

**AASHTO Subcommittee on Construction  
Research Steering Committee  
2011 Meeting Minutes  
Virginia Beach, Virginia**

The 2011 meeting of the AASHTO Subcommittee on Construction (SOC) Research Steering Committee (RSC) was convened at 6:30am on August 2, 2011 in Virginia Beach, Virginia. Those in attendance are listed at the end of the minutes as Attachment 1. The Chair, John Smythe (Iowa DOT), began the meeting by welcoming everyone to the meeting and laying out the agenda for the meeting.

Three problem statements have been submitted for sponsorship or endorsement by the AASHTO Subcommittee on Construction:

1. Integrating sustainable practices and / or requirements into construction activities. (Developed by TRB Committee AFH10 Construction Management and included with these minutes as Attachment 2.)
2. Guidebook for Best-Value Procurement - This would build off an earlier effort now that there have been many more (500+) projects. (Developed by TRB Committee AFH15 Project Delivery methods and included with these minutes as Attachment 3.)
3. TRANS XML schema (Seeking AASHTO SOC joint endorsement along with the other AASHTO subcommittees involved in this effort.)

In addition, the group will consider the ideas put forth by the task groups.

Fran Hood requested that the group also discuss a request which she has received from AASHTO's Center in Environmental Excellence.

David Reynaud distributed a handout on the NCHRP process and highlighted some of the projects that will be presented to the entire SOC later in the week.

Last year one research problem statement that was submitted by the SOC was approved for NCHRP funding. It is NCHRP 10-89, "Determination of Best Practices for Optimal Construction Inspection." In addition, a synthesis proposed by the SOC was also approved. It is NCHRP Synthesis 20-05/Topic 43-13, "Forecasting Construction Staffing Requirements for Future Projects."

NCHRP Submittal Deadlines are:

- Research problem statements are due September 15<sup>th</sup>
- 20-7 proposals are considered by SCOH twice a year when they meet, so there is an opportunity to submit projects in the Fall and in the Spring. The deadline for the Fall submittal is Oct 1, about two weeks before SCOH's meeting.
- Synthesis proposal statements are due January 31, 2012

4.

Technical Section Research Topics

The technical section vice chairs/representatives reported on the research topics identified during the various SOC technical sections meetings.

Environment and Human Resources Section – Jeff Carpenter (Washington DOT)

The Environment and Human Resources didn't actually have a discussion on additional research. This is in part because they were satisfied that their recommended research from last year was funded, they are advancing the sustainability related research from TRB AFH10, as well as the fact that the AASHTO Center for Environmental Excellence will be looking into topics. The steering committee group then discussed the proposed research from AFH10 on sustainability practices. There is a lot that is done in construction that agencies should get credit for. There is also a lot of push to get points on construction practices via various sustainability rating systems. Often, these rating systems seem to narrowly define what qualifies for points and they are often not defined by those with experience in construction. (This will be discussed later in the week as Fran Hood presents FHWA's Sustainability rating tool, INVEST, to the SOC). The group would like to ensure that these tools do not lead to a race to chase points, and it was felt that the research proposed by AFH10 may help bring a voice to the construction perspective. **Jeff will submit the AFH10 proposal on behalf of the SOC.**

#### Roadways and Structures Section – David Hoyne (VT AOT)

The Roadways and Structures section identified the following research topics:

1. Cataloging what people are doing w longitudinal joints in asphalt mixes
2. Non destructive testing of post tensioned, post grouted tendons for superstructures
3. Safety edge- when and where to use it, design standards
4. Best practices on constructability reviews- best practices and guide document. There was project to develop a guidebook several years ago.

#### Computers and Technology Section – Don Greuel (Wisconsin DOT)

As a result of discussions at last year's SOC meeting, WisDOT conducted a survey on project scheduling software. The Computers and Technology section may follow up on this.

George Raymond discussed the TRANS XML research proposal. AASHTO's Technical Committee on Electronic Engineering Data was formed several years ago to address the transfer of data from one system/process to another. This was based on an earlier NCHRP project. There is however, no governing body for the standard of what the schema should be. The research which the SOC has been asked to endorse would develop a process to set up this governing body. They are seeking the endorsement from the committees represented on the Technical Committee, including the SOC. The steering committee agreed to endorse the effort.

The Computers and Technology Section did discuss the two proposals forwarded by TRB and both were favorably received. It was felt that the guidance for best value procurement would be beneficial.

#### Contract Administration Section – Gerry Yakowenko

The Contract Administration Section discussed the proposed research on best value procurement and they were OK with it. They did not discuss other ideas.

There was an overview discussion on the two presentations that will be presented at the SOC Research session. Jennifer Shane will discuss SHRP2 R10, "Project Management Strategies for Complex Projects. She will describe training that will be available as a result of this project. There will be free workshops, but people will need to fund their travel to them. The other presentation will be by David Reynaud who will present an overview of NCHRP projects.

The group then discussed a request which Fran Hood received from AASHTO's Center for Environmental Excellence. The Center is tasked with developing a synthesis of environmental

specifications in construction contracts and developing an online library of environment issues related to construction inspection. They would like to know what would be most beneficial to practitioners and what would the SOC find to be most helpful in managing their environmental programs?

Jeff Carpenter suggested that describing practices regionally may be helpful. What happens in other parts of the country may not be applicable for them. David Hoyne suggested having them keep up with innovations. Things are changing fast. It would be helpful to have a clearinghouse of what works, what is available. (E.g. erosion control settlement issues). There was discussion on focusing the synthesis on sediment control best management practices, BMPs and develop a materials clearinghouse. Consideration should be given to how to stratify that information: by region, topography, vegetation, etc. Also consider how the information is updated. Would it be updated by agencies, but maintained by the Center for Environmental Excellence? It would be best if States submitted input to the Center for posting, but there may need to be a more proactive means of updating the system (e.g. actively review the data and request updates). As for training, there was interest in the various certification programs and what is required on projects.

It was suggested that the Center conduct the synthesis to develop a starting point of the clearinghouse. **Any additional ideas should be sent to Fran.**

The group was then asked to discuss and rank the research that had been proposed:

- Three topics were developed (Sustainability, Best value procurement, TRANS XML).
- Longitudinal joints – Look at what the Asphalt Institute is wrapping up. Charles Jahren is also involved in a project on this and is doing a literature search what has been done. This topic may be appropriate for a synthesis; however that determination would be made after seeing what the Asphalt Institute produced. The synthesis topics are not due until January, and the Asphalt Institute report should be available before then.
- NDT for post tensioned post grouting – The group was not aware of other related work.
- Design standards for safety edge – The group wanted to should stop short of defining what everyone should do. There was concern that the federal government is advocating a safety feature, and from a liability standpoint, the States do not want to appear to just be saying no. It was suggested that the study be broadened to address practices for doing edges safely. The group agreed that this topic should be deferred until States have more experience in showing what is successful.
- Constructability review guidelines – Examine what was done in the NCHRP 10-42, reports 390 and 391 (workbook). Check if it addresses the feedback that construction gives to design on the quality of plans. **David Hoyne will review and see if there are gaps that need to be addressed.**

Don Greuel would like to revisit the topic proposed and submitted last year on the use of cameras in remote locations. Stu Anderson sits on the synthesis committee and stated that this topic did not get a lot of interest. We may need to wait until more people have experience with them. Bryan Cawley mentioned that FHWA has an Intelligent Construction initiatives and will hold a workshop in September to identify promising technologies. This issue can be raised there. Subsequent to the meeting, Katherine Petros discussed this with the workshop organizer and arranged for information on this topic to be included in the workshop handout material.

The Research Steering Committee agreed to endorse TRANS XML proposal and then ranked the AFH10 Sustainability topic as their top pick, with the best value procurement guidebook being their second choice.

The meeting of the Research Steering Committee was adjourned at 7:45am.

ATTENDEES

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**AASHTO STANDING COMMITTEE ON RESEARCH  
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION  
OFFICIALS**

**I. PROBLEM NUMBER**

To be assigned by NCHRP staff.

**II. PROBLEM TITLE**

Integrating sustainable practices and / or requirements into construction activities.

**III. RESEARCH PROBLEM STATEMENT**

State departments of transportation (DOTs) continue to feel pressure brought by both stakeholders or partners to incorporate sustainable practices within their construction projects. However, there is currently no broad definition for what actually constitutes sustainable construction practices for highway projects. A great deal of research has been done on the sustainability of various materials, like warm-mix asphalt and recycled asphalt pavement, but very little if any has been devoted to sustainable construction means and methods. In the building construction industry, materials, means, and methods have been brought together under the common umbrella of the US Green Building Council's LEED certification program. AASHTO's Center for Environmental Excellence currently furnishes network level planning guidance for sustainable infrastructure, but very little information on how to quantify sustainable construction practices. The Green Highways Partnership promulgates a system called "Green Roads," but it is design focused. The New York State DOT's "GreenLITES" program is a more comprehensive effort but it too retains its primary focus in planning and design. The Ontario Ministry of Transportation currently uses an excellent program called "GreenPave" that includes construction means and methods, but its application is limited to pavement projects. Hence there is a need to develop a rational, comprehensive system to measure the sustainability of construction means and methods to furnish guidance to SHAs for evaluating alternatives for sustainability construction.

The lack of information on sustainable construction practices offers opportunities to advance sustainable practices and products in construction OR it offers an opportunity to experiment or provide additional costs to a project. Common terms being used in the industry include 'green pavements', 'green infrastructure' and sustainable pavement, materials and practices. Each of these opportunities are to provide betterment to the social, economic and environment, but currently they cannot be measured or quantified.

The challenges include what does it mean to integrate sustainable construction practices or products into a construction project, what is the cost associated to requiring sustainable practices and or products, how do the requirements relate to ultimate performance and what is the return on investment?

The proposed research should address the following questions:

- What is the definition of sustainable practices for construction activities?
- What are the requirements to validate that a product is sustainable?
- What are the procedures and requirements to accept a sustainable product during construction?
- What are effective practices to validate a level of sustainability on a construction project? (is it material sources, methods of production, reduction of Green house gas – carbon footprint, best practices for environmental stewardship, etc)

#### **IV. RESEARCH OBJECTIVE**

The main research objective is to benchmark the state-of-the-practice in sustainable construction means and methods and combine it with existing research on green highway materials to meet sustainability goals and policies. This study will assemble a set of effective practices and develop a guidebook that can be utilized by agencies to implement based on political or policy requirements the application of sustainable practices in construction. The guidebook should include a methodology to compare sustainable construction alternatives on a basis of both benefit to the environment and life cycle cost. It should also incorporate guidance that allows DOTs to be able to justify the selection of a higher cost alternative on a basis of offsetting environmental/social benefits.

Specific Tasks of the research to accomplish the main objective include:

- **Task 1** – Define the state-of-the-practice in sustainability in construction;
- **Task 2** – Select a representative set of case study projects from public transportation agencies with sustainable contracting experience that can be studied in depth to identify both best practices and lessons learned;
- **Task 3** - Prepare a research work plan that describes the details of the research methodology and methods for identifying best practices and developing conclusions;
- **Task 4** - Execute the research work plan and prepare an interim research report that articulates the data collection and analysis as well as emerging conclusions, effective practices, lessons learned and a proposed outline for the guidebook;
- **Task 5** - Prepare the draft guidebook for implementing sustainable construction projects. Incorporate review comments as required and validate the guidebook's efficacy on actual projects.
- **Task 6** - Publish the final guidebook and a final research report that details the full results of the research.
- **Task 7** – Develop training and workshop packages to support adoption or exploration of sustainability by interested DOTs.

#### **V. ESTIMATE OF PROBLEM FUNDING AND RESEARCH PERIOD**

##### **Recommended Funding:**

Recommended funding for the project is \$350,000 to \$400,000

**Research Period:**

It is estimated that 30 months will be required to perform the research.

The anticipated budget and schedule are based on assumptions for required resources to support on-site collection of Sustainable case study project data, the assembly of the contents of the guidebook and validation of the guidebook in the field directly with the case study DOT. .

**VI. URGENCY, PAYOFF POTENTIAL, AND IMPLEMENTATION**

The intent of this project is to furnish a uniform set of guidelines for the application of sustainable practices during construction at a time when only a few states have implemented such requirements

The payoff of this research is likely to be significant, since there is emphasis on sustainable practices, reduction of green house gas, carbon neutral and the need to be respectful to the social, environment while be cost sensitive.

**VII. RELATED RESEARCH**

NCHRP Synthesis 41-04: Sustainable Pavement Maintenance Practices

**VIII. PERSON(S) DEVELOPING THE PROBLEM**

Debra Brisk, PE – Kimley-Horn and Associates  
Michael Robinson, PE – Kleinfelder  
Doug Gransberg, - Iowa State University

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**IX. PROBLEM MONITOR**

The TRB Committees AFH10 Construction Management is submitting this problem statement through the sponsorship                     

**X. DATE AND SUBMITTED BY**

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**AASHTO STANDING COMMITTEE ON RESEARCH  
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION  
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**PROBLEM TITLE**

Guidebook for Best-Value Procurement

**BACKGROUND / NEEDS STATEMENT**

Transportation agencies are increasingly using best value selection procedures for contracts to deliver transportation projects. In particular, agencies are awarding design-build, construction manager/ general contractor, and certain design-bid-build contracts based on best-value evaluation criteria. Although best-value procurement has been used by a limited number of agencies for more than ten years, many are just beginning to use the process. In some situations, the construction and consulting industry have expressed concerns regarding the transparency and fairness of a process that is based on non-price evaluation factors such as qualifications, experience, technical approach, innovative solutions, etc. Contracting agencies want to use fair, transparent selection procedures. They all believe that it is important to document evaluation decisions and the reasons for the selection of the best-value proposal.

**RESEARCH OBJECTIVE**

This research will provide concise guidance for contracting agencies who wish to develop fair and transparent procurement procedures, solicitation documents, contract documents and administrative procedures for the implementation of best-value projects.

**WORK TASKS**

Tasks anticipated in this project include the following: (1) document the challenges of transparency from a legal, programmatic and social viewpoints, (2) identify Request for Qualifications / Request for Proposal requirements that promote transparency, (3) identify procurement procedures that minimize the overall industry cost of developing proposals, (4) identify and document other procedures and processes that support transparency and objectivity in the proposal preparation process, (5) determine the optimal proposal evaluation criteria, scoring and rating methods from those that are currently in practice, (6) identify award algorithms that promote transparency and achieve the agency's goals of selecting the proposal that represents the best-value, (7) identify and document other procedures and processes that support transparency and objectivity in the proposal evaluation process, and (8) identify and document debriefing procedures that have been successfully used to explain ratings to unsuccessful proposers.

The research will also explore barriers to best-value implementation as well as industry outreach efforts that were used successfully by transportation agencies. The literature review will include a review of existing best value enabling legislation as well as the sections of the Federal Acquisition Regulation that cover best value awards. Case studies on successful transparent best value award programs and industry outreach efforts will also be included.

**URGENCY**

The research has a high payoff potential for agencies that currently transitioning to best-value procurement procedures. This includes many states that are currently using the design-build project delivery method and states that are interested in the construction manager / general contractor or other best-value contracting methods.

**FUNDING REQUESTED AND TIME REQUIRED**

It is estimated that this research will take 27 months to complete and will require \$300,000.

**CONTACT PERSON**

This synthesis problem statement was developed by TRB Committee AFH15 Project Delivery Methods. Questions concerning the scope of the synthesis project may be addressed to:

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## LITERATURE SEARCH SUMMARY

1. [Best Value Procurement for Highway Construction Projects, National Cooperative Highway Research Program Report 561, Transportation Research](#)
2. Alternative Project Delivery, Procurement, and Contracting Methods for Highways, Molenaar, K.R. and Yakowenko, G., Co-Editors, ASCE Press, ISBN 0-7844-0886-6, Reston, Virginia, 2006, pp. 60-79.
3. "Defining Construction Manager/General Contractor Selection Models," Proceedings, 2st International Conference on Transportation Construction Management, Federal Highway Administration, Orlando Florida,
4. [Construction Manager-at-Risk Project Delivery for Highway Programs, NCHRP Synthesis 402](#), ISBN: 978-0-309-14301-1, 2010, 127pp.
5. Preparing for Design-Build Projects: A Primer for Owners, Engineers, and Contractors, ASCE Press, ISBN 0-7844-0828-9, 2006, 296 pages.
6. Project Administration for Design-Build: A Primer for Owners, Engineers, and Contractors, ASCE Press, ISBN 978-0-7844-1075-2, 2010, 286 pages.
7. "Design-Build Contract Award Methods for Transportation Projects," Journal of Transportation Engineering, ASCE, Vol. 125 (6), November, 1999, pp. 565-567.
8. "Best Value Contracting Criteria" Cost Engineering, Journal of AACE, International, Vol. 39, (6), June, 1997, pp. 31-34.
9. [Quality Assurance in Design-Build Projects, NCHRP Synthesis 376](#), Transportation Research Board National Academies, Washington, D.C., ISBN 978-0-309-09795-5, 2008, 139pp.
10. "Project Delivery Method Issues of Different Transportation Modes: One Size Does Not Fit All," 2010 Transportation Research Board, Paper # 10-0621,