

AMERICAN ASSOCIATION OF STATE HIGHWAYS
AND TRANSPORTATION OFFICIALS



COMMITTEE CORRESPONDENCE

September 17, 2003

Address Reply to:

Tommy Beatty, Secretary
Highway Subcommittee on Construction
FHWA - Office of Asset Management
400 7th Street, S.W. (HIAM-20)
Washington, D.C. 20590

TO Members AASHTO Highway Subcommittee on Construction

Enclosed for your information is a copy of the minutes from the 2003 meeting of the AASHTO Highway Subcommittee on Construction in Asheville, North Carolina. Once again, this year's meeting was a tremendous success. Our thanks to Mr. Len Sanderson and his North Carolina Department of Transportation staff for the excellent accommodations and generous hospitality.

This past year we developed, refined and approved 3 resolutions dealing with, Policies and Procedures for the AASHTO Highway Subcommittee on Construction and with North Carolina Department of Transportation Hosting the 2003 meeting. (See Attached File) All 3 resolutions will be presented to the Standing Committee on Highways later this year. Please mark August 15-19, 2004 on your calendars for the 2004 meeting. Lee Onstott of the New Mexico DOT will be our host and based on experiences from past meetings I am sure everyone will benefit from a visit to Albuquerque and the mountains of New Mexico.

I would like to thank each and everyone for your support and participation. The objectives in the Construction Subcommittee can only be accomplished through active participation by all of our members. In addition to the SOC Presentation Notes others are also attached, FHWA Minutes, Section Minutes and Work Plan, List of Presentations, Resolutions etc. If you have any questions or comments, please give me a call at (202) 366-0027. Chris Newman, on my staff, is also available to provide assistance to members. He can be reached at (202) 366-2023, fax (202) 366-9981 or at Christopher.Newman@fhwa.dot.gov.

Sincerely yours,

Tommy Beatty, Secretary
AASHTO Highway Subcommittee
on Construction

Enclosure

Cc Art Hamilton, 3 DFO
Hwy Ops
HIPA, HIBT, HIPT
K. Kobetsky, L. Sanderson, T. Bohuslav

**AASHTO HIGHWAY
SUBCOMMITTEE ON CONSTRUCTION
2002 MEETING
ASHEVILLE, NORTH CAROLINA
AUGUST 4 - 10, 2002**

**Len Sanderson, North Carolina – Chairman
Frank Gee, Virginia – Vice Chairman**

MONDAY, AUGUST 4, 2003

Opening Session

Welcome Address and General Announcements

Len Sanderson (NC DOT and AASHTO Subcommittee Chairman) began the meeting by welcoming the delegates to North Carolina, and the Asheville Area. Len the upcoming week's activities and recognized the efforts of Steve DeWitt and his staff, then introduced James Codell, the President of AASHTO.

James Codell (President of AASHTO) welcomed the delegates to the meeting and thanked them for their participation on the Subcommittee. This is a busy time for AASHTO. The number one concern for both DOT's and contractors is Reauthorization of TEA-21. Imperative that a continuance is established until the new law is passed. They are endeavoring for a six-year bill. It is clear that there will be no increase in the highway gas tax; therefore a bonding mechanism of some sort is needed if the program is to grow in funding levels. Targeting the National Governors Association, which was responsible for the restoration of RABA and will continue to be very active. AASHTO will met with NGA at its meeting in Indianapolis and pursue. Growing the program is the only salvation to give the economy the injection it needs.

Highways for Life, with its \$1 billion earmark used to expedite construction, showcase new technologies and enhance safety. Brian Nichol (Indiana) will review and make recommendations to AASHTO sections at the Indianapolis meeting.

Work Zone Safety. With four out of five fatalities in work zones attributable to the drivers of cars through the zone, it is imperative to influence the mindset of the public – they are the ones at risk.

Environmental Streamlining – Numerous efforts throughout KY and other states. Need to communicate with the public about the many good things DOT's are doing in environment, mobility, and safety. Engage the public, listen to them, and follow through with promises we make to them.

John Sullivan (FHWA NC Division Administrator) expressed pleasure at FHWA's good relationship with the Subcommittee on Construction and the many things we have accomplished together in training and technology transfer. He shared results of Moving Ahead survey, showing the paradoxical results of increases in the segments of the public who are satisfied with the transportation system, and those who are dissatisfied with the system. Traffic flow in work zones and pavement condition were their two priority concerns. Vital few of congestion mitigation and safety, both deal strongly with work zone activities. Consider the 80% increase in VMT since 1980 and the 3% increase in capacity. American spent, on average, 31 hours lost to congested travel annually. Age of infrastructure – average age of bridges in the USA is 38 years; considering typical 50-year design life we are faced with finding new solutions to keep the system operating effectively in the face of these challenges.

Programs such as ACTT consider new approaches that can be applied, in concert with high performing materials, to help “Get In, Get Out, Stay Out”. Stewardship and environmental streamlining – need to build trust with the public and resource agency partners if we expect timely development of projects.

Steve De Witt (North Carolina DOT), the Conference Coordinator, gave a few opening remarks and welcomed everyone to Asheville. He also introduced his staff and mentioned discussed many of the conference logistics and layout of the hotel and Asheville and encouraged everyone to get out and enjoy themselves this week.

Len Sanderson introduced the Task Force Chairman and discussed the transition from Task Forces to Sections, as established in the Subcommittee Reorganization. He indicated that there would be recurring themes throughout the meeting and presentations: Safety, Environmental Excellence, and Quality.

General Session Presentations

Frank Gee (Virginia DOT): Subcommittee Vice Chairman

General Discussion of FHWA Issues, Tommy Beatty, FHWA Office of Pavement Technology, Subcommittee on Construction Secretary: Tommy discussed several of FHWA's ongoing initiatives and activities of interest to the Subcommittee, chief among them the SAFETEA bill. Construction issues discussed included the Accelerated Construction Technology Transfer, performance-related guide specification for work zone safety, establishment of the Transportation Systems Preservation Team, the award-winning FHWA/ SoC video on reducing utility delays, Pavement Preservation Think Tank, FHWA concrete materials laboratory and air voids analyzer. For additional information Tommy can be reached at 202-366-0392 or at tommy.beatty@fhwa.dot.gov.

Highways for Life – Cheryl Richter, FHWA Office of Research, Development, and Technology: In February 2003, FHWA Deputy Administrator Michael Jackson met with the pavements division to present a challenge to develop innovative methods and technology to improve the speed of construction and durability of our highway

system. The result of this challenge is the proposed “Highways for LIFE” program. Cheryl Richter, FHWA pavements division, gave a presentation on this program. The key elements are for highways that are Long-lasting, Innovative, Fast Construction, and Efficient and safe. The goals are: improve safety, reduce construction due to construction, and improve quality. Key elements include: leadership, stakeholder involvement, communication, and investment. The program would be funded at \$250 million per year for 4 years, as an off-the-top set aside of SAFETEA Section 1201 funds. The plan would be to showcase approximately 100 projects, develop new, innovative technology, and create a paradigm shift to meet the goals of the program. The program intends that FHWA and the States work together to utilize proven successes, involve new stakeholders, do the “never been done”, and to be bold and audacious. Its vision is that in four years, we will be able to demonstrate dramatic improvement in the American driving experience. Performance measures include safety, work zone congestion, and construction quality. For more information, please contact Cheryl at 202-493-3148 or at cheryl.richter@fhwa.dot.gov.

Access Board’s ADA Regulations – Scott Windley (US Access Board): Accessibility of Public Right-of-Way has its roots in the Architectural Barriers Act of 1968, Federal Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990. The Rehabilitation Act required self-assessment of facilities and the establishment of a transition plan to address shortcomings. Under the ADA the Access Board, an independent Federal agency, develops the minimum standards for accessibility. The accessibility guidelines, or ADAAG, were mostly developed for buildings, but need to be applied to the different environment of public right of way. Much confusion was expressed during the rulemaking period creating the ADAAG, related to how they apply to streets and other such facilities. The proposed new guidelines will be developed to be more applicable to the concerns of public rights-of-way.

The Public Right of Way Access Advisory Committee (PROWAAC) was appointed in 1999, comprising representatives of the disabled community, industry, and public agencies; they produced draft guidelines for comment ending in October 2002. These generated 1400 comments which are being reviewed in preparation for the development of a proposed rule. Once the Access Board develops the Final Rule on minimum guidelines, the DOT and DOJ will adopt enforceable regulations. The draft guidelines can currently be reviewed at www.access-board.gov/rowdraft.htm. Issues remain, such as what formally constitutes an alteration; the Access Board is aware of these concerns from lawsuits and is working with AASHTO to end up with something usable and understandable. Mr. Windley’s presentation also discussed accessibility issues such as Accessible Pedestrian Signals (so that safe passage for either direction is easily differentiated), alternate circulation paths through work zones, sidewalk widths and curb ramp design, crosswalk widths, coordination with on-street handicapped parking, pedestrian overpasses and underpasses, and roundabouts. For more information, please contact Scott at 202-272-0025 or at windley@access-board.gov.

Question and Answers Session (Frank Gee – Virginia DOT):

Dean Testa (KS) indicated their air voids analyzer has been working for quite some time with success. Within the next 2-3 weeks KDOT will prepare a CD with information on the device, and provide a copy to Construction Engineers and Materials Engineers.

Frank Gee urged participants to return and communicate to their upper management the value of the Subcommittee on Construction meeting and its content. Travel funding and restrictions have hampered participation this year, but its value must not be overlooked. It is important that State Highway Administrators recognize the opportunity the meeting represents.

Steve DeWitt (NC) asked how many states are using owner-controlled insurance programs: Eight indicated they were; two are using presently.

Vince Mammano (FHWA, VA) asked about the design process used for NM 44, as Design Manage Warrantee. The project was designed on a corridor basis, since the state did not have the legislative ability to do design/ build.

Gordon Keith (AK) asked in how many States do project managers handle projects continuously – planning through construction, and with what success. Six indicated they were: in New York, the person had other jobs, which created difficulties. In Delaware, that approach is used only for large projects; it is hard to keep continuity of personnel through a process that can take about ten years.

Steve DeWitt asked how many States conduct total inspection through contractors – QA and inspection process. Three outside design/ build, four on design/ build only.

Jim Sorenson (FHWA, HQ) raised a question regarding the transfer of risk and reward to contractors. He indicated that he is aware of seven States which have run into problems with QA process, materials and workmanship which required action against contractors. He asked how many in the room knew of similar situations in their States – nine. Steve DeWitt said that the experience in NC was that such situations involved low-level people and suggested that training and education could be a solution.

Thomas Bohuslav (TX) asked how many states were using warrantees in contracting: 13.

Cal Gendreau (ND) asked about prompt payment: how many states have a provision where they can back off being judge and jury if they have alternative dispute resolution mechanisms? Virginia does and specifically mentions the subcontracting agreement – the Prime has to pay interest to sub according to the prime rate.

Mike Praul (FHWA, ME) asked how many States have specific penalty provisions for contractors that violate their own QA plan. 3.

Task Force Meetings

Monday afternoon was spent in individual Task Force Meetings to wrap up business items from 2002-2003 and to transition to the new SoC organization of Sections. The meetings were followed by Task Force Reports to the assembled group. The information from these sessions is included in the individual Task Force Minutes file.

Conclusion of General Session

Question and Answers Session (Frank Gee – Virginia DOT):

Thomas Bohuslav (TX) asked whether other States are involved in subcontractor payment disputes. ND indicated its spec book doesn't address, but that dispute regulations said the Engineer doesn't have the authority.

Lee Onstott (MN) asked how many States don't have a minimum ambient temperature for paving. None, but many states use minimum surface temperatures as an indicator.

Gene Wortham (ID). Idaho has a very good dispute resolution specification that they would like to share with other States if they are interested.

Dexter Newman (KS) asked how many States are involving construction teams in design efforts. The majority indicated that they are.

Thomas Bohuslav (TX) asked about the dummy bid process – getting a contractor to provide a bid to see how much the job should cost. New York has done, rarely, in the past.

Jim Sorenson (FHWA, HQ) indicated that if States have a good practice they would like to share with FHWA or other States, they should contact his office and FHWA will prepare a marketing fact sheet to help spread the word. Frank Gee reminded the group of the value using email to pose a question to this group of colleagues.

TUESDAY, AUGUST 5, 2002

Contract Administration Task Force Presentations

David Graham (Idaho Transportation Department): Task Force Chairman

Design-Build Liability – Brian Papernik, Nossaman, Guthner, Knox, & Elliott, LLP: “With control comes responsibility.” Discussed the notion of shifting control from the owner agency to the contractor. When owners assume all the risk, it limits

contractor flexibility. There were a number of alternative approaches discussed; the Basic Configuration Approach is a middle ground, where the owner supplies major elements such as envelope, stationing, number of lanes – these are the constraints placed upon the contractor, which does have considerable flexibility on other elements of the design. Where the contractor has responsibility for final design, the owner may obtain a broad warranty from the design-builder covering design work as well as construction work – regardless of whether related to errors in the owner-provided preliminary design. Inclusion of owner approval for part or all of the design process can influence questions of liability and compensation, depending upon the terms of the contract. The Courts have upheld contractor responsibility (when specified in the contract) even when the owner had to approve the design. Real risk occurs if owner reviewers exert their preferences on the design, rather than checking for compliance; it becomes direction which causes the owner to assume some liability. Contract language cannot solve problems caused by owner interference. For additional information please contact Brian at (213) 612-7858 or at bpapernik@nossaman.com.

Cost Benefits of Design-Build – Dan Dornan, AECOM Consulting, Inc.: Dan discussed the ongoing study based on survey of the States and design build projects completed and under construction. The evaluation studies highway and bridge projects, including lessons learned from other modes and other industries. Some of the major issues considered are: quality/ conformance to specifications, cost, timeliness, level of preliminary design, acceptability of cost and non-cost factors in award, and changes to the design-build contract. The project consisted of a literature search and a web-based survey for design-build project evaluations (using the SEP-14 evaluation for completed projects). The sample size was of 86 projects from 26 states. Preliminary results indicate that the typical project duration was approximately half that of a comparable design-bid-build project. Costs were found to be similar, but based on a very small sample. Typically, time savings is the general advantage expected for design-build process; the preliminary data supports this perception. Although the sample size was not statistically significant, the reported results show a much lower change order percentage for design-build projects. The survey so far points to the need for consistent reporting basis for analysis and determination of results. Still to come is the completion of the literature search, completion of the analysis and modeling of results, and preparation of the final report in 2004. Input from the Subcommittee on Construction managed to help streamline the survey tool and determine the most useful information for it to collect.

Best Value Procurement Methods for Highway Construction Projects – Keith Molnar, University of Colorado: Keith discussed the ongoing NCHRP 10-61 regarding best value procurement: price and other key factors are considered in the evaluation and selection process to enhance the long-term performance and value of the construction. There is a need for screening tools so that these practices can be applied to projects for which they are best suited. Best Value Contracting represents a middle ground between low-bid and sole-source procurement. Determine the criteria that are most important and base selection on those – the ones that have the

greatest impact on the job success. Once proposals are received, they can be compared using any of a number of different rating systems. Award would then be based on a predetermined algorithm: adjusted bid, adjusted score, weighted criteria, qualitative cost and technical trade-off, quantitative cost and technical trade-off, fixed price-best proposal, etc. From 45 evaluation criteria, the study attempted to determine the most commonly used and effective. The upcoming suite of tools will include recommended procurement strategies, project selection tools, strategies for overcoming barriers to implementation, NCHRP and University of Colorado websites and reports. For additional information please visit the project website at <http://construction.colorado.edu/best-value>.

2020 Specifications: A Vision for the Future – Jim Sorenson, FHWA Office of Asset Management: Jim discussed the efforts of the Performance Specifications Technical Working Group and Expert Task Group, and its place in our attempt to attain our goals of improved quality. These groups gathered perspective and insights and developed strategic roadmaps for the implementation of performance specifications. The draft road map is available and was shared for review at the meeting. The umbrella of performance specifications includes performance related specifications, warranties, some method specifications, and discussion of roles and responsibilities between the owner and contractor. Performance specifications have the benefits of improving design-to-construction communication, providing rational pay factors, improving and focusing testing, and improving tradeoff analysis. The effort focuses as much about product performance as contractor compliance, and who does what in today's environment. The performance specification checklist consists of five questions:

- What do we want?
- How do we order it?
- How do we measure what we ordered?
- How do we know we got what we ordered?
- What do we do if we don't get what we ordered?

The mindset is that “you cannot inspect in quality”. Must address roles and responsibilities and address specifications language to find out how best to deliver that product – and provide freedom to innovate and accountability. Fundamental requirements will include quality characteristics under contractor control, performance data, life-cycle cost and rehabilitation tree, and acceptance plans. Suggested additional requirements are for timely testing, mechanistic models and fewer method specifications. Over an envisioned five-year timeframe, the TWG and the ETG will implement the strategic plan, promote the program, identify technical elements of the program and take care of them, and identify necessary research. For additional information please contact Jim at 202-366-1333 or at jim.sorenson@fhwa.dot.gov or www.fhwa.dot.gov/construction.

Cost Growth Control on Highway Construction Projects – Frank Gee, Virginia DOT: To set the stage on the subject, Frank related the history of the Springfield Interchange project, from its \$100 million initial estimates in the planning process to

its current price tag of \$667 million, accounting for design changes, security issues, railroad relocations, etc. The result of the increases has been severe criticism of the Department, accusations of incompetence, and a general eroding of public trust. Consider the message this sends relative to oversight. To help address concerns over cost escalation on construction projects, Secretary Mineta and AASHTO have established a Task Force on Project Oversight. Key issues and elements of the draft report include project control and cost estimating, fraud, quality control, financial management, human resources management, and public trust and confidence. Its appendix includes a discussion on most common reason that costs change (materials, unexpected circumstances, and changes); efforts to identify reasons through different stages of project development; issues related to the increased cost; and how to reduce risks associated with these factors. The report will be issued shortly after the September AASHTO meeting in Indianapolis, and it will be of immense value to the Subcommittee. Recommendations to States include: express costs in terms of year-of-construction dollars; include contingent expenses in estimate; develop financial and project management plans; and develop staffing plans, recruitment strategies. For additional information please contact Frank at 804-786-2707.

Quality Construction Task Force Presentations

Lee Onstott (New Mexico SHTD): Task Force Chairman

Work Zone Safety Notice of Proposed Rulemaking (NPRM) – Brad Hibbs, FHWA North Carolina Division: Since 1980 there has been a 76% increase in VMT with only a 1% increase in capacity, leading to increased congestion and a steady increase in numbers of fatalities in work zones. We can expect over 20% of the system to be under construction at any given time during the summer months. Concerns of safety and productivity are compounded with reduced work hours, increased night work, and compressed construction schedules.

The FHWA issued an Advance NPRM in February 2002 for revision to the regulations to address heightened safety and mobility concerns associated with work zones. Some of the issues for which the 84 respondents showed strong support included:

- Preference for broad policy with support through guidance
- Stratification of regulations to allow States to use their own criteria for application
- Address road user impacts to drivers, pedestrians, neighbors, workers, etc.
- Analysis of work zone alternatives at the planning phase to minimize their impacts
- Better communications with the public
- Need for flexibility in development and procurement of impact mitigation strategies

The proposed rule retains the emphasis on safety but also deals with mobility issues, providing operations management and public information and outreach provisions. States develop and implement policies and procedures that support the systematic

consideration of work zone impacts. Policies and implications recognize that the level of analysis will vary based on the expected severity of work zone impacts. States will be expected to collect and analyze safety and mobility data, perform periodic process reviews and check for safety and mobility and performance, and consider work zone impacts analysis and management procedures throughout the development of the project. Analysis should include measures to alleviate – alternatives, innovative mitigation strategies. The regulations propose the development of a Transportation Management Plan for projects, consisting of the TCP plus (if recommended by the impacts analysis) traffic operations plan and public information and outreach plan.

The NRPM is available for review at <http://dmses.dot.gov/submit> - enter docket number FHWA2001-11130. AASHTO is organizing a review and will keep the comment period open until after its meeting in Indianapolis. AASHTO encourages that States also express comments on their own.

For additional information contact Scott Battles (FHWA Office of Operations) at 202-366-vvvv or at scott.battles@fhwa.dot.gov, or Brad at 919-856-4354 x145 or brad.hibbs@fhwa.dot.gov.

Questions and Answers related to the Work Zone NPRM presentation

Darrell Giannonati (UDOT) asked what performance measures for traffic control exist other than delay. Jim Sorenson mentioned the draft guide performance specification on work zone traffic control; during its development measures were discussed such as delay, flow, and queue length. The draft spec went to the AASHTO Subcommittee on Traffic, and will be applied on a pilot basis on projects within six states; the FHWA is seeking host States and candidate projects.

Thomas Bohuslav (TX) asked whether all the regulations provisions would apply to all projects. The proposed regulations state that it would level of analysis, mitigation, and other action would depend upon the potential for expected impacts. The States can determine that certain kinds of projects (based on size, complexity, or impacts) wouldn't need the additional effort.

Quality Construction Through Certification – Bud Darby, NICET: Bud reviewed Maslow's Hierarchy of Human Needs: Physiological, Security, Belongingness, Esteem, and Self-Actualization, and related it to organizational needs: these are core elements required to attract, grow, and retain employees. There are numerous connections to these theories and certification processes, especially retention and quality. He discussed the several national certification and program standards that apply to highway agencies (including NICET), their third-party governing bodies which separate certification activities from training activities, as well as their requirements for periodic recertification.

The value of certification for the technician includes increased professional stature, increased opportunities for advancement, quicker entry in to new job assignments, etc. Added value to the employer includes independent assessment of employee

competencies using national standards; measurement of training comprehension and identification of training needs; creation of a pool of qualified professionals in focused career tracks; mobility of work forces across state lines; and efficient use of company work force. The value to the public is the protection of health, safety and welfare from fraudulent, unethical, technically deficient practitioners; and the provision high quality engineering products and services, efficiently and at reasonable costs.

NICET is a semi-autonomous division of the National Society of Professional Engineers, which certifies individuals involved in all aspects of construction work, and emphasizes “hands-on” technician work. There are written examination, work experience, work element verification, and personal reference/characteristic requirements. NICET is now working with TCCC and AASHTO to provide qualified, certified employees throughout the construction industry.

For additional information please contact Bud at 888-476-4238x120 or at bdarby@nicet.org.

Transportation Curriculum Coordination Council (TCCC) – Lee Onstott, New Mexico DOT, and Dan Sanayi, FHWA Office of Asset Management: Lee discussed the groups involved in the TCCC and recent activities. Its mission is to commit to national leadership and coordination in training and certification, develop a curriculum for construction, materials, maintenance, project management and to improve the skills and abilities of inspectors, technicians, engineers and superintendents. Upcoming courses for development through the TCCC include Bridge construction Inspection, Structural Coatings Inspectors Course, Concrete Paving Inspector Training, Quality Assurance Technologist Course, and others. States are encouraged to assist in this effort to create core training materials to be shared at the national level and to support the AASHTO supported TCCC pooled fund project, TPF 5-(046). Lee indicated that the for TCCC to succeed it will require adequate funding for its activities, support from the States and AASHTO, top management support from FHWA, cooperation from NHI and reduction of red tape for contracting. Next, Dan Sanayi discussed the TCCC Geotechnical Inspector Certification Program. Through the efforts of the five Regional Certification Groups, industry groups, NHI, and FHWA Resource Center staff, two courses have been completed so far for use by the states. The next training course being pursued for this program is inspector training for the construction of Mechanically Stabilized Earth Walls. The TCCC web site has been revised to share information on all ongoing activities and to serve as a resource about available and upcoming State, Federal, and industry training and certification products. The TCCC website can be found at www.nhi.fhwa.dot.gov/tccc. For additional information please contact Lee at 505-827-5631 or at lee.onstott@nmshtd.state.nm.us or Dan Sanayi at 202-493-0551 or at dan.sanayi@fhwa.dot.

National Partnership for Highway Quality (NPHQ) – Bobby Templeton, NPHQ, Ananth Prasad, Florida DOT, and Bob Harrison, Maryland SHA: What States are

doing to draw the contractors into delivering quality. Contractors have their professional reputation at stake with regards to quality of their work, but they're also concerned about being reimbursed for their effort. The NPHQ is rejuvenating itself, seeking greater industry involvement, developing a new long-range plan, and helping to establish and promote State quality programs throughout the country. It needs cooperation and commitment to implement quality. The annual conference of NPQH will be September 4, 2003 in Minneapolis. Bobby introduced two speakers to discuss the successes of their State quality programs. For additional information on NPHQ contact Bobby at 512-301-9899 or at btemplenqi@aol.com

Florida uses prequalification for its contractors: performance is tied to prequalification, and the State uses evaluation of contractor personnel and performance in its Contractor Grading System to impact the bidding process. It has included a latent defects clause into contracts, requiring contractors to remedy any defects which appear or occur within a two-year period after final acceptance. Starting with the January 2004 letting, contracts will include the provision for "Value Added Pavement", in which contractors guarantee workmanship and materials for three years after final acceptance. Failure to remedy can result in suspension of Certificate of Qualification for six months. Florida has also established provisions for Performance Turf, Landscaping Warrantee, and Signal Warrantee. Improving the specifications has been successful in improving the product performance. For additional information contact Ananth at 850-414-4140 or at ananth.prasad@dot.state.fl.us.

Maryland has established its own quality initiative, and for the past ten years the partnership has shown positive results. Several of the key areas of MDQI are partnering on construction projects (71% of projects amounting to 90% of the dollars are partnered jobs), implementation of quality assurance and quality control, establishment of an industry/ SHA technical team to identify improvements, development of training programs, and holding a Construction Career Day to interest high school and college student in transportation and construction careers. Partnering has helped to improve communication, reduce adversarial relationships, minimize delays, and reduce project change orders by over 50%. Community involvement has been another key to the program's success. Future initiatives will include the development of performance measures, further construction and design innovation, increased industry involvement in decisions, and environmental stewardship. For additional information contact Bob at 410-545-0072 or at rharrison@sha.state.md.us.

Pavements and Structures Task Force Presentations

David Graham (Georgia): Task Force Chairman

Personnel Qualification Requirements for complex Bridge Projects in Florida – Steve Plotkin: Steve's presentation dealt with issues facing construction of cast-in-place segmental, post-tensioned, and movable bridges. A number of problems in the last few years have highlighted the need for increased training and qualification efforts for grouting technicians and post-tensioning technicians. Failures were noted in post-

tensioning steel from loss of protection from corrosion, attributable to deficient grouting and cracked ducts. Florida began a comprehensive inspection and testing program and started discovering more widespread problems. It has instituted changes in its design, construction, and maintenance procedures to correct advanced corrosion issues. Florida has developed a two-level qualification program for grouting technicians, complete with established levels of experience, training courses, testing materials, and a video tutorial and manual for grouting for all personnel involved with performing or inspecting grouting operations. Grouting qualification is currently in place, and the post-tensioning qualification program will be in place in 2004.

For further information, please contact Steven Plotkin at 850-414-4155 or at steve.plotkin@dot.state.fl.us, or visit the FDOT State Structures Design Office website at www11.myflorida.com/structures

Pavement Design Guide – Amir Hanna, NCHRP: The current pavement design guide dates to 1993, and is based on data from the 1950's AASHTO road test in Illinois. The methodology derived from that data was based on limited test sections, with only one location and one subgrade type, modest traffic level, and an evaluation period of only two years. The AASHTO Joint Task Force for Pavements recognizes the limitations and undertook to develop a new guide for new and rehabilitated pavements. Approximately \$7 million has been committed to two NCHRP projects, which will result in the Guide for Mechanistic Design and Analysis, related software, and implementation and training materials. The guide will be founded upon mechanistic-empirical principles, using validated, state-of-the-art technologies. It will use common design parameters for the analysis of all pavement types.

The methodology establishes inputs for climate, traffic, and materials properties, then evaluates their interaction and predicts pavement performance and distress. A tiered approach has been developed for inputs, with complexity and specificity of data dependent upon the magnitude of traffic and other user and department needs. Analysis and prediction models are mechanistic based, with empirical coefficients based on nationwide field data; they include consideration of materials properties with climate, aging effects, and accumulation of damage on a monthly basis. Input information is analyzed to develop damage accumulation, with outputs of predicted distress and smoothness. Results are compared to threshold values, and run through repeated iterations until an appropriate strategy and design is determined.

The Guide accounts for the interaction of traffic climate and pavement structure, provides an integrated analysis process for predicting pavement condition over time, allows for the prediction of benefits from new materials and other features, identifies design deficiencies, considers the effects of construction aspects on performance, and yields cost-effective designs.

For additional information on the Guide please contact Amir at 202-334-1892 or at ahanna@nas.edu, or visit www.2002designguide.com

State DOT Best Practices for Minimizing HPC Deck Cracking – Lou Triandafilou, FHWA Resource Center: Concrete will, and must, crack. We need to minimize and mitigate the cracking to assure durable concrete bridge decks. Major design issues for consideration include the Load Resistance Factor Design code allowing for longer spans, high-performance concrete, deck restraint, and rebar location. Construction techniques such as placement sequence, placement conditions vibration, and curing; proportioning; and materials such as pozzolans in the mix all must be considered in limiting unintended cracking. A recent survey by NJDOT, in addition to FHWA's collection of States' experience through its Community of Practice Website (<http://knowledge.fhwa.dot.gov/cops/hpex.nsf/home>) has helped to share information about conditions contributing to excess cracking and design, construction and materials innovations that help reduce deck cracking. For additional information please contact Lou at 410-962-3648 or at lou.triandafilou@fhwa.dot.gov.

National Certification for Bridge Painting Construction – Mike Praul, FHWA Maine Division: Throughout the country, we spend \$750 million per year painting bridges. Testing and improved specifications help ensure quality of these activities, and certification of contractors and qualification of inspectors is the other facet of assuring performance of the finished product. The National Association of Coatings Engineers (NACE) offers various levels of training and certification, but these are not well-suited to the needs of highway construction and maintenance activities. Other training available through NHI, in-house State programs, and consultant efforts similarly have not been tailored to meet construction needs. The FHWA has been working with the Society for Protective Coatings (SSPC) to develop affordable, available training focused specifically on bridge painting issues. It will be easily updated and modified for State-specific practices and concerns, and will provide for a nationally-recognized certification. The training course will focus on basic understanding of coatings and technology, specific duties of the inspector, specific common problems and difficulties associated with bridge painting, and why various elements of bridge painting are important. The course will be piloted in the winter of 2003, while meanwhile SSPC develops a certification program for the approval of the ETG. Once the course is completed the SSPC will license it to training providers to allow for its presentation frequently and at lowest cost to the States. Future activities will be training and certification for lead removal operations, metalizing, coating concrete bridges, and specialty operations for complex structures.

For additional information please contact Mike at 207-622-8350 ext 109 or at mike.praul@fhwa.dot.gov.

WEDNESDAY, AUGUST 6, 2002

Computers in Construction Task Force Presentations

Claude Oie (Nebraska): Task Force Chairman

National Highway Specification Website (NHSW) – Sid Scott (Trauner Consulting):

The NHSW project has established a source for industry-wide access to thousands of state-of-the-art highway specifications. Consolidation of multiple sources of documentation in one place will benefit States, contractors, and researchers. The NHSW has gathered, organized, and indexed specifications and related information from all the States, FHWA Federal Lands Highways Division, AASHTO Guide Specifications, ASTM summaries, and provides information on innovative DOT special provisions such as QA, warranties, and performance-related specifications. The site can be found at www.specs.fhwa.dot.gov. For further information, please contact Ken Jacoby at the FHWA Office of Asset Management at 202-366-6503 or at ken.jacoby@fhwa.dot.gov.

TCCC Computer Based Training – Mike Moravec, FHWA Resource Center:

Mike discussed the program developed by Minnesota DOT for geometric design. The computer-based training platform can be applied to construction, and Mike has had discussions with TCCC for development of program using the same platform and design team while it is still intact. There are several applicable modules exist which could easily be modified to suit TCCC needs, and the TCCC is working to identify other modules necessary to fill gaps in its curricula. For additional information please contact Mike at 410-962-5623 or at mike.moravec@fhwa.dot.gov.

Site Manager Enhancements – Brad Parks, Info Tech: Brad discussed the Trns•port SiteManager software product, which aids construction project managers, reducing their paperwork load by requiring that data be entered only once. It provides the following integrated functions: field-based data collection using inspector's daily work reports, complete administration of contract records, project-oriented civil rights monitoring and materials management. For additional information please contact Brad at 352-381-4400 or at brad.parks@infotechfl.com

Use of Robotics on Highway Construction – Dr. Steve Platt, University of Nebraska:

Steve talked about the use of robotics to help in challenging environments – such as interplanetary exploration and surgical applications. Highway construction is another locale that can benefit from the application of robotics technologies to help lessen risk to workers. Some of the products he discussed were robotic safety markers – barrels that deploy themselves, and the Cone-Shooter, an automated cone deployment system. Development for the cone system is complete and available through University of California at Davis (ahmct@ucdavis.edu) is nearly complete. For additional information please contact Shane Farritor (also Univ. of Nebraska) at (402) 472-5805 or sfarritor@unl.edu.

Research Steering Group Presentations

Thomas Bohuslav, Texas: Research Steering Group Chairman

Future Strategic Highway Research Program (F-SHRP) Report on Renewal Research – Tom Cackler, Iowa State Center for Transportation Research: This

The main objective of the Renewal research is to provide States with strategies to address rapid, minimum disruption infrastructure renewal needs. The study considers combinations of design approaches, information technologies, construction and operations methods, financing techniques, impact assessment, project management and public involvement. The research will also provide States with tools to characterize renewal projects; to determine which projects require special rapid, minimum disruptions strategies; and to decide which strategies to use for which type of project. Implementation of the research efforts will have to wait until Reauthorization to secure funding for the effort; TRB will ramp up and get Requests for Proposals out after about 6-8 months once the money becomes available. AASHTO is expected to be heavily involved. For additional information please contact Tom at 515-294-3230 or at tcackler@iastate.edu.

National Cooperative Highway Research Program (NCHRP) Update – Tim Hess, NCHRP: Tim discussed the role of TRB and the National Academies in promoting advancements in highways and responding to the needs to DOT's and AASHTO committees. Several select items of interest, NCHRP Reports, active syntheses, and pending projects were also highlighted, including:

- 476 – Guidelines for Design and Operation of Nighttime Traffic Control for Highway Maintenance and Construction
- 451 – Improved Contracting Methods for Highway Construction Projects
- 20-7/152 (Synthesis of Best Practices and Development of Guidelines on Project Cost Estimating) is recently completed and available through email
- 20-24(12) (Avoiding Delays During the Construction Phase of Highway Projects) will be available in a few months
- 20-7(164) (Revision of AASHTO R9-97 "Standard Recommended Practice for Acceptance Sampling Plans for Highway Construction") is underway and will be completed in advance of next summer's meeting.

For additional information please contact Tim at 202-334-2094 or at thess@nas.edu, or visit the NCHRP website at www.trb.org/trb/nchrp.

Concrete Pavement Noise – Mark Swanlund, FHWA Office of Pavement Technology: Mark provided an historical perspective on the issue: since the beginning of our nation's history, engineers have sought different methods for roadway construction to cut down on noise and vibration of vehicles on the roads. Mitigation required by FHWA is for "substantial reduction" of noise levels – not the same as a requirement to reduce below the threshold levels (as does Arizona). Noise is a function of several processes – impact of tread, adhesion, movement of air around the tire, and amplification effects. How noise is measured influences the results obtained, and pavement texture has a significant effect on noise. Reduction of noise

at the receiver is expensive (noisewalls, insulation, etc.); it is preferable to seek reduction of noise at its source. Total noise is not the same as perceived loudness – different frequency ranges are better heard by human ears, and those are the ones to consider in reduction strategies. Mark reported on various strategies that could help reduce source noise, such as increasing the porosity of the pavement surface or using different tining patterns (which has only slight effect on total noise but it can significantly reduce tonal aspects). For additional information please contact Mark at mark.swanlund@fhwa.dot.gov or at 202-366-1323

THURSDAY, AUGUST 8, 2002

Environment Task Force

Frank Gee (Virginia): Management Committee Vice-Chairman

Scanning Tour on Environmental Commitments – Jeff Lewis (FHWA California Division): The scan was conducted during 2002 and 2003 in Texas, Wyoming, Colorado, Indiana, Kentucky, New York, and New Jersey, with participation from FHWA, DOT, consultant, and resource agency staff. The objective of the scan was to bring attention to Best Management Practices used in the states. Lessons learned

- leadership needs to adopt an environmental ethic and spread it throughout all levels of the department
- commitments need to be communicated all the way through the process
- education and training are necessary to promote environmental stewardship
- learn from past experiences – reporting and sharing within and among DOT’s
- apply Get In, Get Out, Stay Out to environment: involve everyone in the final product, avoid “baton passing”
- early coordination of major issues or “fatal flaws” can reduce later delays
- attention to constructability, attention to construction considerations can help limit conflicts later
- remember that environmental commitments are “in perpetuity”
- application to design/ build, ensure that commitments are carried through in contract documents
- mitigation is not an add-on, it is a process, an integral part of the project cost and should be planned and programmed accordingly.
- Involve resource agencies during the construction process as well as the environmental and design process
- Involve contractor and construction team together for Environmental Reduction Incentive Plan to identify and implement measures for further mitigation during construction

The report will be published in August 2003 and is currently available at the FHWA Streamlining website (www.fhwa.dot.gov/strmlng/index.htm). For additional information contact Jeff Lewis at 916-498-5035 or at jeff.lewis@fhwa.dot.gov.

Design-Build Environmental Issues – Gary Shubert (NMDOT) and David Smith (Sierra Blanca Constructors): Changes in New Mexico allowed for the state’s first

design build project. The project selected was the widening from two lanes to four of US 70 in southeastern New Mexico. The goals of the effort were to upgrade the facility at the same time as preserving and protecting the environment and mitigating any unavoidable impacts. Both the Department and the Contractor shared a project focus on quality, safety, time and budget, environmental issues, and local concerns. “Progress and Preservation” was adopted as the theme of the project. Considerable opposition from local groups and the late discovery of archaeological resources complicated design and construction. Ultimately, the project design was completed with minimal delays and additional costs. Redesign successfully allayed opposition concerns, and the Department generated good relationship with the SHPO (the actions of NMDOT were actually defended by the SHPO when challenged by opposition groups). The Natural Resources Defense Council will showcase the project as exemplary handling of the NEPA process and public involvement. The project highlights the importance of clearing outstanding issues (environment, utility, etc.) prior to the start of the design/ build contract. For additional information contact Gary Shubert at 505-637-7201 or at gary.shubert@nmshtd.state.nm.us.

Indiana I-70 at Indianapolis Airport, Ron Heustis (INDOT), & Mike Whitting: The project provided a new local interchange, access to a planned new airport terminal, a new runway overpass, reconstruction, widening and realignment of the interstate mainline. The project was fast-tracked through the Continuous Design/ Construction Interface, but the State chose not to make it a design-build effort. Seven separate contracts were let as their design phases were complete to expedite the start of construction. The effort was complicated by numerous structures and utility relocations. The major environmental issues faces on the project were creek channel relocation, erosion and sediment control, wetlands mitigation roads, and the Indiana bat. Partnerships with the airport, municipality, private developers, and resource agencies have contributed to its success so far. Environmental mitigations and enhancements were estimated at approximately \$4.5 million, or about 2-1/2% of the project budget.

Questions and Answers Period

John Grady (NY) asked about the Federal rule requiring release of retainage to subcontractors. NY and TN have applied for a waiver, since it is contrary to State law. NCDOT has not seen major issues from doing away with – although the potential for liquidated damages needs attention. TX surveyed and found that about 25 states have gone to zero retainage. For over ten years MN has had zero retainage on all projects, regardless of Federal involvement, with little or no problems. In VT contractors have complained that it limits their ability to correct work after the fact. OK instituted another bond, the Payment Bond: any sub can request prefinal inspection on their work, finalize their quantities so retainage can be released; has not resulted in too much additional effort on the State’s part.

A question was raised about recognizing second or third-tier subcontracting arrangements. OK doesn’t allow-do other? Allowed in KS and covered under the

Prime's bond. Technically, all their relationship is just with the prime, anyway. In NY there were DBE's subbing to non-DBE subs, so the practice was disallowed.

A question was raised whether States were doing auction bidding or reverse bidding for materials or construction (using services like eBay): VA allows for supplies and commodities, few others limited use to materials.

Byron Coburn (VA) asked whether States would release control estimate after receipt of bids or award (develop a time of bid final market estimate for comparison of bids). Five said they did. NV and TX will release as a lump sum of work prior to bids (it's available as public information). Both states report that it has not affected their ability to receive bids significantly under the engineer's estimate.

A question was raised concerning how often other States update their Liquidated Damages schedule. VA and NM review and revise when they revise their specifications.

A question was raised concerning States' policy on unbalanced bids. NC has one – the current administration is putting together best practices on it and will share its report later this year. RI does a complete review and throws out all bids in such cases; it has been their policy for 20 years with no major difficulties. IN has strange unit prices and irregularities, but lets contractors live with those instances – protests from other contractors have been filed in extreme cases (like \$0.00 unit prices).

A question was raised why the NPRM on Work Zone safety needed to go through the regulatory process and could not be issued as guidance. Many States concurred with that notion. FHWA explained that since it was an existing regulation, modification needs to go through the rulemaking process for public and agency input. AASHTO is putting together a panel for its review and comment. It started with Best Practices and got rolled into regulation; need to clarify wording and ensure flexibility and scalability.

Business Items

Three items were addressed:

Resolution for Subcommittee support for computer-based training. Moved (Steve DeWitt, NC) and seconded (Gene Wortham, ID) and passed without opposition 35-0.

Adoption of Policies and Procedures. Moved (Steve DeWitt, NC) and seconded (Gene Wortham, ID) and passed without opposition 35-0.

A Resolution was raised regarding NPHQ. The Subcommittee on Construction has always had a strong focus on quality; there has been concern in light of its restructuring that that focus will remain. The resolution committed to support NPHQ with funding and continue and develop programs to ensure a high level of quality.

Moved (Amar Bhajandas, PA) and seconded (Dean Testa, KS) and passed without opposition 35-0.

With regards to Resolutions, there was a 2/3 quorum present for their passage. The following States were not in attendance at the meeting: Arizona, California, Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Iowa, Maine, Massachusetts, Michigan, Montana, Ohio, Oregon, West Virginia, and Wisconsin.

The Subcommittee Sections convened to develop their Final Work Plans. The information from these sessions is included in the individual Task Force Minutes file.

Final Business and Wrap Up-Session

(Frank Gee, Virginia):

Subcommittee Vice-Chairman Frank Gee chaired the wrap-up session, during which a vote was held in favor of holding the 2006 Subcommittee on Construction Meeting in Puerto Rico.

Please mark August 15-19, 2004 on your calendars for the 2004 meeting. Lee Onstott of the New Mexico Department of Transportation will be our host and based on experiences from past meetings we are sure everyone will benefit from a visit to Albuquerque and the mountains of New Mexico.