? This year VTrans has experienced several contractors limited by the availability of skilled craft such that the progress of the work is impacting the completion date and any extra work added cannot be accommodated. Does your state have any programs to incubate new skilled workers?

Caltrans Response: Not at this time.

(Brenda O’Brien – Michigan DOT) Do you maintain critical path scheduling expertise in the central office? Who prepares complex critical path schedules for projects? Does anyone have a critical path scheduling spec that they feel works especially well?

Caltrans Response (Andy Alvarado): Critical path scheduling expertise regarding policies, procedures, definitions, and administration/application of these items is held in the HQ Division of Construction. The subject matter experts in HQ Division of Construction are available to answer questions from the districts re: how to evaluate contractor-submitted schedules or prepare time impact analyses for change orders, but the schedules themselves are prepared by the districts. There are some districts with a CPM
scheduler that provides help to resident engineers in evaluating/preparing CPM schedules. The Caltrans CPM schedule spec works well. The key, however, is enforcement and getting the first baseline submittal.

### BIDDING AND SELECTION

**Rob Wight – Utah DOT** What is each state using for e-Bidding? We are looking for something out of the box (as much as possible).

**Caltrans Response (John McMillian):** Info Tech, Inc.’s Internet Bidding Service: Bid Express. A secure electronic bidding and proposal service for public agencies and their vendors that manages construction and general procurement solicitations.

**Greta Smith – AASHTO** Please refer to the last page in this document for the topic of using performance-based prequalification systems to replace the use of the performance bond (SEE ATTACHMENT ON LAST PAGE).

**Caltrans Response (Andy Alvarado / Blair Anderson):** Caltrans does not use a performance based prequalification system for Design-Bid-Build projects. This is something that we have just started to look into. The questions raised on the attachment are some of the questions we have as well.

The State of California authorized Design Build Demonstration Program, authorized by SB 4 is using the two step Best Value procurement process. Step 1 requires contractors to submit an RFQ which is evaluated and scored in the following areas:

- Proposer Organization and Experience (30 Points), Key Personnel (30 Points), Project Understanding (15 Points), Project Approach (25 Points) and Legal and Financial (pass/fail).

The Department then prepares a list of pre-qualified proposers based on scoring the highest number of points. The prequalified contractors then provide an RFP which is the proposal for the contract. For the Design Build evaluation the proposals are evaluated and rated by a panel in predetermined evaluation topics.

**Jeff Lewis – FHWA** FHWA would like to let all states know that though FHWA EDC2 has sunset, the Alternative Contracting Methods (ACM) team is still very active. There are still some funds available until the end of 2015 CY for additional ACM training, workshops, peer exchanges, etc. FHWA would like to see a show of hands of those interested in additional assistance in these areas of D-B and/or ATC’s and/or CM/GC and/or other methods (P3, ID/IQ, etc.). Those who are interested should contact one of the FHWA reps attending SOC.

**Caltrans Response (Ray Tritt):** Caltrans has utilized the training and peer exchanges offered. We don’t anticipate requesting any additional training at this time. We see good value in the Webinars developed and delivered as part of the EDC initiatives.
STATE DISCUSSION TOPICS
Caltrans Responses (Submitted Post-Meeting)

CONTRACT ADMINISTRATION

(Rob Wight – Utah DOT) What software is each state using for Federal Civil Rights Tracking?

Caltrans Response (Angela Shell / Mario Soils): Caltrans uses FileMaker Pro and Microsoft Excel are the primary software programs used for federal civil rights tracking. Some functions, like DBE certification and local public agency DBE data, are managed in Oracle databases.

How do you enforce the prompt payment requirement? Do you track every supplier and subcontractor?

Caltrans Response (Andy Alvarado / Mario soils - OBEO): Section 9 of the Caltrans Standard Specifications, entitled “Payment,” includes language regarding prompt payment. If a supplier or subcontractor is not being paid promptly, the supplier or subcontractor can submit a stop payment notice. This requires the Department to withhold payments to cover such claims.

The Office of Business Economic Opportunity (OBEO) promotes awareness of prompt payment requirements among internal and external stakeholders, including Caltrans Resident Engineers/contract managers and Labor Compliance Managers; local public agencies; contractors (prime and subcontractors); industry organizations; and minority/women business assistance organizations.

The OBEO plans to rollout a prime contractor training module in late 2015, which will include prompt payment content.

The OBEO plans to publish a prompt payment “guide” in late 2015.

Do you have a penalty mentioned for going over the 30% self-perform requirement in federal law?

Caltrans Response (Andy Alvarado / Vern Jones): If a contractor violates the contract he may be subject to Performance Failure Withholds for up to 25% of the progress payment, but not more than 10% of the total bid. The Resident Engineer can terminate the contract for non-compliance.

(Brenda O’Brien – Michigan DOT) Does anyone use construction software systems for file sharing with contractors, such as Project Wise or Doc Express? We are in the process of reviewing these systems and are not there yet.

(Chris Christopher – Washington State DOT)

1. Design-Build Disadvantaged Business Enterprise challenges – Are other States having challenges with DBE commitment, reporting, handling changes, and good faith efforts on Design-Build Contracts?

Caltrans Response (Ray Tritt): This has be one of the unexpected successes of the design-build demonstration program. Design-builders have done a good job of committing to the goals set and then meeting and even exceeded the goals set. Of the 10 projects in the program, only one is struggling to meet the goal at this time.
2. Maximum payment curves for construction contracts – Do you use them? Are they legal?

**Caltrans Response (Andy Alvarado):** Caltrans does not use maximum payment curves for construction contracts.

3. Subcontracting prompt payment effort – What is the State’s role?

**Caltrans Response (Andy Alvarado):** If a supplier or subcontractor is not being paid promptly, there are provisions in our contracts and the law that allow the supplier or subcontractor to submit a stop payment notice. This requires the Department to withhold payments to cover such claims.

4. Disputes Resolution Process -- What do you do if the Contractor wants to skip the Disputes Review Board (or other alternative dispute resolution process) and go straight to court?

**Caltrans Response (Andy Alvarado):** Caltrans specifications and the public contract code require that a contractor diligently pursue a claim and exhaust the contractually required administrative claims procedure or the claim is waived and the contractor is barred from bringing the claim to arbitration.

5. Recycling – Is there anything new or innovative being done to increase recycling?

**Caltrans Response (Chuck Suszko):** Reuse of Plastic Concrete - Caltrans has recently developed a specification for the reuse of plastic concrete that pertains to recycling unhardened concrete. It is concrete that has been mixed, remains fluid, but has not been used. The new specification would allow it to be incorporated into a new concrete mix. The specification allows the use of up to 15% returned concrete in non-structural applications, including sidewalks and fill materials.

PG+5 - Caltrans proposes to reduce landfill disposal of scrap tires by requiring that all hot mix asphalt contain a relatively small amount of CRM (Crumb Rubber Modifier). A relatively small amount of CRM in hot mix asphalt is defined as either 5-10 percent by weight of asphalt binder or 0.25-0.50 percent by weight of aggregate is used in hot mix asphalt. The proposed increased in the use of CRM is driven by environmental considerations, not enhanced performance, as has been the historical approach. This effort is being under taken by the Rock Products Committee a joint Industry /Caltrans group.

6. Overhead and Profit – WSDOT is finding that our standard mark-ups for profit and overhead on force account or change order work are being challenged by the Contractors; they say the mark-ups are insufficient. Are other DOTs seeing this as an issue?

**Caltrans Response (Andy Alvarado):** Caltrans has not been challenged on mark-ups for profit and overhead, on force account or change order work in liaison meetings discussions with industry.
CONSTRUCTION/MATERIALS ISSUES

(Joseph Robinson – Pennsylvania DOT)

1. Bridge Deck final surface texture.
   • Are states doing longitudinal sawed grooves?
   **Caltrans Response (Michael J Lee / RSS):** Caltrans textures finished bridge deck surfaces by grinding and grooving or by longitudinal tining. When grinding and grooving method is used, a ¼” sacrificial concrete cover is placed above the finished deck grade.
   • If so what spacing are they using and what is their experience?
   **Caltrans Response (Michael J Lee / RSS):** The tines must:
   1. Be rectangular in cross section
   2. Be from 3/32 to 1/8 inch wide on 3/4-inch centers
   3. Have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep
   • If your state is doing have they experienced any breaking of the tines?
   **Caltrans Response (Michael J Lee):** No.
   • Is anyone just performing diamond grinding of the bridge decks and not regrooving the deck?
   **Caltrans Response (Michael J Lee):** No.
   • Is anyone considering the Next Generation Concrete Surface NGCS for bridge decks?
   **Caltrans Response (Chuck Suszko / Tom Ruckman):** Caltrans uses something similar in the special locations at locations where we want to reduce tire noise. The specification requires grinding and longitudinal grooving per the specification. Caltrans looked at the NGCS requirements, but found that the extra noise reduction (above our current practice of grinding and grooving) was minimal and not worth the additional specified requirements of the NGCS method.

2. Construction Quality.
   • How are states measuring quality of work performed?
   **Caltrans Response (Andy Alvarado / Chuck Suszko):** Caltrans makes the contractor responsible for quality control and have contractual requirements and forms telling the contractor what we expect for the contractor to do as part of the quality control. Caltrans is currently trying to develop systematic approach on how to best measure the quality of materials and workmanship of constructed projects. Caltrans recently completed a Construction Quality Assurance Project manual.

3. Warranties – for pavements, structures, paint, etc.
   • Who is utilizing?
   • What length of time?
   • Warranty is dealing with materials, workmanship, or both?
   • How is bonding being handled?
Caltrans Responses (Submitted Post-Meeting)

**Caltrans Response (Chuck Suszko):** Caltrans is currently not requiring warranties on projects. Caltrans requires that the performance bond cover one year for defective materials and workmanship. However, item specific warranties of longer duration may be required in the contract for specific materials.

4. 100 year design life pipe tolerances.
   - How are other states addressing tolerance issues?
   - What tolerances are other states accepting?

**Caltrans Response (Chuck Suszko):** Didn’t know there was a tolerance issue.

*(Gary Angles – Ohio DOT)*

What have other states done to use Lightweight Deflectometers (LWD) for soil compaction acceptance?

**Caltrans Response (Chuck Suszko):** Caltrans does not use Lightweight Deflectometers for soil compaction.

Have they applied LWD testing to areas other than subgrade, aggregate base, or pavement layers?

**Caltrans Response (Chuck Suszko):** No.

Have they established criteria for the general embankment compaction?

**Caltrans Response (Chuck Suszko):** No.

*(David Hoyne – SOC Vice Chair, VTrans)*

Does your State require a contractor to submit notarized material certifications, stating that the materials are in conformance with the material specifications?

**Caltrans Response (Chuck Suszko):** Caltrans does not require notarized material certifications. Caltrans sometimes requires test results be provided with Certificates of Compliance.

What systems or solutions has your state implemented to manage the certification documents and quality thereof?

**Caltrans Response (Chuck Suszko / Blair Anderson):** Caltrans is currently looking into project records document management systems. Currently various project records are archived into the project history files in accordance with the Caltrans Construction Retention Schedule.
Asphalt Pavement

(Gary Angles – Ohio DOT) How do you typically test/accept asphalt pavement density on your secondary (2 lane) system? (i.e. Cores, gauges, other)

*Caltrans Response (Chuck Suszko):* Cores when pavement thickness is 0.15’ or greater.

Who performs testing used for acceptance? (i.e. Contractor, DOT, Contractor QC results w/ DOT Verification, other)?

*Caltrans Response (Chuck Suszko):* Caltrans performs acceptance testing.

If you accept Contractor QC results how does the DOT perform Verification for Acceptance?

*Caltrans Response (Chuck Suszko):* N/A.

Could you provide a link to your specification / testing procedures?

*Caltrans Response (Chuck Suszko):* Caltrans implemented Superpave mix design in April 2014, so the hot mix asphalt specification is currently is a Revised Standard Specification available at:


(Jeff Benafield – Alabama DOT) How many States are using (or intend to use in the near future) thermal imaging devices such as Moba’s Pave-IR to combat segregation and repetitive stopping of the paver? I believe Texas is leading the way in this effort, with a few States following.

*Caltrans Response (Chuck Suszko):* Caltrans is implementing intelligent compaction which provides HMA mat temperature during the rolling process and is not pursuing thermal imaging.

We continue to see our tack being tracked off the project on the tires of haul trucks. Have any States made recent specification changes that have helped reduce tracking? I believe Florida started allowing only reduced-tracking tacks this year and has seen some success. Do any States require vacuuming of milled surfaces prior to tack application in order to remove dust and get better adhesion of the tack?

*Caltrans Response (Chuck Suszko):* No recent changes to specifications to reduce tracking of tack.
CONCRETE PAVEMENT

(Joseph Robinson – Pennsylvania DOT) How are other states handling Concrete longitudinal joint repairs? We know Michigan has a spec for 3 foot and 4 foot removal on both sides of the concrete joint.

**Caltrans Response (Chuck Suszko):** Caltrans specification requires the contractor to replace JPCP (jointed Plain Concrete Pavement) for 3 feet on both sides of a joint with a rejected dowel bar.

(Gary Angles – Ohio DOT) Has your state had any issues with concrete durability due to poor quality air systems?

**Caltrans Response (Chuck Suszko):** Don’t understand the question.

Does your DOT perform any testing to validate air entrainment behind the finishing operations?

**Caltrans Response (Chuck Suszko):** Air entrainment testing is only performed on concrete as delivered to the jobsite. No testing for air entrainment is performed after finishing operation.

What kind of testing is performed? Frequency? (I.e. Plastic Air, Hardened Air, AVA, SAM etc.)

**Caltrans Response (Chuck Suszko):** Don’t Contractor Quality Control Testing:

*During paving, test the concrete pavement under the test methods and at the frequencies shown in the following table:*

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>Test method</th>
<th>Minimum testing frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanness value</td>
<td>California Test 227</td>
<td>2 per day</td>
</tr>
<tr>
<td>Sand equivalent</td>
<td>California Test 217</td>
<td></td>
</tr>
<tr>
<td>Aggregate gradation</td>
<td>California Test 202</td>
<td></td>
</tr>
<tr>
<td>Air content (air entrainment specified)</td>
<td>California Test 504</td>
<td>1 per hour</td>
</tr>
<tr>
<td>Air content (air entrainment not specified)</td>
<td>California Test 504</td>
<td>1 per 4 hours</td>
</tr>
<tr>
<td>Density</td>
<td>California Test 518</td>
<td></td>
</tr>
<tr>
<td>Penetration</td>
<td>California Test 533</td>
<td></td>
</tr>
<tr>
<td>Aggregate moisture meter calibration*</td>
<td>California Test 223 or 226</td>
<td>1 per day</td>
</tr>
</tbody>
</table>

*Check the calibration of the plant moisture meter by comparing moisture meter readings with California Test 223 or California Test 226 test results.*
## Concrete Pavement Requirements for Acceptance

<table>
<thead>
<tr>
<th>Quality Characteristic</th>
<th>Test method</th>
<th>CRCP</th>
<th>JPCP</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air content</td>
<td>California Test 504</td>
<td>±1.5 percent of the specified value&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulus of rupture at 28 days (min, psi)</td>
<td>California Test 523</td>
<td>570&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar reinforcement tolerance (min)</td>
<td>Field measurement</td>
<td>1/2 inch below the saw cut depth at concrete pavement joints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dowel bar placement tolerances:</td>
<td>Field measurement</td>
<td>±1</td>
<td>±2</td>
<td>The minimum distance measured from the concrete pavement surface to any point along the top of the dowel bar must be:</td>
</tr>
<tr>
<td>Horizontal offset (inch)</td>
<td></td>
<td>5/8</td>
<td>5/8</td>
<td>DB + 1/2 inch where: DB = 1/3 of the pavement thickness or the saw cut depth in inches, whichever is greater</td>
</tr>
<tr>
<td>Vertical skew (inch)</td>
<td></td>
<td>±1</td>
<td>±2</td>
<td>The maximum distance below the depth shown must be 5/8 inch.</td>
</tr>
<tr>
<td>Vertical depth</td>
<td></td>
<td>±1</td>
<td>±2</td>
<td>1. At least 1/2 inch below the bottom of the saw cut</td>
</tr>
<tr>
<td>2. At least 2 inches from any point along the bar to the pavement surface or bottom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tie bar placement tolerances:</td>
<td>Field measurement</td>
<td>5 1/4</td>
<td>±2</td>
<td>1. No area of localized roughness with an International Roughness Index greater than 120 in/mi</td>
</tr>
<tr>
<td>Horizontal and vertical skew (inches)</td>
<td></td>
<td>±2</td>
<td>±2</td>
<td>2. Mean Roughness Index of 60 in/mi or less within a 0.1 mile section</td>
</tr>
<tr>
<td>Horizontal offset (embedment) (inches)</td>
<td></td>
<td>±2</td>
<td>±2</td>
<td>1. At least 1/2 inch below the bottom of the saw cut</td>
</tr>
<tr>
<td>Vertical depth</td>
<td></td>
<td>±2</td>
<td>±2</td>
<td>2. At least 2 inches from any point along the bar to the pavement surface or bottom</td>
</tr>
<tr>
<td>Coefficient of friction (min):</td>
<td>California Test 342</td>
<td>0.30</td>
<td>0.35</td>
<td>1. No area of localized roughness with an International Roughness Index greater than 120 in/mi</td>
</tr>
<tr>
<td>Concrete pavement</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2. Mean Roughness Index of 60 in/mi or less within a 0.1 mile section</td>
</tr>
<tr>
<td>Ramp termini</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1. No area of localized roughness with an International Roughness Index greater than 120 in/mi</td>
</tr>
<tr>
<td>Pavement smoothness</td>
<td>--</td>
<td>1</td>
<td>1</td>
<td>2. Mean Roughness Index of 60 in/mi or less within a 0.1 mile section</td>
</tr>
<tr>
<td>Thickness tolerance&lt;sup&gt;d&lt;/sup&gt; (max, foot)</td>
<td>California Test 531</td>
<td>0.01 foot deficient of the thickness shown</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>If no value is specified, the air content must be within ±1.5 percent of the value used for your authorized mix design.
The Department tests the concrete pavement under the test methods and at the frequencies shown in the following table:

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>Test method</th>
<th>Minimum testing frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air content</td>
<td>California Test 504</td>
<td>1 day’s paving</td>
</tr>
<tr>
<td>Modulus of rupture at 28 days</td>
<td>California Test 523</td>
<td>1,000 cu yd</td>
</tr>
<tr>
<td>Dowel bar placement</td>
<td>--</td>
<td>700 sq yd</td>
</tr>
<tr>
<td>Tie bar placement</td>
<td>--</td>
<td>4,000 sq yd</td>
</tr>
<tr>
<td>Coefficient of friction</td>
<td>California Test 342</td>
<td>1 day’s paving</td>
</tr>
<tr>
<td>Thickness</td>
<td>California Test 531</td>
<td>1,200 sq yd</td>
</tr>
</tbody>
</table>

*Note: A single test represents no more than the frequency specified. 
Tested only if air entrainment is specified.*

**AUDITING**

*(Joe Squire – Oregon DOT)* Does any State DOT conduct periodic peer reviews of their construction offices? If so can you share the procedure, questions, reports, and best practice approaches that you glean from these?

*Caltrans Response (Blair Anderson / Mario Soils - OBEO): Caltrans each year performs a Contract Administration Process Evaluation (CAPE) Reports. The annual CAPE report chooses three different contract administration areas or topics for review. Investigation teams are formed lead by a Headquarters Subject Matter Expert, the team develops investigation questions, randomly selects jobs in each Region or District for review, interviews Resident Engineers and reviews the job records for compliance with the current contract administration procedures. The report produces strengths, weaknesses and recommendations for improvement. Each District or Region reviews the report and prepares an action plan for improving contract administration in those deficient areas.*

*The OBEO conducts compliance reviews of Caltrans divisions, including Construction, focusing on DBE and Title VI program requirements. Reviews may consist of a desk audit and/or on-site assessment. Findings are presented to divisions in a narrative report, which identifies action items and timelines for response, where applicable. The OBEO follows-up with divisions to ensure all action items are addressed satisfactorily.*
STATE DISCUSSION TOPICS
Caltrans Responses (Submitted Post-Meeting)

(Brenda O’Brien – Michigan DOT) What type of project documentation review do you do at project closeout? Who does this (project, region/district, central office)? Do you have a certification process for your engineers that streamlines the closeout of a project?

**Caltrans Response (Andy Alvarado / Blair Anderson):** Caltrans requires all projects to go through an acceptance process with final reviews and sign off by our Division of Maintenance, Traffic Operations, Environmental and other participating Agencies that will maintain the new improvements. Additionally we require the RE to identify and settle all project claims with the contractor. The permanent project history project records are archived to the project history file.

(Mike Sebren – Arkansas HTD) Arkansas currently audits 100% of the items on 100% of our construction projects at the completion of the project. This includes Federal Aid projects as well as State-Funded projects, State-Aid (City Street and County) Projects, overlay program, etc. We’d like to know what other state DOT policies are regarding the final audit of construction project. Specifically, we are curious to learn about the experiences/challenges faced by states with more selective auditing policies.

How often, and to what extent, do other states audit construction projects?

**Caltrans Response (Luisa Ruvalcaba A & I):** Caltrans annually audits about 25-35 contracts. Our audits are limited to the large-dollar contract change orders or emergency contracts paid through extra work at force account due to the higher risk entailed. The original contract awarded based on low bid is considered lower risk. We do not audit 100% of the items rather we test on a sample basis.

Have other states experienced difficulties/resistance in implementing these audit policies?

**Caltrans Response (Luisa Ruvalcaba A & I):** Contractors don’t want the audits to take place and they express that, but in the last few years we have not had difficulties/resistance with our audits process.

Have other states encountered unforeseen problems since implementing these policies?

**Caltrans Response (Luisa Ruvalcaba A & I):** None that we are aware off.

WORKZONE SAFETY

(David Hoyne – SOC Vice Chair, VTrans) Please describe any new strategies that your state has employed to improve the safety of the work zone; what is working and what is not. What trends are you experiencing and what steps is your state taking to address these issues?

**Caltrans Response (Shaun Ng / Samir Ead):** Air Caltrans has implemented a number of new strategies during the last few years to improve safety within Work Zones (WZ). Some of these strategies are incorporated within the policy as Standard Specifications and some others are introduced as guidelines. New ideas are tested in current projects and researched before actual specs are developed. Some of the recent strategies employed to improve safety in the WZ are:
1- Reducing speed limits within WZ: Speed limits can be reduced within WZ whenever workers are exposed to traffic or whenever changes in roadway geometrics occur such as narrow lanes, lane shifts, reduced lanes and others.

A Temporary Traffic Control (TTC) plan should be designed so that vehicles can reasonably safely travel through the TTC zone with a speed limit reduction of no more than 10 mph. A reduction of more than 10 mph in the speed limit may be justified when personnel and/or equipment are not separated from vehicle traffic by a concrete barrier, or when required by restrictive features in the TTC zone.

The new 2014 California Manual for Setting Speed Limits includes a section (Section 2.3) to address speed limits within WZ.

2- Lengthen the work windows: Lane closure charts were updated to allow more time for contractor operations. Time was extended by half an hour on both ends of work shifts.

3- Lengthen the lane closures: Standard Specifications were updated in July 2013 to allow longer lane closures to minimize workers exposure to traffic while re-setting traffic control ahead and within a WZ.

4- Use of transverse portable rumble strips: Transverse portable rumble strips were tested and approved for use on two lanes conventional highways in conjunction with flagging operations.

Standard specs and standard plans were issued and posted in 2014.

5- Use of COZEEP (Construction Zone Enhanced Enforcement Plan): Expand the use of COZEEP and emphasize the use of more roving patrols ahead of the project to help in curbing DUI.

6- Use of Complete Full Freeway Closures: Full freeway closures guidelines and checklists have been generated to assist Designers in incorporating full freeway closures during the project development stage for projects that meet certain criteria.

7- Use of Buffer lanes: Specifications for the use of buffer lanes within WZ have been developed few years ago. Some issues related to buffer lane implementation on certain facilities were brought up by few districts (3-lanes facilities when work is in the middle lane).

8- Use of enlarged fonts on construction signs: to assist motorists in making appropriate lane changes ahead of lane merges, we have tested the use of construction signs with enlarged size fonts for the number of lanes and the side (Right/Left) where lanes are closed.

9- Public information campaigns using billboards and Changeable Message Signs (CMS) to remind the public of the need to slow down within WZ.

10- Double the fines for violations within WZ: CHP officers are trained to note when violations occur within WZ so that penalties would be increased accordingly. Another way to alert drivers to the need of slowing down within WZ.
CMGC NOTICE OF PROPOSED RULE MAKING

(David Hoyne – SOC Vice Chair, VTrans) –

The Federal Highway Administration (FHWA) issued proposed regulations formalizing the Construction Manager/General Contractor (CM/GC) process in regulations. Originally called out in MAP-21, this two-phase contracting alternative has so far been implemented in SEP-14 projects. With this action, CM/GC will be in Title 23 of the Code of Federal Regulations section 630 Preconstruction Procedures as an available alternative contracting method. The proposal addresses:

- Competitive selection of contractors
- FHWA concurrence on a state’s CM/GC procedures, contract documents, price estimates, and awards. The contract documents and awards may be assumed by the states
- Ensuring the NEPA process is not impacted
- Intent to blend the requirements with those already in place for design-bid-build and design-build

AASHTO would like to influence the implementation of this process by providing a response to the proposal. Comments positive or negative are welcome. Proposals for revised language in cases where the proposed language will not work is also sought. Any comments for discussion purposes?

Caltrans Response (Ray Tritt): Caltrans is satisfied with the language as proposed. It provides sufficient flexibility for CMGC to be successful.
With transportation investment constrained across virtually all levels of governments, the players involved in highway and bridge improvement projects - including public owners and industry- must be fully committed to safety, efficiency; innovation and quality. This is especially critical given the continued use of alternative project delivery methods, which often revise the traditional allocation of risks and responsibilities among the parties.

In this context, the Federal Highway Administration (FHWA) and some state DOTs have explored the concept of performance-based prequalification for contractors. Under such a system, a DOT utilizes a given set of factors to evaluate a contractor's ability to complete a specific project, beyond just the contractor's financial capacity. While contractors have been subject to a myriad of ratings systems for various purposes, performance-based prequalification is distinctive in that it can be designed to affect the outcome of the procurement process itself.

In researching this initiative, FHWA noted the possibility of states' using this type of prequalification as a replacement for performance bonds, at least for projects under a certain dollar threshold. FHWA sees this as a potential cost savings given the relatively rare instances of default. Other advocates of performance-based prequalification view it as an incentive for improved performance by contractors, especially in that "marginal" contractors would need to improve their ratings to remain competitive. Moreover, several highway agencies outside the U.S. have utilized similar ratings mechanisms for many years. An FHWA international scan report on construction management practices noted that in at least one case (the U.K.), the system reflects the public owner's explicit preference to work with a limited number of experienced, "better quality" contractors on an ongoing basis. The same report acknowledges this rationale could conflict with the long-standing values in the U.S. of maximizing competition and inviting participation by qualified firms of varying sizes and profiles.

Recently, the New Mexico Department of Transportation (NMDOT) received FHWA's approval for its new Contractor Performance-based Prequalification and Procurement (CPPP) System. Through this process, NMDOT will rate several elements of a prime contractor's past performance and calculate a "prequalification factor," which it will apply to future bids on projects costing more than $5 million. The factors include liquidated damages, disincentives, non-conformances, subcontractor prompt payment, claims and safety. In announcing its approval of New Mexico's CPPP System in March 2015, FHWA noted the state's highway projects previously "have gone to the lowest bidder with the risk of increased costs in latter phases of the project." The new system would "provide an incentive for contractors to be more reliable with cost - with an eye towards winning future bids." For many months, there has been a spirited dialogue among the industry, NMDOT and FHWA on the particulars of this system, most notably the treatment of out-of-state or other firms without a track record in New Mexico from which a prequalification factor could be calculated.

Given all these developments, the Joint Committee is seeking feedback on the suitability of performance-based contractor prequalification and the forms it could take in the different states, starting with the following:

- Is your state considering a performance-based prequalification system, or currently using one?
- What are the factors a state DOT should legitimately use as part of such a system?
- How can these factors be calculated with maximum objectivity and transparency?
- In your state, would this type of system ultimately reduce claims and/or costs on projects?
- Is it possible to balance the interests of existing contractors in a state with those of new contractors or firms that have not yet done business the state, who essentially start with a "blank slate?"
Appendix C-3

AASHTO Subcommittee on Construction
2015 Annual Meeting
STATE DISCUSSION TOPICS

PennDOT Responses (Submitted Post-Meeting)
(Rob Wight – Utah DOT) What process does each state use to determine allowable work windows for construction projects?

PennDOT (Kelly Barber): The Department develops a pre-bid schedule for all construction contracts during our constructability reviews.

(David Hoyne – SOC Vice Chair, VTrans) With respect to Design Build contracts, what is your state’s experience with the work being completed on time (percentage of contracts complete on-time). And if the Design Builder does not complete on time, how do you handle the assessment of liquidated damages? VTrans has been approached by two Design Builders looking to buy the contract time in lieu of being assessed LD’s. They state in part that having to acknowledge being late will hurt their prospects of bidding future Design-Build contracts.

PennDOT (Kelly Barber/Jim Yee): The contractor would be assessed Construction Engineering Liquidated Damages (CELDs).

In 2013 – 68 Design Build projects were completed, 3 had CELD’s and 39 received time extensions
In 2014 – 38 Design Build projects were completed, 2 had CELD’s and 18 had time extensions
In 2015 (as of 9/18/2015) – 10 Design Build projects completed, 0 had CELD’s and 7 had time extensions.

(David Hoyne – SOC Vice Chair, VTrans) Is your State experiencing a skilled craft shortage such that it is limiting what a contractor can accomplish? This year VTrans has experienced several contractors limited by the availability of skilled craft such that the progress of the work is impacting the completion date and any extra work added cannot be accommodated. Does your state have any programs to incubate new skilled workers?

PennDOT (Joe Robinson): We are hearing about a shortage of skilled craftsmen anectodotaly from our contractors, however we have not had issues that can be directly attributed to that.

(Brenda O’Brien – Michigan DOT) Do you maintain critical path scheduling expertise in the central office? Who prepares complex critical path schedules for projects? Does anyone have a critical path scheduling spec that they feel works especially well?

PennDOT (Kelly Barber): PennDOT has a Scheduling/Constructability Section within our Central Office and they attend all complex constructability project meetings. The Department recently updated our construction scheduling specification to include resource loaded schedules. See Publication 408, Section 108.3(b)
BIDDING AND SELECTION

(Rob Wight – Utah DOT) What is each state using for e-Bidding? We are looking for something out of the box (as much as possible).


(Greta Smith – AASHTO) Please refer to the last page in this document for the topic of using performance-based prequalification systems to replace the use of the performance bond (SEE ATTACHMENT ON LAST PAGE).

PennDOT (Karen Gabel): PennDOT uses performance-based prequalification and requires performance (and payment) bonds after contract award from its lowest responsible and responsive bidders.

(Jeff Lewis – FHWA) FHWA would like to let all states know that though FHWA EDC2 has sunset, the Alternative Contracting Methods (ACM) team is still very active. There are still some funds available until the end of 2015 CY for additional ACM training, workshops, peer exchanges, etc. FHWA would like to see a show of hands of those interested in additional assistance in these areas of D-B and/or ATC’s and/or CM/GC and/or other methods (P3, ID/IQ, etc.). Those who are interested should contact one of the FHWA reps attending SOC.

PennDOT: Noted.

CONTRACT ADMINISTRATION

(Rob Wight – Utah DOT) What software is each state using for Federal Civil Rights Tracking?

PennDOT (Karen Gabel): PennDOT’s Engineering and Construction Management System (ECMS) tracks project DBE commitments and attainment.

(Rob Wight – Utah DOT) How do you enforce the prompt payment requirement? Do you track every supplier and subcontractor?

PennDOT (Karen Gabel): PennDOT can impose sanctions on prime contractors who fail to meet prompt payment requirements, up to and including suspension and/or debarment. PennDOT tracks the prompt payment of all subcontractors but does not track the prompt payment of suppliers.

(Rob Wight – Utah DOT) Do you have a penalty mentioned for going over the 30% self-perform requirement in federal law?

PennDOT (Karen Gabel): No. For almost every Federal project, PennDOT requires prime contractors to self-perform at least 50% of the contract.
Appendix C-3
STATE DISCUSSION TOPICS
PennDOT Responses (Submitted Post-Meeting)

(Brenda O'Brien – Michigan DOT) Does anyone use construction software systems for file sharing with contractors, such as Project Wise or Doc Express? *We are in the process of reviewing these systems and are not there yet.*

**PennDOT (Karen Gabel):** Some PennDOT Engineering Districts use Bentley's ProjectWise during the design phase of projects. For construction, PennDOT uses the internally developed “PennDOT Project Collaboration Center” (PPCC), a Microsoft SharePoint-based system.

(Chris Christopher – Washington State DOT)
1. Design-Build Disadvantaged Business Enterprise challenges – Are other States having challenges with DBE commitment, reporting, handling changes, and good faith efforts on Design-Build Contracts?

**PennDOT (Karen Gabel):** PennDOT is not having challenges with DBE commitment, reporting, change-handling, and good faith efforts on Design-Build contracts.

2. Maximum payment curves for construction contracts – Do you use them? Are they legal?

**PennDOT (Karen Gabel):** PennDOT does not use maximum payment curves for construction contracts.

3. Subcontracting prompt payment effort – What is the State’s role?

**PennDOT (Karen Gabel):** PennDOT reviews all reports of failures to meet our prompt payment requirements. PennDOT can impose sanctions on prime contractors who fail to meet prompt payment requirements, up to and including suspension and/or debarment. PennDOT tracks the prompt payment of all subcontractors but does not track the prompt payment of suppliers.

4. Disputes Resolution Process -- What do you do if the Contractor wants to skip the Disputes Review Board (or other alternative dispute resolution process) and go straight to court?

**PennDOT (Karen Gabel):** PennDOT’s disputes resolution process is clearly defined in our construction specifications (Pub 408, Section 108.06(a)1, Section 108.06(b)1, and Section 110.03(e)). Contractors do not have an option to bypass this process.

5. Recycling – Is there anything new or innovative being done to increase recycling?

**PennDOT (Karen Gabel):** PennDOT’s recycling efforts include asphalt rubber pavements, asphalt rubber seal coats, Flexi-Pave HD2000, 100% RAP cold mixed wearing course, hot-in-place asphalt recycling, and pasteurized mushroom compost.
Appendix C-3
STATE DISCUSSION TOPICS
PennDOT Responses (Submitted Post-Meeting)

(Chris Christopher – Washington State DOT) Overhead and Profit – WSDOT is finding that our standard mark-ups for profit and overhead on force account or change order work are being challenged by the Contractors; they say the mark-ups are insufficient. Are other DOTs seeing this as an issue?

PennDOT (Karen Gabel): PennDOT does not see our standard mark-ups for profit and overhead on force account or change order work as an issue.

CONSTRUCTION/MATERIALS ISSUES

(Joseph Robinson – Pennsylvania DOT)
1. Bridge Deck final surface texture.
   • Are states doing longitudinal sawed grooves?
     • If so what spacing are they using and what is their experience?
     • If your state is doing have they experienced any breaking of the tines?
     • Is anyone just performing diamond grinding of the bridge decks and not regrooving the deck?
     • Is anyone considering the Next Generation Concrete Surface NGCS for bridge decks?

2. Construction Quality.
   • How are states measuring quality of work performed?

3. Warranties – for pavements, structures, paint, etc.
   • Who is utilizing?
   • What length of time?
   • Warranty is dealing with materials, workmanship, or both?
   • How is bonding being handled?

4. 100 year design life pipe tolerances.
   • How are other states addressing tolerance issues?
   • What tolerances are other states accepting?

(Gary Angles – Ohio DOT) What have other states done to use Lightweight Deflectometers (LWD) for soil compaction acceptance?

PennDOT (Kerry Petrasic): No, LWD are not used. However, Falling Weight Deflectometers are used for pavement design.

(Gary Angles – Ohio DOT) Have they applied LWD testing to areas other than subgrade, aggregate base, or pavement layers?

PennDOT: N/A
(Gary Angles – Ohio DOT) Have they established criteria for the general embankment compaction?

PennDOT: N/A

(David Hoyne – SOC Vice Chair, VTrans) Does your State require a contractor to submit notarized material certifications, stating that the materials are in conformance with the material specifications?

PennDOT (Joe Robinson): We require material certifications that state the material is in conformance with a specific specification, however we do not require notarization.

(David Hoyne – SOC Vice Chair, VTrans) What systems or solutions has your state implemented to manage the certification documents and quality thereof?

PennDOT (Joe Robinson): We are in the process of implementing a SharePoint solution for project workflow and documentation submittal, review, and approval.

ASPHALT PAVEMENT

(Gary Angles – Ohio DOT) How do you typically test/accept asphalt pavement density on your secondary (2 lane) system? (i.e. Cores, gauges, other)

PennDOT (Garth Bridenbaugh): Some roads cores and others gauges. Probably a pretty even split on the secondary two lane road system in PA. Cores for roadways with stable bases and material placed at minimum depths (varies by mix size, example of a 9.5mm mix with a minimum depth of 1.5 inches). For roadways that do not meet these conditions, gauges are used to develop an optimum rolling pattern.

(Gary Angles – Ohio DOT) Who performs testing used for acceptance? (i.e. Contractor, DOT, Contractor QC results w/ DOT Verification, other)?

PennDOT (Garth Bridenbaugh): PennDOT performs acceptance testing for mix (loose boxes behind the paver) and density cores. Only the mix Gmm value is accepted by contractor test results.

(Gary Angles – Ohio DOT) If you accept Contractor QC results how does the DOT perform Verification for Acceptance?

PennDOT (Garth Bridenbaugh): PennDOT tests loose mix samples from behind the paver as verification tests for Gmm. If a single test is within ±0.030 of the contractor’s value, generated from plant tests, the contractor’s
Gmm is used. If the result is not within ±0.030, the Department performs additional testing and those results are used as the acceptance value.

(Gary Angles – Ohio DOT) Could you provide a link to your specification / testing procedures?

**PennDOT (Garth Bridenbaugh):**
Publication 408 – Construction Specifications – See Section 400s –

Publication 19 – Pennsylvania Test Methods (PTM) –

- PTM 715 – Determination of Bulk Specific Gravity of Compacted Bituminous Mixtures

- PTM 729 – Sampling Roadway Bituminous Concrete

- PTM 737 – Measuring the Thickness of Bituminous Concrete Courses

(Jeff Benafield – Alabama DOT) How many States are using (or intend to use in the near future) thermal imaging devices such as Moba’s Pave-IR to combat segregation and repetitive stopping of the paver? I believe Texas is leading the way in this effort, with a few States following.

**PennDOT (Garth Bridenbaugh):** At this point we have very limited exposure to the thermal imaging devices mentioned (only on an experimental basis). PennDOT routinely utilizes material transfer vehicles to assist in combating segregation and to minimize starting and stopping of the paver.

(Jeff Benafield – Alabama DOT) We continue to see our tack being tracked off the project on the tires of haul trucks. Have any States made recent specification changes that have helped reduce tracking? I believe Florida started allowing only reduced-tracking tacks this year and has seen some success. Do any States require vacuuming of milled surfaces prior to tack application in order to remove dust and get better adhesion of the tack?

**PennDOT (Garth Bridenbaugh):** PA has not made any specification changes to reduce tracking of tack coats. We have experimented on several projects with reduced-tracking tack coats. We have had issues with keeping milled surfaces clean to get better tack adhesion but do not require vacuum trucks at this time.
CONCRETE PAVEMENT

(Joseph Robinson – Pennsylvania DOT) How are other states handling Concrete longitudinal joint repairs? We know Michigan has a spec for 3 foot and 4 foot removal on both sides of the concrete joint.

(Gary Angles – Ohio DOT) Has your state had any issues with concrete durability due to poor quality air systems?

PennDOT (Patricia Miller): Yes.

(Gary Angles – Ohio DOT) Does your DOT perform any testing to validate air entrainment behind the finishing operations?

PennDOT (Patricia Miller): Air entrainment testing is only performed on concrete as delivered to the jobsite. No testing for air entrainment is performed after finishing operation. However, Tests for Depths are done by sampling pavement cores. Of the cores collected (as required by Pub 408, Section 501.3(s), last bullet), every 5th concrete core is submitted for evaluation of entrained air content, according to PTM 623 (for information only).

(Gary Angles – Ohio DOT) What kind of testing is performed? Frequency? (I.e. Plastic Air, Hardened Air, AVA, SAM etc.)

PennDOT (Patricia Miller): Air entrainment tests are not performed after the finishing operations. However, the Contractor performs plastic air content testing during their Quality Control Testing prior to using the concrete. Currently using the Super Air Meter on experimental basis. Hardened air tests (PTM 623) are performed as stated above.

AUDITING

(Joe Squire – Oregon DOT) Does any State DOT conduct periodic peer reviews of their construction offices? If so can you share the procedure, questions, reports, and best practice approaches that you glean from these?

PennDOT (Jim Yee): Yes, Periodic reviews are conducted, as per Publication 11 – Finals Unit Manual. Reference Part B and Part C for Project Documentation Verification and Audits.
(Brenda O’Brien – Michigan DOT) What type of project documentation review do you do at project closeout? Who does this (project, region/district, central office)? Do you have a certification process for your engineers that streamlines the closeout of a project?

PennDOT (Jim Yee): As per Publication 11 – Finals Unit Manual, PennDOT has a template of required documents needed for project closeout conducted by their District peers.

(Mike Sebren – Arkansas HTD) Arkansas currently audits 100% of the items on 100% of our construction projects at the completion of the project. This includes Federal Aid projects as well as State-Funded projects, State-Aid (City Street and County) Projects, overlay program, etc. We’d like to know what other state DOT policies are regarding the final audit of construction project. Specifically, we are curious to learn about the experiences/challenges faced by states with more selective auditing policies. How often, and to what extent, do other states audit construction projects?

PennDOT (Jim Yee): As per Publication 11 – Finals Unit Manual, the District has options to perform 100% Audits or statistical audits. Reference Part C Section 2.

(Mike Sebren – Arkansas HTD) Have other states experienced difficulties/resistance in implementing these audit policies?

PennDOT (Jim Yee): No difficulties experienced.

(Mike Sebren – Arkansas HTD) Have other states encountered unforeseen problems since implementing these policies?

PennDOT (Jim Yee): No problems experienced with implementation.
WORKZONE SAFETY

(David Hoyne – SOC Vice Chair, VTrans) Please describe any new strategies that your state has employed to improve the safety of the work zone; what is working and what is not. What trends are you experiencing and what steps is your state taking to address these issues?

PennDOT (Matt Briggs): Below are some of the existing work zone safety initiatives PennDOT has started (some in developmental stage) to improve its work zone safety:

- **Annual Work Zone Report**
  - Documents the annual crash and fatality numbers and breaks them down into a number a categories
  - Help support our approach to improve specific areas of the work zone set-up

- **State Police Memorandum of Understanding (MOU) for Queue Protection in Work Zones**
  - In-place since 2003
  - Currently being re-evaluated for future revisions and potential expansion beyond the queue area
  - Has reduced accidents and fatalities in “Advanced Warning” areas of the work zone
  - But this effort has done little to reduce accidents and fatalities in the “Activity” area of the work zone

- **WZ Safety & Mobility Plan – Performance Measure Development**
  - PennDOT’s policy has been in-place since 2006 which included a revision in 2009
  - Performance measures are being developed from the “best practices” from University of Maryland and Purdue University
  - The positive is that this process helps identify “significant” projects so full Transportation Management Plans can be developed and implemented.

- **Work jointly with our prime contractors and Work Zone sub-contractors to identify initiatives to improve work zone safety**
  - New products and strategies
  - Identifying the most recent “Best Practices” with statewide, work zone practioners
  - Independent meetings with prime contractors and sub-contractor’s associations
  - These information exchange opportunities have been very beneficial for external communication with the vendors and suppliers of new technologies
  - Has become a positive vetting process with the construction industry
• New Innovations
  
  o Queue detection systems – Initial reviews are positive / Additional deployments are being scheduled / Nothing negative thus far

  o Portable rumble strips - Two-way, two-lane applications have become options in policy/ Interstate applications are being reviewed, but the strips have been shifting under high-speed and high traffic volumes / Only one manufacturer is also a negative (sole sourcing and proprietary issues)

  o Sequential lights – Initial reviews are positive / We have three approved manufacturers/

  o Various personal protection equipment and devices – Includes items such as lighting devices on vests, intrusion alarms, mobile curbs with delineation, etc.

Below are some of the new work zone safety initiatives PennDOT has started (some in developmental stage) to improve its work zone safety

• Automated Speed Enforcement in Work Zones
  
  o Requires law and regulation changes

  o Coordination with the PA Turnpike Commission

  o Public perception that this is a revenue generator

  o We hope initiative helps reduce accidents in the “Activity” area in our work zones

• Work Zone Safety Implementation Plan
  
  o A formal FHWA/Leidos Report – second State DOT to participate

  o Developed a list of recommendations

  o The Department hopes to incorporate a couple of the recommendations in 2016

• Conducting a Work Zone Safety Summit November 2016
  
  o Attendees will discuss everything related to work zone safety

  o Will include PennDOT, PA Turnpike, Industry, and State Police

  o Everyone is optimistic that achievable strategies will be identified

  o Hope to conduct a WZ Safety Summit annually

• Creating a Work Zone Traffic Control Manager Policy
  
  o Developed based on “best practices” from Virginia DOT and Florida DOT

  o Content is similar to the ATSSA Technician and Supervisor courses
Appendix C-3
STATE DISCUSSION TOPICS
PennDOT Responses (Submitted Post- Meeting)

- PennDOT is the administrator of the course and testing materials
- PennDOT has identified a statewide “master trainer” for all of the train-the-trainer sessions
- Creating and maintaining consistent and effective work zones is a positive step forward

CMGC NOTICE OF PROPOSED RULE MAKING

(David Hoyne – SOC Vice Chair, VTrans) –

The Federal Highway Administration (FHWA) issued proposed regulations formalizing the Construction Manager/General Contractor (CM/GC) process in regulations. Originally called out in MAP-21, this two-phase contracting alternative has so far been implemented in SEP-14 projects. With this action, CM/GC will be in Title 23 of the Code of Federal Regulations section 630 Preconstruction Procedures as an available alternative contracting method. The proposal addresses:

- Competitive selection of contractors
- FHWA concurrence on a state’s CM/GC procedures, contract documents, price estimates, and awards. The contract documents and awards may be assumed by the states
- Ensuring the NEPA process is not impacted
- Intent to blend the requirements with those already in place for design-bid-build and design-build

AASHTO would like to influence the implementation of this process by providing a response to the proposal. Comments positive or negative are welcome. Proposals for revised language in cases where the proposed language will not work is also sought. Any comments for discussion purposes?

PennDOT: CM/GC is currently not allowed under PA Procurement laws.
Appendix C-3
AASHTO-ARTBA-AGC Joint Committee
"Issues Relating to Performance-Based Contractor Prequalification"
ARTBA 2015 Discussion Paper

With transportation investment constrained across virtually all levels of governments, the players involved in highway and bridge improvement projects - including public owners and industry- must be fully committed to safety, efficiency; innovation and quality. This is especially critical given the continued use of alternative project delivery methods, which often revise the traditional allocation of risks and responsibilities among the parties.

In this context, the Federal Highway Administration (FHWA) and some state DOTs have explored the concept of performance-based prequalification for contractors. Under such a system, a DOT utilizes a given set of factors to evaluate a contractor's ability to complete a specific project, beyond just the contractor's financial capacity. While contractors have been subject to a myriad of ratings systems for various purposes, performance-based prequalification is distinctive in that it can be designed to affect the outcome of the procurement process itself.

In researching this initiative, FHWA noted the possibility of states' using this type of prequalification as a replacement for performance bonds, at least for projects under a certain dollar threshold. FHWA sees this as a potential cost savings given the relatively rare instances of default. Other advocates of performance-based prequalification view it as an incentive for improved performance by contractors, especially in that "marginal" contractors would need to improve their ratings to remain competitive. Moreover, several highway agencies outside the U.S. have utilized similar ratings mechanisms for many years. An FHWA international scan report on construction management practices noted that in at least one case (the U.K.), the system reflects the public owner's explicit preference to work with a limited number of experienced, "better quality" contractors on an ongoing basis. The same report acknowledges this rationale could conflict with the long-standing values in the U.S. of maximizing competition and inviting participation by qualified firms of varying sizes and profiles.

Recently, the New Mexico Department of Transportation (NMDOT) received FHWA's approval for its new Contractor Performance-based Prequalification and Procurement (CPPP) System. Through this process, NMDOT will rate several elements of a prime contractor's past performance and calculate a "prequalification factor," which it will apply to future bids on projects costing more than $5 million. The factors include liquidated damages, disincentives, non-conformances, subcontractor prompt payment, claims and safety. In announcing its approval of New Mexico's CPPP System in March 2015, FHWA noted the state's highway projects previously "have gone to the lowest bidder with the risk of increased costs in latter phases of the project." The new system would "provide an incentive for contractors to be more reliable with cost - with an eye towards winning future bids." For many months, there has been a spirited dialogue among the industry, NMDOT and FHWA on the particulars of this system, most notably the treatment of out-of-state or other firms without a track record in New Mexico from which a prequalification factor could be calculated.

Given all these developments, the Joint Committee is seeking feedback on the suitability of performance-based contractor prequalification and the forms it could take in the different states, starting with the following:

- Is your state considering a performance-based prequalification system, or currently using one?
- What are the factors a state DOT should legitimately use as part of such a system?
- How can these factors be calculated with maximum objectivity and transparency?
- In your state, would this type of system ultimately reduce claims and/or costs on projects?
- Is it possible to balance the interests of existing contractors in a state with those of new contractors or firms that have not yet done business the state, who essentially start with a "blank slate?"
Appendix D

Contract Administration Section Report
Minutes
2015 AASHTO SOC Annual Meeting
Contract Administration Section Meetings
Little Rock, Arkansas
August 10 and 13, 2015

Monday, August 10, 2015

1. Welcome / Administrative Issues - Brenda O’Brien, Michigan DOT, introduced herself and welcomed everyone to the meeting. She distributed a sign-in sheet to the group and requested that the list be revised and updated as necessary (a final attendance list is appended to these minutes).

Brenda announced that this would be her last Contract Administration Section meeting as she plans to retire from Michigan DOT next year. She asked for volunteers to serve as the Chair of the Contract Administration Section. She mentioned that Gary Angles, Ohio DOT (currently one of the two Vice-Chairs for the Section) had volunteered to serve as the Chair for the coming year but she also welcomed other volunteers; however, no other Section members stepped forward. A vote of the Section members led to a unanimous decision for Gary Angles to become the Section Chair.

Brenda mentioned that the Section would also be requesting volunteers for the position of Vice-chair to replace Lewis Cannon, Connecticut DOT and the Research Section liaison to replace Gary Angles.

2. Overview of 2014-2015 work plan items

On Monday, August 10th, Brenda provided an overview of the status of the 2014-2015 Section workplan items as follows:

a. AASHTO Guide Specifications Division 1 Review – Brenda thanked the other members of the Section that had performed a preliminary review of the AASHTO Guide Specifications (Lewis Cannon, Andy Long, Norm Marzano, and Douglas Gransberg) and then mentioned that AASHTO would be moving forward with an NCHRP project to select a consultant to review and provide recommendations on the update of the Guide Specifications.

b. I/D Provisions on “Other than Timely Completion” – This survey is still in progress. Brenda will resend an email to all Subcommittee members to encourage participation in this survey.
c. **DBE - Best Practices for Administration** – This work plan item had been on hold, pending the results of the ongoing NCHRP Synthesis 20-05/Topic 45-03 “Current Practices to Set a DBE Goal on Design-Build Projects.” Synthesis Report No. 481 was published by NHCRP on July 14, 2015. The Section will revisit the need for this work plan item at a future date.

3. **Preliminary Discussion of the Proposed 2015-2016 work plan.**

The Section members discussed potential new workplan items including the following:

- Update the Survey on Price Adjustment Clauses (updated 2008)
- Construction Practices to Ensure Longevity of Pavements (50 year pavements) – referred to R&S Section
- Best Practices for Maintaining Traffic to Minimize Impacts to Mobility with Minimal Impact to Production Schedules
- Carryover item for I/D clauses for other than acceleration (Brenda will resend)
- Carryover item for DBE program issues
- Performance bond requirements / warranty bonds
- Funds availability provisions and/or maximum bid amounts for items
- Effectiveness of environmental review costs
- Scheduling practices / expertise / training / procedures; what are the owner’s goals of scheduling?
- What are the state’s requirements for contractor responsibility? What are the criteria?

4. **Preliminary Discussion Regarding Recommendations for 2016 SOC Meeting Contract Administration Section presentations**

The Section members discussed potential presentations for the Contract Administration Section portion of the 2016 Subcommittee Meeting in Montana. Suggestions for potential presentations are listed below. The Contract Administration Section leadership will discuss these suggestions and develop a final list during the monthly conference calls in 2015-2016.

- Performance / payment bond requirements / Insurance requirements
- Considerations and lessons learned with default terminations (panel discussion – Caltrans?)
- Dispute Review Boards
- ID/IQ Job Order Contracting
- New Mexico DOT Performance Based Contractor Prequalification and Procurement
- Project 19-10 Quantifying the costs and Benefits of Partnering Delivered Using Traditional and Alternative Contracting Methods
- Risk Management (panel discussion, schedule risk)
5. **Preliminary Discussion Regarding Potential Research Recommendations**

The Section members discussed potential new research items for Gary Angels to take to the Research Section Breakfast meeting on Tuesday morning, August 11th. These recommendations included:

- Durability of Service Life of Crack Concrete
- Use of drone technology for project development?
- Guidebook for the use of ATC’s in various types of contract methods
- Guidebook for accelerated construction and technologies?
- Guide book for agency staffing levels for alternative Project Delivery on Transportation Projects
- Strategies to address future construction trade needs
- Synthesis of factors (Pre and Post Qualification) to consider in determining whether a contractor is a responsible firm

**Thursday, August 13, 2015**

6. **Discussion of Administrative Issues** - Brenda reiterated that Gary Angels (Ohio DOT) would be assuming the Chairperson responsibilities for the Contract Administration Section in 2016. She also announced that Andy Long (Wyoming DOT) would continue to serve as one of the two vice-chair positions and that Sue Eiseman (Kansas DOT) had volunteered to serve as the other Vice Chair. Richard Duval volunteered to serve as the Contract Administration Section Research Liaison.

7. **Final Discussion of the Proposed 2015-2016 work plan.** - The Section members further discussed the potential workplan items that were developed on Monday and then developed a prioritized list of workplan items for the coming year. This included the following tasks (Lead task coordinator and assisting members identified in parenthesis):

   a) **Update the Survey on Commodity Price Adjustment Clauses for Inflation** (update the 2008 AASHTO SOC survey – Lead: Jerry Yakowenko- FHWA, Sue Eiseman – Kansas DOT, Gary Angels – Ohio DOT)

   b) **I/D clauses for other than acceleration** (Carryover item from 2014-2015; Lead: Brenda O’Brien- Michigan DOT will resend an email to all SOC members encouraging participation)

   c) **Performance bond requirements / warranty bonds / insurance levels for various types; What are the minimum thresholds and criteria for use?** (Lead: Doug Gransberg – Iowa
8. Final Discussion Regarding Potential Presentations for the 2016 SOC Meeting  The Section members then revisited the list of suggested presentations for the 2016 meeting and provided information on potential speakers.

   a) “Performance / payment bond requirements / Insurance requirements” and “Considerations and lessons learned with default terminations” (Potential moderator Doug Gransberg or Elizabeth Kraft; potential panel presenters– Caltrans, Florida DOT, Wisconsin DOT)

   b) Dispute Review Boards (Eric Kerness, DRBF)

   c) ID/IQ  Job Order Contracting (Ravn/Kosobud - MnDOT, Sadler – Florida DOT)

   d) New Mexico DOT  Performance Based Contractor Prequalification and Procurement (Yakowenko to coordinate)

   e) Project 19-10 Quantifying the Costs and Benefits of Partnering Delivered Using Traditional and Alternative Contracting Methods (Gransberg – 50% complete)

   f) Risk Management (panel discussion, schedule risk?) (wait for a future year)

   g) Evolution of quality management and agency practices (panel presentation)(Georgia Tech?)

   h) Quantification of Costs/Benefits of Alternative Contracting Methods (Molenaar)

9. Final Discussion Regarding Research Priorities  - The Section members discussed potential research projects and arrived at the following list of recommended research items for the Contract Administration Section:

   a) Guidebook for Implementing Alternative Technical concepts in All Types of Highway Project Delivery Methods (A Research Needs Statement has already been developed by TRB Committee AFH15- Project Delivery Methods )

   b) Constructability Review Best Practices for Optimized Early Construction Involvement in Project Development (A Research Needs Statement has already been developed by TRB Committee AFH10- Construction Management )

   c) Synthesis of factors (Pre and Post Qualification) to consider in determining whether a contractor is a responsible firm

   d) Synthesis for agency staffing levels for alternative Project Delivery on Transportation Projects
<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Company</th>
<th>Email Address</th>
<th>Work Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angles</td>
<td>Gary</td>
<td>Ohio DOT</td>
<td><a href="mailto:gary.angles@dot.state.oh.us">gary.angles@dot.state.oh.us</a></td>
<td>614-466-7057</td>
</tr>
<tr>
<td>Bartos</td>
<td>Steve</td>
<td>Nebraska Department of Roads</td>
<td><a href="mailto:steve.bartos@nebraska.gov">steve.bartos@nebraska.gov</a></td>
<td>402-479-4455</td>
</tr>
<tr>
<td>Blankenship</td>
<td>Jason</td>
<td>Tennessee DOT</td>
<td><a href="mailto:Jason.Blankenship@tn.gov">Jason.Blankenship@tn.gov</a></td>
<td>651-741-7976</td>
</tr>
<tr>
<td>Catalanotte</td>
<td>A. J.</td>
<td>CH2M HILL</td>
<td><a href="mailto:aj.catalanotte@ch2m.com">aj.catalanotte@ch2m.com</a></td>
<td>414-491-9938</td>
</tr>
<tr>
<td>Chisolm</td>
<td>Richard</td>
<td>Mississippi Department of Transportation</td>
<td><a href="mailto:rchisolm@mdot.ms.gov">rchisolm@mdot.ms.gov</a></td>
<td>601-359-7301</td>
</tr>
<tr>
<td>Clyde</td>
<td>Jeff</td>
<td>W.W.Clyde &amp; Co.</td>
<td><a href="mailto:ebench@wwclyde.net">ebench@wwclyde.net</a></td>
<td>801-372-1647</td>
</tr>
<tr>
<td>Coffee</td>
<td>Daniel</td>
<td>Luster National Inc.</td>
<td><a href="mailto:dcoffee@luster.com">dcoffee@luster.com</a></td>
<td>661-869-0157</td>
</tr>
<tr>
<td>Costello</td>
<td>Christopher</td>
<td>Delaware Department of Transportation</td>
<td><a href="mailto:chris.costello@state.de.us">chris.costello@state.de.us</a></td>
<td>302-326-4401</td>
</tr>
<tr>
<td>Donoho</td>
<td>David</td>
<td>Smith Seckman Reid, Inc.</td>
<td><a href="mailto:ddonoho@ssr-inc.com">ddonoho@ssr-inc.com</a></td>
<td>615-383-1113</td>
</tr>
<tr>
<td>Duval</td>
<td>Richard</td>
<td>Federal Highway Administration</td>
<td><a href="mailto:richard.duval@dot.gov">richard.duval@dot.gov</a></td>
<td>720-963-3748</td>
</tr>
<tr>
<td>Eiseman</td>
<td>Susan</td>
<td>Kansas Dept of Transportation</td>
<td><a href="mailto:susan.eiseman@ksdot.org">susan.eiseman@ksdot.org</a></td>
<td>785-250-7839</td>
</tr>
<tr>
<td>FLOWERS</td>
<td>TOM</td>
<td>Ergon Asphalt &amp; Emulsions Inc.</td>
<td><a href="mailto:tom.flowers@ergon.com">tom.flowers@ergon.com</a></td>
<td>903-258-6186</td>
</tr>
<tr>
<td>Garcia</td>
<td>Roxana</td>
<td>Texas DOT</td>
<td><a href="mailto:roxana.garcia@txdot.gov">roxana.garcia@txdot.gov</a></td>
<td>512-416-2482</td>
</tr>
<tr>
<td>Garris</td>
<td>Randy</td>
<td>NC Department of Transportation</td>
<td><a href="mailto:rgarris@ncdot.gov">rgarris@ncdot.gov</a></td>
<td></td>
</tr>
<tr>
<td>Gendreau</td>
<td>Cal</td>
<td>North Dakota DOT</td>
<td><a href="mailto:cgendrea@nd.gov">cgendrea@nd.gov</a></td>
<td>701-328-2563</td>
</tr>
<tr>
<td>Glenn, Jr.</td>
<td>Earl</td>
<td>Mississippi Department of Transportation</td>
<td><a href="mailto:eglenn@mdot.ms.gov">eglenn@mdot.ms.gov</a></td>
<td>601-359-7301</td>
</tr>
<tr>
<td>Name</td>
<td>First Name</td>
<td>Affiliation</td>
<td>Email</td>
<td>Phone</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>------------------------------------</td>
<td>--------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Gransberg</td>
<td>Douglas</td>
<td>Iowa State University</td>
<td><a href="mailto:dgran@iastate.edu">dgran@iastate.edu</a></td>
<td>515-294-4841</td>
</tr>
<tr>
<td>Harper</td>
<td>Christofer</td>
<td>Louisiana State University</td>
<td><a href="mailto:charper@lsu.edu">charper@lsu.edu</a></td>
<td>225-578-0131</td>
</tr>
<tr>
<td>Haynes</td>
<td>John</td>
<td>FHWA</td>
<td><a href="mailto:John.Haynes@dot.gov">John.Haynes@dot.gov</a></td>
<td>801-955-3526</td>
</tr>
<tr>
<td>Ingram III</td>
<td>John</td>
<td>Idaho Transportation Dept.</td>
<td><a href="mailto:john.ingram@itd.idaho.gov">john.ingram@itd.idaho.gov</a></td>
<td>208-334-8436</td>
</tr>
<tr>
<td>Jagoda</td>
<td>Paul</td>
<td>Montana Department of Transportation</td>
<td><a href="mailto:pjagoda@mt.gov">pjagoda@mt.gov</a></td>
<td>406-444-2413</td>
</tr>
<tr>
<td>James</td>
<td>Bernard</td>
<td>Ministry of Transportation</td>
<td><a href="mailto:bernard.james@ontario.ca">bernard.james@ontario.ca</a></td>
<td>905-704-2197</td>
</tr>
<tr>
<td>Juliano</td>
<td>Rich</td>
<td>American Road &amp; Transportation Builders Association</td>
<td><a href="mailto:rjuliano@artba.org">rjuliano@artba.org</a></td>
<td>202-289-4434</td>
</tr>
<tr>
<td>kerness</td>
<td>eric</td>
<td>Dispute Resolution Board Foundation</td>
<td><a href="mailto:eric@kerness.com">eric@kerness.com</a></td>
<td>518 928 9433</td>
</tr>
<tr>
<td>Ledger</td>
<td>Jonathan</td>
<td>Delaware Department of Transportation</td>
<td><a href="mailto:jonathan.ledger@state.de.us">jonathan.ledger@state.de.us</a></td>
<td>302-894-6329</td>
</tr>
<tr>
<td>Long</td>
<td>Andy</td>
<td>Wyoming Department of Transportation</td>
<td><a href="mailto:andy.long@wyo.gov">andy.long@wyo.gov</a></td>
<td>307-777-4425</td>
</tr>
<tr>
<td>Lowe</td>
<td>Scott</td>
<td>Trauner Consulting Services, Inc.</td>
<td><a href="mailto:scott.lowe@traunerconsulting.com">scott.lowe@traunerconsulting.com</a></td>
<td>215-814-6414</td>
</tr>
<tr>
<td>McDaniel</td>
<td>Craig</td>
<td>Washington State Department of Transportation</td>
<td><a href="mailto:mcdanic@wsdot.wa.gov">mcdanic@wsdot.wa.gov</a></td>
<td>368-705-7823</td>
</tr>
<tr>
<td>Patel</td>
<td>Shailendra</td>
<td>Virginia Department of Transportation</td>
<td><a href="mailto:Shailendra.Patel@vdot.virginia.gov">Shailendra.Patel@vdot.virginia.gov</a></td>
<td>804-692-0476</td>
</tr>
<tr>
<td>Pawlowski</td>
<td>Gregory</td>
<td>Delaware River &amp; Bay Authority</td>
<td><a href="mailto:gregory.pawlowski@drba.net">gregory.pawlowski@drba.net</a></td>
<td>302-571-6380</td>
</tr>
<tr>
<td>Name</td>
<td>First Name</td>
<td>Organization</td>
<td>Email</td>
<td>Phone</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>---------------------------------------</td>
<td>------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Rolfe</td>
<td>Mark</td>
<td>Connecticut Department of Transportation</td>
<td><a href="mailto:mark.rolfe@ct.gov">mark.rolfe@ct.gov</a></td>
<td>203-389-3100</td>
</tr>
<tr>
<td>Ryburn</td>
<td>Kevin</td>
<td>Colorado Department of Transportation</td>
<td><a href="mailto:kevin.ryburn@state.co.us">kevin.ryburn@state.co.us</a></td>
<td>303-757-9364</td>
</tr>
<tr>
<td>Saunders</td>
<td>Alan</td>
<td>Virginia Department of Transportation</td>
<td><a href="mailto:alan.saunders@vdot.virginia.gov">alan.saunders@vdot.virginia.gov</a></td>
<td>804-371-0661</td>
</tr>
<tr>
<td>Scott</td>
<td>Sidney</td>
<td>Hill International</td>
<td><a href="mailto:sidscott@hillintl.com">sidscott@hillintl.com</a></td>
<td>610-290-2811</td>
</tr>
<tr>
<td>Sprague</td>
<td>Anthony</td>
<td>State of Alaska Department of Transportation &amp; Public Facilities</td>
<td><a href="mailto:anthony.sprague@alaska.gov">anthony.sprague@alaska.gov</a></td>
<td>907-269-0450</td>
</tr>
<tr>
<td>Steagall</td>
<td>Todd</td>
<td>South Carolina Department of Transportation</td>
<td><a href="mailto:steagallrt@scdot.org">steagallrt@scdot.org</a></td>
<td>803-315-2493</td>
</tr>
<tr>
<td>Vincent</td>
<td>Curtis</td>
<td>Alabama DOT</td>
<td><a href="mailto:vincentc@dot.state.al.us">vincentc@dot.state.al.us</a></td>
<td>334-242-6208</td>
</tr>
<tr>
<td>Vosburg</td>
<td>Michael</td>
<td>Louisiana Department of Transportation and Dev.</td>
<td><a href="mailto:Mike.Vosburg@LA.Gov">Mike.Vosburg@LA.Gov</a></td>
<td>225-379-1503</td>
</tr>
<tr>
<td>Winters</td>
<td>Victor</td>
<td>Alaska DOT</td>
<td><a href="mailto:victor.winters@alaska.gov">victor.winters@alaska.gov</a></td>
<td>907-465-8884</td>
</tr>
<tr>
<td>Yakowenko</td>
<td>Jerry</td>
<td>Federal Highway Administration</td>
<td><a href="mailto:gerald.yakowenko@dot.gov">gerald.yakowenko@dot.gov</a></td>
<td>202-366-1562</td>
</tr>
</tbody>
</table>
Appendix E

Roadways and Structures Section Report
Roadways and Structures Section

Meeting Minutes

AASHTO Subcommittee on Construction

August 9 – 14, 2015
Little Rock, Arkansas

2014 Section Leadership
Chairman – Marc Mastronardi, Georgia DOT
Vice Chairman (Roadways) – Kevin Christensen, Montana DOT
Vice Chairman (Structures) – Jon Stayton, Caltrans
Secretary – Anthony Sarhan, FHWA

Monday – August 10th (1:15 – 4:00 PM)
Called to order at 1:15PM

Introductions: Members introduced themselves.
Representation from:
State DOT’s: AR, FL, GA, KY, LA, MN, MO, MT, NE, PA, TN, WV
AASHTO
FHWA
Industry: ADS, ACPA, Hansen Pipe, Pavia Systems

2014/2015 Work Plan:

1. **Risk Based Inspection** – Identify specifications and best practices. Missouri DOT will provide a summary at the 2015 meeting. This is a carry-over item from the 2013-2014 Work Plan. Possible presentation topic.

Mr. Mastronardi opened up the conversation by commenting that many DOT’s do this to an extent, but RBI itself is a little more methodical. The R&S section have addressed this work plan item with a proposed panel discussion (MO, PA, OR, UT, GA). However, due to conflicts, there was no set time on the agenda for this panel. Mr. Mastronardi requested feedback on whether the group wants to get together later this week for a quick 45 minute session and have the panel discussion? Mr. Mastronardi noted that Mr. Wight may have conflicts and be unable to attend.

Mr. Sadler commented that he liked the idea of meeting after the Wednesday session, and that others can be invited to join the panel discussion.

Mr. Christensen commented that it is important to have good participation

In general the group felt that if Rob Wight can join us to give UT perspective that would be better, but not necessary.

Mr. Sarhan presented information regarding MAP-21 Section 52003, and the FHWA funded research project on Porous Graded Asphalt (PGA) Mix Design and Construction Guidance being conducted by Texas A&M. After the presentation the group discussed use of PGA and other porous pavements as follows:

GDOT has some experience.
MODOT – had some issues with concrete not being as pervious as intended.
FDOT completed research study in 2011, and will provide link.

Question – for folks using OGFC what is being done for maintenance?

TN: Have been placing large amounts of OGFC over the past 5 years, and love the way it performs. However, TDOT is starting to have the discussion about whether it is being maintained properly. How is it going to look in 3-5 years if it isn’t maintained?
Follow up question and comment from GDOT: Have you had any non-fatal non serious accidents with diesel spills? GA experience is that they have to go in and remove the section because you can’t get the diesel out quick enough.
TN: Nothing specific to diesel, but have noticed regional differences. For example personnel in the mountainous section of state not as big a fan on OGFC. TDOT does have some question regarding the long term impact of salt use.
MT: Used OGFC on Interstate and it didn’t hold up.
FHWA – Massachusetts did have success with OGFC, but appears to have a finite life (about 8 years). Massachusetts did modify their mix design to use polymers.
MO: Missouri did have some problems with OGFC holding up and the failures were dramatic. State maintenance forces have also complained because had to apply salt at a higher rate.
GA: Starting to use pre-emptive brine approach. Seeing localized failures (e.g. coming up in 100ft sections in less than 5 years)
PA: Not seeing degradation of mat due to winter weather maintenance.

After the conversation Mr. Sarhan agreed to distribute the final version of the Phase I synthesis currently under review by FHWA.

This work plan item is complete.


This item was resolved by the decision of the SOC to update the Guide Spec.

Mr. Mastronardi introduced the topic and provided a general status update to the group. AASHTO is aware that the Guide Spec is used by a lot of entities other than the DOT’s. In support of the re-write/update effort the SOC has obtained some research money. A consultant will be assisting with the update of the Guide Spec, but we are the content owners. Mr. Mastronardi noted that technically the balance of the book is in the R&S section, but the work should be evenly distributed among the entire Subcommittee on Construction. To that end Mr. Hoyne has started the discussion of how we are going to attack the rewrite.
Members can expect to see the work of this group begin much earlier so that we can attack the spec
book. The work will concentrate on what can stay, what can go, and what is state of the practice. We
are going to start reaching out and asking for help.

The goal is to have this work completed in 1 year.

Mr. Sadler recapped process of last update and noted that the time to complete from start to publish
was 3 years.

Mr. Mastronardi acknowledged the effort on the last update by noted that this effort is going to be
much more focused than last update

D. Ahlvers – Q: Philosophically what was the focus of the last update? Did you try to update to as
current as possible?
D. Sadler – A: yes.
D. Ahlvers – The LPA’s will not always want to do what the DOT’s are doing.

Mr. Mastronardi will begin putting together a working group, and has asked for volunteers to
contact him. This work plan item is on-going and will carryover.

4. Post Installation Inspection (PII) on Pipe Installation – Conduct a survey of the DOT’s. What types of
PII are they conducting and how?

Due to the recent work on this topic the survey has not pursued. A University of Florida survey from
2012 on this topic was distributed by e-mail during the work year, and is available for all members.
Mr. Sarhan will re-distribute the survey.

Mr. Mastronardi opened this discussion with a comment and question: At one point GDOT
tied/limited fill height to the results of the PII. Does this go into the guide spec?

Show of hands states that have PII – almost even split

Question from KY: What problems are states having in their inspections?
Kentucky had issues with allowing plastic primarily based on concerns/issues with deflection, and
have found it difficult to make good deflection measurements with CMP. Part of the problem is
getting contractors certified...only have 2 vendors and each is using a different system.

GA: Use deflection, but also use a simple mandrel test...can use camera and laser to get good data. It
is an added cost, and agencies need to figure out where it makes sense for them. In other words do
you know where to properly apply the additional costs?

FL and MO: Both DOT’s based a lot of their spec on KY.
GA: GDOT PII spec was based on FDOT’s.

Follow up comment and question from KY: We are having issues with the process, for example we
require testing of every pipe. Are corrugations causing problems and are you certifying the testers?

FL: We aren’t certifying. Have machine requirements (calibration). FDOT has own laser profile
equipment in case they have any questions.
This work plan item is complete.

5. **Establishing Contract Time** – Possible survey. Effect of environmental work windows on establishment of contract time.

   This work plan item being addressed by the presentation/open discussion during tomorrow’s session.

   **This work plan item is complete.**

6. **2003 Guide to Major Types of Transportation Construction Specifications** – Roadways and Structures section will evaluate whether the guide needs to be updated.

   Mr. Doyle commented that this work effort is still underway.

**Research**

Research meeting is Tuesday morning at 6:30 AM

Opened discussion to the group for research topics. The following topics were mentioned with notes on discussions captured below:

1) Changes in cement, and a synthesis on curing techniques

2) Synthesis on production rates – impact on establishing contract time.

3) Work zones – State DOT’s hiring police officers; broad category of uniformed law enforcement in work zones.

4) Work zones – standards for repairs to temporary barrier walls

5) The bump at the end of the bridge --- whose problem is it? Best practices for approach slab connections.

6) AFAD use – best practices for two-lane two way traffic control/stoppages. Portable stop lights. Temporary signals

7) Use of temporary portable rumble strips for road closures. – *(Mr. Cawley remarked that the SCOM addressed this earlier this year. Conducted survey.)*

**Open Discussion**

**Topic1: Non-Destructive Testing for drilled shafts.**

**Question** – Is anyone (other than Florida) using methods other than CSL for drilled shaft testing?

**Responses**

WSDOT is also using some Thermal Imaging

MTD has ability to do Osterburg test.

**Follow up question:** Is there any interest in learning more about this?

**Response:** Non-committal yes.
**Topic 2: Mass Concrete**

**Question** - How many states have a formal mass concrete spec?

**Responses**

GA used to have a 2 page spec for mass concrete with a max delta for temp of 50F. Thermal cracking is an issue but so is DEF. Water presence will allow DEF to continue. GA found out they had issues with some very large seals, but didn’t really look at shafts. There does appear to be two camps; those that say shafts don’t need mass concrete considerations, and those that do. GA requires mechanical cooling to be put in every element. This requirement came from FHWA. It is costly and time extensive and doesn’t consider the risk factors, so the question is have we come too far? GA is currently working with TFHC.

FDOT has made some recent changes based on environmental conditions

**Topic 3: Pavement Type**

**Question** – Is there any interest for specifying pavement type?

**Background to question**: The MI legislature has started discussing requiring pavement design to a 50-year life cycle.

**Responses**

GA has discussed at very high level.

KY has bid alternates.

*Follow up Question from Michigan:* How does typical section compare between the two types of pavements in GA?

*Response:* 10-14” in PCCP. 4-2-2-OGFC with HMA

*Follow up Question from Missouri:* Are you using ME design?

*Response:*

GA – We have contractors bid both and then use ME design to equate the two. HMA is always coming in thicker.

FL – Still waiting on full MEPDG adoption.

PA – LCCA on all large pavement jobs. Up to 3 years ago if the costs were within 10% of each other then the PennDOT District had option to choose. Currently there is a push take the discretion away and just go with LCCA results.

**Topic 4: Migratory Bird Treaty Act (MBTA) and allowance of take**

**Background and Question** - Birds protected under MBTA that are not necessarily endangered. Often states use exclusionary netting. Caltrans had an issue where birds got trapped in the exclusionary netting and had approximately 50 deaths. This was $5M cost to Caltrans. Are any states trying to raise the discussion about the impact of MBTA?

**Responses**

FL – We don’t have issues with birds, but we do have a $3M turtle crossing. FDOT has received comments regarding concerns that netting on sod doesn’t bio-degrade quickly enough.

MT – This is a frequent topic of discussion in Montana. MTD had similar issue to Caltrans. MTD is working on streamlining JOC to address variability in letting schedule. Allows some work to go out and do work (e.g. clearing and grubbing, netting...)

---

2015 AASHTO SOC Meeting Minutes - 2016-01-15 FINAL 112
Follow up questions:
Should AASHTO try to make arguments for project relief for species that have made man-made elements their habitat?

Should AASHTO discuss grace periods for revisiting requirements when criteria change, for example changes to MSATs?

**Topic 5: High Friction Surface Treatment (HFST)**
Missouri DOT is interested in research on HFST materials that are more economical.

**Topic 6: Contractor Defaults**
*Question from Florida* - Have you seen an increase in the number of contractors default on jobs?

**Background**
- FL had 10 defaults last year. Recently FDOT had 7 in 5 weeks. Surety’s took over most of the projects, but twice filed an interpleader with the courts. Courts decided that surety still had responsibility. One relented and moved forward, however one continued and FDOT had to hire someone else. FDOT is now in court with surety.

**Responses**
- GA – make sure you pursue default diligently. In one instance in Georgia a Surety was able to successfully show “but for” GDOT’s inaction costs to the surety would have be less.
- AR – had a similar issue in Arkansas and AHTD wound up with some additional costs to the surety because of how long the default process took.

**Topic 7: Thermoplastic**
*Question from South Carolina* – Is anyone having issues with getting jobs completed due to thermoplastic contractors?

**Responses**
No. Issue appears to be isolated to South Carolina.

**Adjourn:**
Thursday - August 13 (1:15 – 3:00 PM)

Begin 1:15 PM CDT

Introductions:
State DOT’s: AR, FL, GA, KY, LA, MN, MO, MT, NE, PA, TN, WA, WV
AASHTO
FWHA
Industry: ACPA, Hansen Pipe

Recap of Monday’s Section Meeting:

2014/2015 Work Plan

1. Risk Based Inspection – Identify specifications and best practices. Missouri DOT will provide a summary at the 2015 meeting. This is a carry-over item from the 2013-2014 Work Plan. Possible presentation topic. –

Panel/round-table discussion was held on 8/12/15.

Group Discussion:
Broad connotations of RBI. Where does it belong? The general consensus of the group is that the best way to share the information is through a survey with results reported out to the group.

This work plan item is complete.

New item for 2015-2016 work plan – develop survey on use and practices of Risk Based Inspection and distribute results to group.


Complete with delivery of final Phase I report. Anthony Sarhan to coordinate with Katherine Petros for delivery of final report to members.

This work plan item is complete


Guide spec will be updated. AASHTO received some money. R&S began high level screening of spec book sections to determine how we want to approach the update. Expect this work activity to begin this fall (September).

This will be a new work item for the 2015 - 2016 work plan.

4. Post Installation Inspection (PII) on Pipe Installation – Conduct a survey of the DOT’s. What type of PII are they conducting and how. – Complete.

Mr. Sarhan to distribute research provided by FDOT.
SOC has a document posted on the AASHTO webpage that does outline a PII program. There are also several presentations from past AASHTO SOC conferences.

This work plan item is complete.

5. Establishing Contract Time – Possible survey. Effect of environmental work windows on establishment of contract time –

Open discussion during Tuesday General Session.

Discussion
GA – Took a lot away from the presentation by AHTD today regarding T&E species in Arkansas. Long Eared Bat starting to be an issue in Georgia.

Follow up question from MT – Does the LEB window coincide with Migratory Bird windows?
Response from GA - No. When you start comparing work windows they often don’t overlay.

This work plan item is complete.

6. 2003 Guide to Major Types of Transportation Construction Specifications – Roadways and Structures section will evaluate whether the guide needs to be updated. – Ongoing

Mr. Doyle willing to take this effort on if there is interest among the group. The document is currently posted on the AASHTO website.

Mr. Mastronardi commented we all have jobs that go out with special provisions, and the careful writing of SP’s is important. Having a guide that helps write the specs the way we want is valuable.

This item will be carried over to the 2015-2016 Work Plan.

Research Update: Research group met at 6:30 on Tuesday

Tuesday meeting items: Mr. Mastronardi summarized the Tuesday morning meeting. Items summarized are listed below with group comment incorporated into the list.

1) Air quality with construction equipment – should agencies be more proactive?
2) Noise requirements with MBTA
3) ATC’s – impact from environmental commitments
4) Stovepiping in DOT’s
5) Safety – TxDOT putting money to the side for safety.
   a. Examine I/D’s for non-time items – safety, quality, contractor bidding (e.g. SEP-14 program in NM).
6) Examine the cost to comply with FHWA requirements.
   a. Indications that there has been a study on cost impacts of Davis-Bacon, training program, etc.
7) Development on guidebook for I/D for non-time items
8) Performance measures for design quality
9) Check e-mail to get this one – Marc I didn’t capture this topic
10) Address future staffing and retention of qualified future workforce
11) Strategies for trade needs
12) ABC
13) Guidebook for staffing levels on alternative delivery projects
14) Guidebook for ATC’s on all types of contracts  
   a. Related item: AAS – alternate applicable standards. MO contractors using other state’s standards.  
   b. Mr. Mastronardi related similar discussion from Georgia perspective.
15) How to administer the use of drones on construction projects  
   a. *Conversation:* Are there any states with limitations on the use of drones?  
      *Responses:* MT yes, MO some, PA – use drones...mainly from consultants. PennDOT owns a drone,  
      primarily for geotech. Main pushback was from FAA, considered to be a business so needed a  
      registered pilot.  
   b. TFHC looking at items that can be attached to drones.
16) What does it cost to move to 3-D design and is it worth it?  
   a. New grads already familiar with this.
17) How to manage e-construction data  
   a. How are as-builts handled with the increased emphasis on asset management

The following items were also discussed after the summary of the Tuesday discussion.

**AFAD:** AHTD has interest in AFAD research on rural two-lane two-way roadways. With focus on system  
   preservation this is about to be critical. AHTD has concerns with leaving AFAD in place overnight.  
**Follow up from MT:** Do we want to limit this to 2-lane? A company in MT has developed a system that will span  
   two lanes. Can actuate on a timer or operate remotely. Since next years meeting will be in Montana, the  
   company could be available to present next year. This system has also been used in ND (Bakken oil fields) and can  
   be set up without getting into traffic.

**Update on cracks in concrete:** characterization of cracks – research under way.  
   No further discussion.

**FDOT:** Traffic on milled surfaces. Do states allow this? Is there any data?  
   Response: This is a good survey item. Will consider this for the 2015-2016 work plan.

**FHWA:** Camera augmented inspection. UDOT procured VMS type trailers with remote operated cameras they are  
   experimenting inspection in remote areas. Several states are also looking into drones.

**Roadway and Structures group recommends the following two items be considered for research:**  
1) *Rural two-lane two-way traffic control*  
2) *Use of drones for construction inspection*  
   a. *Interest in complimenting the TFHRC research with an AASHTO domestic scan.*

**Presentation Topics**  
The group brainstormed possible presentation topics (listed below). Roadways and Structures members will use  
the following list to start discussions on presentations for the 2016 Subcommittee on Construction meeting next  
year.

   a. *AHTD presentation(s) – Anthony will discuss with Emmanuel Banks.*  
   b. *Post-tension grout issues – FDOT is migrating to wax rather than grout. Both GDOT and FDOT have found  
      ungrouted tendons in pristine condition. FDOT presentation on history and implementation of the change  
      in Florida.*
e. **Carbon fiber for post-tensioning and pre-stressing.** Possible presentations include Michigan DOT beam presentation and VDOT use of carbon fiber in piles for marine applications.
d. **NDT testing on large shafts**
e. **Accelerated Bridge Construction**
   1. What other products besides bridge slides are agencies using?
   2. PBES as a whole
f. **Tappan Zee Bridge**
g. **Possible panel discussion covering risk matrices for inspection (FDOT, PennDOT)**
   1. Possible connection to P3 contracts
h. **Use of rubber in HMA**
i. **Alaskan Way Viaduct Bored Tunnel project – update from WSDOT**
j. **SR 520 Floating Bridge — update from WSDOT**
k. **Pavement Preservation techniques**
   1. Keeping an HMA route as an HMA route or letting it go.
   2. Rehabbing of concrete pavements
l. **ADA improvements triggered by resurfacing or improvements**

**New items**

a. **Montana presentation**

b. **Temporary signals (Montana presentation)**

c. **New AASHTO specifications on the installation of pre-cast items**

d. **LIORB**

e. **NV Best practices case study (see Cawley discussion for details)**

**2015-2016 Work Plan**
The Roadway and Structures section has identified the following items for the 2015-2016 Work Plan:

1) Survey of state practices regarding travel on milled surfaces.

2) Survey of current state of practice for risk based inspection.

3) Survey on state adoption of MASH-08.

4) Support and provide technical review/assistance for the AASHTO Guide Specification rewrite.

5) Survey of current state practices regarding Speed Reduction through Work Zones.


**Open Forum**

**Mr. Cawley**

If anyone in this group wants to take part there is an effort underway led by the NVDOT to identify best practices on construction of microsurfacing, chipseals and slurry seals. The focus is not just specs, but looking at best practices...e.g. contractor training, equipment, contracting method.

Kick off with ETG anticipated in 2-3 months. Delivery is approx. 1 year....case studies available maybe next summer.

If anyone is interested please provide Bryan with business card or contact info.

**Mr. Mastronardi**

Emulsion task force is looking at possible presentation for 2016 meeting. Pavement preservation will always be a part of what we do, and a lot of the PP methods are the seals and activities other than overlays.
MODOT
MO looking at going to MASH standards. Has anyone gone to MASH yet?

Responses
FL: We are moving that way.
MO: Looking to move that way by the 1/1/17
GA: This would be good survey...grandfathered items vs. new items. NCHRP 350 compliant items
MT: Doing exactly what MO is doing...1/1/17

Follow up question from GA: What is FHWA’s position?
AASHTO and FHWA: Right now the focus is on 2 joint task forces. The first released a report on collection from across country on measurements of ET-Plus. The 2nd task force is looking at crash reports. The second report is anticipated to be released in next few weeks. As for the transition to MASH the technical committee on roadside safety (part of SCOD) is working on transition plan that will have sunset dates for NCHRP-350 compliant hardware

Unknown questioner - What is quality? - Metrics, measures, and predictors for quality?
Responses
GA: Isn’t this what I/D’s provide?
FL: FDOT went down the warranty route. 3 year program and is a function of the contractor’s continued qualification. There is a DRB assigned in case the contractor disagrees with FDOT’s determination.
  Question 1: Do you still have issues with latent defects?
  Response 1: Some, but we have been doing this since 2004. Pavements continue to get smoother and better quality. FDOT is now planning on moving to IRI
  Q2: Has FDOT seen an increase in price?
  R2: Originally but came down
  Q3: Any removal of significant mileage
  R3: Yes...and some are being reviewed.
  Q4: Clarification question; Does this affects the ability of a contractor to bid new jobs?
  R4: Yes
  Q5: Was industry at the table when FDOT made this decision?
  R5: Yes, industry was at the table. 15 years of data was shared.

PA: PennDOT is looking at 7 year warranty through a special provision. Not finding a lot of takers, especially when overlaying a route. Also looking at a 10-year concrete warranty, and starting to see some interest.
  ACPA: What processes do you have internally to go back and look at the projects?
  PA: Have data, can go back look at performance and set thresholds...industry at table

SC: Had high profile failure of a job 6-months after completion. Set up a quality management team. Contractor scores become part of bid.

SC DOT
Does the use of recycled materials seem to be affecting pavement life?
Responses
GA: A few years ago we went back and raised the amount of AC we use in RAP mixes.
MO: Are you using shingles? Shingles are a big factor for MO, and determining how much AC you are getting.
AR: Not seeing savings from WMA
GA: Allow 30% RAP in all layers. Permissive on shingles and crumb rubber. Have “mountains” of RAP in Georgia.
FL: Research shows that RAP creeps and moves when used in base.
PA: Industry approached PennDOT stating they want the RAP...it’s a commodity.
  MT: Where was it going?
PA: Given to rural counties without a lot of resources for use on shoulders etc.
AR: Previously AHTD kept the RAP. NW region is where all the quarries are, so kept it for south for maintenance purposes. Adjoining regions started sharing material. Some regions started letting the contractors keep the RAP...seeing regional contractor conflicts between contractors that have RAP and those that don’t.

AHTD
Would like to see follow up on the AWARE system that was showcased today.

FDOT
How are states handling reduction of speed limits in work zones? (Possible survey)
Responses
GA: State law requires reduction of speed limits if work within 10’ of traveled way. Currently looking into how to deal with Variable Speed Limit.

FDOT
How do you integrate utility adjustments into the contract?
Responses
GA: Our problem is utility adjustments won’t begin until they are certain the work will begin. We have a mediation process in the event a schedule slips 20%. Starting to get un-realistic schedules up front.
FL: The issue is when you have impacts during the construction work, and starting to get so much work that the utilities can’t keep up. FDOT compensating the contractors and then going back on the utility to get the issue resolved.
SC: Started putting utilities in the contract and allowing the contractor to do the work.
FL: Doing this as well, but utilities have the right to look at the contractor price and take the work back if they think they can get a better price.

Follow up question: Who has the ability to put utility work in the contract?
Several states responded affirmatively.

Adjourn
# 2015 AASHTO Subcommittee on Construction
## Roadway and Structures Section Meeting Attendance

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>e-mail address</th>
<th>8/10/15</th>
<th>8/13/15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State DOT, AASHTO, and FHWA Attendees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>David Ahlvers</td>
<td>MODOT</td>
<td><a href="mailto:david.ahlvers@modot.mo.gov">david.ahlvers@modot.mo.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Casey Allen</td>
<td>LA DOTD</td>
<td><a href="mailto:alden.allen@la.gov">alden.allen@la.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Jay Bestgen</td>
<td>MODOT</td>
<td><a href="mailto:jay.bestgen@modot.mo.gov">jay.bestgen@modot.mo.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Steve Boggs</td>
<td>WVDOT</td>
<td><a href="mailto:steve.d.boggs@wv.gov">steve.d.boggs@wv.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Kevin Christensen</td>
<td>MDT</td>
<td><a href="mailto:kechristensen@mt.gov">kechristensen@mt.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Andy Dearmont</td>
<td>NDOR</td>
<td><a href="mailto:andy.dearmont@nebraska.gov">andy.dearmont@nebraska.gov</a></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Jamie Fitzpatrick</td>
<td>TDOT</td>
<td><a href="mailto:jamie.fitzpatrick@tn.gov">jamie.fitzpatrick@tn.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chad Fowlds</td>
<td>MnDOT</td>
<td><a href="mailto:chad.fowlds@state.mn.us">chad.fowlds@state.mn.us</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Steve Frisbee</td>
<td>AHTD</td>
<td><a href="mailto:steve.frisbee@ahtd.ar.gov">steve.frisbee@ahtd.ar.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>David Henning</td>
<td>AHTD</td>
<td><a href="mailto:david.henning@ahtd.ar.gov">david.henning@ahtd.ar.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Marvin Lech</td>
<td>NDOR</td>
<td><a href="mailto:marvin.lech@nebraska.gov">marvin.lech@nebraska.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Walter McMillan</td>
<td>AHTD</td>
<td><a href="mailto:walter.mcmillan@ahtd.ar.gov">walter.mcmillan@ahtd.ar.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Curt Mueting</td>
<td>NDOR</td>
<td><a href="mailto:curt.mueting@nebraska.gov">curt.mueting@nebraska.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Will Reid</td>
<td>TDOT</td>
<td><a href="mailto:will.reid@tn.gov">will.reid@tn.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Joe Robinson</td>
<td>PennDOT</td>
<td><a href="mailto:josrobinso@pa.gov">josrobinso@pa.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>David Sadler</td>
<td>FDOT</td>
<td><a href="mailto:david.sadler@dot.state.fl.us">david.sadler@dot.state.fl.us</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Todd Steagall</td>
<td>SCDOT</td>
<td><a href="mailto:steagall@scdot.org">steagall@scdot.org</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Amy Tootle</td>
<td>FDOT</td>
<td><a href="mailto:amy.tootle@dot.state.fl.us">amy.tootle@dot.state.fl.us</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Jeff A. Venable</td>
<td>AHTD</td>
<td><a href="mailto:jeff.venable@ahtd.ar.gov">jeff.venable@ahtd.ar.gov</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mark Walls</td>
<td>KYTC</td>
<td><a href="mailto:mark.walls@ky.gov">mark.walls@ky.gov</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Industry Attendees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jenn Christman</td>
<td>ADS</td>
<td><a href="mailto:Jennifer.christman@ads-pipe.org">Jennifer.christman@ads-pipe.org</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Don Conrad</td>
<td>Hanson Pipe &amp; Precast</td>
<td><a href="mailto:don.conrad@lehighhanson.com">don.conrad@lehighhanson.com</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Al Hogan</td>
<td>ACPA</td>
<td><a href="mailto:ahogan@concrete-pipe.org">ahogan@concrete-pipe.org</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Alex Ray</td>
<td>SSR</td>
<td><a href="mailto:aray@ssr-inc.com">aray@ssr-inc.com</a></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Woody Rigdon</td>
<td>ACPA</td>
<td><a href="mailto:wrigdon@concrete-pipe.org">wrigdon@concrete-pipe.org</a></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Jerry Rogers</td>
<td>Jacobs Engineering</td>
<td><a href="mailto:jerry.rogers@jacob.com">jerry.rogers@jacob.com</a></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Computers and Technology Section Report
Minutes
2015 AASHTO SOC Annual Meeting
Computers and Technology Section Meetings
Little Rock, AR
August 10 and 13, 2015

Emanuel Banks, Chair, Arkansas State Highway and Transportation Department; Don Greuel, Vice Chair, Wisconsin Department of Transportation

Monday August 10, 2015, 1:15 – 4:00 PM

Emanuel welcomed the group and announced this is his last meeting. He introduced Greg Mulder, Iowa DOT Construction Engineer, as the new Section Chair.

New Attendee Indoctrination: Emanuel gave new attendees an overview of the Section’s responsibilities – computer technology as it relates to construction. The Section prepares a yearly work plan as a guide to what it wants to accomplish in the coming year. Generally, monthly conference calls are held to discuss work plan progress. In the recent past, calls started in January following the SOC meeting with a reminder to the Section in December. FHWA must appoint a new Secretary which should facilitate the monthly conference calls. There were three first-time attendees.

Action: Bryan Cawley – FHWA will appoint a Secretary by the end of the calendar year.

Conference Call Objectives: A main objective of the calls is agreeing on presenters for the next year’s SOC meeting, and discussing the current year’s work plan. Emanuel then discussed the Section’s current year presentations and format. They will occur Wednesday 9 AM – about noon. One of the main objectives of the panel segment of the program will be to engage the group to have an open discussion on e-Construction.

Section Meeting Goal: A main focus this week is to review the current work plan and develop next years’ as well as start brainstorming topics for next years’ SOC conference.

Section Chair Reports: The Chair goes over the Section’s discussion topics that pertain to the whole SOC as well as the work plan.

Vice Chair: The Section may need to appoint a Vice-Chair. Don will let the group know this week if he will be continuing or vacating the position.

Research Section Representation: Tom Ravn, from MnDOT, will represent the Section at the Research Meeting Tuesday morning. It is uncertain if Tom will be able to attend the Friday meeting. The group was reminded to provide any potential research topics to Tom.

Work Plan: Emanuel encouraged the group to respond to surveys they receive from various Sections during the year. The Computers & Technology Section didn’t submit any surveys in the past year. In the past the group had 10-15 items, but last year decided to reduce the volume and wrap things into more inclusive work plan items in line with the Subcommittee’s Strategic Plan. The agenda for presentations is developed from these bullet items. The current work plan can be used to develop next year’s, and
there may be a new emphasis area by then. For instance, there may be new emphasis areas in the use of field tablets.

Emanuel then reviewed the 2014-15 work plan content and accomplishments and requested that the following updates be added to the work plan.

**Work Plan Categories and Status**

- **Advance CIM**: Topics in this subject area are included in this year’s presentations.
  - E-Construction Panel Discussion and Vermont’s cloud-based program.
- **Promote Asset Management**: No topics are on the program this year, but may be considered for next year depending on advancements in this area.
- **Evaluate Construction Performance Measures**: Mirrors some initiatives of the Contract Administration Section. Efforts in this area are on-going.
- **Potential Surveys**: The Section didn’t have any surveys the past year, largely due to the lack of monthly conference calls to organize them.
  - An update of NCHRP 10-96 (Developing a Guidebook for Implementing CIM in Departments of Transportation) will be presented at this year’s SOC meeting.

**Brainstorming for Next Year’s Work Plan and Model**: Emanuel asked if the Section wishes to change the work plan format or approach? George pointed out that some of the Section’s work plan items were consistent with the Subcommittee’s Strategic Plan as outlined by the SOC Vice Chair.

- **Potential Work Plan Topics**
  - What is the return on investment for these activities?
  - PennDOT – There is pressure for geo-locating railroads and property lines; utility locations, etc. – partnering with external entities.
  - Suggested doing a synthesis project of best practices for information systems.
  - OR: Potential common language that all will use for machine grade control data, etc.

**Q**: Any research ideas?
**A**: What are the experiences and lessons of those DOTs transitioning from 2D to 3D design? Are there any research projects of this nature?

**Comment**: It was noted that the NYDOT would be a good source concerning 2D to 3D transitioning and that transitioning to 3D is worth the upfront cost.

**AASHTO Guide Specification Update**: Emanuel noted that a discussion on updating the AASHTO Guide Specification will be forthcoming. The SOC is the owner of the specification which is used as a broad guide. During discussions the specification’s current need was questioned, but it was decided that it would be retained and updated. A proposal was presented to SCOH for procurement of funding to update the specification. The funding ($100,000) has been approved by SCOH and now a strategy for performing the update must be developed by the fall. This Section may have a role, and that role may impact the nature of the conference calls. This group may also have a representative on the group. Guidance has yet to be provided.
Thursday August 14, 2015, 1:15 – 3:00 PM

Greg Mulder, new Section Chair, called the meeting to order.

Visitor: David Hoyne, SOC Vice Chair, VT - joined the meeting.

Announcement: Section Vice Chair Greuel will retain that position through next July.

2014-15 Work Plan Accomplishment/Status Review: Greg facilitated a review of the proposed 2014-15 work plan accomplishments and status report that will be forwarded to the SOC Vice Chair by this Friday. The group agreed with the report content.

2015-16 Work Plan Discussion/Development: Greg then turned the group’s attention to development of the 2015-16 Work Plan. He first asked the group if the name “Work Plan” was still appropriate and the group agreed it is.

Asset Management Discussion: Greg feels we should do some surveys relating to asset management topics. Info Tech requested to come to Iowa this year to discuss asset management. George asked Jim Johnson of AASHTO if he knew what Info Tech’s intent was, but Jim was uncertain. After some quick research Greg stated that AASHTO and PTF have agreed to visit some states to assess what is being done in the area of asset management. Emanuel indicated that AHTD is working on a maintenance management system. He added that they are intending to discontinue use of Pontis, and utilize a maintenance management system instead. He further stated that they are working with Agile Assets. George indicated OK is using Agile, but they will continue to use Pontis.

Drone Discussion: Joe Squire (OR) asked who was using drones. ODOT is considering using drones for bridge inspection and thought it would be a great presentation and potential demonstration for next year.
Penn - Rebecca Burns stated that some less visible bridge areas require hands-on inspection. She indicated the FAA also restricts flying, and it is unlikely someone would be able to bring one across state lines and demo it.
OR – Can use the drone to inspect 90% of the bridge to reduce time, and then send employees to inspect the other areas.

Action: Joe Squire will talk to Ron Singh about obtaining a license to demo the ODOT drone at the 2016 SOC meeting in Montana.

2014-15 Work Plan Accomplishment/Status Format: Emanuel asked SOC Vice Chair David Hoyne if the format and content of our 2014-15 Work Plan Accomplishments and Status Report was acceptable and David indicated it was. David further stated that the 2015-16 work plan wasn’t due until the spring. The accomplishments were approved for forwarding to David.

2016 Conference Call Details: The group must assure the Section’s call time doesn’t interfere with the SOC Executive Committee’s established conference call days. The group agreed the call would be the 2nd Tuesday of the month, starting in January 2016, at noon EST. The call time can change if conflicts are realized. Emanuel noted that calls typically continue through June. Presentations should be finalized by then, and a July call may not be necessary. Surveys should occur earlier in the year and be concluded before June.
Potential Survey Item Discussion: Greg: Survey ideas?
Penn – Rebecca suggested a digital e-signature survey – who is using; when and where is it used; and what is the cost.
VT – David suggested the topic be expanded. There is a need for an up-to-date catalog of what people are using in all their processes. Each DOT should maintain their own page in the catalog.
AR – Emanuel suggested that this idea be proposed to Bryan Cawley at FHWA to take the lead.
OK – George agreed this would be a good research project.
OR – Joe added that it should also include links to PowerPoint presentations or other aids. Contact information should also be added.
CA – Rachel indicated Caltrans sent out a similar survey, so the Section can use it. It was suggested we could use a drop box or Sharepoint site.
IA - Greg asked Rebecca to send him the survey as a starting point.
Penn – Rebecca stated that if the survey comes from AASHTO it gets a greater response.

Remote Sensing Technology: The group agreed to add remote sensing technology to the work plan and have it as a topic at the 2016 SOC meeting.

Comment: Greg felt the remote sensing should be under asset management, so it was moved to that section of the work plan.

Data Collection, Analysis, and Management Discussion: A multifaceted discussion of this topic area ensued. All agreed that there are data collection and analysis challenges and this should be added to the 2015-16 work plan.
AASHTO – Jim stated that there is a need for standardized electronic information formats.
OR – Joe stated that ODOT included the AGC in automated machine control discussions.
Q: Is there a place in the work plan for AGC input.
A: Emanuel stated that in the past they have asked the AGC for a presenter. They have contacted Brian Deery of the AGC, and he has secured a speaker for the area of focus.
OK - George agreed that including industry was critical.

“Inspector Gadgets”: OR – Joe felt that there is a need to determine how others check and verify in the field and thought it could be a survey topic – inspector gadgets. Greg thinks it is captured in the work plan already.

MAP 21 Inclusion?: Penn – Rebecca asked if the work plan has anything that ties into MAP 21. After discussion the group decided MAP – 21 shouldn’t be included in the work plan.

Evaluation of Construction Performance Measures Discussion:
Penn – Rebecca questioned what in this category does the group see themselves working on and asked if it isn’t the Contact Administration Section’s responsibility. She suggested the group either progress the category next year or remove it if it doesn’t pertain.
AR – Emanuel indicated it could be dropped, since the work plan has a lot of substance otherwise.
IA – Greg said he likes the public relations aspect, since it is a big component on a project.
AR: Emanuel - What about traveler info?
Penn: Rebecca thinks we aren’t responsible. We feed traffic management centers the data.
CT: Ravi advocated that the group tie any work plan items only to the technology aspect.
VT: David suggested that the DOTs should link traveler info sites to the public’s in-vehicle GPS so they will see the closures, etc.
IA: Greg said WAZE is a good app and Iowa is sending info to it.

**Electronic Payroll:**
Penn: Rebecca questioned if the Contract Administration Section is addressing electronic payrolls.

**Potential 2016 SOC Presentations:**
IA: Greg turned the focus to potential 2016 presentations and reiterated this year’s presentations and asked if the group liked them. Greg liked the panel approach.
OK: George wants a presentation on CRL – Civil Rights Labor.
The group wants to do the e-Construction inventory survey.
**Action:** Rachel (Caltrans) will send their survey to Greg. Greg will send the survey through AASHTO.

OR: Joe asked if there was a return on investment (ROI) component and noted that all is focused on safety.
IA: Greg said Iowa is sold on safety and efficiency and he will share their experiences.
- Electronic ticketing
- ROI for e-Construction (Parsons-Brinkerhoff/FHWA study)
- Electronic payrolls
- Civil Rights Labor (MnDOT)
- Drones (OR)
- Asset Management software demonstrations
AASHTO Subcommittee on Construction – Computers and Technology Section  
(Greg Mulder, Chair, Iowa DOT; Don Greuel, Vice Chair, Wisconsin DOT)

2015 – 2016 Work Plan

- Advance Civil Integrated Management (related to FHWA’s Intelligent Construction Systems and Technologies initiative with AASHTO/AGC/ARTBA):
  - 3D/4D/5D modeling,
  - Automated Machine Control/Automated Machine Guidance (AMC/AMG)
  - Intelligent Compaction (IC) - DOT challenges in data analysis and management
  - e-Construction – document management, digital/e-signatures
  - mobile applications/deployment – tablets
  - asset/data management and lifecycle, as-builts

- Promote asset management/operations – physical features, customer contact software, tracking complaints, repairs, and costs, inventory.
  - programming projects
  - as-builts
  - systems/software being used and how well they work
  - remote sensing technology - drones, LiDAR, etc.

- Technology Considerations in Project Administration
  - time, cost and quality
  - public relations and traveler information
  - electronic payrolls

Potential Survey:
- e-Construction inventory
  - check for other recent surveys on this topic- CALTRANS will send to Iowa

Potential Presentations
- EDC e-construction update
- electronic ticketing (Iowa)
- ROI for e-construction (Parsons Brinckerhoff / FHWA)
- electronic payrolls - CRL (Minnesota)
- drones (Oregon)
# AASHTO SOC Computers & Technology Section 2015 Attendance

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Affiliation</th>
<th>Email Address</th>
<th>Work Phone</th>
<th>8/10/15</th>
<th>8/13/15</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>Emanuel</td>
<td>AHTD</td>
<td><a href="mailto:emanuel.banks@ahtd.ar.gov">emanuel.banks@ahtd.ar.gov</a></td>
<td>501-569-2214</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Barns</td>
<td>Mike</td>
<td>AR</td>
<td><a href="mailto:mike.barns@craftontall.com">mike.barns@craftontall.com</a></td>
<td>479-878-2428</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boyd</td>
<td>Jason</td>
<td>WVDOT</td>
<td><a href="mailto:Jason.M.Boyd@WV.Gov">Jason.M.Boyd@WV.Gov</a></td>
<td>304-558-9548</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Burns</td>
<td>Rebecca</td>
<td>PennDOT</td>
<td><a href="mailto:reburns@pa.gov">reburns@pa.gov</a></td>
<td>717-787-8010</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cawley</td>
<td>Bryan</td>
<td>FHWA</td>
<td><a href="mailto:bryan.cawley@dot.gov">bryan.cawley@dot.gov</a></td>
<td>202-366-1333</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chandran</td>
<td>Ravi</td>
<td>CTDOT</td>
<td><a href="mailto:ravi.chandran@ct.gov">ravi.chandran@ct.gov</a></td>
<td>860-298-4601</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Christopher</td>
<td>Chris</td>
<td>WSDOT</td>
<td><a href="mailto:christc@wsdot.wa.gov">christc@wsdot.wa.gov</a></td>
<td>360-705-7821</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crockett</td>
<td>Howe</td>
<td>WFLHD</td>
<td><a href="mailto:Howe.Crockett@dot.gov">Howe.Crockett@dot.gov</a></td>
<td>360-619-7750</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dearmont</td>
<td>Andy</td>
<td>NDOR</td>
<td><a href="mailto:andy.dearmont@nebraska.gov">andy.dearmont@nebraska.gov</a></td>
<td>402-479-4451</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falsetti</td>
<td>Rachel</td>
<td>Caltrans</td>
<td><a href="mailto:Rachel.falsetti@dot.ca.gov">Rachel.falsetti@dot.ca.gov</a></td>
<td>916-869-5512</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greuel</td>
<td>Don</td>
<td>WisDOT</td>
<td><a href="mailto:donald.greuel@dot.wi.gov">donald.greuel@dot.wi.gov</a></td>
<td>608-516-1793</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Jahren</td>
<td>Charles</td>
<td>ISU</td>
<td><a href="mailto:cjahren@iastate.edu">cjahren@iastate.edu</a></td>
<td>515-294-3829</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson</td>
<td>Jim</td>
<td>AASHTO</td>
<td><a href="mailto:JJohnson@AASHTO.org">JJohnson@AASHTO.org</a></td>
<td>850-570-4935</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lawrence</td>
<td>Steve</td>
<td>AHTD</td>
<td><a href="mailto:Steve.Lawrence@AHTD.AR.GOV">Steve.Lawrence@AHTD.AR.GOV</a></td>
<td>870-743-2100</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lory</td>
<td>Chris</td>
<td>HNTB</td>
<td><a href="mailto:clory@hntb.com">clory@hntb.com</a></td>
<td>321-436-8822</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mulder</td>
<td>Greg</td>
<td>IDOT (IA)</td>
<td><a href="mailto:greg.mulder@dot.iowa.gov">greg.mulder@dot.iowa.gov</a></td>
<td>515-239-1843</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nedbalek</td>
<td>Will</td>
<td>ODOT (OK)</td>
<td><a href="mailto:wnedbalek@odot.org">wnedbalek@odot.org</a></td>
<td>405-521-2561</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Affiliation</td>
<td>Email Address</td>
<td>Work Phone</td>
<td>8/10/15</td>
<td>8/13/15</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-------------------</td>
<td>--------------------------------</td>
<td>---------------</td>
<td>----------</td>
<td>----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Petros</td>
<td>Katherine</td>
<td>FHWA</td>
<td><a href="mailto:Katherine.Petros@dot.gov">Katherine.Petros@dot.gov</a></td>
<td>202-493-3154</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ravn</td>
<td>Tom</td>
<td>MNDOT</td>
<td><a href="mailto:Tom.Ravn@state.mn.us">Tom.Ravn@state.mn.us</a></td>
<td>651-366-4228</td>
<td>X</td>
<td>X</td>
<td>Research Rep</td>
</tr>
<tr>
<td>Raymond</td>
<td>George</td>
<td>ODOT (OK)</td>
<td><a href="mailto:graymond@odot.org">graymond@odot.org</a></td>
<td>405-521-2561</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Rothblatt</td>
<td>Evan</td>
<td>AASHTO</td>
<td><a href="mailto:erothblatt@aashto.org">erothblatt@aashto.org</a></td>
<td>202-624-3648</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saborio</td>
<td>Brad</td>
<td>DelDOT</td>
<td><a href="mailto:Bradford.Saborio@state.de.us">Bradford.Saborio@state.de.us</a></td>
<td>302-760-2420</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squire</td>
<td>Joe</td>
<td>ODOT (OR)</td>
<td><a href="mailto:Joe.Squire@ODOT.STATE.OR.US">Joe.Squire@ODOT.STATE.OR.US</a></td>
<td>503-986-3123</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vines</td>
<td>Rex</td>
<td>AHTD</td>
<td><a href="mailto:rex.vines@ahtd.ar.gov">rex.vines@ahtd.ar.gov</a></td>
<td>870-238-8144</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waits</td>
<td>Lyndal</td>
<td>AHTD</td>
<td><a href="mailto:lyndal.waits@ahtd.ar.gov">lyndal.waits@ahtd.ar.gov</a></td>
<td>870-251-2374</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>George</td>
<td>Pavia Systems</td>
<td><a href="mailto:george@paviasystems.com">george@paviasystems.com</a></td>
<td>206-715-7755</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

Environment and Human Resources
Section Report
Environment and Human Resources Section  
Meeting Minutes  
AASHTO Subcommittee on Construction  

August 9 - August 13, 2015     Little Rock, Arkansas

2015 - 2016 Section Leadership  
Chairman – Rob Wight, Utah DOT  
Vice–Chairman – TBD  
Secretary – Jeff Lewis, FHWA

- Mr. Wight welcomed the Subcommittee members and guests to the 2015 Environment and Human Resources Section (EHR) meeting. The attendees included 13 representatives, including 9 State DOT representatives, 3 private industry/consultant representatives and 1 FHWA representative. An attendance list is attached for reference. We then reviewed the status of the 14/15 Work Plan items, highlighted the accomplishments and updated them as appropriate.

ACCOMPLISHMENTS 2014/2015
- Reported efforts with Center for Environmental Excellence on development of Storm Water Management FLIPBOOK and pocket guide for construction field crews.
- Approval for spring 2016 Domestic Scan on DOT’s certification program for technicians.

2015 - 2016 WORK PLAN

ENVIRONMENT
1. Presentation: Consider a panel to present and/or discuss their experiences with programmatic agreements. Also, possible local presentation Lead: TBD
2. Recycle and reuse of materials – sustainability & appropriate application of crushed concrete Lead: Mark C.
3. Reuse of crumb rubber and RAS presentation Lead: Darby
4. AASHTO Specifications rewrite (ENV portion) Lead: Sharon
5. Environmental Approved products list – Wes Zech/Auburn – Jeff to contact and get initial info Lead: Jeff L.
6. Continue working with Center for Environmental Excellence: Lead: Rob
RESEARCH
1) Constructability during NEPA - Environmental mitigation – cost and time impacts during construction **Lead: TBD**
   IE. moving property owners to motel during pile driving

HUMAN RESOURCES
1) Complete survey and send to Subcommittee members. Looking at data and make decisions on moving ahead **Lead: Chip**
2) Domestic Scan Tour **Lead: Rob**
   a. By next March for the report
3) Generate a research statement for “Mobile Technology” (TRB initiative) **Lead: TBD**
   a. Not a presentation but task for this group

WORK ZONE SAFETY (TRAVELING PUBLIC and WORKERS)
1) Presentation – UT staff to give their applications (IE. reducing speed in work zone?)
2) Update by Old Castle? How do I make it happen in my state? Query state to see if any have used it and if used it, what the states thoughts on how it has been used.
3) Have TTI attend to provide what their research is finding.
4) Consider having OSHA give a presentation on their program. BMPs, etc.

Possible PRESENTATIONS for SOC Conference in 2016
1) A panel to present and/or discuss their experiences with ENV programmatic agreements. Also, possible local presentation.
2) Recycle and reuse of materials – sustainability & appropriate application of crushed concrete
3) Reuse of crumb rubber and RAS
4) Environmental Approved Products by Auburn University
5) UT staff work zone applications (IE. control/reducing speed in work zone, etc)
6) Update by Old Castle along with results of State query to see if any have used it with how it has been used.
7) Have TTI attend to provide what their research is finding regarding Work Zones
8) OSHA on their program. BMPs, etc.
9) TC3 update – Mark Chaput (MI)
Dates and Locations of Future Committee Meetings:
Monthly Status Teleconference Meetings are being initiated.

EHR Section Monthly CONFERENCE CALL schedule:
Once a month (week before officers mtg) (IE, 2nd Wednesday of each month – start in NOV, as the following week (3rd Wednesday of each month) the larger AASHTO-SOC has their CALL. Invite appointment and reminder to be sent out by Lewis.
OPTION: If you have a presentation, make it a webinar (IE, draft presentation with the group) but let Lewis know.

Call-in info (and URL) for next AASHTO-SOC EHR Section mtg to be held on 2nd Wednesday of every month.
Call in number: 888-363-4749
Access Code for participants: 2737683
URL ........https://connectdot.connectsolutions.com/aashtoehr/
Start time is 8:00AM – (PST).........aka - 11:00AM (EST), roughly 1 to 1 ½ hours depending on discussion.

NEXT MEETING: Nov 11th, 2015 NOTE: this is Veterans Day so we need to initially pick a different day (that week?) or skip it but we are moving into the HOLIDAYS?
<table>
<thead>
<tr>
<th>State</th>
<th>Name</th>
<th>Title</th>
<th>Address</th>
<th>Phone</th>
<th>E-mail</th>
<th>SOC Special Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT</td>
<td>Rob Wight</td>
<td>Director of Construction and Materials</td>
<td>4501 South 2700 West Salt Lake City, UT 84129</td>
<td>WK 801-633-6252</td>
<td><a href="mailto:rwight@utah.gov">rwight@utah.gov</a></td>
<td></td>
</tr>
<tr>
<td>MI</td>
<td>Mark Chaput</td>
<td>Deputy Director Bureau of Field Services</td>
<td>6333 Old Lansing Road Lansing, MI 48917</td>
<td>WK 517-322-3331</td>
<td><a href="mailto:chaputm@michigan.gov">chaputm@michigan.gov</a></td>
<td></td>
</tr>
<tr>
<td>WV</td>
<td>Darby Clayton</td>
<td>Regional Engineer</td>
<td>1900 Kanawha Blvd E Charleston, WV 25301</td>
<td>WK 304-558-3304</td>
<td><a href="mailto:darby.j.clayton@wv.gov">darby.j.clayton@wv.gov</a></td>
<td></td>
</tr>
<tr>
<td>TX</td>
<td>John Obr</td>
<td>Director of Construction Division</td>
<td>200 E. Riverside Dr. Austin, TX 78704</td>
<td>WK 512-416-2501</td>
<td><a href="mailto:john.obr@txdot.gov">john.obr@txdot.gov</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rob Effinger</td>
<td>CT/AASHTO Engineering Fellowship</td>
<td></td>
<td></td>
<td><a href="mailto:reffinger@aashto.org">reffinger@aashto.org</a> <a href="mailto:Robert.effinger@dot.ca.gov">Robert.effinger@dot.ca.gov</a></td>
<td></td>
</tr>
<tr>
<td>NDOR</td>
<td>Kevin Domogalla</td>
<td>District Engineer</td>
<td></td>
<td></td>
<td><a href="mailto:Kevin.domogalla@nebraska.gov">Kevin.domogalla@nebraska.gov</a></td>
<td></td>
</tr>
<tr>
<td>NV</td>
<td>Sharon Foerschler</td>
<td>Professional Engineer</td>
<td></td>
<td></td>
<td><a href="mailto:sfoerschler@dot.state.nv.us">sfoerschler@dot.state.nv.us</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Russell W. Lenz</td>
<td>Senior Vice President &amp; COO Raba Kistner</td>
<td>7700 Chevy Chase Drive Austin, TX 78752</td>
<td>WK 512-904-9177</td>
<td><a href="mailto:RLENZ@rkci.com">RLENZ@rkci.com</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chip Hollis</td>
<td>Director, Communications NICET</td>
<td></td>
<td></td>
<td><a href="mailto:chollis@nicet.org">chollis@nicet.org</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bob Lutz</td>
<td>AMRL</td>
<td></td>
<td>WK 717-404-9474</td>
<td><a href="mailto:RLUTZ@AMRL.net">RLUTZ@AMRL.net</a></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>Name</td>
<td>Title</td>
<td>Address</td>
<td>Phone</td>
<td>E-mail</td>
<td>SOC Special Assignments</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------</td>
<td>--------------------------------------</td>
<td>--------------------------------</td>
<td>---------------</td>
<td>---------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>DC SOC Member</td>
<td>Paul Hoffman</td>
<td>Program Manager</td>
<td></td>
<td></td>
<td><a href="mailto:Paul.hoffman@dc.gov">Paul.hoffman@dc.gov</a></td>
<td></td>
</tr>
<tr>
<td>AK SOC Member</td>
<td>Victor Winters</td>
<td>Southcoast Regional Construction Engineer</td>
<td>6860 Glacier Highway Juneau, AK 99811</td>
<td>WK 907-465-8884</td>
<td><a href="mailto:Victor.winters@alaska.gov">Victor.winters@alaska.gov</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spencer Wendland</td>
<td>Event staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FHWA Resource Center</td>
<td>Jeff Lewis</td>
<td>Construction and Contract Administration</td>
<td>650 Capitol Mall Suite 4-100 Sacramento, CA 9581</td>
<td>WK 916-498-5035</td>
<td><a href="mailto:Jeff.lewis@dot.gov">Jeff.lewis@dot.gov</a></td>
<td>FHWA Liaison Secretary</td>
</tr>
</tbody>
</table>
Appendix H

Research Steering Committee Report
AASHTO Subcommittee on Construction
Research Steering Committee
2015 Meeting Minutes
Little Rock, Arkansas

Action Items are in Bold.

The 2015 meeting of the AASHTO Subcommittee on Construction (SOC) Research Steering Committee (RSC) was convened at 6:30am on August 11, 2014 in Little Rock, Arkansas. Those in attendance are listed at the end of the minutes as Attachment 1. The Chair, Gary Angels (Ohio DOT), began the meeting by welcoming everyone and asking for self-introductions. He told the group that he has taken over as Chair of the Research Steering Committee as a result of Jeff Carpenter leaving the SOC. He also explained that he will be taking over as the Contract Administration tech section chair next year and may be leaving this post as a result. Gary then covered the presentations planned for later in the week.

NCHRP Update – Gary on behalf of David Reynaud
David Reynaud was unable to attend this year’s meeting, but did provide Gary with the following information:

- Problem Statement A-09, which the SOC submitted as its #1 research priority last year, was approved for funding and will be NCHRP 8-104, “A Guidebook for Post-award Contract Administration for Highway Projects Delivered Using Alternative Contracting Methods.”
- Problem Statement B-17, which the SOC submitted as its #2 research priority last year, was approved for funding and will be NCHRP 8-107, “A Guidebook for Emergency Contracting Procedures for Administration of a Regional Emergency.”
- Problem Statement D-05, submitted by Jason Gutting of Michigan DOT, became funded as NCHRP 20-107, “Construction Project Staffing Strategies for Effective Program Oversight.”

In short, all the research needs which the SOC submitted for funding consideration last year were successful and are moving forward.

Technical Section Research Suggestions
The technical section vice chairs/representatives reported on the research topics identified during the various SOC technical sections meetings that were held the afternoon of 8/10/15.

Environment and Human Resources Section – Rob Wight (Utah Department of Transportation)

- The proposed domestic scan on construction inspection which the SOC submitted last year was approved for funding. A team has been put together and will meet in October to decide on the approach for the scan. (E.g. Will it be a travel scan?) There is a need to identify methods to determine if staff is qualified as well as exploring certification for consultant staff. They will also probably survey States on what training they have in place. Would there be value in having a NICET or AMRL type national program for inspection – the scan tour should provide some insight into this.
- Air quality and construction equipment is becoming an issue. Should agencies wait until equipment ages or be more proactive to install/replace.
- Noise requirements and migratory bird act – what has been done in partnering with resource agencies to come to reasonable solutions? ATCs have been impacted by environmental commitments that could not be altered. Is there a model for how to better work together with resource agencies? Stove piping is an issue within SHAs – construction often hasn’t been involved in environmental decision making.
• Safety is an area of importance. Texas DOT is holding a dollar amount as a safety contingency on projects. Examine incentives/disincentives for non-time items – safety, quality. Utah DOT is exploring the use of safety as a qualifier for bidding. Florida DOT has a good model that adjusts bidding capacity. North Carolina considers a contractor’s OSHA record. This may build off an earlier synthesis which identified the need to incentivize good contractors. Utah DOT has been collecting data but is not formally using it to incentivize contractors. How do you have a level playing field so that everyone focuses on safety? May want to focus on areas with safety issues rather than an across the board approach. May want to look at what New Mexico DOT is doing with prequalification – one of their factors is safety.

Roadways and Structures Section – Marc Mastronardi (Georgia DOT)
Marc agreed that looking at a regional approach for certifying CEI is a need. States are currently paying for this in overhead.

Items which the tech section discussed include:
• Mass concrete – the cements have changed, but researching this would be a large effort. Perhaps focus on best practices in cooling.
• Two lane, two-way traffic control best practices – how prevalent is the use of automatic flaggers or temporary traffic signals? Are agencies considering temporary traffic signals in detour situations? Benefit cost analysis methods for decision making. Are people looking at all the options and considering all the tools in the toolbox that are available?
• Migratory bird treaty act – is there any room for advancement in the conversation with US Fish and Wildlife? Best practices and the calculation of costs to work with exclusionary devices would be a help.
• The cost of CEI. Identified in NCHRP 15-51 as a gap.
• Examine the cost to comply with FHWA requirements compared to the receipt of federal funding. How to maximize State funds? It may help to decide when States might ask for a waiver of federal requirements. Determining what works best depending on the flavor of funding.

Contract Administration Section – Gary Angles (Ohio DOT)
The following research ideas were discussed:
• Guidebook on Incentive/Disincentive usages for non-time items
• Performance measures of managing design quality
• Construction management in data driven environments
• Addressing future staffing and retention of a qualified future workforce among State transportation agencies
• Strategies for construction trades needs
• Guidebook on accelerated construction methods and technologies for transportation infrastructure
• Guidebook on agency staffing levels for alternative project delivery transportation projects
• Guidebook for implementing alternative technical concepts (ATCs) into all types of highway project delivery methods (D-B-B). MI has had some pilots on ATCs for traffic. WA will try one. OH is also considering. MO has done one.
• How to administer the use of drones on construction projects – FHWA has just awarded a research project on how to use unmanned aerial vehicles in construction.

Computers and Technology Section – Tom Ravn (Minnesota DOT)
• What does it cost to move to 3D design – is it worth it? Kids coming out of school already have this experience. How to implement/transition to 3D design. Where is the best bang for the buck?
• Intelligent compaction – what to do with all the data?
• How are as-builts handled with the increased emphasis on asset management? How to do it? What level of detail? Do you have the contractor do it? Utah DOT is very interested in the asset management piece. Need to figure out what it is you need to collect and how the data will be used. What format should it be in? NCHRP 15-51 is finding that database management is an
area that needs attention. Utility information is an area that is important to obtain during construction; above ground could be collected later. New Zealand is collecting comprehensive data and they use every bit of it. Consider developing a framework for supporting e-construction and database management.

Paul Goodrum (University of Colorado) and chair of TRB’s AFH-10 and Chris Harper (LSU) discussed potential research topics from TRB AFH10, Construction Management. (See Attachment 2 for presentation) Research needs statements have been prepared for each topic and are looking for feedback on if they are meeting the mark and to get sponsorship for NCHRP submittal. Many cover topics discussed by the tech sections.

**It was agreed that the Research Steering Committee will reconvene at 7:00 am on Friday, 8/14/15.**

The meeting of the Research Steering Committee was adjourned at 8:10 am.

---

On Friday, August 14, 2015 the Research Steering Committee reconvened. Those in attendance are marked with an asterisk in Attachment 1. Gary Angles noted that Charlie Bauer (WY) will be taking over as chair of the Research Steering Committee.

AASHTO’s Subcommittee on Materials has asked the Subcommittee on Construction to endorse/ co-sponsor a research problem statement that deals with the durability and service life of cracked concrete and structures. It is primarily focused on bridge decks. The SOC’s interest is in assessing the point at which cracking drives some sort of repair such that it’s done at an optimal time. The Roadways and Structures group had discussions on mass concrete and how changes in the cement are impacting performance. Perhaps this research could touch upon this aspect. The group agreed that the SOC would support the effort, but not as its highest priority.

The chair then asked the technical section representatives to discuss what research priorities came out of their groups:

**Computers and Technology Section (Tom Ravn):**
- NCHRP 10-96 appears to already addressing what sort of investment is needed to move to 3D.
- Asset management – What level of detail is needed for as-builts; how to do it. This could follow up to ongoing FHWA research that is documenting what States are moving toward using 3D data for asset management. The follow up effort would focus on digital as-builts and the data needed. Some concern was expressed that it may be early in terms of gathering what SHAs are doing – will there be enough information available? Perhaps start by surveying States on whether they have an enterprise view of asset management. It was agreed to revisit next year after survey.

**Safety, Environment and Human Resources Section (Rob Wight):**
- Constructability during NEPA and the cost and impacts of environmental commitments. - Is anyone tracking what impacts environmental commitments are having to the project costs and constructability? Construction is not typically involved in the decision making. AASHTO’s Center for Environmental Excellence could play a role. Are there any best practices in place? A synthesis may be an option. It was suggested to tie this objective to constructability review and best practices for early project involvement research need which was presented by AFH10 and identified by the Contract Administration section as a priority. **Gary Angles will send out the Research Need Statement developed by AFH10 for everyone to review and Rob Wright will**
take the lead in making sure it addresses the environmental commitments aspect. Deadline to provide input back to Charlie Bauer will be 9/15/15. The deadline for NCHRP research submittals is a firm date of 10/15/15.

Roadways & Structures (Marc Mastronardi):
- Rural 2-way, 2-lane traffic control - Best practices, especially the use of temporary traffic signals. It could result in a framework for decision making. What is available, what are the best practices? This may be better suited for a synthesis projects. Synthesis topics are due 2/1/16, but it was noted that the synthesis program is very competitive.
- Build off the FHWA project on drones, perhaps with a domestic scan.

Contract Administration (Gary Angles):
- Constructability reviews and early project involvement (developed by AFH10) but expanded to include environmental commitments.
- ATC usage which was drafted by AFH15. The project would focus on the use on design-bid-build projects focus. It’s akin to VECP prior to bid like what MO and MI have done, and could make DBB more like a value based selection. FHWA is allowing usage on an experimental basis. Would an agency need legislation to be able to use it? An earlier synthesis has been done. Some issues to be addressed would be how to define approved equals; what are the roles and responsibilities of both the SHA and contractors. It would result in best practices. Gary will send out the AFH15 research needs statement for comment.
- Synthesis – Agency staffing levels for alternate project delivery and DBB. Are agencies sufficiently represented on project, especially on P3 and design-build projects? What is optimal staffing based on the procurement method? When projects get turned back there is a gap in knowledge on why/how things were done. This is a risk when assigned staff doesn’t have a cradle to grave mentality. This effort would relate to CEI and how you staff a project. Doug Gransberg will draft for review by the group.

Other possible topics were solicited and the idea of looking at pre- and post- qualification to determine if a contractor is a responsible firm was raised. This would be one step ahead of prequalification. Many agencies focus on capacity and not on different classes of work. Some States have very flexible requirements. MN has a rudimentary form of prequalification (e.g., have you ever built a bridge before). A survey is being planned as a first step.

The deadline to submit Research Needs Statements to NCHRP is 10/15/15. The following ideas will be moved forward:

Submit two research needs statements with the following priority ranking from the SOC:
- Constructability through the project development process – NEPA to final design. (1st priority) UT (Rob Wright) lead.
- Guidebook for ATCs on all types of projects. (2nd priority) Gary Angles – lead, involve MO.
- As a third priority, endorse the AASHTO SOM’s concrete cracking project. (3rd)

The following synthesis problem statements will be developed:
- Optimal Staffing Levels for Various Project Delivery Methods
- Best Practices in 2-way, 2-lane traffic control
- Pre- and post- qualification of a responsible firm
- Applicability the Brooks Act to aspects of CEI. GA tried to remove engineering to better contain costs. Does the Brooks Act apply to CEI? NCHRP has a Legal Studies program. Maybe submit to Legal Studies. Jerry: It’s worth exploring whether elements (QA) don’t fall under the Brooks Acts. Doug can write up for Legal Studies:
Synthesis topics are due 2/1/16.

Other discussion:
AASHTO staff asked whether the SOC wants to take ownership of various Guidebooks coming out of NCHRP. The SOC will be balloting the CM/GC Guidebook which, if passed, would become an AASHTO publication. NCHRP projects 10-96, 10-91 (mostly design), 19-10, 24-44 (risk management – some tool on how much geotechnical info to release before the RFP) are also developing guidebooks. There are pros and cons to having AASHTO adoption of NCHRP products. AASHTO documents have a cost, whereas NCHRP reports are freely available online. AASHTO documents, however, have been vetted through all the States and tend to carry more authority.

The Southeast Transportation Consortium – The Southeast States participate in a research consortium that funds synthesis type projects. This could be an option, if something does not make it through NCHRP. FHWA will also consider projects that have SOC interest in its research program.

Meeting adjourned at 8:45am.
## Attendees

* Also attended Friday 8/14/15

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
<th>Phone</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katherine Petros *</td>
<td>FHWA</td>
<td>202-493-3154</td>
<td><a href="mailto:Katherine.Petros@dot.gov">Katherine.Petros@dot.gov</a></td>
</tr>
<tr>
<td>Gary Angles *</td>
<td>Ohio DOT</td>
<td>614-466-7057</td>
<td><a href="mailto:Gary.angles@dot.state.oh.us">Gary.angles@dot.state.oh.us</a></td>
</tr>
<tr>
<td>Tom Ravn *</td>
<td>Minnesota DOT</td>
<td>651-366-4228</td>
<td><a href="mailto:Tom.ravn@state.mn.us">Tom.ravn@state.mn.us</a></td>
</tr>
<tr>
<td>Marc Mastronardi *</td>
<td>Georgia DOT</td>
<td>404-631-1970</td>
<td><a href="mailto:mmastronardi@dot.ga.gov">mmastronardi@dot.ga.gov</a></td>
</tr>
<tr>
<td>Rob Wight *</td>
<td>Utah DOT</td>
<td>801-633-6252</td>
<td><a href="mailto:rwright@utah.gov">rwright@utah.gov</a></td>
</tr>
<tr>
<td>Jerry Yakovenko *</td>
<td>FHWA</td>
<td>202-366-1562</td>
<td><a href="mailto:Gerald.yakovenko@dot.gov">Gerald.yakovenko@dot.gov</a></td>
</tr>
<tr>
<td>Richard Duval *</td>
<td>FHWA</td>
<td>202-493-3365</td>
<td><a href="mailto:Richard.duval@dot.gov">Richard.duval@dot.gov</a></td>
</tr>
<tr>
<td>Doug Gransberg *</td>
<td>Iowa State University</td>
<td>515-294-4148</td>
<td><a href="mailto:dgran@iastate.edu">dgran@iastate.edu</a></td>
</tr>
<tr>
<td>Charles Jahren</td>
<td>Iowa State University</td>
<td>515-294-3829</td>
<td><a href="mailto:cjahren@iastate.edu">cjahren@iastate.edu</a></td>
</tr>
<tr>
<td>Chris Harper</td>
<td>LSU</td>
<td>303-887-3055</td>
<td><a href="mailto:charper@lsu.edu">charper@lsu.edu</a></td>
</tr>
<tr>
<td>Paul Goodrum</td>
<td>University of Colorado</td>
<td>303-492-0475</td>
<td><a href="mailto:Paul.goodrum@colorado.edu">Paul.goodrum@colorado.edu</a></td>
</tr>
<tr>
<td>Elisha Wright-Kehner *</td>
<td>AHTD</td>
<td>801-569-2074</td>
<td><a href="mailto:Elisha.wright-kehner@ahtd.ar.gov">Elisha.wright-kehner@ahtd.ar.gov</a></td>
</tr>
<tr>
<td>Don Conrad</td>
<td>Hanson Pipe &amp; Precast</td>
<td>504-439-5627</td>
<td><a href="mailto:Don.conrad@lehighhanson.com">Don.conrad@lehighhanson.com</a></td>
</tr>
</tbody>
</table>

Friday 8/14/15 only attendees:

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
<th>Phone</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlie Bauer</td>
<td>Wyoming DOT</td>
<td>307-777-4927</td>
<td><a href="mailto:Charlie.bauer@wyo.gov">Charlie.bauer@wyo.gov</a></td>
</tr>
<tr>
<td>Andy Long</td>
<td>Wyoming DOT</td>
<td>307-777-4425</td>
<td><a href="mailto:Andy.long@wyo.gov">Andy.long@wyo.gov</a></td>
</tr>
<tr>
<td>Evan Rothblatt</td>
<td>AASHTO</td>
<td>202-624-3648</td>
<td><a href="mailto:erothblatt@aashto.org">erothblatt@aashto.org</a></td>
</tr>
<tr>
<td>Jim McDonnell</td>
<td>AASHTO</td>
<td>202-624-5448</td>
<td><a href="mailto:jmcdonnell@aashto.org">jmcdonnell@aashto.org</a></td>
</tr>
</tbody>
</table>
Construction Management (AFH-10) Research Needs Statements

PAUL M. GOODRUM (CHAIR AFH-10)
CHRIS HARPER (RESEARCH COORDINATOR AFH-10)

AFH-10 Roster

- University of Colorado, Boulder
- Iowa State University
- Arkansas State Highway & Transportation Department
- Virginia Department of Transportation
- University of New Mexico
- Hennepin County
- Delcan Corporation
- Texas A&M University
- Louisiana State University
- Rhode Island Department of Transportation
- North Carolina State University
- Ohio Department of Transportation
- Parsons Transportation Group, Inc.
- Golder Associates Inc.
- Sound Transit
- Syracuse University
- University of Canterbury
- Oregon State University
- S&ME, Inc.
- Florida Department of Transportation
- University of Kansas
- Utah Department of Transportation
- Rutgers, The State University of New Jersey
- Port of Seattle
- Bowling Green State University
- University of Washington
- Kentucky Transportation Center
- KCI Technologies, Inc.
- Orrin Riley, PE, PC
Agenda

Streamlining the Data Management Process across Entities, Phases, Locations, and Time

Guidebook on Agency Staffing Levels for Alternative Project Delivery on Transportation Projects

Constructability Review Best Practices or Optimized Early Construction Involvement in Project Development

Recruiting, Retaining, and Promoting for Construction Careers at the Transportation Agency

Guidebook for Implementing Alternative Technical Concepts into All Types of Highway Project Delivery Methods

Other ideas?

Streamlining the Data Management Process across Entities, Phases, Locations, and Time

Background: Organizing and maintaining data throughout the project development process is a challenging task and has a significant impact on the decision making process.

Objective: Identify best practices and recommend strategies for documenting, organizing, and managing data throughout the project development process—from conception to construction to asset management.

Potential Benefit: Many state DOT agencies have used technologies and innovations (e.g., geographic information systems, global positioning systems, 3D modeling, or other innovative techniques) in their transportation projects. The payoff of this research will be significant in that it will provide a process to reduce redundancy in collection, storage, sharing, and updating data overtime.

Deliverable: This study should develop a guidebook that should include a methodology to streamline the data management process across entities, phases, locations, and time to help agencies develop effective and efficient procedures in support of construction management practices.
Guidebook on Agency Staffing Levels for Alternative Project Delivery on Transportation Projects

**Background:** There is a lack of formal knowledge and guidelines for determining the appropriate level of agency staffing to respond to the revised relationship found in alternative delivery methods.

**Objective:** Benchmark the state-of-the-practice in establishing agency staffing levels on CMAR and DB projects and incorporate existing research on alternative project procurement and delivery procedures, processes, and policies.

**Potential Benefit:** Efficient use of staffing protects the project budget and public welfare. Inadequate or ineffective agency staffing for projects could result in inefficient use of public funds for project development and cost the public a significant amount of resources during the project’s life.

**Deliverable:** A guidebook to implement planning for efficient and effective project staffing. The guidebook should include a methodology to evaluate the various key services to be provided by the contractor and how to apply the evaluation toward establishing agency staffing needs. The guidebook should also include descriptions of duties for special staffing requirements.

Constructability Review Best Practices for Optimized Early Construction Involvement in Project Development

**Background:** In lieu of alternative delivery methods that incorporates construction knowledge into the design process, constructability reviews can be utilized in the development stages of a standard project to reduce common issues that arise due to the design.

**Objective:** Identify best practices and recommend strategies for conducting a formal constructability review process and design an implementation plan given the known barriers to these processes.

**Potential Benefit:** Constructability reviews can minimize the number and magnitude of changes, disputes, cost overruns, and delays. Additionally, studies show cost savings of at least 10 to 1 in regards to project savings and the cost to implement formal constructability reviews.

**Deliverable:** Guidelines and training workshops for agencies to implement formal constructability review process including identifying different levels of constructability analysis, determining what is a sufficient level of constructability needed for a project, outlining the steps for implementing constructability reviews, presenting methods for measuring the costs and benefits of reviews, and providing examples for various types of work.
Recruiting, Retaining, and Promoting for Construction Careers at the Transportation Agency

**Background:** Attracting and retaining ambitious and motivated employees is a difficult task for transportation agencies due to lower pay scales, fewer benefits, and the inability to maintain technical career paths that reward and support staff with valuable skills when compared to the private sector of construction.

**Objective:** Identify best practices and recommend practical methods and strategies for recruiting and retaining qualified personnel in highway construction.

**Potential Benefit:** Facing an increase of transportation construction projects, it is a critical issue to recruit and retain smart, ambitious and motivated employees in the construction industry. This research will provide practical methods and strategies for recruiting, promoting, and retaining qualified personnel in the transportation construction industry.

**Deliverable:** A final report that identifies best practices and methods to successfully recruit and retain employees, describes barriers that exist and could be revised to enhance recruiting and retaining for agencies, investigates methods to quantify a need for human resources, and provides recommendations for agencies to use to recruit and retain employees.

Guidebook for Implementing Alternative Technical Concepts into All Types of Highway Project Delivery Methods

**Background:** Transportation industry partners have expressed concerns with protecting proprietary and sensitive business practices when proposing ATCs. As agencies request more ATCs, a transparent and fair process is needed to treat all proposers fairly and to provide industry partners the ATC approval process and its incorporation into the contract award process.

**Objective:** Benchmark the state-of-the-practice in using ATCs on DBB, CMGC, and DB projects incorporate existing research on construction procurement and project delivery procedures, processes and policies.

**Potential Benefit:** Based on the experience of agencies that have already implemented ATCs, the payoff of this research will be significant in both construction cost and time savings.

**Deliverable:** This study will assemble a guidebook of effective practices that can be utilized by agencies to implement ATC practices in construction procurement. The guidebook should include a methodology to compare ATCs based on potential cost and time savings. It should also incorporate guidance that allows DOTs to be able to justify the selection of a higher cost alternative on a basis of offsetting environmental/social benefits.
Closure

Additional ideas/brainstorming from State Transportation Agencies?
Appendix I

SOC Resolutions
TITLE:
AASHTO SUBCOMMITTEE ON CONSTRUCTION
RECOGNIZING THE
ARKANSAS
HIGHWAY & TRANSPORTATION DEPARTMENT,
HOST OF THE 2015 AASHTO SOC
SUMMER MEETING IN LITTLE ROCK, AR
AASHTO SUBCOMMITTEE ON CONSTRUCTION (SOC)

RECOGNIZING THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

HOST OF THE 2015 AASHTO SOC SUMMER MEETING IN LITTLE ROCK, ARKANSAS

WHEREAS, The AASHTO SOC met in Little Rock, Arkansas, August 9 through August 14, 2015; and

WHEREAS, SOC members from the states and FHWA were greeted with HEAT and hospitality by Arkansas State Highway and Transportation Department Deputy Director & Chief Engineer, Emanuel Banks and members of his extremely competent and friendly staff…; and

WHEREAS, the SOC met and successfully discussed highway construction business and technical issues in the finest of accommodations…; and

WHEREAS, the SOC members were informed on a variety of timely, technical, and pertinent presentations that can be used to advance our own State’s efforts ….; and

WHEREAS, the SOC members engaged in enlightening and informative discussions of topics raised by members benefiting all that participated….; and

WHEREAS, the SOC members were treated to a wonderful Presidential-like dinner of Prime Rib and Roasted Chicken at the William J. Clinton Presidential Center…..; and

WHEREAS, the SOC members were offered technical tour options of Caterpillar Motor Grader Assembly Plant or the Murray Lock and Dam Hydroelectric Power Plant….; and

WHEREAS, the SOC was treated to an outstanding dinner banquet to wrap up the wonderful week of meetings, education, friendship, and fellowship…; and

WHEREAS, the SOC members are fortunate that the AHTD is knowledgeable about the latest health research indicated that turning down the thermostat can help people lose weight without exercising, thereby offsetting all the great food provided….; and

THEREFORE BE IT RESOLVED, that the participants of the 2015 SOC have thoroughly enjoyed their stay, appreciated the commitment and dedication of the Arkansas State Highway and Transportation Department staff, and offer its thanks for a successful conference…, and

BE IT FURTHER RESOLVED, that the AASHTO SOC members have established an effective date of this resolution of August 13, 2015 at the SOC summer meeting in Little Rock, Arkansas.

In closing, Woo Pig Sooie!!