



MEETING MINUTES

AASHTO Subcommittee on Construction
Annual Meeting August 12, 2013 – August 15, 2013
Westin Book Cadillac Hotel
Detroit, Michigan

Monday August 12, 2013

8:00 AM – 9:30 AM Opening Session

Ms. Brenda O'Brien, Michigan DOT (MDOT) welcomed members to the annual conference and to Michigan. She reviewed the conference agenda and logistics for meals, breaks, breakout sessions, etc. Ms. O'Brien acknowledged the efforts of volunteers who have been instrumental to the planning and running the conference, including **Mr. Tim Berg, Mr. John Jersey, Ms. Paula Wiese, Ms. Ginger Moore, Ms. Kari Obrinske, and Ms. Lori Wieber**. Ms. O'Brien then introduced **Mr. Michael Lewis**, RIDOT Executive Director and Chair of the AASHTO Subcommittee on Construction and Vice-President of AASHTO, who called the meeting to order at 8:00 am. He welcomed the delegates to the meeting, and thanked Michigan DOT for their efforts at organizing and hosting this meeting.

Mr. Lewis then introduced Michigan DOT Director **Mr. Kirk Steudle**, who also welcomed the delegates to the meeting. He thanked his staff for their efforts in organizing the meeting. Mr. Steudle noted some geographic and demographic features of Michigan and the Great Lakes MEGA region and how those factors impact the delivery of transportation projects in the state. He shared information about the structure and organization of MDOT and provided an overview of its transportation system. Michigan state transportation revenue has been declining since 2004 and non-inflation adjusted revenue is at the same level as it was in 1998. This presents a challenge in matching federal aid. Mr. Steudle expects new transportation revenue funding to be passed this fall. He then shared innovations that MDOT has adopted to create efficiencies that enable it to operate under such fiscal constraints, including:

- Asset Management;
- Value Engineering;
- Construction Program Management, and;
- Public Private Partnerships.

He noted significant achievements that attained MDOT despite facing fiscal adversity, including establishing a regional transit authority, high speed rail service to Chicago, the New International Trade Crossing and other accomplishments. See his [presentation](#) for additional details.

Mr. Russell Jorgenson, Division Administrator for the FHWA Michigan Division Office, took the floor to welcome delegates to the meeting on the behalf of FHWA. He noted the collaborative

relationship between MDOT and FHWA. Both agencies are focused on deploying innovations, especially those that can lead to cost savings. The EDC and SHRP2 programs are examples of technology deployment activities that have been successful in increasing the use of Safety Edge, Warm Mix Asphalt, CMGC, Intelligent Compaction, 3D Modeling and other innovations within MDOT and by local public agencies and contractors throughout Michigan.

Mr. Jim McDonnell, AASHTO Program Director for Engineering, was then introduced. He thanked MDOT for hosting the meeting, and committee leadership for preparing an excellent agenda. His presentation provided an overview of recent leadership changes at AASHTO, including the selection of Bud Wright as Executive Director. Mr. McDonnell thanked Greta Smith, Lindsay Brown and Jason Richins for their efforts to support SOC.

He reviewed reauthorization of MAP-21, noting that funding is only authorized for 2 years. AASHTO is seeking minor revisions to the bill and to add funding to the remaining years on the 5-year bill. Teams have been set up to review the legislation and propose changes. Next, Mr. McDonnell reviewed issues raised at the AASHTO Spring Meeting. These include concerns with new Buy America provisions, especially their application to utility relocations. He also noted that AASHTO is preparing a response to the Federal Communication Commission (FCC) on a proposal related to 5.9 GHz sharing. This proposal could adversely impact the future of connected vehicles and AASHTO is working with State DOT's, the FCC and other stakeholders to ensure that the 5.9 GHz spectrum is preserved for connected vehicles. Mr. McDonnell also reported that AASHTO plans to update its Strategic Plan.

Next, Mr. McDonnell provided an overview of SHRP 2 products that are being released for trials and demonstrations. Thirty-four states are participating in the first round and solicitation of proposals for the second round of products is underway. See www.fhwa.dot.gov/goshrp2/ for more information.

The Standing Committee on Performance Measurement is looking at national-level performance measures. See Mr. McDonnell's [presentation](#) for more details.

The Transportation Curriculum Coordination Council (TCCC) is transitioning from an FHWA program to an AASHTO program. The TCCC has been and will continue to be a great tool for training and workforce development. States will provide seed money to fund initial efforts and AASHTO hopes the program will be self-sustaining within five years.

AASHTO is working with FHWA, ITE and ITS America to develop an Operations Center of Excellence that will serve as one-stop shop for information related to Operations, Traffic Engineering, Maintenance, Security, Emergency Management and Freight.

At the conclusion of Mr. McDonnell's presentation, Mr. Lewis noted that the agenda for the meeting touches on many of the industry issues and challenges discussed by the morning's speakers. He also commented on the state topic sessions that are scheduled throughout the agenda. These sessions are great opportunities to share information between states and regions. He then reviewed the structure of the SOC and its Sections. New attendees will be asked to participate in the Section meetings. New attendees should feel free to attend

different Section meetings and be ready to indicate their choice for Section assignments to David Hoyne by the end of the week.

At this point, the Mr. Lewis invited delegates provided self-introductions. Forty-two states DOT's were represented, as well as representatives from AGC, ARTBA, ACPA, Ontario, AASHTO, Delaware River and Bay Authority, Academia, and the consulting industry.

At this point, a 15 minute break was taken.

9:45 AM – 12:00 PM General Session

Mr. David Hoyne, Vermont AOT and Vice Chair of the Subcommittee opened the General Session. He introduced the keynote speakers for the meeting: **Mr. John McElory**, President of Blue Sky Productions and host of Autoline; **Mr. John Capp**, Director, Electrical & Controls System Research and Active Safety Technology Strategic Lead from General Motors Research & Development; and Mr. Steudle. Each speaker addressed various issues related to **Connected Vehicle Technology**.

Mr. McElory addressed the delegates first. His presentation highlighted global trends in the automotive industry. See his [presentation](#) for additional details. He noted the strong potential for future growth in the number of vehicles manufactured worldwide annually. New innovations in the market include CNG for freight vehicles and light trucks. A semi-truck running on CNG can save a freight fleet operator \$150,000 per vehicle over a typical six-year life-cycle. Long term threats to the automotive industry include declining interest in both auto ownership and driver licenses among young people. A contributing factor in this trend is car sharing, which is increasing in popularity. One car sharing vendor estimates that each car in a car sharing program pulls 13 other cars off the road. The most exciting change in the automotive industry is the advent of autonomous cars. The potential for safety benefits are vast. Data indicates that 90% to 95% of traffic accidents are attributed to human error. Driverless vehicles could impact car sales; a household may only need one car if that car could drop you off at work and return home, on its own, to take your children to school. The advent of autonomous vehicles is fast approaching. Semi-autonomous cars that are sophisticated enough to operate on the freeway could appear by the end of the decade.

Mr. Capp's presentation continued the theme, describing GM's programs to develop autonomous vehicles. He reviewed various autonomous vehicle concepts that are under development by vendors worldwide. A Chevy Tahoe recently won a DARPA competition by operating autonomously over the course of a 60-mile simulated track. He reviewed the history of autonomous vehicle development since the 1950's and offered a high level roadmap of active safety features and when they were or will be introduced in production vehicles. Present day safety features include lane departure warning, adaptive cruise control, blind spot detection, auto braking and others. See his [presentation](#) for details. Innovations typically debut in high-end vehicles and migrate to lower-end vehicles as production costs fall. These technologies will have a positive impact on vehicle safety. "Super Cruise" represents GM's vision for near-term autonomous vehicles on freeways. A critical part of this technology is alerting the driver to resume control of the vehicle when conditions exceed the capability of an autonomous system. In the future vehicle to vehicle (V2V) and vehicle to infrastructure (V2I)

communication will become part of an integrated sensor strategy that will lead to improvements in autonomous vehicle capability.

Next, Mr. Steudle addressed delegates on Automated Vehicles from MDOT's perspective. He began emphasizing the goal of safety and moving Towards Zero Deaths. He reviewed MDOT ITS and Road Weather Information Systems statewide, segueing into how systems such as these can communicate with autonomous vehicles to share data. MDOT is testing a system to collect information on the status of vehicle defrost settings and windshield wiper use to supplement weather data. A six-mile test strip of traffic signals broadcast their timing and status. These examples demonstrate that the advent of connected and autonomous vehicles has implications for design and construction of transportation facilities. Current designs are based on human factors and incorporate safety factors to allow for human error. In the future design criteria for lane widths, vertical and horizontal curves, clear zones, traffic signals and other infrastructure will no longer need to account for human factors.

Questions and comments from the delegates included:

- **Mr. Mike Lewis** asked about the SHRP2 Naturalist Driver Study and how it relates to autonomous vehicles. Mr. Steudle responded that the study installed instruments in 2,000 vehicles to track driver behavior over the course of a year. Safety and automotive engineers will analyze the data collected to assess driver behavior, especially prior to accidents and near-misses. Mr. Capp stated that such information is crucial to understanding how people behave in a real environment so vehicle systems can be designed properly.
- **Mr. Mark Leja** (Caltrans) inquired if any construction equipment uses these safety technologies. Mr. Capp indicated that this is an area where you can advance more quickly because there are fewer variables to consider. Construction Equipment manufacturers are moving to take advantage of these technologies. Mr. Steudle noted that the mining industry is leading in this area and manufacturers need to be encouraged to bring this technology to equipment design for civil works. Mr. McElroy added that oil companies working in the tar sands that use autonomous vehicles report a 10% improvement in operating expenses resulting in \$100,000 in savings per day. The agricultural industry also uses the equipment to plow fields automatically.
- An Alabama delegate asked about the impact of this technology on the cost of vehicles. Mr. McElroy responded that the price does increase. The current average MSRP for a new vehicle is \$34,000. We can expect that to go up \$1,000 per year as we incorporate new technologies in vehicles to address safety, CAFE standards, etc.
- **Mr. Ron Matheson** (Oregon DOT) noted that Mother Nature is a variable that impacts the function of autonomous vehicles. How do these systems cope with weather conditions? Mr. Capp responded that it is difficult to do so and that is the reason it will take time to develop fully autonomous vehicles. More breakthroughs are needed in sensing technology and sensor integration is part of the solution.

- What considerations are being made for the necessary IT infrastructure? Mr. Capp stated that maps will need to get more precise. Electronic maps currently achieve 20 meter accuracy and 1 cm accuracy is needed. It will take a while to map the entire US to that level of accuracy and require investment and commitment to keeping digital maps up to date. Security of communication systems and privacy are other IT issues that need to be addressed.
- **Mr. Leo Evans** of Michigan DOT wondered if drivers would accept loss of control in exchange for safety. Mr. McElroy responded that most people initially don't want to give up control. However, once they realize benefits, including increased safety, lower insurance costs, and less congestion, acceptance increases.
- Jim McDonnell of AASHTO asked what other types of infrastructure elements will DOT's need to construct and maintain in the next 5 to 10 years in order to allow this tech to work? Mr. Capp noted that some sensors take visual cues from lane markings and other others communicate with infrastructure. DOT's will need to ensure that those elements are maintained so the sensor systems can function properly.

Next **Mr. Butch Wlaschin**, FHWA provided an update on FHWA activities related to construction. He began with hot topics. First he review NPRM related to MAP-21. Eight to nine rules are being developed, two of which affect construction. These include rules related to asset management and performance of pavements and bridges. Factors to consider in developing these rules include:

- Inventory and condition
- Level of service and gap analysis
- Whole life cost and risk assessment
- Financial planning
- Investment scenarios
- Pavement Management Systems and Bridge Management Systems

AASHTO members and other stakeholders are being consulted in the rule-making process. The rules will define methods to determine the condition of the infrastructure on the interstate and NHS, and set minimum levels of performance. The asset management Notice of Proposed Rule Making (NPRM) should be published in the fall of 2013. The infrastructure performance NPRM will in late December or early January. Final rules will be published in the summer or fall of 2014.

Mr. Wlaschin next reviewed upcoming SHRP2 products. Approximately 60 high-priority products will be introduced over the next several years. He reviewed the products that are currently available and those that are coming soon. He outlined the different SHRP2 Implementation Assistance levels. See his [presentation](#) for additional details.

Mr. Wlaschin noted that Buy America has been a hot topic recently. He reviewed recent history related to Buy America and asked states to provide data on the impacts of Buy America policy on construction programs.

The FHWA Construction Team is deploying three Every Day Counts (EDC) technologies, including 3D Engineered Models for Construction, Slide-In Bridge Construction and Intelligent Compaction. Mr. Wlaschin reviewed deployment activities associated with each technology. More details are included in his presentation.

The Construction Peer Network (CPN) program recently concluded its 5th and final exchange. A CPN synthesis report will be published in October. Subcommittee on Maintenance decided at its annual meeting to adopting this model to create a Maintenance Peer Network.

Mr. Wlaschin reviewed current and upcoming web based training courses that FHWA is offering. FHWA is partnering with industry to develop the training and make available free of charge. The link to register for training is: <http://www.fhwa.dot.gov/construction/wbt.cfm>.

NCHRP Project 20-68A: Civil Integrated Management Domestic Scan is moving forward. John Adams of Iowa DOT and Bryan Cawley of FHWA are co-chairs of the scan. Project visits will be conducted this fall.

FHWA will publish a series of construction related tech briefs. Ongoing construction related research was also covered. See presentation for more details.

Finally, Mr. Wlaschin reviewed current FHWA pavement program initiatives including those related to alternate bidding, sustainable pavements, MEPDG deployment and quality assurance, asphalt materials guidance and concrete pavement technology.

Following Mr. Wlaschin's comments, Mr. Hoyne moderated a session on State Discussion Topics. The first topic was on the AASHTO Guide Specification for Highway Construction. Approximately a half dozen of the States present report that they are actively using the guide spec. Mr. Hoyne noted that it is time to update the guide spec. If you have interest in participating please contact him. Mr. Lewis noted the relatively small number of states that do report using the guide spec and suggested the committee conduct more research on its use and develop tutorials on how to use the guide spec. Ms. Fran Hood reported that Idaho Transportation Department used the 2008 guide spec as model during their recent effort to update their state construction specifications. Idaho found the guide spec to be useful for this purpose and would be supportive of updating it. A delegate from Tennessee reported that they are currently updating their section 100 specifications and are also using the guide specs to assist them in their efforts. The Tennessee delegate felt that the guide spec is a great resource and should be updated.

The second discussion topic focused on partnering and how can AASHTO support greater use of partnering nationwide. Mr. Mike Lewis noted that partnering has been incredibly important tool for DOT's and is of great value. Ms. Brenda O'Brien informed delegates that this specific issue is on the agenda for the Contract Administration Section meeting. Mr. Eric Kerness of the Dispute Resolution Board stressed the need to continue the partnering process beyond the beginning of the project in order for it to be successful. Mr. Brian Deery of the Associated General Contractors (AGC) stated that AGC is huge proponent of partnering. He commented that states placed an emphasis on partnering about ten years ago, but that has subsided and he

urged states to focus on partnering once again. Mr. Mark Leja suggested that SOC could support additional research that validates outcomes of partnering.

At this point the committee took a break for lunch. After lunch, Section meetings were held until 4pm.

Section Chair Reports

NOTE: Section Meeting minutes are contained in the Appendix of these minutes.

Mr. Hoyne called the meeting to order at 4:00 pm.

Environment and Human Resources: Mark Leja (Caltrans)

Mr. Leja reported that Environment and Human Resources (EHR) Section reviewed the strategic plan during its session and ensured that the activities planned for the coming year aligned with the strategic plan goals. He reported on the progress of 2013 work plan items, noting that the Section completed several surveys this year, including ones related to recycling, training and work zone safety. The EHR Section has established a working relation with the Standing Committee on the Environment and plans to collaborate on work activities in 2014. Ms. Fran Hood represents SOC on the Center for Environmental Excellence. Finally, the EHR Section discussed succession planning during its section meeting.

Computers and Technology: Emanuel Banks (Arkansas Highway & Transportation Department)

Mr. Banks reported that the Computers and Technology (CT) Section had a good year. He reviewed their reviewed work plan and noted the sections efforts to keep information on AASHTO website up to date. He informed delegates of plans to host Civil Integrated Management Workshops in cooperation with AGC and ARTBA and hopes is that information shared at the workshops will become lessons learned for participants. The Section's efforts to monitoring civil rights and labor documentation efforts will continue in 2014. Mr. George Raymond of Oklahoma DOT is participating on efforts to advance Electronic Engineering Data communication and his committee is planning workshop on the issue in December. The CT Section also discussed succession planning during its meeting. Finally, Mr. Banks reported that the Guide Specification for Automated Machine Guidance has been posted on the AASHTO website.

Contract Administration: Brenda O'Brien (Michigan DOT)

Mr. Andy Long provided the Contract Administration (CA) Section report on Ms. O'Brien's behalf. Mr. Long reported that all work plan items from 2012 are complete and posted on the website. The section had a presentation by Richard Duval of FHWA on recent research into performance based prequalification of contractors. The section hopes to add this presentation to the 2014 annual meeting agenda. The CA Section discussed other options for 2014 meeting presentations. More details are in the section minutes.

In addition, the Section developed work plan items for next year, including:

- Review and/or develop guide specifications for partnering, and;
- Research how agencies view commercial useful function.

The section developed three research recommendations to be discussed at research breakfast.

Roadways and Structures: David Ahlvers (Missouri DOT)

Mr. Ahlvers indicated that ten states participated in the meeting. The section discussed a variety of topics during their meeting, including:

- IRI Specifications Survey
- National Standards for IRI
- Inspection Methods for Prefabricated Bridge Elements
- Develop Guide Specs for Construction of Drainage Pipes
- Regional Certification for Inspectors
- Recommendations for AASHTO on Limiting Buy America
- Specifications and Best Practices for Risk Based Inspection
- SHRP 2 Products
- Criteria for when to use positive protection (barrier)

More details are available in the section minutes.

Prior to introducing the next speaker, Mr. Hoyne noted that invitations for I-84 showcase in Poughkeepsie, NY have been distributed around the room. The showcase will highlight Accelerated Bridge Construction Techniques, including Slide-In Bridge Construction and the SHRP2 ABC Toolkit that NYSDOT is using to rapidly replace twin bridges carrying I-84 over Dingle Ridge Road. More information on the showcase is available at www.t2events.ce.ufl.edu/ny.

Then **Mr. Scott Lowe** of Trauner Consulting provided a presentation on Progress Schedule Problems and Solutions. Mr. Lowe integrated previously identified state discussion topics related to scheduling into his presentation. He begin by noting problems encountered across several states, including:

- Baseline schedules that are approved too late in the project;
- Schedule updates that are not submitted or are not submitted timely, and;
- Contractors that make unapproved changes to the schedule.

Mr. Lowe reviewed the reasons why these problems occur and methods that project owners use that have proven to be successful at addressing these challenges. For example, owners should enforce provisions that encourage timely submittal of initial and updated schedules, including not allowing work to commence or withholding payment. In certain instances, he recommended rejecting a non-compliant schedule but still using for the purposes of monitoring the project and tracking progress. He shared sample specifications from Minnesota DOT and

other states that provide the owner with additional contractual mechanisms to enforce timely and compliant schedule submittals. See his [presentation](#) for additional details.

- Q.** You recommend that schedule reviews be done by field personnel, how do you provide training to those personnel to be able to review the schedule?
- A.** Sometimes we don't give field personnel enough credit. The most important information to discern from a schedule review is to identify the critical path. It only requires a few hours of training to teach someone this skill.
- Q.** What are your thoughts on size of projects that should require critical path method (CPM) schedules?
- A.** Any project that you can't keep track of in your head should have CPM, which is to say that all projects can benefit from CPM schedules. An argument could be made that smaller repetitive projects, such as guardrail installation, may not need a CPM schedule. However, I believe every project merits a CPM schedule.
- Q.** A delegate from Idaho noted that in their state, if a contractor provides early completion date, that contractor owns the resulting float.
- A.** Some states have provisions that allow this. It can create a challenge for keeping track of how much float there is on a project and who owns it. Many states will not accept a schedule that shows an early completion date. However, if one of the project goals is minimize impact to the travelling public, then why would you not accept a schedule that shows an early completion? It is important to remember that the schedule is simply a model of the project. Acceptance of a schedule with an early completion date does not alter the contract terms.
- Q.** What is risk of moving ahead without approving a schedule when the only issue the duration of activities?
- A.** The risk is minimal as long as you document your concerns. One area you want to focus on is the time assigned to owner activities, e.g. review of submittals. It is important to make sure you have enough time to complete these activities. The key is to know what obligations you as an owner are taking on.

The meeting was adjourned for the day at 5:45 pm.

Tuesday August 13, 2013

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

The meeting was called to order by Ms. O'Brien at 8:00 am. She announced a revision to the agenda. The presentation on False Claims and Fraud Identification was canceled because the presenter was called to other duties.

The first presentation of the morning was made by **Dr. Douglas D. Gransberg** of Iowa State University. He provided an **Overview of NCHRP 1—85: Construction Manager-at-Risk Guidelines**. See his [presentation](#) for additional details. Dr. Gransberg began by acknowledging the contributions of the late Jim McMinimee to the project and dedicated the presentation to

his memory. The presentation began with a review of the basic differences between project delivery methods, including Design-Bid-Build (DBB), Design-Build (DB), and Construction Manager-General Contractor (CMGC). Next Dr. Gransberg reviewed selection models, including One-Step, One-Step Best-Value, and Two-Step Best Value. He stressed the importance of structuring the design contract appropriately in order for the CMGC delivery method to succeed. It is imperative that the design contract be synchronized to the preconstruction services contract. The design contract and the preconstruction services contract should explicitly assign design liability to the engineer. In addition, the engineer should submit design packages on a schedule set by the CMGC to support construction bid packaging. Dr. Gransberg then reviewed schedule/timeline differences between the various project delivery methods. He also noted that there are several options for fee structures on CMGC contracts, including open-books, closed-books and partial. Preconstruction services fees for the contract range from 0.25% to 0.50% of the construction price. A key benefit of CMGC is that the owner keeps 100% of the savings from value engineering. Next, Dr. Gransberg discussed various approaches to managing risk and structure pricing on CMGC projects. Pricing has been established with a variety of processes, including single price, progressive prices, and successive target prices. Under successive target pricing, the contractor is incentivized to reduce cost: as the cost is decreased the profit is increased. Further differences are explained in the presentation. Some owners hire an independent cost estimator. The owner can use the independent cost estimate in a variety of ways, i.e. to conform quantities and risk, to conform risks and negotiate risk pricing, and to negotiate the total price. Dr. Gransberg concluded by noting that the project report will be published soon.

Q. How is time managed in CMGC projects?

A. Time can be managed in any way you choose. The contractor generally sets the schedule based on the scope, complexity, and other factors.

Q. Does the CMGC guide include guidance on how to select an appropriate project delivery method?

A. No. It only addresses CMGC. Other delivery methods are not addressed. However, Dr. Keith Molenaar will deliver a presentation tomorrow on research related to selecting appropriate project delivery methods for a given project.

Q. You recommended use of the term target price instead of guaranteed maximum price (GMP). Without GMP, are there assurances that there won't be change orders?

A. That is a work in progress. The pricing process in CMGC is similar to DBB, so change orders can occur. It is important to recall that the contractor is not a licensed design professional. The owner and its engineer are responsible for the design.

After all questions were answered, **Mr. David Reynauld** of the Transportation Research Board (TRB) noted that all TRB reports can be downloaded for free, once they are published.

Ms. O'Brien then introduced the next speakers, **Mr. David Ahlvers**, Missouri DOT and **Mr. Mark Leja**, Caltrans. The topic of their dual presentations was **Performance Measures for Construction Programs**. See both Mr. Ahlvers' [presentation](#) and Mr. Leja's [presentation](#) for additional details. Mr. Ahlvers led off the discussion by reviewing how MoDOT links strategic direction to performance. Tangible results are at the heart of MoDOT's performance

management approach. All performance measures are categorized under specific tangible results. MoDOT has 61 individual performance measures organized under 7 tangible results. MoDOT ensures accountability at quarterly meetings that discuss what was actually done to achieve performance benchmarks. Mr. Ahlvers shared samples of various MoDOT performance measures. He stressed that successful implementation of performance measures requires that efforts be leadership driven. Mr. Ahlvers concluding by noting that MAP-21 stipulates performance measures in 14 areas and MoDOT is ready, incorporating MAP-21 goals into MoDOT measures.

Next, Mr. Leja shared how Caltrans measures construction performance. He began by reviewing the Caltrans organization and program characteristics. Caltrans links goals to performance, translating high level department goals to the goals and performance indicators of operating units. He shared several management indicators that Caltrans uses, stressing the importance of using the indicators to manage the program. See his presentation for specific information on performance measures discussed. Mr. Leja concluded by stressing that construction goals should support agency goals, and performance measures should be linked to those goals.

Q. What systems do you use to collect the data?

A. Mr. Leja responded that Caltrans utilizes “Data Miners” extract information from agency systems and compiles it into user friendly reports. Mr. Ahlvers responded that data for MoDOT measures comes from SiteManager. Mr. Ahlvers noted the importance of using a consistent system to collect data.

Q. On the Caltrans project schedule measure, what is your data source?

A. The data is the actual number of working days in the contract.

Q. Did you have any buy-in problems when you implemented your performance measure programs?

A. Caltrans did not experience difficulties with buy-in, but questions about data sources and quality of data did exist. At this point the accuracy is accepted. In MoDOT, there were questions of fairness, given the differences in district characteristics (i.e. rural vs. urban). With time, those concerns have been alleviated.

Q. In calculating on-time/on-budget measures, are there national performance measures that establish consistent methods of calculating these indicators?

A. We are moving toward national standards but none exist yet. The public cares about the “commitment date” e.g. did you finish when you promised you would. Established national methods would facilitate benchmarking.

Q. Do you have problems with manipulating information/data?

A. Generally, no, but it does happen occasionally and you have to hold people accountable in such instances.

Q. MoDOT tracks expenditures against the award value and Caltrans tracks expenditures against the budget. That was an interesting difference between states. How do you define the budget?

- A. Caltrans uses a transparent process to establish the budget. It includes staff time, government furnished materials and the construction cost estimate.

At this point, a 15 minute break was called.

After the break, **Mr. Eric Kerness**, Dispute Resolution Board Foundation, **Mr. David Sadler**, Florida DOT, **Mr. Gary Angles**, Ohio DOT and **Mr. John Householder**, Kokosing Construction Company, Inc. participated in a panel discussion on **Dispute Board Review Practices**. Mr. Kerness introduced the panel and then began with an overview of Dispute Review Boards (DRB). See his [presentation](#) for additional details. A DRB is a board of impartial professionals formed at beginning of a project to follow the construction progress, encourage dispute avoidance and assist in resolution of disputes. DRBs were first used in 1970 on 2nd bore of the I-70 Eisenhower tunnel project. The DRB foundation was established in 1996. A published manual of practice with is available online. DRBs have been used across sectors on public and private projects worldwide. DOT's are the largest users of DRBs. The benefits include:

- Disputes are avoided;
- Early dispute resolution, saving time and money;
- The process provides a basis and record for owner decision making, and;
- Contractors support their use because issues are resolved in quickly.

Mr. Kerness described important characteristics of DRBs. DRB members are neutral and subject to approval of both parties. Fees and expenses are shared equally among the parties. They are organized prior to the project and stay on top of it throughout construction, regularly visiting the site. Either party can refer a dispute to DRB, which is address promptly. DRB members are absolved from liability and can't be witnesses in legal proceedings.

Mr. Kerness described the typical DRB process as follows:

- A party presents its dispute;
- Both parties agree to seek DRB involvement;
- A hearing is held;
- The board confers;
- The board provides an oral opinion;
- A written opinion is prepared if requested by the parties.
- Parties may choose to accept or reject the DRB's opinion or proceed with a claim.

Mr. Kerness stressed that a DRB is not and arbitrator or a mediator. The DRB cannot modify contract terms. He concluded by sharing statistics that demonstrate that 98% of matters before DRBs are resolved without arbitration, mediation or litigation. Training is important for DRB participants. Anyone interested in such training should contact Mr. Kerness.

Next, Mr. Sadler provided an overview for Florida DOT's (FDOT) experience with DRBs. FDOT began the use of DRBs in 1994. It was expanded to include regional DRBs in 2002 and a statewide DRB was formed in 2004. FDOT makes DRBs available for every construction project. The role of the DRB is to resolve issues and disputes in a timely and equitable manner. All

construction contracts greater than \$15 million utilize a project-specific DRB. The FDOT District Construction Office may choose to use DRB other projects. A DRB typically meets monthly for first 3-6 months of a project, and then timing varies depending on the project. There are project specific boards, as well as regional boards that handle multiple projects. FDOT has established a statewide board that addresses material issues, warranties and other issues that arise after final acceptance. Project specific DRB members are drawn from the ranks of former contractors, former FDOT personnel, academia and other sources. The contractor and FDOT each select one DRB member each. Those DRB members choose they 3rd DRB member, who acts as that chair. In the case of the regional and statewide DRBs, the Florida Transportation Builders Association and FDOT each select members. Mr. Sadler echoed Mr. Kerness's conviction that proper training of DRB members is critical, as is training for the contractor and FDOT personnel involved on the project. He reviewed statistics on FDOT projects that use DRBs, including data on the types of disputes that are typically addressed. Details are included in Mr. Sadler's [presentation](#). FDOT typically takes issues to board to assess entitlement only first. If entitlement is affirmed by the DRB, then they address quantum. Mr. Sadler reported that FDOT believes the investment in DRBs is money well spent. DRB costs run about 0.10% of a project's construction cost. Eighty-five percent of issues brought before a DRB are resolved by the DRB. Mr. Sadler stated that Contractors also think that the process adds value. In 2002, the FDOT Office of Inspector General compared projects that used DRBs with non-DRB projects and found significant reductions in time and cost overruns on projects that utilized DRBs.

Next, Mr. Angles and Mr. Householder delivered a joint presentation that shared their experience with Ohio DOT DRBs from both the DOT and the contractor perspective. Mr. Angles reviewed Ohio DOT's history with DRBs. Ohio began using DRBs in 2002. Eighteen projects have used DRBs in Ohio. Nine have involved the same contractor, who is represented on today's panel by Mr. Householder. Sixteen DRB decisions have been issued to date in Ohio. Mr. Angles reviewed statistics about the DRB decisions in Ohio, and details are contained in the [presentation](#). Mr. Householder spoke about Ohio's DRB process, explaining the steps involved. Then Mr. Angles offered Ohio's view of the benefits of DRBs, stating that they are generally favorable. Ohio DOT uses DRBs on projects in excess of \$20 million and has found that DRBs are of value on complex, highly technical projects. From the contractor perspective, Mr. Householder acknowledged that there is a certain level of effort required to make the process work. However, contractors consider the time well spent. Contractors value that DRB meetings lead to the timely resolutions of issues. Next, both Mr. Angles and Mr. Householder reviewed a case study of Ohio DOT's Columbus Main Street Bridge project. Mr. Householder's firm was the contractor on the project, which experienced issues arising from the impacts of water levels exceeding the normal water elevations shown on the plans. The contractor sought compensation for costs and time associated with the impacts of flood events that occurred during construction. Ohio DOT did not agree with the contractor's position that this represented a changed condition and did not believe it was an owner caused delay. Instead, Ohio DOT's position was that high water levels were foreseeable by the contractor and his schedule and methods should have taken them into account. Prior to bringing the issue to the DRB, Ohio DOT was willing to grant a non-compensable time extension to the contractor. The DRB issued a 28 page decision determining that the delay was not caused by the owner, but it did represent a changed condition and was therefore a compensable delay. Ohio DOT subsequently modified its specification based on the lessons learned from DRB decision.

The presentation prompted a number of questions from the audience:

- Q.** Mr. Lewis commended Ohio DOT for sharing its lesson learned and liked that format of the presentation, especially that the contractor and the DOT discussed the same issue from their own perspectives. Mr. Lewis inquired if DRBs can be used with any project delivery method?
- A.** Mr. Kerness responded that there is a role for DRB on any type of project delivery method. Disputes can arise regardless of the delivery method and the DRB is an effective tool to resolve disputes regardless which delivery method is chosen.
- Q.** You mentioned that a DRB member could not be called upon as witness in legal proceedings, what is the mechanism that allows that?
- A.** It is in the terms of the DRB contract agreement between the owner and the contractor. It is a considered a DRB best practice.
- Q.** What was the FWHA role on the project?
- A.** Mr. Angles noted that FHWA was very involved on the project. FHWA representatives attended the DRB meetings, participated in the cost of the DRB and accepted the DRB decision.
- Q.** Does this supplement or replace partnering?
- A.** DRB's complement partnering. While partnering opens up the line of communication between the owner and the contractor, a DRB brings a neutral 3rd party in to help resolve disputes.
- Q.** In Florida, DRB members tend to be fiercely independent. We also see DRB members that meet independently with parties. How do you manage that? Is there a process to discipline DRB members that do not comply with DRB cannons?
- A.** Mr. Sadler acknowledged that situations like this do occur. In such cases, those board members are not used on future DRBs. Mr. Kerness added that the DRB cannons explicitly prohibit ex parte communication and you have a right to terminate that member in such cases.
- Q.** In terms of cost estimating and bidding it as a line item, can you provide insight into how to estimate DRB costs and incorporate it into the construction contract?
- A.** The three-party agreement between the contractor, the owner and the DRB members establishes the maximum amount that they will spend. It is based on an estimated number of decisions and determined as a lump sum cost. Ohio DOT pays for it and draws the contractor's share from a line item in the contract.
- Q.** Who has acceptance/rejection authority in your organization?
- A.** Mr. Sadler responded that in FDOT the State Construction Engineer has this authority on all DRB recommendations. Mr. Angles stated that for Ohio DOT either the State Construction Engineer or the Deputy Director in consultation with the project and district staff makes these decisions. Mr. Householder responded that at his company, the Senior Vice-President in charge of the highway division has this authority.

- Q.** Do you allow attorneys and other experts at DRB presentations?
- A.** Mr. Kerness responded that lawyers can make presentations during legal interpretations if both parties agree, but the presentations are typically done by the project staff members who know the issues. Mr. Sadler responded that FDOT prefers that there are not lawyers presenting issue to the DRB. Further, FDOT prefers that lawyers are not on the board. It is an informal meeting and the involvement of lawyers can alter that dynamic.
- Q.** In Colorado we preapprove DRB members. A lot of the applicants to become DRB members are attorneys. However, these attorneys typically don't have construction experience beyond that associated with claims. Is this the kind of experience that potential DRB members should have?
- A.** Mr. Kerness replied that you want to complement the experience of board members. Contract administration experience is appropriate as is experience in engineering or construction.

Next, **Mr. Jim Johnson** of AASHTO provided a brief presentation on the **AASHTO Construction and Materials Software Update**. His presentation provided a review of the production schedule, system features and states that are participating on the project. See his [presentation](#) for details. At this point in time, the User Requirements have been defined as have the System Design and Functional Requirements. The design phase is underway and is in the sixth (of six) iteration of design, review and testing. The software builds on the Trns•port™ architecture. Mr. Johnson shared screenshots of the system and reviewed the function of certain features including:

- Contract Administration;
- Data Filtering;
- Daily Work Reports;
- Project Manager's Daily Diary;
- Change Orders, and;
- Materials Clearance and Testing.

The detail design stage is 93% complete. Beta testing will occur from May 2014 to September 2014. AASHTO is seeking states to participate in Beta testing. The production release will occur in December 2014. AASHTO is already planning for a subsequent release to address additional functionality that has been requested.

Next, **Ms. Fran Hood**, Idaho Transportation Department, **Mr. Sadler**, and **Mr. Rob Wight**, Utah DOT provided an update on the **Construction Peer Network Exchanges** that have been held nationwide over the last couple of years. Ms. Hood believed that the FHWA team was well organized and did a good job of running the exchange. She reviewed the process to select the topics to be covered in the Idaho exchange. Participation in the Idaho peer exchange was good, with the State Construction Engineer and one other staff member from several states attending. Information was shared between states, including information about inspection checklists, use of warranties, placing more responsibility for documentation on contractors, and leveraging activities that contractors are already doing (daily work reports for example). **Mr.**

Sadler described the Florida CPN Exchange. It was also well attended. FDOT thought that inclusion of contractors in the meeting was valuable. FDOT believed that another key to the success of the peer exchange was the program information tool, which was used to identify and prioritize topics for discussion. The tool enabled participants to come to the meeting prepared for discussions. Mr. Sadler noted that the report provided at the end of the workshop was also a good element of the workshops and will facilitate follow up actions. **Mr. Wight** echoed the sentiments of Mr. Sadler and Mr. Hood, supporting the program and acknowledging the value of the effort. The topics discussed at the southwest exchange included project staffing levels, training, prequalification of contractors, risk based inspection, performance measures and the digital jobsite.

At this point, the break for lunch was called. The scheduled session on State Discussion topics was not held due to lack of time.

1:15 PM – 5:00 PM Roadways and Structures General Session

Mr. David Ahlvers, MoDOT, Section Chair, introduced the first speaker of the afternoon.

Mr. Matt Chynoweth, Michigan DOT, spoke on the **Zilwaukee Bridge Repair**. See his [presentation](#) for more details. The project is a two year effort to remove and replace bearings on a large segmental bridge. Mr. Chynoweth recounted the history of the bridge. Construction started in 1979 and the structure was Michigan's first segmental bridge. It is 1.5 miles long and carries 60,000 vehicles per day. A serious construction accident in 1982 stalled construction. Cantilevers 11N and 11S rotated, resulting in deflections of 5-1/2 feet at that cantilever ends. The bridge was repaired and construction eventually resumed. The bridge opened in 1988. Since its completion the bridge has required significant maintenance and rehabilitation investments. In 2008 a contract was let to replace the bearings at the expansion hinge joints. The proposed bearings were 8" tall and had to be installed in a 4" opening. This required removal of concrete at the dapped ends. Unfortunately coring operations hit post-tensioning tendons. Work stopped and an external post-tensioning system was installed to replace the lost prestressing force. Michigan DOT issued a CMGC in 2012 to replace all of the bearings on the structure, including those at the expansion hinge joints and at the piers. Use of disk bearings reduced the bearing height and met the geometric constraints. Mr. Chynoweth provided an overview the analyses required to verify that the construction loads would not exceed the capacity of the existing structure, as well as an overview of the modifications necessary to resist jacking loads. Ground penetrating rebar was used to locate mild reinforcing and post-tensioning strands to ensure that cores do not hit tendons. As an additional safeguard, tendon ducts are located visually by chipping away the concrete cover. Hydraulic jacks are used to lift the structure 7/16" to allow bearing replacement to occur. Mr. Chynoweth reviewed lessons learned throughout the project. For example, shim procedures were changed after dowels buckled and blew out grout pads. Wire saws are used to remove existing bearing components. Thermal gradients change the required dimensions of the grout throughout the day. Consequently, measurements are taken early in the morning before the sun heats the structure. Work is ongoing and should be completed in 2014. The CMGC project delivery method has been used and early contractor involvement is a key benefit of this delivery method. MDOT was able to select a contractor with the appropriate experience and there is a strong team approach toward resolving project challenges.

The next speaker was **Mr. Victor Judnic** of HNTB who discussed the **I-75 Gateway Construction Project**. See his [presentation](#) for details. The project reconstructs a segment of I-75 in Detroit that provides access to the Ambassador Bridge. The project has significant economic importance; \$155 Billion in trade crosses the Ambassador Bridge annually. The objectives of the project are to provide direct freeway access to and from the international border with Canada, remove border traffic from local streets, increase international trade and reconstruct portions of I-75 and I-96. The Detroit International Bridge Company (DIBC) owns the Ambassador Bridge. MDOT reached an agreement with DIBC on which party would construct various elements of the project. MDOT started construction in 2003 with an original completion date in 2010. Mr. Judnic described elements of the project, including roadway and bridge improvements and aesthetic features. During project planning, two construction options were evaluated, one method was full closure of the interstate and the other method was partial closure. Full closure saved \$170 million and shaved 26 months off of the construction duration. Managing traffic was crucial to the success of the project. Advance notice signs were installed as far away as Ohio. Extensive use of ITS technologies, including variable message and dynamic message signs were used to communicate travel times to drivers. Extensive stakeholder communication and outreach was conducted throughout the project.

Next, Mr. Judnic address legal; challenges that arose and delayed completion of the project. In 2008 MDOT sued DIBC to enforce the terms of their agreement and correct elements of the Plaza and Ramps that DIBC did not construct per plan. In 2010, the Court ruled in MDOT's favor. DIBC was found in contempt of court twice for not implementing corrective action in a timely manner. Ultimately in 2012 the court ruled that DIBC transfer funds to MDOT who would complete the project. Within a month of that ruling, MDOT had selected a design builder to complete the work. One month later a truck road was built, removing international traffic from local streets.

Mr. Judnic reviewed various challenges encountered during construction. One such challenge was associated with curing the cable stay bridge pylon without exceeding temperature limitations. Liquid nitrogen was used to control curing temperatures. At another point during construction, a test program was added to compare lime vs. cement stabilized subgrade. Both products performed well during construction. The project also used expanded polystyrene (EPS) lightweight fill. The laborers installing the EPS blocks had trouble cutting them to the correct size. The contractor solved this challenge by using carpenters instead of laborers to cut blocks. EPS is a petroleum product and oil prices were rising swiftly during the stage of construction that the blocks were to be installed. The contract did not include an escalation clause on the price of the EPS material. The contractor attempted to mitigate the risk of even higher EPS material costs by purchasing all of the petroleum based resin at once and then manufacturing the blocks as needed. However, oil prices began to fall after the contractor had done so, locking his material costs in at higher levels. The contract required an erection engineer to design temporary supports, including those to support curved girders. One curved girder support system started to fail during erection. Fortunately the problem was discovered in time to place cranes to support the load and prevent the span from collapsing onto the interstate.

Mr. Judnic concluded by summarizing lessons learned on the project including:

- Ensure sufficient details are included in 3rd party agreements;
- Minimize constraints on project schedules;
- Use incentives that are tied to realistic schedules;
- Soils and subsurface utility investigation is a good upfront investment;
- Public involvement efforts are important;
- Continuous value engineering and constructability reviews are needed as is quick issue resolution and forecasting potential issues to stay ahead of approaching challenges.

Questions from the audience included the following:

- Q.** This project had a small footprint and two contracts and owners operating in close proximity, what challenges did this create?
- A.** The set of contractors hired by DIBC were familiar with MDOT processes. However the DIBC was not familiar with constructing infrastructure. This led to misunderstandings and challenges arising from the different perspectives and objectives of MDOT and DIBC.
- Q.** Who was the contractor?
- A.** Toebe was the contractor.
- Q.** Where in relation to this project is the New International Trade Crossing (NITC)?
- A.** The NITC is 1.5 miles downstream towards Ohio.
- Q.** Is Pier 19 intentionally wider to accommodate the second Ambassador Bridge?
- A.** Yes.

At this point, a brief break was taken. After the break, Mr. Ahlvers introduced the next speaker. **Mr. Dave Sadler** of Florida DOT made a presentation on the **Port of Miami Tunnel** project. See his [presentation](#) for details. The Port of Miami Tunnel is a Public Private Partnership that will provide access from the MacArthur Cause way to the Port of Miami. It will reduce use of local streets by commercial traffic from I-95 bound for the port. Mr. Sadler reviewed the long history of the project, which has been under consideration since 1981. In 2010 notice to proceed was issued. Mr. Sadler described geologic and geometric features of the project. A tunnel boring machine (TBM) was used to construct the tunnel. It was fabricated in Germany, assembled there and tested, then disassembled and ship to Miami on 75 cargo ships, 20 container ships and 19 heavy haul ships. Mr. Sadler played short video that described the operation of the TBM. Tunnel liner rings were fabricated in a dedicate facility built for the project. They were fabricated to a tolerance of 1 mm. The eastbound bore launched on November 11, 2011 and emerged on Dodge Island on July 31, 2012. It took 3 months to turn the machine around; Mr. Sadler played a time-lapsed video of the turnaround operation. The westbound bore commenced on October 29, 2012 and was completed on May 6, 2013. Work continues on constructing cross-passages. FDOT contributed 50% of the capital costs with Miami Dade County and the City of Miami also contributing funds. The concessionaire is responsible to design, build, finance, operate and maintain the tunnel for 35 years. There are no tolls; the

concessionaire will be compensated with availability payments after completion. See the presentation for the details of milestone payments during construction and availability payments after construction.

Questions from the audience included the following:

Q. What staffing does FDOT provide on the project?

A FDOT provides oversight CEI on the tunnel. Staffing on FDOT portions of the project is like a traditional design build project.

Mr. Anthony Albert of TranSystems provided an overview of the **Wacker Drive Reconstruction**. See his [presentation](#) for additional details. Mr. Albert provided an overview of the project location, describing the commercial interests and vehicular and pedestrian traffic levels in the project area. Wacker Drive is located in the Chicago business district and is a two-level facility with public street-level access on the upper level and delivery access to the lower level. Mr. Albert also reviewed the history of the project and its purpose and need. The project addresses safety and geometry issues as well as structural conditions. It creates a gateway to the city, increasing green space and sidewalk widths. Mr. Albert reviewed the existing structural configuration and discussed how the project was able to reuse existing caissons to support the new structure. Project coordination was crucial, with over 16 public agencies involved with or impacted by the project. The facilities of nineteen different utility companies were impacted or required relocation. Many fiber optic telecommunication lines were relocated. A 14-foot diameter sewer also needed to be relocated and a tunnel boring machine was used to construct the relocated sewer. Demolition of Wacker Drive occurred over weekends to avoid impacts to building access. Mr. Albert shared several construction photos, describing the construction methods used to build the upper and lower levels of Wacker Drive, the Congress Interchange and other elements of the project. All concrete and reinforcement was recycled. After describing the technical features of the project, Mr. Albert reviewed some project challenges that occurred during construction. There was a 30-day labor strike at the start of the project. Maintaining access to large buildings at all times was an important challenge and many temporary walkways were constructed to provide pedestrian access. In 2011, 20" of snow fell on Chicago and the city commandeered contractor forces to remove snow. Twice during construction the project flooded. Once during construction, 4 million gallons of sewage flooded the site when the sewer authority was forced to shut down the sewer main. Outside events also impacted construction and required close coordination with stakeholders. Several construction projects on adjacent structures made use of helicopters to lift HVAC equipment into place and required that work be suspended. NATO hosted a meeting in Chicago during construction that drew protesters to the site. Prior to the meeting the contractor cleared the site of all debris to prevent construction debris from being thrown by protestors in the event of civil unrest. Several TV shows and the movie Transformers were filmed onsite during construction and the filming and the fire department conducted training in the tunnel. Each of these events required close coordination and special measures.

Questions from the audience included:

Q. Why were so many contracts issued?

A. The objective of issuing multiple contracts was to spread work around.

Next, Mr. Hoyne moderated a State Discussion Topics session. The first topic related to the Notice of Proposed Rule Making recently published by FHWA that proposes to eliminate the requirement to submit a base proposal when submitting an Alternative Technical Concept (ATC) on a Design Build (DB) project. Mr. Carpenter of Washington State DOT commented that the new requirement mirrors what Washington State is already doing and the process has been very successful to date. Mr. Hoyne added that the new process is more in line with what DB teams expect. A delegate from Virginia DOT added that VDOT uses DB and ATC and that VDOT supports the change. Mr. Jerry Yakowenko of the Federal Highway Administration noted that the examples cited by Washington, Virginia and projects in Maryland that did not require base proposals were done under the SEP-14 process. The results of SEP-14 review were favorable, justifying the new rule.

The second topic related to what are states doing to prepare for more emphasis from OSHA on work zones. Mr. Carpenter reported that Washington State is concerned that there is not a national standard for new requirements. WSDOT places the responsibility for complying with OSHA requirements on the contractor under the terms of the contract. Ms. Hood reported that Idaho first learned about OSHA's intent at the Southeast Construction Peer Network meeting. Ms. Hood reported that OSHA is training staff and will be focusing on verifying that contractors are following the traffic control plans. Mr. Cannon reported that Connecticut DOT is concerned that OSHA may find that the contract plans and specs don't meet OSHA requirements. Connecticut DOT plans to modify their specs to make it clear that the contractor is responsible for complying with OSHA requirements. Mr. Hoyne reported that Vermont AOT is concerned that OSHA will find VOAT, not the contractor, to be the controlling employer. Mr. Sadler from Florida stated that the challenge is to identify what standard OSHA will measure the project against. Mr. Brian Deery of AGC stated that OSHA is looking at the MUTCD from the worker safety point of view while States look at it from a traffic control point of view. Mr. Butch Wlaschin and Ms. Greta Smith reported that dialog between OSHA and AASHTO started in 2011 and there will be a presentation on this topic later in the meeting.

The third topic related to construction manuals. Mr. Hoyne inquired how many states have an up to date construction manual that is used as resource by your staff? Most states present indicated that they realize that the manuals are out of date and need work and are actively pursuing updates. Further discussion revealed that states are typically completing the updates with in-house staff. Mr. George Raymond of Oklahoma reported that Oklahoma DOT is in the process of hiring a consultant to update their construction manual. Michigan was the only state present that reported that its construction manual was available only as a print publication. All other states reported having digital manuals and print manuals. Iowa reported that beginning next year their construction manual will only be available online. Mr. Bryan Cawley of FHWA reminded delegates that FHWA has an online specification clearinghouse. It may be accessed at <http://www.specs.fhwa.dot.gov/nhswp/>. All state manuals were collected and posted online six or seven years ago. This fall FHWA will begin the process of working with its divisions to update this collection, which should be done by the end of the year. Mr. Wlaschin added that the database is searchable online.

The final discussion topic for the day related requirements to conduct NBIS inspections on bridges that are under construction. Connecticut DOT representatives inquired if NBIS bridge

inspections need to be performed when an existing structure is under construction? Ms. O'Brien offered Michigan DOT's interpretation of the requirements, reading an email from MDOT's Engineer of Bridge Field Services that stated "When construction begins and the structure is closed to traffic, Item 41 (Open, Posted, Closed) should be updated to "K" for closed. When the inspection date falls in the middle of the construction the inspector should enter an inspection report to show the structure is closed and make notes in the report to show that it is under construction. Within 90/180 days after construction is complete a post bridge safety inspection is completed to verify that the inventory data, condition ratings, and load rating information is updated to reflect the new conditions. When a structure is constructed using part width methods and the inspection comes due during construction the inspector will complete an inspection on the portion that remains open to the public. After all construction is complete then a post bridge safety inspection to verify the inventory, condition, and loading is updated to reflect the new conditions. The inspections during construction are completed by qualified team leaders and can consist of MDOT inspectors and/or consultants." Mr. Tim Cupples of FHWA was asked to verify this information. *Editor's Note: Mr. Cupples found that this issue is clearly addressed on FHWA's website and that the applicable regulations is 23CFR650.303. FAQ number Q303-1 covers NBIS inspections on structures under construction, including inspection requirements for temporary bridges. The following link can be used to access the NBIS FAQ web page: <http://www.fhwa.dot.gov/bridge/nbis/index.cfm>.*

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

Wednesday August 14, 2013

8:00 AM – 9:00 AM Research General Session

Ms. Brenda O'Brien called the session to order at 8:00 AM. **Mr. Jeff Carpenter**, Washington DOT, Chair of the Research Section, moderated the session.

Ms. Greta Smith, AASHTO and Mr. Lewis began the day's agenda by providing a **SHRP2 Implementation Update**. See Ms. Smith's [presentation](#) and Mr. Lewis' [presentation](#) for more details. Ms. Smith began by providing an overview of the SHRP2 Solutions. \$168 million is dedicated to implementation efforts and represents a mix of state and federal funding. Over 65 products will be introduced over the next several years. AASHTO is prioritizing state needs through an Implementation Task Force, chaired by Kirk Steudle, which reviews products for implementation. The Task Force engages the input of AASHTO committees. Assistance opportunities are available to help states, MPO, LPA and others deploy SHRP2 Solutions. Ms. Smith summarized the different levels of implementation assistance as follows:

- Proof of Concept Pilot: Provides funds to try products in the field, collect data and analyze the product.
- Lead Adopter Incentive: Helps early adopter states implement the products and share information with other states.
- User Incentive: Supports implementation after the early adopter stage.

Next Ms. Smith reviewed the status of SHRP2 Implementation Assistance. In round one, thirty-four states, the District of Columbia, eleven MPO's and one tribal nation received funds. The second round of implementation assistance opportunities was announced last week. Visit <http://shrp2.transportation.org/> for the recorded announcement and more details.

Next, Mr. Lewis spoke about Rhode Island's experience with the SHRP2. He noted that SHRP2 program is a very significant research program that has been going on for ten years. The heart of the program is about sharing best practices and institutionalizing these products nationwide. Rhode Island was selected as Lead Adopters for three round one products, including: R04 Innovative Bridge Designs for Rapid Renewal, L01/06 Organizing for Reliability Tools and R26 Preservation on High Volume Roadways. Mr. Lewis reviewed the products that are available for Round 2 Implementation Assistance. Project C19 will focus on expediting project delivery. The focus area of C19 is streamlining project delivery before construction. Project R07 covers specifications for rapid renewal. Project R09 encompasses managing risk on rapid renewal. Project R16 deals with interactions between railroads and DOTs. Mr. Lewis encouraged everyone to take advantage of these opportunities and bring their experiences back to the subcommittee to share. Ms. Pam Hutton is AASHTO's SHRP2 point person and Mr. Butch Wlaschin at FHWA can answer any questions you may have.

Dr. Keith Molenaar, University of Colorado, delivered a [presentation](#) on **TCM Pooled Fund Project Delivery Selection Matrix**. He began with an overview of the pooled fund study program, reviewing past studies that evolved into the Transportation Construction Management Pooled Fund Study (PFS). The PFS is a coordinated effort between AASTHO, AGC, ARTBA, FHWA and academia to share best practices. It enables states to leverage funds and maximize the effect of their research dollars. The Project Delivery Selection matrix provides guidance on how to select the appropriate delivery, procurement and payment methods for a given project. It will be published in May 2014.

The delivery selection matrix is the early deliverable of the project. It contains a one page project delivery selection checklist. When completing the checklist, it is important to develop goals and identify constraints for the project. There are five primary evaluation factors:

1. Delivery schedule;
2. Complexity and innovation;
3. Level of design;
4. Cost, and;
5. Initial project risk assessment.

The choice of these factors for use in the Project Delivery Selection matrix is based on extensive research. There are three secondary factors that may also be considered, including:

1. Staff experience;
2. Level of oversight and control, and;
3. Competition and contractor experience.

The secondary factors should be used as go/no-go decision points.

Next Dr. Molenaar described process for completing the form that is used to capture qualitative information about the opportunities and obstacles for a project, and the characteristics of that project that lend themselves to different delivery methods. He commented that Colorado DOT completes this form early in a project and then posts it online so the contracting community is aware of CDOT's intended delivery method and can begin to form teams.

In addition to the project delivery selection matrix, the team is working on selection criteria for procurement methods (e.g. low bid, best value, etc.) and payment provisions (e.g. lane rental, incentive/disincentive, etc.).

The PFS is starting two additional projects. A project to identify Best Community Outreach Practices for Accelerated Projects kicks off tomorrow and will run through early 2014. The scope includes a survey of states and Dr. Molenaar requested state that do receive survey request please assist the research the team and complete them. The second project evaluates DOT approaches to Consultant Oversight for CEI Services. This project also kicks off in August 2013 and will run through August 2014.

Dr. Molenaar concluded by referring delegates to the following url: for more information: www.colorado.edu/ceae/tcm. He noted that state construction projects are essentially the PFS research lab. He requested state cooperation with the research project and urged states to consider joining the pooled fund program.

Next, **Dr. Douglas Gransberg**, Iowa State University, provided an **NCHRP Studies Update**. See his [presentation](#) for additional details. Dr. Gransberg began by discussing **NCHRP 10-83: Guide for Alternate Quality Management Systems**. A key recommendation from this project is that quality management should start during the procurement phase. Dr. Gransberg opined that construction quality is set during design. The project found that some agencies rely heavily on inspection, while others are willing to accept contractor test results. The agency is responsible for both design and construction quality. However Dr. Gransberg noted that agencies take on a lot risk in design but tend to assign risk to contractor during construction. He reviewed graphics for assigning responsibility for various QA functions to the owner, engineer or contractor under different scenarios; highlighting differences between inspection, assurance, and acceptance.

Next Dr. Gransberg discussed **NCHRP 44-09: Alternative Technical Concepts (ATC) for Contract Delivery Methods**. He reviewed the current project status, noting that the second draft of the report is under review. The research indicates that 60% of states use ATC. Missouri DOT is currently the only state using ATC on DBB projects. It is much more common for states to use ATC on DB, CMGC and P3 projects. Major findings from the study include:

- Confidentiality is essential to getting industry input
- ATCs are easiest to implement on CMGC and DB-QBS projects
- A SEP-14 waiver of baseline proposal requirements is required to use ATC's without also requiring a base proposal. (*Editor's note: as noted elsewhere in the minutes, FHWA has recently published a NPRM that would eliminate this requirement.*)

Dr. Gransberg continued by reviewing when ATCs occur during the project schedule for various delivery methods. ATCs typically occur after design and DBB project, and earlier in the process with other delivery methods. The later in the process that an ATC occurs, the greater the opportunity for lost design investment, so conducting ATCs earlier before significant design funds are expended allows the owner to receive the maximum benefit of the ATC.

Dr. Gransberg shared case studies and demonstrated cost savings achieved through use of ATCs and then reviewed effective practices. He noted that including ATCs in the project process creates opportunity to identify errors, omissions and ambiguities and to provide clarifications before construction. Separating the ATC evaluation team from proposal evaluation team is an effective practice to avoid the appearance of impropriety in the selection process.

Dr. Gransberg concluded by commenting on future research needs. The effectiveness of ATCs can be limited by prior commitments made during the NEPA and permitting process. Information is needed on how to build flexibility into the NEPA/permitting process so that innovative design approaches contained in ATC are not lost because of conflicts with prior commitments.

Mr. Dean Testa, DMT Enterprises, provided an **NCHRP 10-89 Update, “Best Practices Guidebook for Optimal Construction Inspection”**. See his [presentation](#) for details. Phase 1 of the project is complete and encompassed data collection, a literature review, a survey, and interviews with agencies and contractors. Phase 1 is now complete and the start of Phase 2 is pending. Mr. Testa shared some early observations from the research so far. State DOT’s are grappling with the question of what to inspect. Should we inspect everything and if not, what are best practices for risk management and risk based inspection? This paradigm shift arises from the migration from method specifications to performance specifications. A key question to answer during the project is to determine if inspection practices should change accordingly. Another observation relates to the use of consultants to conduct inspections. Consultant use varies from state to state. The project team will try to identify what are best practices related to consultant inspection. Other areas of focus will include inspector duties and what are tools available to inspectors, including checklists, tools, digital jobsites etc. Staffing development will also be a focus area to determine how states are training and mentoring new inspectors. The project team also noted some observations from the contractor’s perspective. Contractors seem to prefer DOT inspectors rather than consultant inspectors, believing that DOT inspectors are more vested in the success of the project and are better team members. Mr. Testa concluded by seeking the assistance of states to share their practices with the research team.

9:00 AM – 12:00 PM Computers and Technology General Session

Mr. Emanuel Banks, Arkansas HTD and Chair of the Section, introduced the next speaker:

Mr. Emmett Russell, National Work Zone Safety Clearing House, spoke about **Innovative Approaches to Improving Worker Safety**. Mr. Russell did not have a presentation, instead demonstrating the Roadway Safety Awareness + Program and walking through the various features of the program. He began by reviewing how to download the roadway safety program from www.workzonesafety.org. The program contains training modules, instructor guides, booklets, pamphlets, flyers and case studies. It can be used to deliver computer based training. In addition, training material may be printed to facilitate training in the field. Most documents can be printed in multiple languages, including English, Spanish and Portuguese. A number of pre and post training quizzes are available to assess learning. Mr. Russell showed several training modules, demonstrating their operation, and reviewing their content. Several lessons include interactive demos to underscore key points.

Questions from the audience included:

- Q.** Mr. Mark Leja inquired if there was a cost for the program.
A. No. The program was developed with federal grants and is being given away to the public.
- Q.** Are states using it?
A. Yes, but training is important for users to recognize the benefit of the program. Because it is free, many do not realize the full value of the program unless they receive training. Training is free as well.
- Q.** Do you have a preferred class size?
A. For a presentation no. Training sessions or train the trainer sessions should be limited to a maximum of 30 people.

At this point a 15 minute break was taken.

Mr. Larry Ritchie, Florida DOT, made a presentation on **Video Inspection and Laser Profiling for Pipes**. See his [presentation](#) for details. He reviewed statistics about the volume of drainage pipe installed in Florida. Florida allows flexible and rigid pipe. Their video inspection program identifies defects prior to acceptance. He shared images of defects found, including guardrails driven through pipes, utilities installed through pipes, pipes damaged by construction vehicles and others. Next Mr. Ritchie described the components of video inspection equipment, including:

- The crawler, which carries the camera;
- The CCTV camera, and;
- The laser profiler.

Mr. Ritchie reviewed the operation of the profiler, which measures geometric properties of the pipe and compared the two types of technologies that measure pipe profiles. Various reports

can be generated by the systems and Mr. Ritchie discussed how the data can be used to identify areas that have defects which need to be addressed prior to acceptance. He noted that there is no national body that certifies operators who perform video pipe inspections. FDOT is teaming with the University of Florida to develop an operator certification program. The program verifies operator ability by requiring operators to conduct and inspection on a test track to determine that operator's ability to detect known defects in a variety of pipe materials.

Questions from the audience included:

- Q.** Are you certifying the operator, the equipment or the inspection company?
A. FDOT will certify the operator on a specific piece of equipment. Inspection companies will have to ensure that all operators become certified.
- Q.** What repair options do you have for defects?
A. Remove and replace is the only option for excessive deflection in traffic areas. FDOT has a pipe repair matrix posted on their website. The matrix lists common defects and acceptable repair options based on pipe material.
- Q.** When do you perform the inspection?
A. FDOT recently changed its specification on this. Previously, inspection was done upon completion of base course but before friction course was placed. Contractors stated that this was not enough time to arrange for the inspection and correct any defects without adversely impacting the schedule. The new standard is to conduct the inspection upon completion of 3 feet of fill or base. Since inspection occurs earlier, the specification allows the CEI to call for a re-inspection at a later point in time. In such cases the contract pays for the re-inspection if defects are found. If no defects are identified, FDOT pays for the re-inspection.
- Q.** Who performs the video inspection, the contractor or FDOT?
A. The contractor does.
- Q.** What pipes do you use video inspection on?
A. All pipes 48" in diameter or less.
- Q.** What percent of nonconformance do you find?
A. The nonconformance rate is fairly low – less than 10%. Contractors have responded well, the nonconformance rate has fallen and FDOT believes quality has improved.
- Q.** Have you considered using price adjustments instead of remove and replace?
A. No, there are other repair options that may be available.
- Q.** What do you not video inspect pipes larger than 48"?
A. An inspector can visually inspect pipes at that diameter and larger.
- Q.** Is video inspection a contract pay item?
A. No, it is incidental to cost of the pipe.

- Q.** How you performed any follow up inspections to see how pipes last?
- A.** FDOT has not done so to specifically assess the durability of pipes. However we have done so to assess the durability of repairs. As a result, FDOT has found that repair locations were not documented well – some repairs could not be found during subsequent video inspections. This leads FDOT to conclude that either the as-built data is wrong or the repair was not done.

Mr. Cliff Farr, Michigan DOT, made a [presentation](#) on **e-Construction**. MDOT's e-construction effort is designed to manage paperwork electronically. It encompasses design and construction. It uses state of art survey, design, modeling, document workflow and digital signature technologies to digitize MDOT processes. The goal of MDOT's e-Construction program is become 100% paperless. To date, MDOT has undertaken four construction contracts valued \$125 million that are 100% paperless. The only paper documents on these projects are delivery tickets, which FHWA still requires hardcopies for. MDOT resolves this by photographing the ticket for its use and providing FHWA with the paper copy.

Mr. Farr reviewed the MDOT staff and business areas involved in the effort. Digital information is used throughout design and digital information is provided to bidder during advertisement. Boilerplate documents were digitized and only non-standard information is included in the bid package. The boilerplate information is incorporated by reference and downloadable. This approach has reduced the size of bid packages.

MDOT uses ProjectWise for e-filing. The software solution stores information in one secure location. It incorporates intelligent workflows to route documents automatically. Email notifications are sent to appropriate individuals when action is required. An important feature of the system is that it is accessible over the web from any location.

Electronic signatures are a key component of the initiative. Many of the workflow processes would not be efficient without adopting electronic signatures. MDOT uses Adobe and Form Signer to support electronic signatures.

Digital pens are used to capture handwritten notes in the field. An inspector can write a handwritten note on a plan sheet in the field. When the inspector returns to the field office, the information is downloaded from the pen and stored on the electronic version of that plan sheet. Inspectors are use fillable PDF forms to capture data electronically using voice recognition.

Mr. Farr stressed the importance of establishing standards to store and name documents. This ensures that everyone can access documents quickly and efficiently. It is also important to resolve security issues to establish firewall rules and procedures for managing mobile devices.

Mr. Farr described the benefits of using e-Construction on MDOT's Latson Road project. MDOT calculates that e-Construction has saved MDOT \$185,000 in paper costs. There project records now contain 170,000 pages of information that now digital. Assuming 2 days of mail time per document, MDOT estimates that e-Construction has eliminated 150,000 days of mail time, leading to incalculable time savings on the project.

Mr. Farr concluded by summarizing MDOT's future efforts to train staff on the system. They will use iBooks to publish manuals and make them available on mobile devices. MDOT also plans to develop wiki sites for instructions and training material.

Questions from the audience included:

Q. Are you a site manager state?

A. We are a field manager state.

Q. Are workflows handled in project wise?

A. Yes.

Q. Did you have business analysts on staff?

A. Yes.

Q. What made you choose iPad as your field platform?

A. The primary factor was the geolocation and geospatial capabilities of iPad.

Q. Is iPad durable enough for field work?

A. Yes.

Mr. Jim Daavettala and **Mr. John Lobbestael**, Michigan DOT made a [presentation](#) on **Electronic Data Usage by Construction Staff**. Mr. Lobbestael began the presentation by describing MDOT's e-construction effort as one that is designed to manage paperwork electronically. The goal is to streamline the flow of design data to the field. MDOT is capitalizing on modern technology to assure quality and to collect and interact with data efficiently. The vision of MDOT is to reuse data throughout the project lifecycle. MDOT believes 3-dimensional data is important because contractors are already using Automated Machine Guidance (AMG) and 3D models in their operations.

Mr. Lobbestael summarized the MDOT data flow for a project life cycle. The process begins with geo-referenced survey collection. That data is used to automate production of 3D survey deliverables in Geopak. That same data is given to contractor at bid. The Contractor uses the data for AMG and other uses. The data is also used by inspectors to assure quality and document as-built conditions. It is then stored by MDOT for use in management of the asset.

Mr. Lobbestael stressed two keys to successfully digitize the construction site. First, the design should be based on national spatial reference system coordinates. Second, data needs to be in a universal transferable format. Mr. Lobbestael explained that MDOT has explored different file formats for delivering data to contractors. It is essential to listen to contractors and provide data in a format they can use.

The next big question that MDOT is tackling is how to streamline delivery of data to inspection staff to ensure quality. MDOT is exploring what data is needed in field and how to best provide it. For example, GPS is a good source of geospatial information, but such data needs to be augmented with data from other sources depending on weather and site conditions. Training is important to ensure users understand basic survey and highway geometry concepts in order to

make use of the data. Finally, Mr. Lobbestael recommended standardizing on a single type of equipment.

Next Mr. Jim Daavettila provided a case study of how MDOT's data exchange process worked on the Latson Road - I-96 Interchange project. The project is a \$24.5 million interchange project that includes five miles of local and state road construction. All project records were stored electronically. Access to data in the field was achieved through the use of tablets. Inspectors frequently used voice activated data collection to record information in the field and found it work effectively. The communication features of ProjectWise enabled everyone to have the information necessary to resolve issues promptly. All project records, including Inspector's Daily Reports, density test results, photos, etc. were all completed with iPads or iPhones and then sent electronically and filed in ProjectWise. This enabled data to be accessed later electronically. Contract modifications were also done electronically, which greatly streamlined the approval process: 50% are done in less than five days using the electronic process. Both the contractor and the MDOT field staff are pleased with the system.

Q. Mr. Bryan Cawley inquired how the use of the technology has impacted partnering.

A. Communication is instantaneous, that has greatly improved partnering.

Q. Are you using ProjectWise to archive data?

A. Yes.

Next, Mr. Steve O'Mara of Fisher Contracting made a [presentation](#) on **Contractor Use of Electronic Data Before and After Letting**. Mr. O'Mara began by reviewing how estimators' methods of preparing bids have evolved over time. When estimators moved from manual quantity take-offs to digitizing, the effort required to prepare a bid was reduced by a factor of fifty. Today, moving from digitized estimating to digital estimating, contractors realize another tenfold savings in the labor required to prepare a bid. Mr. O'Mara stressed that paper plans do not provide enough information to the contractor to allow accurate quantity take-offs. Mr. O'Mara claimed that penny bids come about because the quantities are not right. Contractors want better data from owners so they can accurately estimate the cost of the work. Mr. O'Mara urged DOT's not to build budget by inflating quantities. Mr. O'Mara also encouraged DOT's to provide contractors with 3D models during the bid phase. The data format is usually not an issue as most files can be converted to work with the systems and equipment owned by a particular contractor. A more important issue is to provide the contractor with complete data. A 3D model should include x, y and z coordinates. In addition, layer names should be logical. Arbitrary layer names make it difficult to interpret and work with the data in the 3D model. Logical layer names that are relevant to how contractors bid work streamline the estimating process. Another issue is failing to provide the contractor with all referenced files. If the DOT provides contractors with all the necessary data in a logical format, the prime (excludes bids from subs) can complete an estimate in one day. During the construction phase, contractors are able to make efficient use of the 3D model. For example, Mr. O'Mara stated that he can't recall the last time a stake was installed for the contractor's use. Stakes are typically only used if the owner wants it for their own purposes. The main challenges with 3D models remains the same during construction, the contract needs complete data, logical layer names, etc. Mr. O'Mara concluded his presentation with a call to action. He urged owners to begin the journey toward change, stressed that change is necessary and prevailed upon the

audience to standardize data procedures and make use of technology that contractors are using today.

- Q.** A question was raised on point cloud data: contractors are saying they need raw point cloud data. Some states don't want to release this information. What do you use?
- A.** Right now this is new in Michigan, but contractors need that information. The owner invested in that survey make the best use of that information and it pass along to contractor. The data is necessary, but it must be logically named so the contractor can interpret it.
- Q.** What is response when you find error in the field with digital data?
- A.** Technology nowadays almost eliminates that. It is not a perfect system but that is what force accounts are for.
- Q.** Have there been any compatibility issues?
- A.** We have not done a job were the DOT has furnished the files. You can convert the data. If the DOT standardizes and the contractor does not have the right equipment to utilize the data, he will change equipment in order to survive.
- Q.** Occasionally designers will make mistakes. When do you feel it is responsible to inform the owner that you have discovered an error?
- A.** If you don't find it prior to bid, bring it up at the preconstruction meeting. You have to collaborate.
- Q.** We provide electronic data for information only – does that help contractor or not?
- A.** If the file is right, yes. Sometimes they are missing properties or are hard to decipher. You need to spend more time in design to ensure that there are no errors. Would you rather spend \$125 per hour in engineer time or shut down a \$10,000 per hour crew?

At the conclusion of the session Ms. O'Brien made announcements about the departure time for the technical tour. The meeting was adjourned for lunch at 12:00 pm, and was followed by the technical tour.

Thursday August 15, 2013

8:00 AM – 11:00 AM - Environmental & Human Resources General Session

Ms. O'Brien called the meeting to order at 8:00 am. Mr. Leja introduced the first presenter of the day, **Ms. Marie Venner** of the Venner Consulting who delivered a presentation on **Leading in Lean Times**. See her [presentation](#) for details. Her presentation opened with an overview of the funding and human capital challenges faced by DOTs since 2011. Next, Ms. Venner discussed leadership imperatives, including managing yourself, managing your team and managing your system, before reviewing how leadership theory concepts that have evolved over the last 20 years. She followed this review by addressing challenges with leading recent graduates of the millennial generation, stressing their need for continual, less formal feedback.

Ms. Venner then discussed how agencies are coping with the challenges before them. Many are undertaking major transformations to confront new funding and resource realities. Ms. Venner described eight steps for successful transformation:

1. Establish a sense of urgency: Figure out what your burning platform is. It should be something that is worth changing.
2. Form a powerful guiding coalition: If 75% of top managers buy-in the transformation has a high likelihood of succeeding.
3. Create a vision to direct change and a strategy to achieve it.
4. Communicate, communicate, communicate: Under-communicating is one of the most common errors made by management.
5. Empower action: eliminate obstacles to change or structures that undermine the vision. Be strategic about addressing obstacles. Encourage risk taking, and non-traditional ideas and actions.
6. Plan for and create short-term wins: These provide data to show the path towards success.
7. Consolidate and produce still more change.
8. Institutionalize new approaches.

Ms. Venner stated that doing more with less requires evaluation of your processes: thinking about what not to do, what takes extra time, what did we used to do that we might not need to do in the future, etc. Focusing on the most important things will also involve saying no to things we want to do.

Employee motivation is based on degree of autonomy and choice, mastery and purpose. People do their best work when they're unencumbered and have to the ability to choose what tasks are performed and how they are completed. They excel if given the ability, freedom and opportunity to get better and better at something that matters. Employees with a sense of purpose yearn to contribute, to serve something larger than ourselves.

Following her general remarks, Ms. Venner shared how various SOC member states have dealt with their challenges over the last five years. She began by describing the MoDOT Bolder 5 Year Direction. The size of the MoDOT program was cut in half and staff size was reduced 20% of staff by fall 2012. The MoDOT Tracker system focused on achieving results with the resources available. The opportunity to stand in front of their peers and demonstrate their actual accomplishments was viewed as a motivator for staff. MoDOT learned lessons during this time, for example communication is even more important in tough times. People fill in the gaps, it is important to "give them the truth before they make it up." The focus on performance measures let the data talk, and then the best performers were asked to share their successes. Ms. Venner noted the need to reevaluate performance metrics to verify that the metrics lead to changed behavior and are being used. Washington DOT is in the midst of a ten year hiring freeze and has lost talented employees; Alabama has lost ten percent of its staff. Texas DOT is also losing employees, but for a different reason. They are being drawn to high-paying jobs in the oil sector and have had to offer financial incentives to retain employees. West Virginia is concerned about morale in lean times. They have focused on reevaluating processes and deploying technology to do more with less. West Virginia has seen that moral improves when

processes improve and better technology is brought to bear. Utah DOT has lost 60 positions. A strategy to cross-train staff and assume national leadership rolls keep projects moving and staff motivated. Utah acknowledged that change is the essence of leadership. You can resist change and die, you can adapt to change and survive or you can lead change and thrive.

Michigan DOT has lost 15% of its staff, a total 450 positions including 80 supervisors. MDOT stresses the importance of listening to employee feedback, especially during lean times. Focusing on innovations keeps people thinking about their role in an organization, about the work process and on making the system work well.

Ms. Venner concluded her presentation by noting a few themes that are evident in how DOT's are dealing with challenges. Successful DOT's are taking a fresh look at processes, finding ways to institutionalize involvement, embracing the demands of the day and doing more with less through innovation.

Following her presentation, Ms. Venner moderated an open discussion on leading in lean times. Ms. Fran Hood stressed the importance of being the optimist in the room; it is important for a leader to be a cheerleader. A delegate from Tennessee DOT described how they initially responded by making greater use of consultant CEI services. Now they are hiring back in-house inspectors. They recently hired 60 new graduates and are cross training so construction staff can support snow removal in winter. Their goal is to reestablish the core competency of in-house staff. Michigan DOT described their restructuring that led to a loss of staff. The contracting community started to notice inconsistencies around the state. In response Michigan DOT created alignment teams to look at specifications, and processes statewide to ensure that policies and procedures were applied consistently across the state.

Following this discussion, Mr. Leja introduced the next speaker of the morning, **Mr. Tom Harman**, FHWA, who made a presentation on **Quantifying the Environment Impacts of Pavements**. A copy of his presentation was not available at the time that the minutes were prepared. He began by quoting David Bower, Founder of the Sierra Club, "We don't inherit land from fathers – we borrow it from our children." He also quoted Peter Drucker, "if you can't measure, you can't manage it" and Thomas "Chief" MacDonald, "there is no one perfect pavement – a pavement should meet the needs of the community and no more." With these statements in mind, Mr. Harman reviewed various statistics about the environmental impact of roads to determine where the greatest opportunities exist, within our control, for reducing environmental impacts. Mr. Harman noted that 380 million tons of HMA were placed in the United States in 2011, releasing 8 million tons of carbon dioxide emissions into the atmosphere. The increased use of warm mix has led to a reduction in emissions related to road construction. Next, Mr. Harman reviewed fuel economy vehicular emissions statistics. He demonstrated the impact of various pavement systems and surface characteristics on fuel economy, documenting that rolling resistance has a significant effect on fuel economy, which in turn impacts emissions. Rolling resistance accounts for one-third of fuel consumption, and 25% of rolling resistance is attributable to the characteristics of the roadway, including roughness and mega texture. Using the MIRIAM model, Mr. Harman calculated a 10% change in rolling resistance leads to a 3% change in fuel consumption. Upon reviewing IRI data for the entire NHS, Mr. Harman concluded that improving the ride on the 2% of the NHS would result in \$900 million per year in annual fuel savings nationwide. Conversely, allowing 2% of the NHS to become rough would

cost \$900 million per year. Given the significant environmental, not mention economic impacts, that ride has, Mr. Harman expects that in the future it will become a factor in the NEPA process. Mr. Harman concluded his presentation by advocated for longer lasting, smoother roads.

At this point Mr. Hoyne moderated another state discussion topic session on ADA requirements. Mr. Wlaschin reminded delegates that FHWA is sponsoring webinars on ADA compliance. Jim McDonnell of AASHTO has sent emails to committee members with the details of the webinars. Representatives from Delaware DOT reported that their agency has been struggling with ADA and is trying to understand what the requirements are as well as the basis for project acceptance. Mr. George Raymond of Oklahoma DOT agreed that this issue impacts construction. Mr. Raymond questioned the logic behind the FHWA-DOJ ADA chart and the requirements that trigger the need to address ADA. Mr. Chris Costello of DeIDOT asked delegates to share their best practices for using smart levels to measure the slope, noting that smart levels don't account for surface variation. Michigan DOT reported that they use of 4-foot smart level and that there is no tolerance on the slope. If a slope is found to exceed 2%, that portion is removed and replaced. Mark Leja reported that Caltrans is changing standards in response to the stringent requirements, reducing their standard cross slope to 1.75% max in order to create a construction tolerance and ensure that cross slopes are less than 2%. A delegate from Alabama reports that this is frequently an issue on local public agency projects. Alabama DOT recently adopted a standard cross slope of 1.5% in order to stay under 2% maximum. Then discussion turned to certification of ADA related projects. Mr. Leja reported that in California, both the project engineer and the resident engineer must certify that job was constructed in accordance with ADA. A delegate from New Jersey reported that the contractor is held responsible for complying with ADA requirements on slope and suggested testing the forms for cross slope prior to placing concrete. Mr. Costello pointed out that measure the slope on the forms may have some benefit, but surface irregularities can cause the finished surface to be out of tolerance. A suggestion was made to check cross slope as the concrete surface is finished.

At this point, a 15 minute break was taken.

Mr. Leja introduced the next speaker of the morning, **Mr. Rob Wight**, Utah DOT, who made a presentation on **Work Zone Safety Practices**. See his [presentation](#) for details. Mr. Wight began reviewing work zone fatalities, noting the decline in fatalities over recent years. Then Mr. Wight reviewed new provisions in MAP-21 that change the rules on use of positive protection. The key distinction is current language stating that positive protection strategies "*shall be considered*" has been changed to "*are used.*" Next, Mr. Wight reviewed the results of the Work Zone Safety survey conducted this year. See the survey and presentation for details of the questions. In general, there was good participation for the survey, with 29 states responding. The survey found that:

- Designers typically design the work zone;
- It is the contractor who is primarily responsible for work zone safety, but the inspection staff also has responsibility to ensure safety;
- Eight states reported that they have work zone safety manuals;
- Several states have specific statewide work zone safety personnel.

At this point, Mr. Chris Brooks of Michigan DOT spoke about their statewide approach to work zone safety. In Michigan, a field technician collects field information on work zones, while the office staff develops specifications and shares best practices. This approach helped MDOT develop uniform work zone safety practices.

Mr. Wlaschin inquired if the survey addresses safety within the work zone, or just providing protection from motorists. Mr. Wight responded that the survey addresses both topics before continuing to share the findings:

- Seven DOTs reported that design tends makes decision on use of positive protection, while fourteen reported that both design and construction participate in making that decision.
- Thirteen States reported that traffic control and positive protection are typically bid as separate items, five bid traffic control items as lump sum, two states use either approach.

Mr. Wight paused his review of the survey results to share three examples of good publications related to work zone safety:

- Alabama has developed a positive protection warrant guide. Alabama DOT established the warrant guide after receiving guidance from FHWA. The process provides Alabama DOT with choices and seems to be working. The guide consists of a chart that assists designers in selecting appropriate measures for speeds over 45 mph.
- Colorado has published guidelines for the use of positive protection in work zones. The guide covers exposure control measures, warrants and engineering study analysis.
- Virginia DOT has published a work area protection manual. The manual outlines a seven step process to select appropriate measures and is a comprehensive work zone safety manual.

Additional survey findings include:

- States have varying training requirements before a contractor can be perform work in a work zone. Some states require OSHA training; some require work zone training provided by the DOT. Others require the contractor or a third party to provide training, and some don't have such requirements.
- States requirements for DOT staff training also vary. Sixteen states reported that employees must receive DOT provided training before they are allowed to enter work zones. Ten required OSHA training. Five rely on third party training, such as ATTSA training and four have no training requirements for employees.
- States rely on a variety of resources for ensuring safety enforcement or verification in work zones, including construction inspectors, dedicated safety inspectors, state or federal safety administration inspectors, owner controlled insurance programs, contractor safety managers, or some combination of these approaches.
- Methods of verifying compliance with traffic control requirements include the use of logs (reported by thirteen states), one state uses video recordings, and several states

use forms, check lists and daily diaries to document compliance. Seven states did not report any verification methods. Virginia DOT submitted a good example work zone safety checklist.

- Several states shared best practices, including taking advantage of ATSSA training, the ATSSA Work Zone Positive Protection Tool Box, and ATSSA/FHWA training on minimizing worker exposure.

After completing his review of the survey results, Mr. Wight discussed some factors to achieve successful implementation of best practices. It is important to establish clear expectations and provide training to inspection staff and contractors. Management should support a culture of safety and empower both DOT and contractor personnel to make changes in the field to enhance safety. Mr. Wight suggested some ideas to improve work zone safety, including involving the contractor in design of certain aspects of the work zone. This can be of benefit because the contractors understand phasing and means and methods better than design staff. Alternative contracting mechanism can bring about innovation in traffic control. Bidding traffic control lump sum rather than as individual items also allows innovation. Mr. Wight also suggested engaging construction personnel during the design of a work zone, utilizing performance specifications and developing specific training.

After the presentation, Mr. John Obr of Texas DOT informed delegates that in the past year TexDOT has worked with the Texas AGC to set up a work zone safety task force. Task force members include division directors, division engineers, as well as representatives from the Texas Department of Safety and law enforcement. The task force has created the concept of a safety preconstruction meeting. The meeting brings together local law enforcement, designers, CEI staff and the contractor at the onset of a project. It provides an opportunity to review the plans and modify them to improve safety and operations. TexDOT sets aside two to three percent of the project cost up front to make tweaks to improve work zones. This upfront funding streamlines approval of safety improvements.

Questions from the audience included:

- Q.** Mr. Banks noted that we think of concrete when we think of positive protection. There are barriers made of other materials, such as Vulcan barriers. Mr. Banks inquired if anyone was using these barriers.
- A.** Michigan DOT is rewriting there concrete barrier special provision to include all types of barriers, eliminating references to concrete. MDOT will allow any barrier that is approved and is compliant.
- Q.** Mr. Cawley commended SOC for their work on this survey. He inquired what additional steps SOC will take.
- A.** Mr. Wight responded that the next step was to further investigate the training aspects of work zone safety to identify what training resources are available and how to make workers safer in the work zone.

Mr. Leja then introduced **Dr. Thomas Sanquist**, Pacific Northwest National Laboratory, to make a presentation on **Improving Worker Safety by Identifying and Reducing Fatigue on Projects with Accelerated Delivery Schedules**. See his [presentation](#) for additional details. He defined

the problem of worker fatigue and identified tools for fatigue risk management. Fatigue discussion must begin with discussion of sleep. Fatigue effects are seen across industries. The effects of fatigue are similar to the effects of alcohol. Losing one night of sleep is same and being legally impaired with alcohol. The impacts over worker fatigue include injuries, and commuting accidents. Loss of productivity is another impact, the magnitude of which is similar to influenza.

Dr. Sanquist dispelled some common myths about fatigue:

- It is inevitable;
- It can be overcome through force of will;
- Napping is not acceptable in the workplace;
- Everyone has enough time off for recovery, and;
- Fatigue management is a personal, rather than management, responsibility.

The goal of Dr. Sanquist's work is to change how we manage fatigue in the workplace. Dr. Sanquist asserts that fatigue management is everyone's job, just like safety is.

Dr. Sanquist explained that two fundamental factors affect fatigue, including our biological drive for sleep and circadian rhythms. Sleep loss results in increased drive for sleep. Due to circadian rhythm, our alertness varies throughout day. For example, most people are unable to sleep between 6 PM and 9 PM. People tend to wake up by 1 pm despite working all night.

Dr. Sanquist reviewed statistics from studies of worker fatigue associated with accelerated construction projects. On a typical weekend road closure, workers on the site had gone more than eleven days without a day off and sixty-seven percent of workers report feeling sleepy. These rates are more than twice those for projects with normal construction schedules.

Research shows that it takes longer than a week to recover from losing just a few hours of sleep. This means that cumulative fatigue is problem to watch out for. Workers on the nightshift experience more than twice the peak fatigue of other workers. This is because of the tendency to wake up in early afternoon no matter when time you went to bed. Naps have been proven to be effective in reducing fatigue. A person needs 7 to 9 hours of sleep, or 1 hour of sleep for every 2 hours of wakefulness.

An upcoming TRB report will include counter measures to combat fatigue on construction sites. The counter measures include preventive and operational tools. Some of the most effective tools to combat fatigue include additional sleep, defensive napping, good sleep environments, limited overtime and work schedule modifications, caffeine, napping, and anchor sleep. Anchor sleep is a strategy to break 7 to 8 hours of sleep into 2 separate long naps, and is commonly used in shipping (e.g. 4 hours of sleep followed by an 8 hour watch).

Dr. Sanquist offered tips for managing fatigue at work. Caffeine is an effective tool to boost alertness for several hours. It works in about 20 minutes and lasts for about 5 hours. Timing is important; caffeine is most effective when used in the mid-afternoon on day shifts or in the middle of a night shift. It is also effective right before a nap at work. The effects kick in as the

nap ends. It can also be useful during a meal break. Care should be taken not to consume caffeine too close to bed time or in large amounts. Twenty to thirty minute naps significantly improve alertness. A ten minute emergency nap is less effective but still beneficial. When napping at work, it is important to make sure that the nap environment is safe and that naps are not used to extend the work shift. Anchor sleep is also effective when you plan your schedule for it. Dr. Sanquist shared suggested anchor sleep schedules. See his presentation for details.

Fatigue can't be eliminated but there are steps managers can take to fatigue-proof their workers. Supervisory oversight is important to assess workers and ensure that they are not fatigued. Written procedures and checklists can help with oversight. Self and peer monitoring can be used to detect fatigue. Extra personnel or varying tasks throughout the shift may be required. Allowing and scheduling nap times will reduce fatigue, as will developing work schedules that account for fatigue buildup. Some companies provide transportation assistance to ensure that workers get people home safely at the end of the shift.

Dr. Sanquist concluded his presentation by appealing for DOT participants to take part in a pilot study in 2014.

Questions and comments from the audience included:

- Q.** Do any states have policies on limiting the number of hours an employee or contractor can work?
- A.** Utah does not have such requirements for contractors. Snow plow drivers can't work more than 14 hours in a row without approval. Utah DOT has observed that on projects with weekend closures, contractors will use same crew all weekend and deploy napping to combat fatigue. This is likely because the penalties for not completing on time are huge.
- Q.** Can you comment on how this relates to R03?
- A.** R03 is taking the material into deployment; making consultants and contractors aware of this issue.

The next speaker was **Mr. Mark Chaput**, Michigan DOT, who provided an update on the **Training Survey and TCCC Status**. See his [presentation](#) for details. The training survey asked members of three subcommittees (Construction, Maintenance and Materials) to share information about training approaches, gaps in training resources, willingness to partner with others to develop training and familiarity with the Transportation Curriculum Coordination Council (TCCC). The survey garnered 150 responses, including 32 from Construction, 26 from Materials, and 28 from Maintenance. The survey found that:

- 64% of states use online training. Of those,
 - a. 70% report that between 0-25% of their training material is available online;
 - b. 15% report that between 26-50% of their training material is available online;
 - c. 2% report that greater than 51% of their training material is available online, and;
 - d. 67% would like to see more instructor led training converted to online training.

- 70% of respondents were familiar with TCCC, but only 16% use TCCC in their training curriculum.
- 70% were willing to work with TCCC to develop new courses and 14 states identified 37 subject matter experts who could assist with course development.
- SOC members responding to the survey identified over 50 potential course needs, including courses related to:
 - a. Paving inspection;
 - b. Signal inspection;
 - c. Spec writing and interpretation;
 - d. Project scheduling;
 - e. Contract admin and record keeping;
 - f. Pile driving and drilled shaft construction, and;
 - g. Construction of ITS infrastructure.

Mr. Chaput concluded his presentation by advocating for greater support and use of TCCC. The program is transitioning from an FHWA pooled fund effort to a new AASHTO technical service program. Supporting TCCC allows a state to leverage its course development dollars, reduce duplication of effort, take advantage of sharing best practices, and obtain access to the vast training resources.

Questions and comments from the audience included:

- Q.** Mr. Sadler inquired if there was any one place where all courses offered by states are posted?
- A.** At one time the national transportation training resource had this information, unfortunately it no longer exists. However we are exploring ways to reestablish it.
- Q.** Will TCCC modify a course to suit the needs of a particular state?
- A.** As we develop courses, we try to gather best practices and develop a national course. We encompass 80% of what all states do. States would have to provide a supplemental component to address their specific needs. The courses are not editable; a state would need to create a separate course or additional material to fill that gap.
- Q.** Is this survey data on training needs collected from construction only or across DOT functional areas?
- A.** The survey polled members of AASHTO subcommittees on Construction, Maintenance Materials.
- Q.** A delegate from Pennsylvania stated that the federal government can't hold a copyright, however states can. What kind of entity is the TCCC?
- A.** The TCCC has received federal funds to date. As discussed earlier, the TCCC does not want the basic course content changed. TCCC material is not copyrighted yet. While the material has been made available, TCCC has not been releasing source files. There may be different rules now that TCCC is migrating to AASHTO. This issue bears further discussion in the EHR section meeting.
- Q.** Is there a mechanism to provide automatic notification of new courses?
- A.** Currently the National Highway Institute does the marketing. There is a need for more discussion within SOC on the training that is needed and a more active plan to develop and market the curriculum.

This was the final presentation of the conference.

11:30 AM – 12:00 PM - Chair Topics

Mr. Lewis had to depart the conference early, so the session on Chair discussion topics was not held. Instead, Mr. Sadler played additional videos of the Miami Tunnel project. The videos depicted tunnel liner ring casting operations, installation of the tunnel liner rings, and the breakout ceremony when the TBM completed the first bore. This prompted additional questions from the audience about the project:

- Q.** What kind of reinforcing steel is used in the tunnel liner rings?
A. Conventional uncoated rebar was used. The liner rings have 3” of cover and are further protected by an additional 8” sand cement grout.
- Q.** You mentioned that you grouted weaker geological formations to strengthen them. How did you accomplish this with the TBM?
A. The grouting was done from above prior to the boring operation.

Next, Mr. Hoyne moderated an addition session on state discussion topics.

The first topic related to percent within limit (PWL) specifications. How have states transitioned to PWL specifications? Mr. Sadler reported that FDOT moved to PWL with the change to Superpave. About half of the states present reported using PWL specifications. Ms. O’Brien reported that Michigan DOT has used PWL specifications for a number of years, beginning with a longitudinal joint density pilot project about 10 years ago. Michigan DOT proceeded deliberately, starting with transition pilot project. Recently, MDOT has started to use PWL for concrete. The challenge so far has been finding space for cylinder storage. About ten states present indicated that they use PWL for HMA only, while only a few reported using it for both HMA and concrete. The Ontario Ministry of Transport reported that they have used PWL for 20 years. The Ontario MOT delegate recalled that one of the challenges they faced was educating staff in statistics.

The next topic was on commercial useful function. How do states verify that the commercial useful functions are being met a project level and who is responsible? Mark Leja responded that in California, most of the burden in CA falls on the field staff, who use diary entries to document interviews of subs and employees. Caltrans field staff checks payrolls and documents this in the IDR, which is verified with certified payroll. Additional follow-up is done by dedicated labor compliance personnel. Mr. Hoyne reported that the VAOT process is similar to the one Caltrans uses; field staff completes the paperwork and forwards it to the civil rights section. Alabama DOT begins with submittal of the DBE plan at bid. Once everything is in place and the plan is approved, compliance is monitored with field staff. PennDOT reported that a number of DBE argue whether they should be considered suppliers or subs. In Michigan responsibility for this function is transitioning from the Office of Business Development to field staff.

At this point, the meeting was adjourned for lunch. Section Meetings followed.

3:15 PM – 4:00 PM - Closing General Session and SOC Business Meeting

At the start of the session, Ms. O'Brien acknowledged the staff at MDOT who have been instrumental in making the conference a success. Then the Sections were asked to report on their planning for next year's presentations at the SOC Summer Meeting in Portsmouth, New Hampshire. The notes for these potential presentations are included in the individual section reports, which are in the Appendix of these minutes. The Sections were represented by their respective leaders as follows:

- Environmental & Human Resources Section: Mr. Mark Leja, Caltrans, Section Chair, announced that Ms. Fran Hood of Idaho will assume the position of Section Chair. Mr. Jeff Shapiro of Nevada will assume the position of Vice-Chair. Mr. Jeff Lewis of FHWA will continue to serve as Secretary. Mr. Shapiro and Mr. Jeff Carpenter will represent the section on the research committee. Mr. Mark Chaput and Mr. Todd Rumbaugh will work on TCCC.

During their meeting, the section reviewed proposed work plan items, including surveys on:

- Field performance testing of temporary BMP's;
- Payment practices for temporary sediment control measures, and;
- Best practices when handing off BMP's to maintenance.

Mr. Leja also reported that the section will continue its outreach with SCOE. The section also section hopes to tap into the TRB task force on knowledge transfer to look for best practices. Section members will continue to work on the transition of the TCCC to AASHTO. Mark Chaput will participate in an NCHRP study for training. The section will follow up on OSHA on their plans for enhanced safety inspections. Section members also plan to obtain a copy of the SHRP2 R03 – Fatigue Risk Management Guide and share it with SOC members. The Section will evaluate the Roadway Safety + training and report their findings.

Mr. Leja discussed possible presentations to be delivered during the next annual meeting, including presentations on the OSHA Work Zone Mandate, positive barriers, an annual TCCC update, TXDOT's journey towards a safety culture, a report on the NHCRP 10-91 guide book on selecting and implementing sustainable highway practices and a presentation on knowledge transfer from TRB.

- Computers & Technology Section: Mr. Emanuel Banks, Arkansas Highway & Transportation Department, Section Chair reported the section reviewed their slate of presentations from the current meeting during the committee meeting. The section also reviewed strategic plan and their work plan and will ensure that the work plan for the coming year supports the strategic plan. Monthly conference calls were scheduled and Mr. Tom Rayburn provided the section with a report on the Research Committee

meeting. Mr. Banks concluded by noting that the section also discussed possible leadership transitions, however Mr. Banks will continue as chair for one more year.

- Contract Administration Section: Mr. Lou Cannon, Connecticut DOT, reported on the CA Section's meeting. He reviewed several potential presentations, including:
 - a CMGC case study;
 - Reducing contractor liability from contractor perspective;
 - What adds cost without adding value;
 - Fraud awareness, and;
 - Emergency contracting experiences from Vermont and New Hampshire.

Mr. Cannon also reviewed three proposed work plan items, including:

- Survey on partnering specifications and special provisions;
 - Survey on restocking fees associated with eliminated work, and;
 - Force account work.
- Roadways & Structures Section: Mr. David Ahlvers, Missouri DOT, Section Chair, reported on the Section's review of proposed research projects, including projects related to:
 - Erosion control;
 - Emergency contracting, and;
 - Prefabricated Elements.

Mr. Ahlvers reviewed the section work plan, includes items related to:

- PBES;
- Risk Based inspection;
- Porous pavement;
- Grinding bridge decks;
- Bridge deck and pcc cracking, and;
- MSE walls.

Mr. Ahlvers reported that Mark Mastornardi (Georgia DOT) was nominated as the new Section Chair. Mr. Kevin Christensen (Montana DOT) was nominated as the new Vice Chair (Roadways) and Mr. Robb Stott was nominated as the new Vice Chair (Structures). Mr. Anthony Sarhan (FHWA) will continue to serve as secretary.

Mr. Ahlvers concluded by noting potential presentations for the next annual meeting, including presentations on the Sara Mildred Long project and on New Hampshire and Maine border bridge projects.

The final Section Meeting minutes and reports are in the Appendix of these minutes.

SOC Business Meeting

Discussion then turned to the business portion of the meeting. A quorum was present.

The first issue raised was selection of a host state for the 2016 meeting.

Mr. Jeff Shapiro of Nevada DOT took the floor to advocate for Nevada to host the meeting. He played a promotional video for Las Vegas and another one for Reno and listed the advantages of hosting a meeting in either Las Vegas or Reno. If the event were to be held in Las Vegas, technical tours could include tours of both Hoover Dam and the Mike O'Callaghan-Pat Tillman Memorial Bridge. The first PPP project in Nevada, Project Neon, would be underway at the time of the meeting could also host a technical tour. Mr. Shapiro reported that the Subcommittee on Materials held their conference in Reno last week and added that if the meeting were to take place in January, it would coincide with ski season. A potential technical tour in the Reno area could be to visit I-580 to Carson – largest cathedral type arch structure in northern hemisphere.

Mr. David Hoyne took the floor on behalf of **Mr. Kevin Christensen** of Montana. Mr. Hoyne played a promotional video in support of Montana as host of the meeting. He noted the contrasts between Nevada and Montana. If Montana were to host the meeting, it would be held in the Flathead Valley near Kalispell. Amenities in the area include zip line tours, alpine slides, aerial tree top walks, five championship golf courses, the largest freshwater lake west of the Mississippi and fly fishing on the Middle Fork Flathead River. Kalispell is close to Glacier National Park and Going-to-the-Sun Road would be an interesting technical tour.

Mr. Mark Straub of Colorado took the floor to advocate for Colorado to host the meeting. Denver, the likely host city, is surrounded by 56 "14ers", or peaks in excess of 14,000 feet. Many attractions in Colorado are related to the peaks. The Eisenhower Tunnel, 1.5 mile tunnel on I-70 would be a likely technical tour. Other potential tours could include the traffic operation center in Golden or tours featuring the rock-fall and avalanche programs. Other area attractions include the Coors brewery, an amusement park, Mile High Stadium, the United States Mint, the Air Force Academy and Red Rocks amphitheater.

The votes of committee members were tallied and it was decided to host the 2015 meeting in Montana.

Next Mr. Hoyne played a promotional video for Portsmouth NH, site of next year's annual conference. Mr. Hoyne noted several bridges in the Portsmouth area, including a truss that was damaged by a ship that broke free from its mooring. The meeting dates are from 8/10/14 to 8/15/14.

Mr. Hoyne reminded attendees that Mr. Dean Testa was looking for volunteers to provide information on optimal construction practices and encouraged delegates to contact Mr. Testa.

Mr. Hoyne noted that sign-up sheets for the airport shuttles are available at the desk. The purpose is simply to put you in contact with others leaving at the same time. You need to make your own travel arrangements.

Mr. Hoyne informed delegates that a list of attendees will be posted as part of the meeting minutes, which will be posted online. Anyone with reservations about this should contact the Executive Committee.

The next topic related to the 2008 Guide Specifications. The Committee will need to make decisions in the coming year about updating the guide spec. Please submit any ideas regarding the update to the Executive Committee prior to the September conference call.

Next, Mr. Hoyne moderated a discussion on NCHRP 10-85 – A Guidebook for Construction Manager-at-Risk Contracting for Highway Projects. He asked members of the committee if there was interest in developing the Guidebook into an AASHTO guide, in advance of offering a motion to do so. Publishing the content as an AASHTO Guide may carry more weight for states that are working through legislative authorization for CMGC. A representative from PennDOT noted that because contracting is left to states, it is not a federal issue and did not necessarily agree with the thought that creating and AASHTO publication would lead to enabling legislation. Eight states present reported having enabling legislation. Eight states also reported not having legislative authority for CMGC. Emanuel Banks inquired about the process needed to publish an AASHTO Guide Specification. Greta Smith responded that the committee would have to create a draft document first. The Subcommittee on Construction would then need to review and ballot the document before forwarding it (if approved) to the Standing Committee on Highways, which would also review and ballot the document. Mr. Banks noted that the committee members have not had an opportunity to review the content of the NCHRP publication. Ms. Smith clarified that the motion is to move to review the contents. Balloting on whether or not to publish an AASHTO Guide would occur after the SOC had further investigated the contents and was ready to make a decision. Another delegate asked if AASHTO had published a similar guide on Design-Build, to which Ms. Smith replied affirmatively. A delegate from DelDOT expressed concern that publishing a detailed guide spec might reduce the flexibility of states to tailor the specifications to their own needs and circumstances. Ms. Hood replied that the Design-Build Guide is simply a compendium of information and suggested that since such a guide exists for DB, it makes sense to publish one for CMGC as well. Mr. Hoyne queried the delegates to determine if there was opposition to exploring the idea further. The consensus of those present was to continue to explore the concept in the coming year.

Finally, Mr. Hoyne announced the arrangements for the evening's annual banquet and business meeting, and then the meeting was adjourned at 4:21 pm.

APPENDICES

Appendix A – AASHTO SOC Officers, 2012-2013 and 2013-2014

Appendix B - Meeting Attendance List

Appendix C – Contract Administration Section Report

Appendix D – Roadway and Structures Section Report

Appendix E – Computers and Technology Section Report

Appendix F – Environment and Human Resources Section Report

Appendix G – Research Steering Committee Report

Appendix H – SOC Resolutions

- AASHTO Subcommittee On Construction Recognizing the Michigan Department of Transportation, Host of the 2013 AASHTO SOC Summer Meeting in Detroit, Michigan

Appendix A

AASHTO SOC Officers 2012-2013 and 2013-2014

AASHTO Subcommittee on Construction Officers AASHTO Subcommittee on Construction Officers 2012 - 2013

Administration	Chair	Vice Chair	Vice Chair-Elect	Secretary
Administration	Michael Lewis, RIDOT mlewis@dot.ri.gov 401-222-2481	David Hoyne, VT DOT – STR David.Hoyne@state.vt.us 802-828-2593		Julius (Butch) Wlaschin, FHWA Butch.Wlaschin@dot.gov 202-366-9486 Tim Cupples, FHWA (Asst.) Timothy.Cupples@dot.gov 202-366- 1342

Sections	Chair	Vice Chair(s)		Secretary
Computers & Technology	Emanuel Banks, Arkansas HTD emanuel.banks@arkansashighways.com 501-569-2221	Donald Greuel, WisDOT donald.greuel@dot.state.wi.us 608-267-7774		John Seabrook, FHWA Richard.Seabrook@dot.gov 202-366-9490
Contract Administration	Brenda O'Brien, MIDOT obrienbj@michigan.gov 517-322-1085	Andy Long, WY DOT andy.long@wyo.gov (307) 777-4425	Lewis Cannon, ConnDOT lewis.cannon@ct.gov (860) 594-2680	Jerry Yakowenko, FHWA Gerald.Yakowenko@dot.gov 202-366-1562
Environment & Human Resources	Mark Leja, CalTrans Mark.Leja@dot.ca.gov 916-654-2157	Frances Hood, Idaho TD Frances.hood@itd.idaho.gov 208-334-8426		Jeff Lewis, FHWA Jeff.Lewis@dot.gov 916-498-5035
Roadways & Structures	David Ahlvers, MODOT david.ahlvers@modot.mo.gov 573-751-3689	Mike Ricca, LADOT – RDWAY Mike.ricca@la.gov 225-379-1563	David Hoyne, VT DOT – STR David.Hoyne@state.vt.us 802-828-2593	Anthony Sarhan, FHWA Anthony.Sarhan@dot.gov 360-753-9412
Research Steering Committee	Jeff Carpenter, WSDOT carpenj@wsdot.wa.gov (360) 705-7821			Katherine Petros, FHWA Katherine.Petros@dot.gov 202-493-3154

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

Michigan DOT Contact: - 2013 Annual Meeting: Brenda O'Brien, State Construction Engineer, 517-322-1085

AASHTO Subcommittee on Construction Officers AASHTO Subcommittee on Construction Officers 2013 - 2014

Administration	Chair	Vice Chair	Vice Chair-Elect	Secretary
Administration	Michael Lewis, RIDOT mlewis@dot.ri.gov 401-222-2481	David Hoyne, VT DOT – STR David.Hoyne@state.vt.us 802-828-2593		Julius (Butch) Wlaschin, FHWA Butch.Wlaschin@dot.gov 202-366-9486 Tim Cupples, FHWA (Asst.) Timothy.Cupples@dot.gov 202-366- 1342

Sections	Chair	Vice Chair(s)		Secretary
Computers & Technology	Emanuel Banks, Arkansas HTD emanuel.banks@arkansashighways.com 501-569-2221	Donald Greuel, WisDOT donald.greuel@dot.state.wi.us 608-267-7774		John Seabrook, FHWA Richard.Seabrook@dot.gov 202-366-9490
Contract Administration	Brenda O'Brien, MIDOT obrienbj@michigan.gov 517-322-1085	Andy Long, WY DOT andy.long@wyo.gov (307) 777-4425	Lewis Cannon, ConnDOT lewis.cannon@ct.gov (860) 594-2680	Jerry Yakowenko, FHWA Gerald.Yakowenko@dot.gov 202-366-1562
Environment & Human Resources	Frances Hood, Idaho TD Frances.hood@itd.idaho.gov 208-334-8426	Jeff Shapiro, Nevada DOT jshapiro@dot.state.nv.us 775-888-7065		Jeff Lewis, FHWA Jeff.Lewis@dot.gov 916-498-5035
Roadways & Structures	Marc Mastronardi, GADOT mmastronardi@dot.ga.gov 404-631-1971	Robb Stott, Caltrans Rob.stott@dot.ca.gov 916-227-7777	Kevin Christensen, MDT kechristensen@mt.gov 406-444-6008	Anthony Sarhan, FHWA Anthony.Sarhan@dot.gov 360-753-9412
Research Steering Committee	Jeff Carpenter, WSDOT carpenj@wsdot.wa.gov (360) 705-7821			Katherine Petros, FHWA Katherine.Petros@dot.gov 202-493-3154

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

New Hampshire DOT Contact: - 2014 Annual Meeting: TBD

Appendix B

Meeting Attendance List

2012 AASHTO SOC Annual Meeting Registered Attendees

First Name	Last Name	Title	Company	Work Phone	Email Address
David	Ahlvers		Missouri DOT	(573) 751-3689	david.ahlvers@modot.mo.gov
Alden	Allen	Fabrication Engineer	LA Dept. Of Transportation	(225) 379-1563	alden.allen@la.gov
Julio	Alvarado	Assistant State Engineer- Construction	Arizona Department of Transportation	602-712-7323	JAlvarado@azdot.gov
Stuart	Anderson	Professor	Texas Transportation Institute	979-845-2407	s-anderson5@tamu.edu
Gary	Angles	Construction Engineer	Ohio DOT	614-466-7057	Gary.Angles@dot.state.oh.us
Emanuel	Banks	Asst. Chief Engineer- Operations	Arkansas Highway Department	(501) 569-2221	emanuel.banks@ahtd.ar.gov
Mick	Bartholomew		Atkins North America		mick.bartholonew@atkinsglobal.com
Kerry	Bates	Assistant State Construction Engineer	Virginia Department of Transportation	804.371.4312	kerry.bates@vdot.virginia.gov
Jeff	Benefield	Road Construction Engineer	Alabama Department of Transportation	334-242-6213	benefieldj@dot.state.al.us
Thomas	Brown	President	Sierra Pacific West, Inc.	760 599-0755	tbrown@sierrapacificwest.com
James	Bryant	Senior Program Officer	Transportation Research Board	202-334-2087	jbryant@nas.edu
Rebecca	Burns	Innovation and Support Services Division	Department of Transportation, Bureau of Project Delivery	717.787.6989	reburns@pa.gov
Vince	Bussio	President	Geneva Pipe Company	(801) 225-2416	vbussio@geneva-pipe.com
Mark	Cacamis	State Construction Engineer	Virginia Department of Transportation	804-371-2531	mark.cacamis@vdot.virginia.gov
Lewis	Cannon	Construction Administrator	Connecticut Department of Transportation	860-594-2680	lewis.cannon@ct.gov
Jeff	Carpenter	Director, Construction Division	Washington State Department of Transportation	360-705-7821	carpenj@wsdot.wa.gov
Mark	Chaput	Deputy Director Bureau of Field Services	Michigan DOT	517 322-3331	chaputm@michigan.gov
Matt	Childs	President	American Concrete Pipe Association	972-506-7216	mchilds@concrete-pipe.org
Richard	Chisolm	State Construction Engineer	MS Department of Transportation	601-359-7301	rchisolm@mdot.state.ms.us
Dana	Cleveland	LPA / Special Projects Engineer	Mississippi Department of Transportation	(601) 683-3341	dcleveland@mdot.state.ms.us
Daniel	Coffee	Transportation Engineering	Georgia Department of Transportation	(404) 631-1494	dcoffee@dot.ga.gov

First Name	Last Name	Title	Company	Work Phone	Email Address
		Administrator			
Stephen	Cooper	Pavement & Materials Engineer	FHWA Resource Center	443-257-7145	stephen.j.cooper@dot.gov
Gary	Corino		Federal Highway Administration -- Oklahoma Division Office	405-254-3300	gary.corino@dot.gov
Steven	Criswell	Director of Construction	Kentucky Transportation Cabinet	(502) 564-4780	Steve.Criswell@ky.gov
Howe	Crockett	Construction Operations Engineer	Western Federal Lands Highway Division	360-619-7750	Howe.Crockett@dot.gov
Brandon	Crowley	Asst Director	TN Dept of Transportation	(615) 741-0785	Brandon.Crowley@tn.gov
Timothy	Cupples	Bridge & Tunnel Construction Engineer	FHWA	(202) 366-1342	timothy.cupples@dot.gov
Susan	Darling	Asst. Bureau Chief of Construction & Maintenance	Kansas Department of Transportation	785-296-7138	sdarling@ksdot.org
Robert	Davis	Asst District Construction Engineer	NE Dept of Roads	402-370-3474	rob.davis@nebraska.gov
Andy	Dearmont	Assistant Construction Engineer	Nebraska Department of Roads	(402) 479-4451	andy.dearmont@nebraska.gov
Brian	Deery	Senior Director	AGC of America	703-837-5319	deeryb@agc.org
Gilberto	DeLeon	Field Operations Team Leader	Federal Highway Administration	804-775-3362	gilberto.deleon@dot.gov
Eric	DeSentis	Construction Group Chief	Alaska Department of Transportation	907-269-0450	eric.desentis@alaska.gov
Ramona	Dinesmore		MCM Construction	222.222.2222	eee@eee1.com
David	Donoho	Director	Smith Seckman Reid, Inc.	615-383-1113	ddonoho@ssr-inc.com
Elizabeth	Dooher		Caltrans	916-654-2488	elizabeth_dooher@dot.ca.gov
Gregory	Doyle	Construction Quality Engineer	Federal Highway Administration	617-494-3279	gregory.j.doyle@dot.gov
RICHARD	DUVAL	Pavements Engineer	FEDERAL HIGHWAY ADMINISTRATION	720-963-3748	richard.duval@dot.gov
Robert	Effinger		Caltrans	916-654-2488	robert_effinger@dot.ca.gov
Brian	Egan	Director	TN Dept of Transportation	(615) 741-0784	Brian.Egan@tn.gov
Mark	Eisenhart	State Field Operations Engineer	Wyoming Department of Transportation	(307) 777-4459	mark.eisenhart@wyo.gov
Charles	Eleazer	Construction Engineer	SCDOT	(803) 315-2494	eleazercr@scdot.org
Dan	Figola	Zone Engineer	Advanced Drainage Systems, Inc.	630-768-2988	daniel.figola@ads-pipe.com

First Name	Last Name	Title	Company	Work Phone	Email Address
Michael W.	Flack		Pennsylvania Turnpike Commission		mflack@paturnpike.com
David	Fort	Sale Manager	HWYCOM	(432) 267-7338	lancef1@suddenlink.net
Randy	Garris	State Contract Officer	NC Department of Transportation	919-707-6900	rgarris@ncdot.gov
Cal	Gendreau	Construction Engineer	North Dakota DOT	701-328-2563	cgendrea@nd.gov
Jeff	Gower	State Construction and Materials Engineer	Oregon Department of Transportation	503-986-3123	jeffrey.l.gower@odot.state.or.us
James	Green	Construction Standards Engineer	State of Alaska DOT&PF DES	907-465-2960	jim.green@alaska.gov
Donald	Greuel		WI Department of Transportation	(608) 516-1793	donald.greuel@dot.wi.gov
Jason	Gutting	Engineer of Construction	Michigan Dept of Transportation	517-636-6334	GuttingJ@michigan.gov
John	Hancock	Supervising Transportation Engineer	Caltrans	916-654-4334	john_hancock@dot.ca.gov
Ron	Hancock	State Construction Engineer	NC Department of Transportation	919-707-2400	rhancock@ncdot.gov
Kent	Hansen	Director of Engineering	National Asphalt Pavement Association	301-731-4748	khansen@asphaltpavement.org
Christofer	Harper	Research Associate	University of Colorado	303 492-3706	christofer.harper@colorado.edu
Jeffery	Hite	Director Technical Promotions	Rinker Materials Concrete Pipe Division	(813) 220-4076	jefferya.hite@cemex.com
Doug	Hoebet	District Construction Engineer	Nebraska Department of Roads	308-436-6587	Doug.Hoebet@nebraska.gov
Al	Hogan	East Region Engineer	American Concrete Pipe Association	615-351-3017	ahogan@concrete-pipe.org
Katherine	Holtz	Vice President	SAM-Construction Services, Inc.	512-447-0575	kholtz@sam-cs.biz
Frances	Hood	State Construction Engineer	Idaho Transportation Department	208-334-8426	frances.hood@itd.idaho.gov
Thomas	Howell	Director of Construction	Georgia Department of Transportation	(404) 631-1970	thowell@dot.ga.gov
David	Hoyne	State Construction Engineer	Vermont Agency of Transportation	802 828 2593	david.hoyne@state.vt.us
Charles	Jahren	Professor	Iowa State University	(515) 294-3829	cjahren@iastate.edu
Scott	Jarvis	Assistant Division Chief	Department of Transportation	916-653-4686	scott_jarvis@dot.ca.gov
Randy	Jensen	Program Delivery Team Leader	FHWA	720-963-3031	Randy.Jensen@dot.gov
James	Johnson	Consultant	AASHTO	85-422-3930	jjohnson@ashto.org
Richard	Juliano	Senior Vice President, Managing Director of the Contractors Division	American Road & Transportation Builders Association	202-289-4434	rjuliano@artba.org

First Name	Last Name	Title	Company	Work Phone	Email Address
Danny	Kahler	Principal	Kahler Engineering Group	512-983-3453	danny.kahler@kahlerengineering.com
Serena	Kallas		Global Leadership Alliance	(916) 374-0455	skallas@glapartnering.com
Bernie	Kuta	Contract Administration Engineer	Federal Highway Administration	720-963-3204	bernie.kuta@dot.gov
Marvin	Lech	District Construction Engineer	Nebraska Department of Roads	402-595-2534 X202	marvin.lech@nebraska.gov
Mike	Leegard		MN DOT	651-366-4219	mike.leegard@state.mn.us
Mark	Leja	Division Chief	Department of Transportation	916-654-2157	mark_leja@dot.ca.gov
Russel	Lenz	Vice President	Raba Kistner Infrastructure, Inc.	512-904-9177	rlenz@rkci.com
Michael P.	Lewis	Director	RI Department of Transportation	401-222-2481 Ext 4001	DBESTWICK@DOT.RI.GOV
Jeff	Lewis	Construction Program Management Engineer	FHWA - Resource Center	(916) 498-5035	jeff.lewis@dot.gov
Andy	Long	State Construction Engineer	Wyoming Department of Transportation	(307) 777-4425	andy.long@wyo.gov
Scott	Lowe, P.E.		Trauner Consulting Services, Inc.	215.814.6414	scott.lowe@traunerconsulting.com
Norman	Marzano	Managing Engineer	RIDOT	(401)641-8296	nmarzano@dot.ri.gov
Marc	Mastronardi	State Construction Engineer	Georgia Department of Transportation	(404) 631-1971	mmastronardi@dot.ga.gov
David	Matocha	Technical Resource Manager	Hanson Pipe & Precast	512-914-0674	david.matocha@hanson.com
Mike	McGee		FHWA	573-638-2608	mike.mcgee@dot.gov
Michael	McGrath	Deputy Chief Engineer for Construction	MassDOT	617-973-7610	michael.a.mcgrath@state.ma.us
Jim	Merchlewitz	Zone Engineer	Advanced Drainage Systems, Inc.	612-387-2413	jim.merchlewitz@ads-pipe.com
Keith	Meyer	District Construction Engineer	Nebraska Dept of Roads	308-385-6265	keith.meyer@nebraska.gov
Keith	Molenaar	Professor and Chair	University of Colorado	303 735-4276	molenaar@colorado.edu
Scott	Mullis	District Engineer	Arkansas Highway & Transportation Department	479-968-2286	scott.mullis@arkansashighways.com
Jeffrey	Nelson	President	David Nelson Construction	(727) 784-7624	jnelson@nelson-construction.com
Carl	Nelson	District Engineer	Connecticut Department of Transportation	860-823-3111	carl.nelson@ct.gov
Shaun	Ng		Caltrans	916-654-2488	shaun_ng@dot.ca.gov
Antonio	Nieves Torres		FHWA	2-0001	antonioneivestorres@dot.gov

First Name	Last Name	Title	Company	Work Phone	Email Address
Perry	Nutter	Sr. Vice President	Greenman-Pedersen, Inc.	(410) 880-3055	pnutter@gpinet.com
John	Obr	Director of Construction Division	TxDOT	512-416-2559	john.obr@txdot.gov
Brenda	O'Brien	Engineer of Construction Field Services	Michigan Department of Transportation	517-322-1085(Cell)517-719-1685	obrienb2@michigan.gov
Claude	Oie	Engineer	Nebraska Department of Roads	402-479-4532	claudioie@nebraska.gov
Kristen	Parrish	Assistant Professor	Arizona State University	480-727-6363	Kristen.Parrish@asu.edu
Shailendra	Patel	Director, VDOT Alternate Project Delivery Office	Virginia Department of Transportation	804-692-0476	shailendra.patel@vdot.virginia.gov
Gregory	Pawlowski		Delaware Department of Transportation	302-760-2256	Gregory.Pawlowski@state.de.us
Katherine	Petros	Team Leader, Pavement Design & Construction	Federal Highway Administration	(202) 493-3154	katherine.petros@dot.gov
Lee	Potter	Project Development Engineer	FHWA, WY Division	307-771-2946	lee.potter@dot.gov
Winston	Powe	Asst. State Construction Engineer, Environment & Technology	Alabama DOT	334-242-6209	powes@dot.state.al.us
Ryan	Proctor	Technical Marketing Manager	Ergon Asphalt & Emulsions, Inc	(303) 243-4607	ryan.proctor@ergon.com
Robert	Rasmussen	Vice President & Chief Engineer	The Transtec Group, Inc.	512 451 6233	Robotto@TheTranstecGroup.com
Tom	Ravn		MN DOT	651-366-4228	tom.ravn@state.mn.us
Alex	Ray		Smith Seckman Reid, Inc.	(901) 683-3900	aray@ssr-inc.com
George	Raymond	State Construction Engineer	Oklahoma Department of Transportation	405-521-2561	graymond@odot.org
Rob	Reaugh	Executive Director	International Partnering Institute	(925) 487-2404	robreaugh@partneringinstitute.org
Madhu	Reddy	Assistant District Engineer-Phoenix	Arizona Department of Transportation	602-712-8965	MReddy@azdot.gov
David	Reynaud	Senior Program Officer	NCHRP	202-334-1695	dreynaud@nas.edu
Woodrow	Rigdon		American Concrete Pipe Association	(501) 551-1355	wrigdon@concrete-pipe.org
Stephen Todd	Rumbaugh	Highway Engineer	West Virginia Dept. Of Transportation	304-558-3304	stephen.t.rumbaugh@wv.gov

First Name	Last Name	Title	Company	Work Phone	Email Address
David	Sadler	Director, Office of Construction	Florida Department of Transportation	850-414-4150	david.sadler@dot.state.fl.us
Leonard	Sanderson	Vice President	Parsons Brinckerhoff	919-836-4044	sandersonl@pbworld.com
Anthony	Sarhan		FHWA	360-753-9412	anthony.sarhan@dot.gov
Joe	Sartini	District 6 Engineer	Arkansas State Hwy. & Transp. Dept.	501-569-2172	joe.sartini@arkansashighways.com
Cliff	Schexnayder	Eminent Scholar Emeritus	Arizona State University	480 812 0924	cliff.s@asu.edu
Mike	Sebren	State Construction Engineer	Arkansas State Highway and Transportation Department	501-569-2251	mike.sebren@ahtd.ar.gov
Ali	Shakeri	Program Manager	District Department of Transportation	202-409-2316	ali.shakeri@dc.gov
Jeff	Shapiro	Chief Construction Engineer	Nevada DOT	775-888-7460	jshapiro@dot.state.nv.us
Anita	Simpson	President	Piranha Pipe & Precast Inc.	559-665-7473	piranhapipe@sbcglobal.net
Greta	Smith	Program Manager for Construction and Materials	AASHTO	(202) 624-5815	gsmith@ashto.org
Sharpie	Smith		Smith Seckman Reid, Inc.	601-381-3539	sharpie@bellsouth.net
Ronald	Smith	Regional Engineer	WV DOH	304-558-9564	ronald.g.smith@wv.gov
John	Smythe	Director, Office of Construction	Iowa Dept. of Transportation	515-239-1503	john.smythe@dot.iowa.gov
Rob	Stott	Deputy Division Chief	Department of Transportation	916-227-8845	rob_stott@dot.ca.gov
Chuck	Suszko	Office Chief	Department of Transportation	916-227-7314	chuck_suszko@dot.ca.gov
Kostas	Svarnas		Federal Highway Administration	609-637-4208	kostas.svarnas@dot.gov
Brian	Syftestad	Construction Coordinator	Caltrans	916-654-5431	brian_syftestad@dot.ca.gov
Sofia	Taft		AGC - CA	(916) 371-2422	tafts@agc-ca.org
Jon	Tapping	Toll Bridge Program	Department of Transportation	916-654-2359	jon_tapping@dot.ca.gov
Eric	Thorkildsen	Vice President	Greenman-Pedersen, Inc.	(518) 453-9431	ethorkildsen@gpinet.com
Larry	Tomkins	Technical Marketing Manager	Ergon Asphalt & Emulsions Inc.	601-933-3000	larry.tomkins@ergon.com
Sandra	Tommer	Bureau Chief of Construction & Maintenance	Kansas Department of Transportation	785-296-7129	sandrat@ksdot.org
Douglas	Townes	Construction and Contract Administration Engineer	Federal Highway Administration	404-562-3914	douglas.townes@dot.gov
Tony	Tuinstra		Ontario Ministry of Transportation		tony.tuinstra@ontario.ca
David	Unkefer	Construction & Project Management Engineer	Federal Highway Administration	404-562-3669	david.unkefer@dot.gov

First Name	Last Name	Title	Company	Work Phone	Email Address
Kathryn	Weisner	Area Engineer	FHWA	717-221-4516	kathryn.weisner@dot.gov
Curt	Weltz		Flat Iron Corp	707-742-6000	cweltz@flatironcorp.com
Robert	Wight	State Construction Engineer	Utah Department of Transportation	801-965-4869	rwright@utah.gov
Joel	Williams		MNDOT	651-366-4241	joel.williams@state.mn.us
Butch	Wlaschin	Director, Office of Asset Mgmt.	FHWA	202-366-0392	butch.wlaschin@dot.gov
Gerald	Yakowenko		FHWA	202-366-1562	gerald.yakowenko@dot.gov
Kurt	Zachary	Local Program Engineer	FHWA - Michigan	517-702-1832	kurt.zachary@dot.gov
Laura	Zamora	Area Engineer	Colorado Department of Transportation	(303) 757-9233	laura.zamora@dot.state.co.us

Appendix C

Contract Administration Section Report

Minutes
2013 AASHTO Subcommittee on Construction
Contract Administration Section Meetings
Detroit, Michigan
August 12 and 15, 2013

Welcome / Summary of 2012-2013 Accomplishments

Contract Administration Section Chair, Brenda O'Brien (Michigan DOT) welcomed everyone to the Section meeting. The Section members briefly discussed the accomplishments from the previous year. All of the Sections surveys are now posted on the Subcommittee's web site (<http://construction.transportation.org/Pages/Surveys.aspx>) :

The following is a summary of the 2012 -2013 accomplishments:

- a) Case Studies regarding State Practices for Administering Schedule Issues,
- b) Collection and Compilation of State DOT Internet Resources for the Oversight of Local Public Agency Projects,
- c) Compilation of Alternative Contracting Web Pages and Best Practices,
- d) State DOT Approaches for Dealing with Unsatisfactory Contractor Performance, and
- e) Dispute Review Board Survey.

Organization Issues:

There are no changes in the Contract Administration Section leadership for the coming year.

General Discussion:

The Section members discussed the following issues on Monday, August 12th:

Partnering

- The Subcommittee management suggested that the Contract Administration Section be responsible for coordinating issues regarding the subject of construction partnering. The Section members discussed related issues including:
 - The role of Contract Administration Section in promoting partnering;
 - The role of AASHTO in general in promoting partnering;
 - Gary Angles provided an overview of the involvement of Ohio, Michigan, Maryland and California DOT's with the International Partnering Institute;
 - Doug Gransberg mentioned a research study that he was conducted for Texas DOT concerning the benefits of partnering. Doug suggested several approaches for advancing partnering related research activities including pooled fund research, NCHRP synthesis studies or a special project under NCHRP's Project 20-7, Research for the AASHTO Standing Committee on Highways. Doug volunteered to develop a research needs statement for the subcommittee upon request.
 - Collecting and comparing State DOT guide specifications and contract provisions for partnering; and
 - Collecting State guide specifications for dispute review boards.

Innovative Project Delivery Contract Administration Task Group

Shailendra Patel and Jerry Yakowenko discussed a suggestion to form a separate working group to develop guidance related to the contract administration of projects developed under innovative delivery methods such as design-build or construction manager / general contractor delivery. Shailendra agreed to discuss this with several State DOT design-build coordinators at the next Mid-Atlantic Design-Build Institute of America meeting and get back to the Contract Administration Section leadership.

Performance Based Construction Prequalification Project

Dr. Elizabeth Kraft, Dye Management Group, Inc. presented an overview of FHWA's research project titled: "Performance Based Construction Prequalification Project". The Section members appreciated the presentation and several members suggested that this topic be considered for a presentation during the Subcommittee general session in 2014.

Recommendations for Work Plan Items for 2013-2014

Lew Cannon led the Section members through a discussion of potential work plan topics for the coming year. After a general discussion of issues and prioritization of topics, the Section members agreed to pursue the following three items in the coming year.

1. A survey of State DOTs regarding specifications and special provisions for partnering (including the potential development of a partnering guide specification and a review of the AGC/ARTBA partnering guidance) (Lead: Brenda O'Brien – Michigan DOT, Gary Angles – Ohio DOT, Craig McDaniel – Washington State DOT, Jerry Yakowenko - FHWA)
2. A survey regarding issues related to "eliminated work / restocking fees" (Lead: Lew Cannon – Connecticut DOT, Sue Darling – Kansas DOT, Ryan Griffith - Kentucky Transportation Cabinet, Jerry Yakowenko - FHWA)
3. A spreadsheet comparing additives for force account work (Lead: O'Brien – Michigan DOT, Brian Egan – Tennessee DOT, Sue Darling – Kansas DOT, Jerry Yakowenko - FHWA)

Note: the following topics were discussed but not prioritized for action this year. It was noted that NCHRP is administering research studies for several of the topics related to the DBE program.

- Buy America enforcement / administration;
- Emergency project administration issues / other program adjustments to address particular issues
- Invasive species contracting issues
- OSHA issues (traffic barriers not meeting OSHA's definition of guardrail for fall protection (perhaps this suggestion should be shared with Environmental and Human Resources Committee);
- How are states initiating small business programs under the DBE regulations?
- How are states dealing with DBE commitments in design-build delivery?
- DBE contracting issues (award of contract – responsiveness/responsibility; commercially useful function)

Recommendations for 2013 SOC Contract Administration Section Presentations:

Andy Long led a discussion of potential topics for presentations for the 2014 Contract Administration Section portion of the full Subcommittee meeting. Potential speakers or agencies are listed in parenthesis.

The presentation topics with the most votes included:

- Fraud Awareness (potential presenter USDOT OIG) [22 votes]
- Contractor perspective – “What adds cost without adding value?” [17 votes] (can this be combined with “Reducing contractor liability . . .”)
- CM/GC project example / finding unique solutions; cost comparison vs. traditional projects; [16 votes]
- Reducing contractor liability / Who is best able to handle risk? (contractor perspective) [14 votes] Should this include information regarding the SHRP-II Pilot project?
- Vermont and New Hampshire Emergency Contracting Procedures [10 votes]

Other potential presentation topics that were discussed but not prioritized include:

- Overview of FHWA Research on “Performance Based Construction Prequalification Project” add Elizabeth Kraft, Dye Management and Richard Duvall, FHWA Construction Research Engineer
- Insurance and surety issues (panel discussion? States, sureties, etc.)
- FHWA Research Index-Based Cost Estimating (Duvall)
- Alternative Technical Concepts (summary of NCHRP synthesis? or State DOT presentation)
- Public Private Partnerships (good, bad & the ugly)

Contract Administration Related Research

On Monday afternoon, Gary Angles led a discussion of potential research topics to bring forth for the consideration of the SOC Research Section on Tuesday and Friday morning. The recommendations included:

- a) Guidebook for Partnering (Gransberg volunteered to prepare a Research Needs Statement),
- b) Emergency Contracting Guidebook / Use of Incident Demand Systems,
- c) Performance Contracting (pay based on performance of the product), and
- d) Administration of design-build projects.

Gary also gave an overview presentation of his role as the liaison to the Subcommittee’s Research Section. The goals of this section are to:

- Ensure research proposals work toward construction goals, and
- Ensure construction generates implementable research.

Gary indicated that the minutes of the upcoming Friday, August 16th Research Section will be provided by Kathryn Petros of FHWA at some future point.

New issues / new business / issues assigned by SOC Chairs

Brenda O’Brien noted that conference calls will be held during the upcoming year to stay on track with work plan items and help in identifying potential presenters for the August 2014 meeting in New Hampshire.

Brenda thanked everyone for their participation and discussion and the meeting was concluded at 2:30 PM on August 15, 2013.

2013 AASHTO SOC Contract Administration Section Attendance

Last Name	First Name	Email	Company	Work Phone
Angles	Gary	gary.angles@dot.state.oh.us	Ohio Dept of Transportation	614-466-7087
Avery	Kimberly	averyk@michigan.gov	MDOT	248-483-5102
Bates	Kerry	kerry.bates@vdot.virginia.gov	Virginia Department of Transportation	804.371.4312
Blankenship	Jason	Jason.Blankenship@tn.gov	TN Dept of Transportation	(615)350-4386
Cannon	Lewis	lewis.cannon@ct.gov	CT Department of Transportation	860 594-2680
Chisolm	Richard	rchisolm@mdot.ms.gov	Mississippi DOT	601-359-7301
Clark	Jason	clarkj25@michigan.gov	Michigan DOT	517-242-6378
CORRAO	FRANK	FRANK.CORRAEO@DOT.RI.GOV	RI DEPT OF TRANSPORTATION	401-222-2468
Costello	Chris	Chris.Costello@state.de.us	Delaware Department of Transportation	302-326-4401
Darling	Susan	sdarling@ksdot.org	Kansas Department of Transportation	785-296-7138
Egan	Brian	Brian.Egan@tn.gov	TN Dept of Transportation	(615)741-0784
Galindo	Steve	galindos@michigan.gov	MDOT	313-375-0822
Garris	Randy	rgarris@ncdot.gov	NC Department of Transportation	919-707-6900
Gendreau	Cal	cgendrea@nd.gov	North Dakota DOT	701-220-6308
Glenn, Jr.	Earl	eglenn@mdot.ms.gov	Mississippi DOT	601-359-7325
Goettle	Jake	jgoettle@mt.gov	Montana Dept of Transportation	406-444-6015
Griffith	Ryan	ryan.griffith@ky.gov	Kentucky Transportation Cabinet	502 564-4780
Hancock	Ron	rhancock@ncdot.gov	NC Department of Transportation	919-707-2400
KLIEWER	JULIE	JKliewer@azdot.gov	Arizona Department of Transportation	602-712-7323
Ledger	Jonathan	Jonathan.Ledger@state.de.us	Delaware Department of Transportation	302-760-2420
Long	Andy	andy.long@wyo.gov	WYDOT	307-777-4425
Maas	Duane	maasd@michigan.gov	MDOT	989-233-4167
McDaniel	Craig	mcdanic@wsdot.wa.gov	WSDOT	360-705-7823
McDonald	Jamie	jmcdonald@mdot.ms.gov	Mississippi DOT	662-842-1122
Mulder	Greg	greg.mulder@dot.iowa.gov	Iowa DOT	515-239-1843
O'Brien	Brenda	obrienb2@michigan.gov	Michigan Department of Transportation	517-322-1085
Patel	Shailendra	shailendra.patel@vdot.virginia.gov	Virginia Department of Transportation	804.692.0476
RICCI SR.	STEPHEN A	STEVE.RICCI@DOT.RI.GOV	RI DEPT OF TRANSPORTATION	401-222-2466
SEBREN	MIKE	MIKE.SEBREN@AHTD.AR.GOV	AR. HWY. & TRANS. DEPT.	501-569-2117
Sprague	Anthony	anthony.sprague@alaska.gov	SOA DOT/PF	907-269-0446
Stamm	Andy	stamma@michigan.gov	Michigan Dept of Transportation	269-337-3951
Straub	Mark	mark.straub@state.co.us	Colorado Department of Transportation	(303) 757-9595
Thompson	Willard	thompsonw@michigan.gov	Michigan DOT	517-750-0425

Last Name	First Name	Email	Company	Work Phone
Volz	Jason	jason.volz@nebraska.gov	Nebraska Department of Roads	402-479-4452
Wallace	Kelby	wallacek@michigan.gov	MDOT	517-241-9208
Williams	Joel	joel.williams@state.mn.us	MnDOT	651-366-4228
Duval	Richard	richard.duval@dot.gov	FHWA	202-493-3365
Yakowenko	Jerry	gerald.yakowenko@dot.gov	FHWA	202-366-1562
Zachary	Kurt	Kurt.zachary@dot.gov	Federal Highway Administration	517 702-1832
Bennett	Aric	abennett@manniksmithgroup.com	The Mannik & Smith Group, Inc.	313-961-9500
Fisher	Robert	robert.fisher@parsons.com	Parsons	(317) 319-5835
Flowers	Tom	tom.flowers@ergon.com	Ergon Asphalt & Emulsions, Inc.	903-258-6186
Gransberg	Douglas	dgran@iastate.edu	Iowa State University	515-294-4148
Hoover	Mike	gmhoover@sundt.com	Sundt Construction, Inc.	602.361.5721
Judnic	Victor	vjudnic@hntb.com	HNTB Corporation	248-249-1084
Juliano	Richard	rjuliano@artba.org	American Road & Transportation Builders Association	202-289-4434
kerness	eric	eric@kerness.com	DRBF	518 347 2778
Kraft	Elizabeth	ekraft@dyemanagement.com	Dye Management	7203524216
Pawlowski	Greg	gregory.pawlowski@drba.net	Delaware River and Bay Authority	302-571-6380
Ray	Alex	aray@ssr-inc.com	Smith,Seckman,Reid, Inc.	901-683-3900
Raymond	Chris	Chris.Raymond@ontario.ca	Ministry of Transportation	905-704-2197

Appendix D

Roadway and Structures Section Report

Roadway and Structures

Meeting Minutes

AASHTO Subcommittee on Construction

August 11 – 16, 2013 Detroit, Michigan

213 Section Leadership

Chairman – David Ahlvers, Missouri DOT

Vice Chairman – Marc Mastronardi, Georgia DOT

Secretary – Anthony Sarhan, FHWA

Monday – August 12th (1:15 – 4:00 PM)

Meeting is brought to order by Mr. David Ahlvers at 1:17 PM. Attendees include representatives from State DOT's, FHWA, and industry. An attendance list is attached for reference.

Introductions: Attendees briefly introduce themselves and new attendees are welcomed. Attendees are requested to indicate whether they are a member of the committee or a guest on sign-in sheet being circulated.

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

2012/2013 Work Plan: Attendees discussed the 2012/2013 Work Plan items as outlined below:

1. Survey States and develop a summary of IRI specifications and composite index ratings for pavements.
Mr. Ahlvers updated the group on the results of the survey. 20 Agencies (19 DOT's and 1 Tollway) responded to the survey, which is included at the end of these notes.

After the update Mr. Ahlvers asked how many states are using IRI. Representatives from Georgia, Louisiana, Montana, Nebraska, and Missouri all currently use an IRI specification, with a mix of in house or contractor provided data. Mr. Stott and Mr. Sadler mentioned that California and Florida (respectively) are in the process of switching to IRI. Caltrans has just certified their first contractor.

The discussion then moved to speed checks for urban environments. Mr. Ahlvers noted that Missouri has different specifications for facilities 45 mph and above, and those below 45 mph. Mr. Sadler commented that the Florida DOT considers the signalization of the facility, and Mr. Dearmont commented that Nebraska does not measure IRI for facilities below 45 mph.

This work plan item is considered complete.

2. Identify inspection methods for prefabricated bridge elements.
This item is a spinoff from the 2011/2012 work plan item *Identifying best practices and specifications for the use of Prefabricated Bridge Elements and Systems (PBES)*. There was little activity on this item during the past year as DOT's are continuing to expand their use of PBES and develop working procedures as necessary. Mr. Richins commented that UDOT had to rewrite their bridge manual in response to the increased use of PBES in the state due to tolerances being too tight for field fabrication. Mr. Allen stated

the LDOTD is using PCI Manual NML 116 and has not had any problems. Mr. Hoyne mentioned that the Vermont AOT has seen smaller contractors self performing some of the pre-case elements on site. The Michigan DOT is currently producing an ABC Toolkit, which includes standard inspection procedures – in particular for items that may be different for PBES applications. For example the Michigan DOT has seen the possibility of establishing different inspection standards for closure pours.

This work plan item will continue.

ACTION ITEM: The Utah DOT and Michigan DOT will share their work products with the group.

3. Develop construction guide specifications for drainage pipe inspection.

Mr. Hogan (ACPA) presented the guide specification (posted as a presentation for this meeting). Mr. Ahlvers opened a general discussion of post installation inspection. In general the guide specification was considered a good place to begin. Mr. Hogan and the group exchanged some general comments about the importance of understanding the program you are establishing and the DOT's goals in pipe inspection.

This work plan item is considered complete.

4. Investigate regional standards for certification of inspectors.

Mr. Elliott gave a presentation summarizing the results of a survey of practices across the states. In general regional are in place to varying degrees, but the participation of members, scope of the organization, and use beyond testing varies considerably. No one is close to a program that establishes reciprocity for inspectors yet.

Mr. Ahlvers opened up the discussion to the members in attendance.

- FDOT has begun looking at the TCCC as a model compared to CTQP.
- GDOT's program is still transitioning from approximately 65% DOT inspection to approximately 35% DOT inspection, and will be eliminating inspection as a career track. GDOT has observed that there are many consultants interested in stepping in to this market, but the start-up costs can be expensive/prohibitive. GDOT is starting to look at the common themes among the other SE states.
- LDOTD has not taken any action in this area at this time.
- MIDOT has inspection certification/qualification requirements, and does not have reciprocity with any states at this time. Right now the focus has been on certifying/qualifying consultants and local agencies.
- NDOR is in the process of developing a more stringent in house training program and does not see consultant inspection as an option at this time.
- MTD conducts 100% of inspection with DOT forces. Conceptually MDT is okay with the idea of reciprocity but there is no clear value yet given the non-use of consultants for inspection.
- Caltrans conducts approximately 90% of inspection with DOT forces. One issue Caltrans faces with any move towards reciprocity is the use of California Test Methods. Caltrans is currently moving towards the use of nationally accepted test methods (e.g. ACI for structural concrete.)

Mr. Elliott questioned how much involvement the construction components of the DOT's have with TCCC. The perception is that most DOT representatives to the TCCC are predominantly working with materials. Mr. Richins commented that Mark Chaput (MIDOT) would be giving a presentation for the TCCC on Thursday and this would be a good time to bring up this question.

Mr. Ahlvers summarized the discussion and the group agreed to continue moving forward with this.

Mr. Roddy noted that as a contractor they must deal with multiple certifications when working in multiple states.

Mr. Hansen commented that the decrease in the level of experience among DOT inspectors has become noticeable.

ACTION ITEM – Determine if Sub-Committee on Materials is also pursuing this.

5. Develop a recommendation for AASHTO on limiting Buy America to major items of Roadways and Structures. Eliminate measurements of minor components which make up a single item.

This item was predominantly addressed by FHWA's December 2012 memorandum. Mr. Ahlvers opened up the discussion for comments.

FDOT has had a few issues with bascule bridges and utilities are still an issue.

MODOT has some difficulties with components at a rest area.

MIDOT mentioned they had some difficulty with a pipeline reinstallation.

Mr. Elliott discussed the current comment period for the Federal Register notice covering Buy America.

This work plan item is considered complete.

6. Identify specifications and best practices for risk based inspection.

Not much work was completed on this item this year. Mr. Ahlvers initiated a discussion among the group.

- MODOT is piloting a program where contractors are performing the quality testing and the DOT is conducting the acceptance testing. The plan is an off-shoot of a program that was initiated in the Design-Build program in which the DOT and D-B firm put together a plan based on the risk for each item. MODOT's process has been approved by the FHWA Division Office. Contractors are required to submit an inspection work plan which identifies tests and frequencies. Contractors can use MODOT standards as the basis for their program, or can use another DOT's program with approve from MODOT. MODOT is not seeing other state's programs being used yet. Mr. Ahlvers anticipates having enough information to provide a report to this group at the 2014 meeting.
- Caltrans noted that standard manufactured item inspection is all risk based in California. Job specific fabricated items have traditional in-depth inspection. Caltrans has found that they are getting good performance on risk based materials testing but still have room for improvement on risk based inspection.

ACTION ITEM - MODOT to provide presentation at 2014 meeting.

7. Support the process of piloting SHRP 2 products on DOT projects. Presentation provided by James Bryant
Anthony Sarhan summarized a presentation from James Bryant (TRB) on the 15 SHRP 2 products identified as being of interest to the Roadway and Structures group.

This work item considered complete.

8. Establish criteria for when to utilize positive barrier.

Mr. Wight presented the results of a nationwide survey on the utilization of positive barrier. 29 agencies responded to the survey. 3 DOT's had processes that stood out as best practices:

- Alabama DOT has developed a process utilizing a chart to assist with decision making. Uses the current MAP-21 "no means of escape" criteria.
- Colorado DOT has a positive protection manual. Identifies Primary Factors, Special Factors, and Secondary Factors
- Virginia DOT also noted for a strong process.

This work item considered complete.

Thursday – August 15 (1:15 – 3:00)

Mr. Ahlvers opened the meeting at 1:17 PM and introduced the session to the members in attendance.

Research Update: Mr. Mastronardi provided a handout and summarized the Wednesday morning research meeting:

Roadway and Structures

1. High RAP content and thin lift construction – there may be an NCHRP Synthesis already underway. NAPA Synthesis may need to be included as a work plan item.
2. Inspection of Pre-fabricated elements for ABC

Environment

3. Erosion Control Measures – Possibly conduct a survey.
4. Safety – Is there a culture of safety? Look into conducting either a survey or synthesis.

Contract Administration

5. Revisit the Partnering Guidebook – There is renewed interest nationally.
6. Emergency Contracting Procedures/Incident Command Centers
7. Maintaining control of Design-Build

Computers and Technology

Ran out of time and did not present. Will present on Friday.

The group then discussed the items as follows:

Item 3 Erosion Control Measures – Mr. Allen questioned whether there is consistency with how erosion control measures are currently evaluated. Mr. Mastronardi responded that NTU's downstream is the standard in Georgia. Mr. Elliott discussed the full scale test pits at NCAT as a possible source of data. Mr. Mastronardi followed up with a discussion of NTPEP's role for erosion control devices. NTPEP is starting to become a clearinghouse, but most of the testing is materials based, not performance based.

Mr. Sadler commented that FDOT has been evaluating products at a simulated rainfall facility as a way of determining performance. Mr. Christensen mentioned that Montana has required the contractor to be the permit holder for the past 7 years and asked how many other states have this requirement. Mr. Mastronardi commented that Georgia used to require contractors be the permit holder until a recent legislative change.

Item 2 Inspection of Pre-fabricated elements for ABC – In general the group was unsure if ABC has advanced far enough (outside of the Utah DOT) to warrant this as a research topic. The Michigan DOT is starting to see more use of ABC.

Item 5 Revisit the Partnering Guidebook – In general the group felt this topic centers around two main questions. First, has there been an evolution in partnering? The DOT's all learned the process 15-20 years ago, and for the most part it has been adopted. Is there a need to move on to the next level? Second, is whether structured partnering is still needed on everyday projects, or has it become part of your culture?

Mr. Stott commented that it is important to understand how partnering is making a difference. Most DOT's can probably explain how partnering helped anecdotally, but is there data that proves partnered projects are actually moving forward more smoothly than non-partnered projects. Partnering with utility companies paid dividends recently for Caltrans. A study that can quantify the efficacy of partnering would be useful.

Mr. Elliott commented that this topic is an item of interest annually at the AGC/AASHTO/FHWA meeting.

Mr. Richins commented that partnering is required on all UDOT projects. Facilitators are only used on large projects.

Item 6 Emergency Contracting Procedures

Mr. Sadler explained FDOT's practice of establishing pre-event contracts annually. This allows FDOT to have contracts in place and resources staged prior to Hurricanes.

Mr. Mastronardi commented that the GDOT had tried some pre-event contracting but hadn't gotten very far.

Mr. Christensen stated that MDT's emergency contracting procedures are limited to activities that allow for rapid contractor placement in response to an emergency.

Caltrans has several methods available based on the level of urgency.

Item 7 Maintaining Control of Design Build contracts

Mr. Wanders clarified that this topic was geared towards writing performance specifications for Public Private Partnerships (P3's). DOT's are starting to ask the questions revolving around how to manage expectations and still encourage innovation in approach to get cost savings.

Additional item

Mr. Hansen brought up porous pavements as an additional item for consideration at future meetings, noting that porous pavement language is included in a recent Senate appropriations bill.

Mr. Ahlvers thanked all the members for their participation in the discussion and summarized what had been discussed so far. The group then agreed to three consensus recommendations from the Roadway and Structures group:

1. **Erosion Control**
2. **Emergency Contracting**
3. **ABC – watch for a synthesis**

The group is interested in all the other topics as well, and will be looking for other associated work products in each area.

Presentation Topics

Mr. Ahlvers opened the discussion of presentation topics by expressing an interest in identifying regional/local presentations for the 2014 meeting in Portsmouth, NH. The following topics were identified as potential topics for 2014:

- a. University of New Hampshire (UNH) stormwater facility and porous pavements
- b. UNH high RAP usage
- c. VTAOT – segmental box girder
- d. Memorial Bridge Project – (ME and NH DOT's)
- e. Major storms in the Northeast (VT and NH) – case studies
- f. SR 520 Floating Bridge - WSDOT
- g. SR 99 Deep Bore Tunnel - WSDOT
- h. New York I-84 Bridge Replacement Showcase
- i. I-405 - Caltrans
- j. I-680 Reconstruction – Iowa DOT
- k. Intercounty Connector (ICC) - MDSHA
- l. FAST-14 - MassDOT
- m. Pawtucket River Bridge (RI)
- n. NH – I-93 20 mile widening from MA to Manchester
- o. I-5 Skagit River Bridge - WSDOT
- p. CM/GC presentation - MIDOT
- q. Cement treated base with FDR
- r. Recycling in pavement (HMA or PCC)
- s. Post-tension grout issues – Florida and California. FL – soft grout; CA – implementing air testing on ducts prior to grouting. (may also be a work plan item)
- t. Cracking in bridge decks and PCC pavement – best practices in cracking

- u. Internally cured concrete
- v. Precast PCC replacement (CA,UT,FL, VA – Best practices) – may do a survey then figure out best way to present it
- w. Carbon Fiber – MI doing prestressed carbon fiber I-beam. CA strengthened overhang using carbon fiber.
- x. California Fires in tunnels and under bridges
- y. Column cage collapse issues (CA)
- z. NDT on shafts and piles

Work Plan

The following items were identified for the 2013/2014 work plan

1. Prefabricated Bridge Elements
ACTION ITEM: Utah DOT and Michigan DOT to share ABC work products with group for posting
2. Risk Based Inspection – Identify specifications and best practices
ACTION ITEM: Missouri DOT to provide summary at 2014 meeting. Find other presenters for 2014 meeting
3. Porous Pavements – Inspection and Design
ACTION ITEM: Provide summary of porous pavement language in Senate bill to R&S members. Conduct survey of state of practice among DOT's on Inspection and Design of porous pavements
4. Bridge Deck Grinding
ACTION ITEM: Conduct survey of State DOT's on state of practice of bridge deck grinding.
5. Best Practices in controlling bridge deck and PCC cracking
ACTION ITEM: Conduct survey of State DOT's on best practices in controlling bridge deck and PCC cracking
6. Problems and Best Practices for MSE Walls
ACTION ITEM: Conduct survey of State DOT's on problems and best practices with MSE Wall construction

Miscellaneous Discussion

Mr. Ahlvers opened the discussion for any topics of interest. The following items were discussed among the group:

1. Mr. Mastronardi asked if there was a general awareness of block out requirements for concrete posts in the latest update to the Roadside Design Guide.
2. Mr. Elliott asked if anyone had looked at best practices around high friction surface treatments (HFST) on ramps. The Michigan DOT is working on a HFST specification right now. The research is currently focused on calcined bauxite and determining whether the aggregate or epoxy binder fail first.
3. Mr. Ahlvers questioned whether all 4 working groups of the Sub-Committee on Construction should meet at future meetings as a way of promoting innovation. Mr. Sadler suggested only using 3 of the 4 assigned presentation slots and using the 4th slot as a national discussion session instead. Mr. Ahlvers, Mr. Mastronardi, and Mr. Richins will look into the different ways AASHTO, including the possibility of a technical services program, could fill this role.

Updates

1. New Chairman – Mr. Ahlvers nominated Mr. Marc Mastronardi (Georgia DOT) to be the new Chairman. His nomination was unanimously approved by the group.

2. Vice Chairman (Roadway) – Mr. Ahlvers nominated Mr. Kevin Christensen (Montana DOT) to be the new Vice Chairman (Roadway). His nomination was unanimously approved by the group.
3. Vice Chairman (Structures) – Mr. Ahlvers nominated Mr. Rob Stott (Caltrans) to be the new Vice Chairman (Structures). His nomination was unanimously approved by the group.

Attendance

Name	Representing	e-mail	August 12, 2013	August 15, 2013
State DOT's				
David Ahlvers	MODOT	David.ahlvers@modot.mo.gov	X	X
Alden Allen	LDOTD	Alden.allen@la.gov	X	X
Kevin Christensen	MDT	kechristensen@mt.gov	X	X
Andy Dearmont	NDOR	Andy.dearmont@nebraska.gov	X	
Maurice Hinchey	NDOR	Maurice.hinchey@nebraska.gov	X	X
David Hoyne	VTAOT	David.hoyne@state.vt.us	X	
Marc Mastronardi	GADOT	mmastronardi@dot.ga.gov	X	X
Sandy Montes	MI DOT	montess@michigan.gov	X	
Bob Rankin	NDOR	Robert.rankin@nebraska.gov	X	X
Corey Rogers	MI DOT	Rogersc5@michigan.gov	X	X
David Sadler	FDOT	David.sadler@dot.state.fl.us	X	X
Rob Stott	Caltrans	Rob.stott@dot.ca.gov	X	X
FHWA				
Thomas Cutrona	FHWA	Thomas.cutrona@dot.gov	X	X
Rob Elliott	FHWA	Rob.elliott@dot.gov	X	X
Anthony Sarhan	FHWA	Anthony.sarhan@dot.gov	X	X
Butch Wlaschin	FHWA	Butch.wlaschin@dot.gov	X	
AASHTO & ARTBA				
Jason Richins	AASHTO	jrichins@ashto.org	X	X
John Roddy	ARTBA	JFRoddy@laneconstruct.com	X	
Industry				
Bill Adams	Hancock Concrete	bill@hancockconcrete.com	X	
Barry Bauer	Oldcastle Precast	Barry.bauer@oldcastle.com	X	
Sharmyn Elliott	Somat Engineering	SElliott@somateng.com	X	
Kent Hansen	NAPA	khansen@asphaltpavement.com	X	
Al Hogan	ACPA	ahogan@concrete-pipe.org	X	X
Jason Kruger	ACPA		X	
Woody Rigdon	ACPA	wrigdon@concrete-pipe.org	X	X
Steve Wanders	CH2MHill	Steve.wanders@ch2m.com		X

Appendix E

Computers and Technology Section Report

AASHTO Subcommittee on Construction – Computers and Technology Section

2012 – 2013 Accomplishments

1. Provided input to FHWA for development of training related to Civil Integrated Management (CIM) workshops in OR, NY, and FL.
2. Continued to provide leadership and guidance for development of the AASHTO web based Trans•Port software suite specifically the Civil Rights and Labor Module (CRL).
3. Posted to our section website the quick reference guide to assist states with automated machine guidance (AMG) preconstruction requirement, construction specifications, and data exchange protocol.
4. Supported implementation of SHRP2 deliverable products with focus on technology based equipment.
5. Shared best practices regarding work zone technologies through presentation at SOC meeting on work zone training, Roadway Safety+.

Attachment F

Environment and Human Resources Section Report

August 15, 2013 “Final” Notes

Environment and Human Resources Section

Meeting Minutes

AASHTO Subcommittee on Construction

August 12 - August 15, 2013 Detroit, Michigan

2013 - 2014 Section Leadership

Chairman – Mark Leja, Caltrans

Vice-Chairman - Frances Hood, Idaho DOT

Secretary – Jeff Lewis, FHWA

- Mr. Leja welcomed the Subcommittee members and guests to the 2013 Environment and Human Resources Section (EHR) meeting. The attendees included 16 representatives, including 14 State DOT representatives, 1 consultant representative and 1 FHWA representative. An attendance list is attached for reference. Mark reminded everyone that this will be his last year and Frances Hood will be taking over as Chairman and Jeff Shapiro will be the Vice-Chairman. We then reviewed the status of the 12/13 Work Plan items, highlighted the accomplishments and updated them as appropriate. We then discussed the SOC Draft Strategic Plan by reviewing the Goals and identifying what possible actions we should be taking in our 13/14 Work Plan that would be in support of these goals. We specifically highlighted GOAL #3 - Advance the state of the practice of “*promoting best practices for sustainable construction and environmental stewardship to include recycling and reducing our carbon footprint.*”

ACCOMPLISHMENTS 2012/2013

- Completed a survey on sustainable construction and posted on AASHTO webpage.
- Outreached to SCOE to identify opportunities for collaboration on areas of mutual interest, procedures, or research.
- Completed a work force training survey, including use of TC3.
- Completed a survey on work zone safety practices.

2013 - 2014 WORK PLAN

RESEARCH

ENVIRONMENT

#1) Title: *BMP's for Soil and Erosion Control* Lead: Fran Hood (ID)

Plan/Status: Promote best practices for soil and erosion control for their: 1) performance; 2) method of payment during their temporary use and 3) maintaining them after construction has been completed. Also, a flipbook (pocket size) BMP Maintenance Guide is scheduled to be completed by March 2014 which Fran will stay involved as it progresses.

Action: Step #1 – literature search

Survey#1 - Seeking BMP's to check for field performance testing. IE: Are products functioning as intended.

Survey #2 – Payment Practices for temporary sediment and control measures. IE: LS, bid items, other?

Survey #3 – How do we include paying for maintenance of features once construction is completed /accepted? IE: have they performed as intended or delay until they meet the permit requirements? What are DOT's doing to provide additional funding/resources to their maintenance with the additional elements that they would now be responsible for?

#2) Title: *Outreach with other AASHTO Committees* Lead: Fran Hood (ID)

Plan/Status: Outreach to SCOE and Center for Environmental Excellence to identify mutual areas of guidance, procedures, etc.

Action: Ongoing.

#3) Title: *Sustainable Highway Practices* Lead: Jeff Carpenter (WA)

Plan/Status: Review NCHRP 10-91– Type for selecting and implementing sustainable highway practices.

Action: Determine if a panel or presentation would be beneficial.

HUMAN RESOURCES

#1) Title: *Knowledge Transfer between HQ's and Districts* Lead: Mark Chaput (MI) with Mark Cacamis (VA) – co-lead.

Plan/Status: Research DOT's mentoring of new staff and retaining core competencies as their institutional knowledge leaves.

Action: Develop a testimonial panel for conference presentation.

#2) Title: *TC3 Update* Lead: Mark Chaput (MI)

Plan/Status: More discussion of TC3 transition from FHWA to AASHTO. Help facilitate the revised AASHTO role.

Action: Prepare a presentation on the transition.

#3) Title: *Fatigue Product* Lead: Jeff Carpenter (WA)

Plan/Status: SHRP2 – Fatigue Management Guide – available late 2013. Evaluate this product and make a practical suggestions for its use. 10-91 NCHRP – Type for selecting and implementing sustainable highway practices.

Action: Stay engaged to determine if a panel or presentation is doable.

#3) Title: *TRB Knowledge Transfer* Lead: Marie Venner

Plan/Status:

Action: Stay engaged to determine if a panel or presentation is doable.

WORK ZONE SAFETY (TRAVELING PUBLIC and WORKERS)

Once a month (week before officers mtg) (IE, 2nd Wednesday of each month – start in OCT, as the following week (3rd Wednesday of each month) the larger AASHTO-SOC has their CALL. Invite appointment 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: Oct 9th, 2013

State	Name	Title	Address	Phone	E-mail	SOC Special Assignments
CA SOC Member	Mark Leja	State Construction Engineer, Chief, Division of Construction	1120 N Street, MS 44 P.O. Box 942874 Sacramento, CA 95814	WK 916-654-2157 Fax 916-654-6345	MARK.LEJA@DOT.CA.GOV	Chair EHR
ID SOC Member	Fran Hood	Design/Materials /Construction Engineer	PO Box 7129 Boise, ID 83707	WK 208-334-8426	frances.hood@itd.idaho.gov	Vice Chair EHR Advisory Board – Center for Environmental Excellence
NV SOC Member	Jeff Shapiro	Chief Construction Engineer	1263 S. Stewart Carson City, NV 89712	WK 775-888-7065	JSHAPIRO@DOT.STATE.NV. US	
WA SOC Member	Jeff Carpenter	Director, Director Construction and Materials Division	310 Maple Park Ave SE Olympia, WA 98506	WK 360-705-7821	carpenj@wsdot.wa.gov	Vice Chair Research Steering Committee
WV SOC Member	Stephen “Todd” Rumbaugh	Director, Contract Administration	1900 Kanawha Blvd E Building 5 Rm A 722 Charleston, WV 25305	WK 304-558-9569	Stephen.t.rumbaugh@wv.gov	
TX SOC Member	John Obr	Director, Construction Division	200 E. Riverside Dr. Austin, TX 78704	WK 512-416-2501	john.obr@txdot.gov	
UT SOC Member	Rob Wight	State Construction Engr		WK 801-633-6252	rwight@utah.gov	
KS SOC Member	Sandy Tommer	Chief, Bureau of Construction & Materials		WK 785-296-7129	sandrat@KSdot.org	

State	Name	Title	Address	Phone	E-mail	SOC Special Assignments
MI SOC Member	Mark Chaput	Bureau Deputy Director		WK 517-322-3331	chaputm@michigan.gov	
AASHTO	Greta Smith	Assoc. Director Project Delivery		WK 202-626-5815	gsmith@AASHTO.ORG	
VA SOC Guest	Mark Cacamis	State Construction Engineer		WK 804-371-2531 Cell 804-229-1854	Mark.Cacamis@VDOT.Virginia.gov	
AL SOC Guest	Skip Powe	Asst. Sate Construction Engr	1409 Coliseum Blvd Montgomery, AL 36111	WK 334-242-6209	powes@dot.state.al.us	
WV SOC Guest	Jason Boyd	Regional Construction Engr		WK 304-558-9548	JASON.M.BOYD@WV.GOV	
MI SOC Guest	Leo Evans	Project Engineer		WK 231-777-3451	EvansL3@MI.GOV	
VT SOC Vice- Chariman	David Hoyne	State Construction Engr		WK 802-828-2593	DAVID.HOYNE@STATE.VT.US	SOC Vice- Chairman
NCHRP Consultant	Marie Venner	President/Principa l Venner Consulting		WK 303 748-5333	Marie.venner@vennerconsulting.com	NCHRP Consultant
FHWA Resource Center	Jeff Lewis	Construction and Contract Administration – Team Leader	650 Capitol Mall Ste 4-100 Sacramento, CA 95811	WK 916-498-5035	Jeff.lewis@dot.gov	FHWA Liasion - Secretary

Appendix G

Research Steering Committee Report

**AASHTO Subcommittee on Construction
Research Steering Committee
2013 Meeting Minutes
Detroit, Michigan**

The 2013 meeting of the AASHTO Subcommittee on Construction (SOC) Research Steering Committee (RSC) was convened at 6:30am on August 13, 2012 in Detroit, MI. Those in attendance are listed at the end of the minutes as Attachment 1. The Chair, Jeff Carpenter (Washington DOT), began the meeting by welcoming everyone to the meeting and passing out the agenda for the meeting and announcing that there will be second meeting later this week to prioritize items from the week and decide on who will do what going forward.

NCHRP Update – David Reynaud

David distributed a handout of relevant NCHRP research which is attached to these minutes as Attachment 2. Submissions for new NCHRP projects are due September 2013. David described the different types of projects that can be submitted: 1) Research projects for the NCHRP program. These problem statements are evaluated by the AASHTO Standing Committee on Research (SCOR) each March. 2) Synthesis projects, which do not have a hard deadline for submission and 3) projects that are submitted under the 20-7 program. 20-7 projects support the Standing Committee on Highways. They are less than \$100K and do not exceed one year in duration. 20-7 projects have a panel, but there is no meeting. Reports are not published, but rather given to AASHTO and put on their website. One current 20-7 project is on electronic access for utility permits. Bryan Cawley asked whether the SOC is reviewing the guidebook on CMGC developed under NCHRP 10-85 to assess what to do with it now that the research is complete. It will be presented later this week and one of the tech sections may pick it up as a work plan item.

TRB Update – Fred Hejl

The standing committees in TRB develop research needs statements that this group may want to look at. They are vetted by the committee and posted on the TRB website. Committees cannot forward research to NCHRP, as only AASHTO, the States or FHWA can. There are eight construction committees that may have something to offer. Fred was asked whether there are any TRB committees that are interested in partnering with the SOC similar to other AASHTO committees. This is something to explore.

Jeff Carpenter updated the group on what happened to the research discussed at last year's annual meeting. The SOC submitted one proposed research project titled, "Civil Integrated Management: Benefits and Challenges." SCOR selected it for FY14 funding after FHWA committed \$50K toward the project. The project is designated as NCHRP 10-96.

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 8/12/13.

Roadways and Structures Section – Marc Mastronardi (Georgia DOT)

1. Assess the performance of high content (30+%) recycled asphalt in thin lift construction
2. Inspection methods for ABC bridge elements (e.g. precast caps and columns) – What does the inspection need to be both as it is constructed (primarily), and also in the yard. This could be the development of an inspection guide. This effort would focus on prefabricated concrete elements in a non-fabricated setting. David Reynaud noted that SHRP2 did a project on this in Iowa that may provide some information.

Both of these topics would need to first conduct a literature search to see whether there is already related ongoing or recently completed research.

Environment and Human Resources Section – Jeff Shapiro (Nevada Department of Transportation)

1. Erosion control measures – how to evaluate performance? Need to develop a survey to fine tune what to research. It was noted that a synthesis study could help frame the issues needed for further research.
2. Safety – Is there a culture of safety? – It was recognized that this also needs to be fine-tuned. Are there standardized policies? Need to consider how to phrase the questions so as not to trigger legal concerns. A synthesis may be less inflammatory and provide best practices.

Contract Administration Section – Gary Angles (Ohio DOT)

1. Partnering – Revisit the guidebook. There is a renewed interest nationally, and it would be good to develop an updated resource for the States. Partnering will be a focus area for Contract Administration tech section. Consider how dispute resolution would fit into such guidance. Doug Gransberg did work in Texas and offered to help develop a problem statement. Utah has a nice guide specification. Caltrans has a draft problem statement on cost/benefit of partnering that they previously submitted for NCHRP consideration. Consider building off of the Caltrans statement. David Reynaud noted that problem statements submitted from and AASHTO subcommittee, such as the SOC, carry more weight when they are considered by the Standing Committee on Research (SCOR) than those submitted by an individual State. FHWA stated they would like to support this partnering effort.
2. Emergency contracting procedures/ incident command centers – contracting methods to respond to severe weather and other incidents.
3. Maintaining control of design-build – Ways for States to maintain control in D-B and alternative contracting and performance contracting. Interested in forming a national committee and research and/or develop a manual. This may increase confidence in these contracting methods.

Computers and Technology Section – Tom Ravn (Minnesota DOT)

The tech section didn't get a chance to discuss research and they will plan to do so on Thursday.

Jeff next brought up a request that the SOC has received to endorse a research need that has come from the AASHTO Subcommittee on Bridges and Structures. This is a project titled “Guidelines for Reliable Fit-Up of Steel I-Girder Bridges” is included as Attachment 3.

Later this week, each tech section should discuss these ideas and identify a lead person who would take ownership in developing the problem statements. This person would also likely be on the NCHRP panel, if the project is selected by SCOR for funding.

Jeff raised the topic of possible presentations for next year. Some ideas included the FHWA ongoing research that was included in the FHWA presentation on 8/12/13. Attachment 4 describes these projects. Other possibilities include NCHRP projects included in Attachment 2. There was interest expressed the performance related specifications efforts and it was observed that with the ongoing SHRP2 implementation assistance program, by next year, perhaps someone can provide a presentation on PRS pilots.

Lastly, Jeff solicited input on when the group should have teleconferences between the annual meetings. David Reynaud suggested having a call after the SCOR meeting (March-April) to discuss projects – have people who proposed them make presentations.

The Research Steering Committee will reconvene on 8/16/13 to solidify a prioritized list of research.

The meeting of the Research Steering Committee was adjourned at 7:25 am.

The Research Steering Committee reconvened at 8:00am on 8/16/13. Jeff Carpenter stated that he would like to address the following items at the meeting: 1) feedback on the Research Steering Committee's portion of the 2013 SOC's annual meeting agenda, 2) prioritization of the research needs that were raised at the SOC, 3) agreement on the need for and frequency of calls prior to the next annual meeting, and 4) feedback on whether the second Research Steering Committee meeting during the SOC was beneficial.

Feedback on the Research Steering Committee's portion of the 2013 SOC's annual meeting: Jeff raised the concern that perhaps some of the topics actually belonged within the individual tech sections and he also stated that for this year's meeting, he lost two presenters to the technical sections. While this may be a concern, the group thought it was OK to have some overlap. For next year, it was agreed that Fred Hejl be asked to present the different TRB construction committee so that SOC members are aware of them. NCHRP could also be asked to provide an update next year. There was some discussion on also including a presentation on some nearly completed or ongoing research, provided it is far enough along to have something worth presenting. Possibly check with universities in the Northeast, including MIT, as it is a challenge to get speakers if we don't pay for their travel to the meeting. FHWA has ongoing construction research that could be a possibility. Last, SHRP2 might be considered, if it is more than a general overview and there's an area in depth where there's progress.

Prioritization of the research needs that were raised at the SOC Research priorities:
Each of the technical chairs was asked for the priorities that resulted for their discussions.

The Roadway and Structures (Marc Mastronardi) priorities were 1) erosion control, 2) emergency contracting, and 3) inspections methods for ABC.

Environment and Human Resources (Jeff Shapiro) was interested in inspection elements for ABC (probably their number 1, though they didn't formally prioritize the projects. They would probably put the partnering effort as the second priority, but this should be a modified effort that not only updates the guidebook, but also includes also quantifies the value of partnering. It was noted that during the Roadways and Structures breakout, they learned that Caltrans is partnering with utility owners. It would be beneficial to document how partnering has progressed. The Environment and Human Resources section also agreed that erosion control is an issue and there was some interest in the high recycled content thin lifts topic.

The Contract Administration section (Gary Angles) named the modified partnering topic as their top priority. The write-up would incorporate the problem statement Caltrans developed on the benefits of partnering. Gary then distributed a handout that further described the design build topic raised earlier in the week. The effort would develop a contract administration guide for design build and alternate contracts that provides clear guidance to field personnel regarding contract administration and roles and responsibilities. The group agreed that every State struggles with this and the guidance is needed. As a third priority, Contract Administration selected the emergency contracting topic.

The feedback from Computers and Technology (Tom Ravn) was as follows: 1) Emergency contracting, 2) Inspection for ABC, and 3) Erosion control measures.

The group then discussed whether the AASHTO SOC would endorse the problem statement sent for the AASHTO Subcommittee on Bridges and Structures. In general, there was support to endorse it, but the SOC wants to make sure the efforts includes the development of an inspection guide. Jeff Carpenter will recommend to David Hoyne that it be endorsed with this amendment.

Based on the ideas selected as priorities by the technical sections, the group agreed to further develop the following three topics and submit them for NCHRP consideration by the 9/15/13 deadline:

- 1) Design build contract administration guidance – Craig McDaniel (Washington DOT) will develop the problem statement and submit it as the SOC's top priority.
- 2) Partnering – Gary Angeles will work with Brenda O'Brien and Doug Gransberg to develop and submit the problem statement that includes what Caltrans previously submitted.
- 3) ABC inspection guide – Marc Mastronardi will develop and submit the problem statement.

The group then discussed how frequently they should meet between annual SOC meetings. The group decided to hold a teleconference sometime in February/early March to learn the status of the three problem statements they will be submitting for NCHRP consideration. By February, they should have had input by NCHRP and FHWA and have been ranked by the State research engineers. This meeting will be prior to the SCOR meeting in case an extra lobbying effort for any of the projects will be needed to put them higher on SCOR's radar. A second teleconference will be held in June 2014 to check in and discuss the annual meeting agenda topics.

Lastly, the group agreed that there was value in being able to go back to the technical sections on the research topics and reconvening at the end of the week with a sense of priorities. A similar approach will be used again next year.

The meeting was concluded at 8:45am.

ATTENDEES

NAME	AGENCY	PHONE	E-MAIL
Katherine Petros	FHWA	202-493-3154	<u>Katherine.Petros@dot.gov</u>
Jeff Carpenter	Washington DOT	360-705-7821	<u>carpenj@wsdot.wa.gov</u>
Jeff Shapiro	Nevada DOT	775-888-7065	<u>jshapiro@dot.state.nv.us</u>
David Reynaud	NCHRP	202-334-1695	<u>drevnaud@nas.edu</u>
Diyar Bozkurt	Washington DC DOT	202-671-0606	<u>diyar.bozkurt@dc.gov</u>
Tom Ravn	Minnesota DOT	651-366-4228	<u>Tom.ravn@state.mn.us</u>
Gary Angles	Ohio DOT	614-466-7057	<u>Gary.angles@state.oh.us</u>
Fred Hejl	TRB	202-334-2953	<u>fhejl@nas.edu</u>
Keith Molenaar	University of Colorado	303-735-4276	<u>molenaar@colorado.edu</u>
Chris Harper	University of Colorado	303-887-3055	<u>harperc@colorado.edu</u>
Greta Smith	AASHTO	202-624-5815	<u>gsmith@ashto.org</u>
Bryan Cawley	FHWA	202-366-1333	<u>Bryan.cawley@dot.gov</u>
Brenda O'Brien	Michigan DOT	517-322-1085	<u>Obrienb2@michigan.gov</u>
Marc Mastronardi	Georgia DOT	404-631-1970	<u>mmastronardi@dot.ga.gov</u>

ACTIVE AND PENDING SOC RELATED

NCHRP PROJECTS

August 2013

NCHRP 10-77 [Active]

Use of Automated Machine Guidance (AMG) within the Transportation Industry

Project Data	
Funds:	\$350,000
Staff Responsibility:	David A. Reynaud
Research Agency:	Iowa State University
Principal Investigator:	David J. White
Effective Date:	7/24/2009
Completion Date:	6/30/2013
Comments:	Research in progress, Contractor's draft final report (PDFR) pending

BACKGROUND

Automated machine guidance (AMG) links sophisticated design software with construction equipment to direct the operation of the machinery with a high level of precision, improving the speed and accuracy of the transportation construction process. Because AMG eliminates much of the guesswork, manual control, and labor involved in traditional methods, it improves worker safety and saves agencies and contractors time and money, enhancing their ability to deliver transportation construction projects better, faster, and cheaper. This technology has the potential to improve the overall quality and efficiency of transportation project construction.

OBJECTIVE

The objective of this research is to develop guidelines for use of AMG technology for state transportation agency construction projects. The guidelines should (1) include technical procurement specifications for AMG technology; (2) provide guidance on the use of such technology in construction projects; and (3) address the implementation of AMG technology into construction techniques (including the provision of electronic files and models to support the AMG process).

NCHRP 10-83 [Active]

Alternative Quality Management Systems for Highway Construction

Project Data	
Funds:	\$500,000
Staff Responsibility:	David A. Reynaud
Research Agency:	University of Colorado at Boulder
Principal Investigator:	Keith R. Molenaar, Ph.D.
Effective Date:	8/19/2010
Completion Date:	2/28/2013
Comments:	Research in progress, Contractor's draft final report (PDFR) pending.

BACKGROUND

Project delivery methods in the construction industry have evolved and so have quality management systems. Changes in the roles of owners and contractors in delivery systems range from the highway standard design-bid-build system to design-build/public-private partnership agreements where the responsibility for quality management is shared to varying degrees between the contractor and owner. The design-bid-build system uses the traditional highway quality management system (referred to in this project as the baseline quality management system) with detailed contractor quality control requirements strictly monitored by the owner. The attraction of alternative project delivery methods is the transfer from owner to contractor of some measure of project responsibility that may include design, finance, and/or quality management. These alternatives may result in substantial savings to the owner from lack of design error and omission claims, lower cost of capital, and reduced employment of project management and inspection forces. These alternative project delivery methods have proven to be efficient and effective in many types of construction and are increasingly making inroads into the highway construction arena. One aspect of alternative project delivery methods that may be applied to highway construction now is the application of alternative quality control systems that emphasize contractor quality control and assurance. These new systems allow owners to have confidence through a verification of contractor quality system process. As an example, a formal quality management system, under the International Organization for Standardization (ISO)--ISO 9001 Quality Management Systems--Requirements integrates quality management from the suppliers through the contractors to the owners. It requires post-project reviews and publishes ratings of contractor performance. During the project, the owner verifies that the contractor's quality management plan is in force, rather than providing extensive, detailed specifications and conducting the on-site tests required by the baseline quality management system. Another alternative method is the U. S. Army Corps of Engineers' quality management system. This system provides extensive, detailed specifications and permits on-site testing by contractors. Research is needed to provide guidance on the use of alternative quality management systems for highway construction projects.

OBJECTIVES

The objectives of this research are to (1) identify and understand alternative quality management systems and (2) develop guidelines for their use in highway construction projects

NCHRP 10-84 [Active]

Modulus-Based Construction Specification for Compaction of Earthwork and Unbound Aggregate

Project Data	
Funds:	\$500,000
Staff Responsibility:	Edward T. Harrigan
Research Agency:	University of Texas at El Paso
Principal Investigator:	Soheil Nazarian
Effective Date:	10/7/2010
Comments:	Work is in progress on Phase III.

Earthwork and unbound aggregates are a significant portion of the construction of highway pavements and structures and play an important role in their performance. However, measurement of the dry unit weight and moisture content of earthwork and unbound aggregates for construction control, while relatively straightforward and practical, does not provide as direct a connection between design and construction as there could be if mechanical properties such as moduli and strengths were used. For example, both the 1993 *AASHTO Pavement Design Guide* and the new *Mechanistic-Empirical Pavement Design Guide* (MEPDG) require the resilient moduli of base layers and subgrade as major input for pavement structural design.

Several test methods and devices are available to determine the stiffness or modulus of earthwork and unbound aggregates in the field. However, there is a reluctance to accept field measurements of stiffness or modulus as a criterion for control and acceptance of compaction due to concerns about how such measurements relate to the long-term performance of compacted earthwork and unbound aggregates. Therefore, a prospective modulus-based construction specification must provide criteria or limits related to long-term performance of the earthwork or unbound aggregate as well as to compaction at the time of construction.

The modulus (and, correspondingly, the performance) of earthwork and unbound aggregate is strongly influenced by the seasonal variation of their moisture content. This variation depends on material composition, degree of compaction, and available free moisture, which is primarily controlled by the local climatic environment and the distance from the ground water table. In developing a modulus-based construction specification for compaction of earthwork and unbound aggregate that will provide a direct link with design parameters, all three factors should be examined on the basis of the principles of unsaturated soil mechanics with respect to highway engineering and construction.

OBJECTIVE

The objective of this research is to develop a modulus-based construction specification for compaction of earthwork and unbound aggregate. The specification shall:

- (1) be based on field measures of the stiffness or modulus and moisture content of the compacted earthwork and unbound aggregate that can be correlated with design modulus values;
- (2) provide a single, straightforward, and well-defined method for determining stiffness or modulus that is compatible with a variety of earthwork and unbound aggregate design methodologies;

(3) directly account for the seasonal variation of the modulus of the compacted earthwork or unbound aggregate as the means to determine specification criteria and limits for compaction;

(4) use available models, devices, and methods, as defined in the current literature including *NCHRP Synthesis 382: "Estimating Stiffness of Subgrade and Unbound Materials for Pavement Design"*; and

(5) be founded on a comprehensive review of the current literature on the long-term behavior of various soils and unbound aggregates in terms of the principles of unsaturated soil mechanics.

NCHRP 10-85 [Completed]

A Guidebook for Construction Manager-at-Risk Contracting for Highway Projects

Project Data	
Funds:	\$400,000
Research Agency:	Iowa State University
Principal Investigator:	Douglas D. Gransberg, PhD, PE
Effective Date:	3/8/2011
Completion Date:	7/31/2013
Comments:	Complete. Publishing decision pending.

BACKGROUND

State departments of transportation (DOTs) continue to experience pressure to deliver highway projects faster, better, and at less cost. The Federal Highway Administration's Special Experimental Project 14: Innovative Contracting authorized a number of experimental project delivery approaches that have been successfully implemented across the nation. One of those was Design-Build (DB), for which most states have enacted enabling legislation and SEP-14 approval is no longer required. Under SEP-14, the use of Construction Manager-at-Risk (CMR), which is also called Construction Manager as General Contractor (CM/GC), was authorized for several states. Unlike DB, most states do not have enabling legislation to use CMR. Research has found that traditional Design Bid Build (DBB) project delivery creates problems for DOTs when they try to use DBB to accelerate project delivery. While DB has been successful in many states for accelerating project delivery, it is not appropriate for all projects. States are seeking additional project delivery methods to address risk management, improve schedule delivery, and enable collaboration on design decisions. CMR is one delivery method that may address these issues. In a CMR contract, the owner contracts separately with the project's designer and construction manager. The design contract is modified to create contractual obligations for the designer to proceed with its work in a manner that facilitates the CMR process. The construction manager is usually selected on a basis of qualifications and past performance, though some DOTs with CMR experience also include a price function in their selection process. The construction manager is awarded a preconstruction services contract that directs it to perform services such as constructability reviews, project estimates and schedules, coordination with third parties, risk assessment, and market analysis. At some point in the design process, the construction manager and DOT agree to a guaranteed maximum price (GMP) and the construction manager begins securing subcontractor and material supplier agreements. Many agencies allow the construction manager to lock in construction prices for features of work with volatile material pricing before the final GMP is established. *NCHRP Synthesis 402: Construction Manager-at-Risk Project Delivery for Highway Programs* found that 30% of the

state DOTs surveyed responded that they had either never heard of CMR or did not understand how it worked. Four states with authorization had not tried it because they had no guidance or experience from which to begin. The outcomes from the synthesis show the need exists to develop a set of guidelines that agencies can use to either implement CMR project delivery or to revise their current procedures to take advantage of lessons learned by DOTs and other transportation sectors, such as transit and airports.

OBJECTIVE

The objective of this research is to develop a guidebook for initiating and implementing a CMR project delivery system for highway projects at transportation agencies

NCHRP 10-86 [Active]

Bidding Alternative Drainage Pipe Systems

Project Data	
Funds:	\$484,010
Staff	Edward T. Harrigan
Responsibility:	
Research	
Agency:	Golder Associates, Inc.
Principal	
Investigator:	Michael Maher
Effective Date:	2/28/2011
Completion Date:	2/27/2014
Comments:	Work is underway on Phase 3.

Traditionally, transportation agencies have used the “means and methods” approach for selection and specification of products such as drainage pipe systems. In this approach, the owner-agencies specify a particular drainage pipe system during the design process and the cost of the specified system is included in the contractors’ bids for the project. Federal Register 23 CFR 635.411 requires competition with respect to the specification of alternative types of drainage pipes judged to be of satisfactory quality and equally acceptable on the basis of engineering and economic analyses. Giving contractors the ability to choose from among alternative drainage pipe systems during the bidding process on the basis of performance and cost will help agencies satisfy the requirement of the federal regulation while promoting competition that will lower agency costs.

OBJECTIVE

The objective of this research is to develop a recommended practice suitable for adoption by AASHTO to guide owner-agencies and industry in implementing a performance-based process for contractor selection and delivery of drainage pipe systems on highway construction projects. The recommended practice shall provide guidelines and procedures for (1) owner-agency definition of drainage requirements and (2) contractor bidding of drainage pipe systems to meet those requirements. These guidelines and procedures shall (a) apply performance-based criteria for pipe system selection, installation, and post-construction acceptance, including, but not limited to, durability, hydraulic capacity, structural capacity, service life, environmental compatibility, and requirements for inspection, preventive maintenance, and rehabilitation, and (b) consider relevant construction and post-construction costs. The research shall include (1)

evaluation of the recommended practice in the development of contractor bids for pipe systems on several construction projects and (2) development of an implementation plan to encourage its adoption by AASHTO, state and local transportation agencies, and industry.

NCHRP 10-87 [Active]

Precision Statements for AASHTO Standard Methods of Test

Project Data	
Funds:	\$218,529
Staff Responsibility:	Edward T. Harrigan
Research Agency:	AASHTO Material Reference Laboratory
Principal Investigator:	Haleh Azari
Effective Date:	10/7/2010
Comments:	Work is in progress on Task Order #2.

The objective of this research is to develop or update precision and bias statements for AASHTO standard test methods.

Task Order #1 investigated specific sources of variability in AASHTO T 209, *Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt (HMA)*, and quantified their effects on the precision of the method.

In Task Order #2, precision statements for eight AASHTO test methods are being updated through data mining and an interlaboratory study.

The project final report for Task Order #1 is summarized in NCHRP Research Results Digest 369: AASHTO T 209: Effect of Agitation Equipment Type on Theoretical Maximum Specific Gravity Values. The full text of the project final report is available for download as "Refinement of AASHTO T 209."

NCHRP 10-89 [Active]

Best Practices Guidebook for Optimal Construction Inspection

Project Data	
Funds:	\$200,000
Staff Responsibility:	David A. Reynaud
Research Agency:	Applied Pavement Technologies
Principal Investigator:	Tim Aschenbrener
Effective Date:	6/12/2012
Completion Date:	6/11/2014
Comments:	Research in progress. Contractor's Interim Report pending.

BACKGROUND

In the current era of increasingly scarce highway construction funds, state departments of transportation (DOTs) are struggling to provide effective stewardship of assets and to do more with less. One area of increasing concern is how DOTs are ensuring adequate construction inspection on a growing number of projects with shrinking construction inspection staff (whether in-house, outsourced, or both).

OBJECTIVE

The objective of this research is to develop a Best Practices Guidebook for DOTs to produce quality transportation infrastructure using efficient and effective construction engineering inspection processes.

NCHRP 10-90 [Anticipated]

Guidance for Complying with EPA Effluent Limitation Guidelines for Construction Runoff

Project Data	
Source:	Tennessee
Funds:	\$300,000
Staff Responsibility:	Nanda Srinivasan
Fiscal Year:	2012

*This project has been tentatively selected and a project statement (request for proposals) is expected in **December 2011**. The project statement will be available on this world wide web site. The problem statement below will be the starting point for a panel of experts to develop the project statement.*

On December 1, 2009, the US Environmental Protection Agency (EPA) finalized and published a rule in the Federal Register establishing, for the first time, numeric effluent limitation guidelines (ELGs). The numeric ELGs include turbidity limits and sampling requirements for stormwater discharges from construction sites. The original rule requires that sites that disturb 20 or more acres of land at one time are required to comply with a turbidity limit of 280 NTUs. In August 2010, EPA agreed to defer implementation of the rule and conduct additional analysis after being challenged in court by a number of parties. It is likely a new turbidity limit will be developed that will still be numeric but somewhat higher than the original requirement.

These new requirements will place a special burden on DOTs and other entities, whose construction projects are linear in nature. Sampling of runoff on an active highway construction site can be technically difficult because of safety, access, and the number of potential discharge locations. In addition, the constantly changing conditions on the site will make the installation of permanent sampling sites infeasible.

There are two primary objectives of this research. The first is to develop guidance for linear construction projects to help DOTs meet the impending numeric discharge limits. Construction projects pass through a number of discrete phases beginning with clearing and grubbing through final stabilization. The numeric standard must be met during each of these. Consequently, appropriate BMPs and guidance on their use must be developed for each phase of construction. Recent research on polymers has focused on sediment control, but additional work is needed on erosion control in early phases of construction before final grade is established.

The second objective is to develop monitoring protocols that DOTs can present to their state regulators. Each state is allowed to adopt its own monitoring requirements and it is critical that those requirements recognize the special difficulties of monitoring on highway construction sites. Questions that need to be addressed include the following:

- Must all discharge locations be monitored?
- Can representative locations be designated that are typical for the project?
- What is the appropriate frequency of sample collection?
- How should samples be collected (grab or automated samples)?
- What should the requirements be for sampling outside of normal work hours?
- How should access and safety impact sampling requirements?

STATUS UPDATE: October 2011: The Project 10-90 Panel is holding the issuance of the RFP for this project pending publication of final EPA Effluent Limitation Guidelines.

April 2012: The project panel will convene in July-August 2012 to discuss future course of action.

August 2012: The project panel reviewed the final report for NCHRP 25-25/Task 74 and decided to hold the project pending publication of final EPA Effluent Limitation Guidelines. The panel will teleconference in May 2013 to discuss further course of action.

May 2013: The project panel decided to hold the project until February 2014. The panel will teleconference in March 2014 to discuss further course of action.

NCHRP 10-91 [Pending]

Guidebook for Selecting and Implementing Sustainable Highway Construction Practices

Project Data	
Funds:	\$475,000
Contract Time:	24 months
Staff Responsibility:	Lori L. Sundstrom

BACKGROUND

A number of state departments of transportation (DOTS) and the Federal Highway Administration are exploring how best to integrate the principles of sustainability—meeting human needs for the present and future while preserving and restoring environmental and ecological systems, fostering community health and vitality, promoting economic development and prosperity, and ensuring equity between and among population groups and over generations—into their agency missions and operations (*NCHRP Report 708: A Guidebook for Sustainability Performance Measurement for Transportation Agencies*, TRB, 2011). Under pressure from diminishing natural and economic and natural resources, “...using sustainable approaches in transportation will allow us to continue to enhance quality of life and serve the transportation needs of the present without compromising the ability of future generations to meet their needs” (Federal Highway Administration’s Sustainable Highways Self-Evaluation Tool (*INVEST*)). Significant progress has been made on developing and applying sustainability rating and scoring systems that apply to the continuum of a DOT’s programs and activities, with most of the emphasis placed on decisionmaking during the planning, programming, and design phases of a highway construction project. Relatively little progress, however, has been made on determining how sustainability can be integrated into highway construction means and methods. In the building construction industry, materials, means, and methods have been brought together under the common umbrella of the U.S. Green Building Council’s LEED certification program. AASHTO’s Center for Environmental Excellence lists numerous resources devoted to all aspects of sustainability, but few deal explicitly with construction means and methods. The Green Highways Partnership promotes a system called Greenroads™ that contains construction elements but is predominately focused on design. The New York State DOT’s “GreenLITES” program is a comprehensive effort but with a focus on planning and design. The Ontario Ministry of Transportation currently uses a program called “GreenPave” that includes construction means and methods but is limited to pavement projects. There are other rating systems, including FHWA’s INVEST that give limited attention to construction means and methods. Research is needed to identify sustainable highway construction practices for transportation projects, and to provide guidance on how to evaluate the effectiveness of these practices during construction.

OBJECTIVE

The objective of this research is to identify effective sustainability practices that can be implemented during the construction of highway projects and prepare a guidebook that can be used by DOTs, other transportation agencies, consulting engineers, and construction contractors, to aid them in identifying, evaluating, and selecting sustainable construction practices. The guidebook should also provide guidance on how to evaluate the relative costs and benefits of implementing various sustainability practices during construction.

NCHRP 10-92 [Pending]

Optimizing the Risk and Cost of Materials QA Programs

Project Data	
Funds:	\$400,000
Contract Time:	24 months
Staff Responsibility:	Edward T. Harrigan

BACKGROUND

In the current era of increasingly scarce highway construction funds, state DOTs are struggling to provide effective stewardship of assets and to do more with less. One area of increasing concern is that of quality assurance (QA) that requires inspection and testing of materials incorporated into transportation construction projects. Materials QA practices have been established over many years, with the majority initiated during the construction of the Interstate Highway System. It is believed that many current state DOT materials QA practices may be outdated or disproportionate to what is needed to ensure a quality product and meet federal regulations. For example, Maryland recently conducted a "Materials Quality Assurance Risk Assessment" for the evaluation of their QA program because of shifting responsibilities. With decreasing resources to oversee and administer construction projects that utilize increasingly more sophisticated materials and processes, a review of current materials QA practices and an analysis of their risk and cost are needed to develop guidelines for establishing a materials QA program that optimizes risk and cost. For a field-produced material example, the concrete placed for a sidewalk may have different acceptance criteria than the concrete placed for a bridge deck. For a certified material example, chain link fence may have different certification requirements than precast concrete pipe.

OBJECTIVE

The objective of this research is to develop a methodology for establishing a materials QA program that optimizes risk and cost by providing appropriate types, levels, and frequencies of testing for transportation projects across their full range of type, size, complexity, and project-delivery method.

The methodology shall

(1) be based on a rigorous assessment of the risk and efficiency of resource allocation associated with materials QA practices and (2) consider the effects of aligning state DOT materials testing and acceptance requirements and procedures for federal-aid highway construction projects with the Code of Federal Regulations, Title 23, Highways, Part 637 as well as how such requirements may differ for projects that are solely state funded.

For the purposes of this research, materials QA is defined as all those planned and systematic actions necessary to provide confidence that a material will perform satisfactorily in service; it includes the contractor's quality control (QC), the agency's acceptance procedures, and independent assurance (IA).

NCHRP 20-7
Proposed Research Needs Statement

AASHTO Subcommittee on Bridges and Structures
Chair, Gregg Fredrick, Wyoming Department of Transportation
September 2013

TITLE

Guidelines for Reliable Fit-Up of Steel I-Girder Bridges

BACKGROUND / NEEDS STATEMENT

Steel I-girder bridges are a premier option for utilization on complex curved and/or skewed alignments. However, current practices for detailing the fit-up of cross-frames, combined with challenging attributes of the framing arrangements and erection procedures, often result in problems both during construction and while in service:

- Girders and cross frames that are difficult to fit-up during erection and require unplanned contractor operations such as force fitting of connections, field drilling or field welding;
- Erected girders with webs that are significantly out of plumb which render their utilization uncertain without further evaluation;
- Locked in stresses (in cross frames and/or girders) that were not accounted for in design which may affect safe load carrying capacity;
- Bearings rotated beyond tolerable design limits.

In certain instances, these problems have resulted in construction delays, unnecessary rework, cost and schedule overruns, disputes and litigation. These issues can be avoided by developing a better understanding of the ways in which the framing arrangements, cross-frame detailing practices and erection procedures affect fit-up during steel erection. Specific, focused analytical studies need to be performed to achieve this goal.

RESEARCH OBJECTIVE

The objective of this research is to develop design and detailing guidelines to ensure reliable fit-up of curved and/or skewed steel I-girder bridges. These guidelines will provide a clear understanding of the implications of various framing arrangements, fit-up conditions for detailing, and erection procedures on the resulting constructed geometry, ease of fit-up during erection, and locked-in stresses in the cross-frames and/or girders.

WORK TASKS

Tasks anticipated in this project include the following:

- Select approximately 25 base steel I-girder bridge designs (including erection schemes) from the recent NCHRP 12-79 project studies, considering:
 - Simple spans with a small, intermediate and large bridge width-to-span ratio.
 - Two-span continuous bridges with small, intermediate and large width-to-span ratios.
 - Three-span continuous bridges with small, intermediate and large width-to-span ratios.

- Various span lengths in the above designs, including minimum, intermediate and maximum span lengths of 150, 225 and 300 ft. for simple spans and 150, 250 and 350 ft for continuous spans.
- Various degrees of support skew and horizontal curvature for the above base designs, satisfying AASHTO LRFD design criteria.
- Vary the framing arrangements for the above designs including the offset of the first intermediate cross-frames from the bearing lines, removal of “problem” or “nuisance stiffness” cross-frames, stagger of the cross-frames within regions adjacent to skewed bearing lines, and use of lean-on cross-frames in simple and continuous-span bridges, and the use of skewed bearing line cross-frames versus leaving these cross-frames out and using only perpendicular intermediate cross-frames at interior bearing lines in continuous-span bridges.
- Vary the types of cross-frame detailing (i.e., detailing for No Load Fit, Steel Dead Load Fit, and/or Total Dead Load Fit) utilized with the above designs.
- Conduct 3D FE structural analyses of the final dead load configurations as well as the erection sequences, focusing particularly on cases where fit-up problems may exist. Collect, synthesize and analyze the data from these studies to quantify the influence of the various parameters on fit-up.
- Refine existing guidelines and develop new guidelines to ensure reliable fit-up of curved and/or skewed steel girder bridges.

URGENCY

Owners, Designers, Contractors and Steel Erectors will have the information they need to make better informed decisions regarding the specification, evaluation, and delivery of curved and skewed steel bridges that are constructible and perform as intended. Focused analytical studies are needed to develop these required guidelines.

FUNDING REQUESTED AND TIME REQUIRED

It is estimated that this research will take 12 months to complete and will require \$100,000.

CONTACT PERSON

Gregory R. Perfetti, P. E.
Chair, T-14 Technical Committee for Steel Design
State Structures Management Engineer
NCDOT Division of Highways
1581 Mail Service Center
Raleigh, NC 27699-1581
Phone: (919) 707-6400
E-mail: gperfetti@ncdot.gov

FHWA's Construction Related Research

Contractor Prequalification

Objective: Evaluating the cost effectiveness of performance bonds and comparing the use of performance bonds to performance-based contractor prequalification. Phase I included outreach to the surety industry and a limited cost-benefit analysis was performed. Phase II developed a performance-based prequalification model and will conduct State DOT case studies, during which the proposed model will be evaluated in relation to the current prequalification practices of those DOTs.

Status: Dye Management, Awarded 4/27/11; Phase I Interim Report delivered February 2012. Phase II is complete. Project completed and final report submitted to FHWA June 2013.

Contact: Richard Duval 202-493-3365

Index-Based Cost Estimation

Objective: Recent fluctuations in material prices and market conditions have made it challenging to produce accurate engineers' estimates for highway projects. This study will examine methods that use a construction cost index to estimate project costs and will develop best practices guidance for highway agencies.

Status: Project awarded to Weris September 2012. Developing cost index based estimating platform utilizing "big data" analytics for accuracy and precision and partnering with ASSHTO "Subcommittee on Cost Estimating" to provide expert review and feedback for project. Draft interim report is currently under FHWA review.

Contact: Richard Duval 202-493-3365

Best Practices for Mapping/Marking Underground Utilities

Objective: Project will build off of the utility work done in SHRP2 and will focus on the feasibility of having SHAs be the central repository for utility information within their right-of-way (ROW). Provide guidance to highway owners on mapping the location of existing underground utilities within their ROW to expedite future construction activities, including use of GPS, 3D models, and RFID marker balls and address institutional issues with collecting and providing access to utility information.

Status: Awarded to Texas A&M in Sept 2012. Task B was completed detailing the baseline existing technologies, costs, and best practices for mapping/marking utilities. In addition, Task B laid the ground work for the implementation plan and the return on investment analysis for this project.

Contact: Richard Duval 202-493-3365

Performance Related Specifications

Objectives: Develop prototype performance related specifications for 1) HMA pavements and 2) jointed plain concrete pavements and work with state highway agencies to implement PRS on individual projects as well as on a statewide basis.

Status: 1) HMA: North Carolina State University / Heritage Research (Kim/Huber) – Currently working on rutting model and healing. Testing standards for S-VECD fatigue testing and IDT E* have been reviewed by the Asphalt Mix ETG and forwarded to the AASHTO Subcommittee on Materials. NC State is currently addressing AASHTO SOM comments on the S-VECD protocol. Project completion Feb 2014

2) JPCP: ARA (Darter); Currently, evaluating the beta versions of the revised PaveSpec 4.0 which incorporates the MEPDG concrete models. Contactor will be working with States this summer and fall 2013 to assess the beta version with implementation through actual and shadow specifications. One of this is being planned with the Illinois Tollway Authority. Project completion December 2013. Follow up work to advance the products from these efforts in conjunction with SHRP2 R07 implementation is planned.

Contact: 1) HMA: Katherine Petros, 202-493-3154, 2) JPCP: Richard Duval, 202-493-3365

Intelligent Compaction Quality Assurance for In-Place Density Acceptance

Objective: Correlate Intelligent Compaction roller machine values (RMVs) to in-place density on HMA paving projects to determine how RMVs can be used to reduce/replace density testing.

Status: Contract with Transtec has been awarded. Field work began during 2012 paving season. FHWA is still soliciting possible field projects for a total of nine projects through 2014. To date, two field projects have been completed in Utah and Florida. Likely future field sites include a June 2013 project in Ohio for ODOT, and a project in New Mexico for FHWA's Central Federal Lands. Another two projects are being schedule later in 2013.

Contact: Lee Gallivan, 317-226-7493 and Richard Duval 202-493-3365

Construction Quality Assurance Procedures on Federally Funded Local Public Agency Projects

Objectives: The study will document current construction quality assurance (QA) practices used on local public agency (LPA) projects. Risk areas, as well as successful practices, will be identified in order to guide future efforts to improve LPA QA processes.

Status: Awarded Sept 2012 to Hill International. Survey with identified state agencies and literature review was recently completed. Draft work plan is under review for developing guidance to states on QA oversight of LPA's.

Contact: Richard Duval 202-493-3365

Construction Peer Network - Synthesis of Findings

Objectives: The synthesis will identify research needs as well as summarize best practices in state construction programs that are captured during the Construction Peer Network (CPN) workshops. Topic include: Project supervision and staffing. – Innovative determination of staffing levels; Construction quality – risk based inspection levels; Construction administration - establishing prequalification of contractors; Construction safety – innovative safety approaches; Innovation - tracking meaningful performance measures; Communications/Data/Information Sharing - 3D Digital Jobsite

Status: FHWA has hosted the five peer exchanges in Rhode Island, Michigan, Utah, Florida and Idaho. The synthesis will be developed following completion of all five workshops. Kickoff meeting held April 18, 2013 for drafting synthesis of CPN peer exchanges and surveys.

Contact: Richard Duval 202-493-3365

Projects Not Yet Awarded:

Project Delivery Methods

Objective: Develop guidance on determining when to use different project delivery systems (D-B-B, D-B, CMGC, ATCs) to realize maximum benefits with regards to project type, size and complexity. Project will include documentation of costs, benefits, and risks of different project delivery options and will quantify the benefits of using alternative delivery systems on appropriate projects. Project will also include guidance for analyzing incentives/disincentive clauses on a cost/benefit basis.

Status: Statement of Work (SOW) was revised to address EDC2 needs/feedback and to complement efforts in the Transportation Construction Management pooled fund project. The RFP is progressing through the acquisitions process and expected award by September 2013.

Contact: Richard Duval 202-493-3365

Intelligent Construction Systems and Technology (ICST) Research Support

Objectives: This project will conduct research to further develop Intelligent Construction priorities identified at the ICST workshop held in September 2011, at subsequent CIM workshops, and by the TRB Intelligent Construction Expert Task Group. Likely topics include methods to improve data transfer among designers, agencies and contractors to expand the use of Civil Information Management (CIM) and automated machine guidance.

Status: Working with the Office of Infrastructure to identify research priorities. Statement of Work (SOW) and RFP and currently progressing through the acquisitions process with an expected award date of August 2013.

Contact: Richard Duval, (202) 493-3065

Quality Assurance Programs

Objectives: This project will conduct research designed to improve the core elements of state quality assurance programs, including Independent Assurance, dispute resolution, data validation, and cost/benefits of acceptance procedures.

Status: Research plan developed in partnership with Office of Infrastructure and Resource Center personnel. Multiple Award IDIQ RFP was drafted is currently progressing through the acquisitions process and expected award date of August 2013.

Contact: Richard Duval 202-493-3365

Performance Related Specifications

Objective: Further develop and field validate performance related specifications for both asphalt and concrete pavements. This effort is intended to build off earlier FHWA projects and the SHRP2 R07 project which is focusing on performance related specification. It will address some of the gaps identified as the products of SHRP2 R07 move into implementation.

Status: Procurement package developed in conjunction with the FHWA leads for SHRP2 R07 implementation. Procurement package is in the RFP Acquisitions process with an expected award date of September 2013.

Contact: Richard Duval 202-493-3365

Appendix H

SOC Resolutions

**TITLE: AASHTO SUBCOMMITTEE ON
CONSTRUCTION RECOGNIZING THE MICHIGAN
DEPARTMENT OF TRANSPORTATION, HOST OF
THE 2013 AASHTO SOC SUMMER MEETING IN
DETROIT, MI.**

AASHTO Subcommittee on Construction (SOC)
Recognizing the Michigan Department of Transportation
Host of the 2013 AASHTO SOC Summer Meeting in Detroit, Michigan

WHEREAS, The AASHTO SOC met in Detroit, Michigan, August 11 through August 16, 2013; and

WHEREAS, SOC members from the states and FHWA were greeted with hospitality by Michigan Director Kirk Streudle, State Construction Engineer Brenda O'Brien and members of her extremely competent and friendly staff...; and

WHEREAS, the SOC met and successfully discussed highway construction business and technical issues so as to sustain the high quality and level of service we all provide...; and

WHEREAS, the conference started with recognition that this body is a byzantine organization lead by many stalwarts of the transportation industry....; and

WHEREAS, the SOC members were informed on a variety of timely and pertinent presentations that can be used to advance our own State's efforts....; and

WHEREAS, the recognition that reality often follows the movies as demonstrated in the technological advances in connected vehicle technology (it should be noted that in those same movies, the robots took over the world – just saying)....; and

WHEREAS, the SOC members find it unfortunate that the Detroit Tigers chose Thursday night to return for a game....; and

WHEREAS, the SOC managed to overcome the escalator damage left behind by the New York Jets football players and were impressed with how quickly the hotel staff implemented repairs....; and

WHEREAS, the SOC was treated to a wonderful evening at the Henry Ford Museum where many delicious samplings were offered and rounded out with decadent deserts and a technical tour of the Ford Rouge Factory...; and

WHEREAS, the SOC members touring local area were impressed with how hard citizens of Detroit are working to bring the city back from its financial struggles...., and

WHEREAS, the SOC helped boost the local economy which news of late indicates is struggling however we all found the conference and Detroit to be solvent....; and

THEREFORE BE IT *RESOLVED*, that the participants of the 2013 SOC have thoroughly enjoyed their stay, appreciated the commitment and dedication of the MDOT 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 15, 2013 at the SOC summer meeting in Detroit, Michigan.