

## Protecting Our Nation's Bridges and Tunnels

### Engineers Face New and Unexpected Challenges

(Continued from page 1)

In 2006, this workshop will be offered in two formats. One will be an abbreviated version of the current workshop for inspectors and maintenance personnel. This workshop will focus on identifying threats and locating vulnerable components on bridges and tunnels.

The second format will be extended to cover the material over 1½ days and is targeted towards engineers and other technical personnel. The additional time will be utilized to cover the risk-based method in more detail to prioritize mitigation measures for vulnerable components.



The MdQI Steering Committee is jointly sponsored by representatives of the following agencies



#### Activities In Maryland

In the wake of September 11, Maryland like many other states has been conducting security evaluations of their infrastructure network. The goal of the evaluations has been to characterize the threat posed to their many and various facilities as well as to identify operational strategies to respond and recover from events in a coordinated and effective manner. As a result of the evaluations, State bridge owners have identified critical structures and are taking measures to assess and mitigate the risk to these structures. Vulnerability assessments have been conducted on a number of structures by a combination of State, United States Coast Guard, FHWA and consultant personnel. Maryland's activities in the areas of infrastructure protection, response and recovery are a continuing effort.

**The MdQI Mission** - "To provide the Maryland Highway Industry a forum that fosters Coordinated and Continuous Quality Improvement in order to ensure Safe, Efficient, and Environmentally Sensitive Highways which meet the needs of all Transportation Stakeholders"

Please visit our [website at www.mdqi.org](http://www.mdqi.org)

# PARTNERS IN QUALITY

A PUBLICATION OF THE MARYLAND QUALITY INITIATIVE STEERING COMMITTEE (MdQI)

#### STEERING COMMITTEE

**Doug Rose**  
MdQI Chairman, SHA  
**Daniel Cheng**  
MdQI Co-Chairman, JMT

**Sponsors**  
**Ed Adams, Jr.**  
CEAM

**Hassan Raza**  
FHWA  
**Brian Dolan**  
MAA  
**Keith Duerling**  
MDTA

**Tom Evans**  
MRMCA  
**Sam Miller**  
Northeast ACPA  
**Brian Holmes**  
MHCA  
**Fred Wagner**  
ACEC MD

**Subcommittee Chairs/Co-Chairs**

**Conference**  
**Bob Olsen**  
JMT  
**Ray Moravec**  
URS

**Highway Operations**  
**Bob Harrison**  
SHA

**Bob Simon**  
Site-Blauvelt

**Training & Recruitment**  
**Barry Catterton**  
SHA

**Joe Makar**  
Whitman Requardt

**Partnering**  
**Bridgid Seering**  
SHA

**Steve Whitecotton**  
P. Flanagan & Son

**Project Development**  
**Daniel Cheng**  
JMT

**Kirk McClelland**  
SHA

**Public Relations**  
**Joel Oppenheimer**  
STV, Inc.

**Eileen Straughan**  
Straughan Environmental

**Members**  
**Shelly Baquol**  
MHCA

**Greg Brzozowski**  
Melvin Benhoff Sons

**Dick Weddle**  
SHA

**Tony Mawry**  
Wallace Montgomery

## Protecting Our Nation's Bridges and Tunnels

### Engineers Face New and Unexpected Challenges

#### Are we prepared to handle the situation?

Subsequent to the terrorist attack of September 11, 2001, bridge and highway engineers faced new and largely unexpected challenges related to protecting the physical security of critical transportation assets against possible attacks. Though the 9/11 events targeted buildings of significance, an Al Qaeda terrorist training manual captured in England contains goals that included missions for "gathering information about the enemy and blasting and destroying bridges leading into and out of cities." State Highway Agencies (SHAs) must now identify any "missing" gaps and seek "best practices" guides and innovative techniques to enhance the security of their critical assets. However, the SHAs do not often possess the required resources and expertise to develop such technical standards and innovative ways of reducing the structural impacts of terrorist threats.

In 2002, the Federal Highway Administration (FHWA) assembled the Engineering Assessment Team for Security in an effort to address

this concern. The team is comprised of employees from the FHWA Resource Center, Headquarters, the Turner-Fairbank Highway Research Center, the Federal Lands Highway Division, and Division offices. The mission of the Team is to assess structures in order to reduce vulnerability, minimize damage, and facilitate recovery from terrorist attacks.



Two of the main activities that the Engineering Assessment Team has undertaken in support of its mission are to perform vulnerability assessments of critical structures and to provide security training to SHAs and other bridge owners.

#### Vulnerability Assessments

Vulnerability assessments are an intense investigation of the critical components of bridge and tunnel structures that considers the likelihood that a terrorist can get an explosive, or other threat, to the

critical locations and cause catastrophic damage. This information can then be used to develop cost-effective, prioritized strategies to make these facilities more resilient to these threats. The Engineering Assessment Team has worked with five SHAs to assess their critical infrastructure by identifying vulnerable components and recommending mitigation measures to lessen the concern, plus there have been three project-specific reviews in other States. In addition, the team has provided expertise to the United States Coast Guard as they completed assessments of every port across the country.

#### Training

The Engineering Assessment Team has developed a 1-day workshop on Bridge and Tunnel Security and it has been delivered six times since September 2004 and there are four other workshops requested. The goal of the workshop is to identify threats to bridges and tunnels, list vulnerable bridge and tunnel components, recommend mitigation measures to help protect the structures, and identify a method of risk assessment.

Continued on page 6

## "Progress Through Partnerships"

### 2006 MdQI Conference to be Held on January 18th and 19th

The 2006 MdQI Conference will be held at a new location on January 18 and 19 at the Wyndham Hotel in downtown Baltimore. Due to the continued success and growth of the conference, this location has been selected to meet our current and future needs.

The theme for this year's conference is "Maryland Highways - Progress Through Partnerships". The focus of this year's conference is on Accelerated Construction, Environmental Stewardship, Work Force Development, Safety and Training.

Several sessions are currently under development with an increased focus toward the contracting industry. In

addition, the 2006 conference will revisit the conference sessions with "action items" from the 2005 conference.

The conference will provide you with the most current information on new industry trends including environmental compliance, incentives, segmental construction, work zone best practices and construction materials and pricing. In tradition with past year's conference, attendees will also get a first-hand look at the state's mega projects. In the spotlight this year are the Intercountry Connector and I-95 Section 100 projects.

More Conference information on page 3

## MdQI Chairman's Letter

Welcome to the 2005 winter issue of Partners in Quality, a publication of the Maryland Quality Initiative Steering Committee. This year has brought with it Maryland's fast-tracking accreditation for State Quality Partnership. The Conference Sub-Committee is actively involved in preparing for the 13th Annual MdQI Conference, "Maryland Highways - Progress Through Partnerships." This two day Conference will be held at this year's new bigger and better venue, the Wyndham Inner Harbor Hotel in Downtown Baltimore City on January 18 and 19, 2006. The conference provides a great opportunity for our highway industry partners to work jointly as a group and discuss the day to day challenges, important topics, and innovative ideas and developments which our industry is facing as a whole.



We were excited as well as encouraged by last year's enlarged participation and hope the increased attendance becomes a standard for years to come. MdQI will again feature some exciting keynote speakers, training sessions, and exhibit areas with demonstrations and displays. Presentation Session topics will include, Environmental Compliance, Accelerated Construction, Workforce Development, Design Build Risk Allocation, Mega Projects, Work Zone Best Practices, Time Management, and Congestion Mitigation Relief /Unconventional Intersections.

The Conference will culminate on day two with a banquet and presentation of awards for exceptional work on Maryland highway projects. Inside this newsletter, you will find additional information about this year's conference. You can also register online at [www.mdqi.org](http://www.mdqi.org). You will receive a registration packet in the mail this Fall. If you have any registration questions, please contact Barb Smith at 410-545-0360 or Shelly Baquol (MHCA) at 410-760-9505.

The Maryland Quality Initiative (MdQI) after thirteen years of existence ranks as one of the most progressive State Quality Partnerships in the nation. When the National Partnership for Highway Quality (NPHQ) established accreditation guidelines for state quality, Maryland began efforts for accreditation. NPHQ is a groundbreaking partnership of the Federal Highway Administration, the American Association of State Highway and Transportation Officials, the American Public Works Association, the National Institute for Certification in Engineering Technologies, and 9 of the nation's leading roadway construction trade associations. For Tier One accreditation there was a need for two-chairs; one from public sector, one from industry. I will serve as the former and Dan Cheng from JMT will serve for the latter. MdQI's charter was changed describing MdQI's operations, membership, committee composition, meeting schedule, annual awards program, and performance measures. The Tier One application to NPHQ was submitted in September 2005 and will be followed up shortly with the Tier Two application.

We encourage everyone to take advantage of the MDQI web site which has many enhancements from last year. Joel Oppenheimer of the Public Relations Sub-Committee has worked hard to make this web site more user friendly and interactive. Please take time to visit the site. Directions and parking information for the new bigger and better location are posted on the website at [www.mdqi.org](http://www.mdqi.org).

Our Training & Recruitment Sub-Committee, under the Leadership of Barry Catterton, have conducted a number of Engineering/Outreach Workshops throughout the various area high schools. A workshop was held on September 29, 2005 at Centennial High School and was a very successful event. I would like to thank everyone who participated and supported this vital part of enhancing the youth of today.

Once again, thank you for your continued hard work and dedication to our State Highway, our industry and being an integral part of MdQI and its many initiatives. Also, special thanks to the Secretary of Transportation Robert L. Flanagan, Executive Director of The National Partnership for Highway Quality (NPHQ) Bob Templeton and SHA Administrator Neil Pedersen for their support and participation in the 2005 conference. I look forward to seeing you at the 13th annual conference this Winter.

**Doug Rose**  
MdQI Chairman, SHA Deputy Administrator, Chief Engineer for Operations

Page 2

## Industry News Updates and Schedule of Upcoming Industry Events

Need Information? go to [www.mdqi.org](http://www.mdqi.org)

Check out MdQI's website for information on last year's conference, plans for the 2006 conference, and updates on other current news and events.

### Mark Your Calendars for the 2006 Concrete Conference

The Maryland Concrete Conference Committee has begun planning their sixth annual Concrete Conference. The conference will be held on February 28, 2006 at the Sheraton Baltimore North in Towson, Maryland.

Registration information will be broadcast through the various industry associations (ACEC, FHWA, MD SHA, MHCA, MRMCA, ACPA, etc.).

The 2006 conference venue will include a morning program with an extended general session and an afternoon program with 2 concurrent sessions (not repeated) on concrete structures and concrete paving. Once again, vendors will be exhibiting their products and services during the conference.

The conference is appropriate for consultants, specifiers and contractors involved in the design, construction, or maintenance of concrete assets.

The conference is sponsored by the Maryland State Highway Administration, along with Federal Highway Administration, the Maryland Ready Mix Concrete Association and the American Concrete Pavement Association.

For more information, contact Tom Evans at 301-694-4899, Sam Miller at 301-471-4305 or visit [www.marylandconcrete.com](http://www.marylandconcrete.com).

### Name Submissions for the National Work Zone Memorial

There are currently 1,179 names on the American Traffic Safety Services Foundation's National Work Zone Memorial. Additional names are currently being gathered for inclusion on the traveling exhibition as it undergoes a maintenance period in December. During this time, names received via faxed form will be added for the 2006 season.

To include names, please contact Kathy Toney at (540) 368-1701, ext. 116, or by e-mail at [KathyT@atssa.com](mailto:KathyT@atssa.com) for a form which can be filled out and faxed to ATSSA at (540) 368-1717.

Names on the memorial are categorized as pedestrian, work zone worker, motorist, law enforcement, public safety official, and children.

## New Erosion and Sediment Control Classes in 2006

The long and circuitous process of revising the erosion and sediment (E & S) specification, the development of the management/evaluation checklist, and the training curriculum is about to come full circle. But, unlike T.S. Eliot, we will not end our explorations by arriving where we started. Instead, our circle is more like a spiral, and the new training classes will usher in a new era of environmental stewardship.

First let's review the bidding. The current green card training is still required and is a pre-requisite to the new training. The green card training comes from MDE and deals with legal, regulatory and policy issues involved in E & S control. It's a half-day course with a certification examination, and it's free. Certifications are effective for three years.

There are two new E & S courses. First is the basic course, and second is the designer course. The designer course is taken after completion of the basic course. Initially, only the basic course will be offered.

### THE BASIC COURSE

Intended for contractor personnel (project managers and E & S supervisors) and SHA inspectors, the basic course is an initiative

of SHA and is intended to improve the quality of our E & S control performance. Completion of the basic course will be a requirement on all SHA contracts requiring E & S control. The course was developed by SHA in cooperation with consultant and contractor representatives. It covers basic science, proper E & S system installation and maintenance, how to use the E & S Quality Assurance checklist, and design modifications. This is a 1.5-day course, with a certification examination, and the cost for the course is \$75. Certifications are effective for three years.

### THE DESIGNER COURSE

Intended for E & S system designers-and suggested for contractor project managers and E & S supervisors on design-build contracts, the designer course will cover design considerations, strategies, and standards, as well as plan preparation and specifications. This is a one-day course with a certification examination, and the cost for the course is \$60. Certifications are effective for three years.

The course will be offered by MHCA on a regularly scheduled basis at MHCA or, by special arrangement, at off-site locations. For more information about course content, contact Polly Soliday at SHA at 410-545-8415. For schedules and registration, check [www.mdhighways.org](http://www.mdhighways.org).

## ACEC/MD Hosts Project Management Workshop



Responding to input from participants at previous quality control workshops, the American Council of Engineering Companies/ Maryland (ACEC/MD) hosted approximately 150 attendees at a recent Project Management Workshop. At the previous workshops, both client and consultant representatives agreed that insufficient project management was a factor in quality deficiencies.

Responding to this challenge, both ACEC/MD representatives and representatives from client agencies such as the State Highway Administration, Baltimore County Department of Public Works, Montgomery County Department of Public Works and Transportation, the U.S. Army Corps of Engineers, and Towson University developed the program to address issues impacting projects in both the horizontal and vertical arenas. Accenting the program was a presentation by a representative from nationally renowned Shapiro Negotiations Institute, who addressed the audience on maximizing the effectiveness of negotiations.

While the forum highlighted areas that need to be addressed, utilizing input from attendees and other survey data, ACEC/MD hopes to provide future workshops that will address specific solutions to both project management and overall quality control.

In the upcoming months ACEC/MD member firm representatives look forward to working with representatives of the MdQI's Student Outreach Program. Both organizations' programs strive to expose middle school and college bound high school students to careers in engineering and related fields by providing them with

hands-on demonstrations from practitioners. The enthusiasm displayed by both students and professionals gives reason for optimism that the decline in engineering school enrollment can be reversed in the not too distant future.

Coming this fall ACEC/MD's December 20, 2005 General Membership Meeting, hosted by the ACEC/MD's Fellows Committee, will feature a presentation on security issues from both the federal and local perspective. ACEC/MD's Fellows are past presidents, registered engineers or land surveyors who have notably contributed to the advancement of consulting engineering in administrative leadership, design, science, or by service to the profession.

The December General Membership Meeting will also feature the announcement of the top award winners in the 2006 ACEC/MD Engineering Excellence Awards competition. This year's competition featured 17 entries from member firms; a new record for the competition!

As has become tradition, ACEC/MD will host its annual Holiday Party at the Baltimore Museum of Industry on December 7, 2005. Over 100 member firm representatives and their guests are expected to take part in this joyous celebration in one of Baltimore's truly enjoyable venues.

ACEC/MD continues to have success in membership recruitment. One of only five American Council of Engineering Companies (ACEC) member organizations to be recognized at this year's annual ACEC Convention for experiencing at least a 3% growth in membership, ACEC/MD now boasts over 80 member firms employing well over 4,000 people.

Page 5

## Annual Construction and Engineering Career Day



The Industry Recruitment & Training Subcommittee, chaired by Barry Catterton (SHA), and Joe Makar (Whitman, Requaard & Associates) is working hard to show Maryland's high school and middle school students that exciting careers await them in the highway construction and engineering industry. The focus of the subcommittee has been to produce the annual Construction and Engineering Career Day (the next event is scheduled for April 25, 2006 at Timonium Fairgrounds), and the Engineering Outreach program which is presented at local high schools. The Engineering Outreach program has been in place for three years, and has visited a

number of high schools and middle schools throughout the state. Engineers from SHA and a number of local engineering firms serve as the workshop presenters. The workshops are very well received by students and teachers alike.

For the next Career Day, the subcommittee is working with Baltimore County Schools on a structured event with Baltimore County high school students. We are purposely limiting the attendance this year in order to host an event with timed, hands-on presentations, with limited groups of students at a time. We feel that this format will be much more informative for the students and other attendees. In the future, we will consider hosting an event in another county or Baltimore City. More details on how you can participate in these events will be provided in upcoming, industry newsletters (MHCA, MAA, MRMCA, ACEC, etc.).

The subcommittee has been asked to add an industry training objective as well. Our role would be to serve as a "clearinghouse"

for all training and certification activities that our industry is involved in. We would not deliver training, we would publicize training and solicit training and certification needs from all industry partners. The MdQI website could be a valuable tool for promoting training activities and seeking input on training needs.

If you are interested in participating in the great work that the MdQI Industry Training & Recruitment Subcommittee has underway, or if you have a question about any of these activities, please contact Barry Catterton via e-mail at [bcatterton@sha.state.md.us](mailto:bcatterton@sha.state.md.us), or at 410-321-4102.



## Strategies for Sediment and Erosion Control

Implementation of a set of strategies for controlling sediment and erosion on SHA construction sites is well underway, as presented by Stephen Udinski of the Maryland State Highway Administration - Highway Hydraulics Division at the January 2005 MDQI Conference. Committing to the environmental stewardship component of its business plan, SHA's strategies include training, inspection, financial incentives, and investigation into new technologies. First, SHA revised its Quality Assurance Rating System, and developed a Field Guide for sediment and erosion control that provides the details for all MDE approved controls and practices in a convenient pocket-size booklet. A training program is being implemented to ensure that everyone (Designers, Contractors, and Inspectors) is aware of the new Quality Assurance Rating System, and to provide a forum to discuss SHA's standard practices and their correct implementation. The training will result in a certification that SHA will require of designers, construction site superintendents, and inspectors. This certification does not replace the MDE Responsible Personnel Certification (Greencard), instead it builds on the Greencard training, coupled with specific training for SHA's sediment and erosion control program. A pilot course was conducted on

December 8 & 9 in 2004. The pilot group's thoughtful comments resulted in improvements to the overall training and highlighted the need to develop a separate course for designers. Additional training sessions are being offered, including two sessions that were held on September 21 and 22, and November 7 and 8. The second strategy focuses on results. SHA developed an Inspection Checklist to provide a more objective means to evaluate the effectiveness of a project's sediment and erosion control plan. Using the checklist, SHA inspectors will evaluate a project and issue a rating that will become part of the contractor's performance review. The new checklist can also be used by contractors to perform a self-evaluation of their project. The third strategy is to implement financial incentives and liquidated damages to encourage a more proactive approach to sediment and erosion control. The incentives and liquidated damages will be assessed based on the Quality Assurance Rating for the construction site. Finally, SHA is pursuing new technologies to provide more effective sediment and erosion controls. For example, SHA is partnering with the University of Maryland to develop a system to use coagulants in sediment basins to increase sediment removal efficiency significantly.

## SHA's Prepares to Celebrate 100 Years

In 2008, Maryland State Highway Administration will celebrate its 100-Year Birthday. The technologies and innovations along highways that have come about through the past century have helped motorists reach their destination safer and faster. SHA is currently working on a project that will chronicle modern road development and its effect on Maryland's economy and quality of life; while at the same time capturing 100 years of changes in organization, cultural evolution, programs, laws and public involvement. It is the goal of the project educate the public about highway development its achievements, economic and social benefits and impacts.



## "Progress Through Partnerships"

JANUARY 18-19

### MdQI 2006 Conference

**Full Registration**  
\$275 Early Bird (by December 19, 2005)  
\$295 by January 13, 2006

**Awards Banquet Only**  
\$85 Dinner (by December 19, 2005)  
\$90 by January 13, 2006

**Hotel - Wyndham Hotel, Downtown Baltimore)**  
\$119 room per night by December 19, 2005

**Vendor Booths Available**  
\$525 Vendor (member)  
\$625 Vendor (non-member)

Vendors please contact MHCA at 410-760-9505

This year offers everything you've come to expect from the MdQI Conference and more:

- Annual Awards Banquet
- Stimulating Workshops and Discussions
- Timely and Informative Presentations
- Networking Opportunities
- Technology and Vendor Exhibits
- Outstanding Door Prizes



### DAY ONE - Work Sessions (Wednesday, January 18, 2006)

	Room 1	Room 2	Room 3	Room 4
2:00-3:15	Environmental Compliance and Latest E&S Update	Accelerated Construction - Incentives	Construction Materials & Pricing	Leadership Development (BCCC)
3:45-5:00	Mega Projects	Accelerated Construction - A+B+C Bidding	Workzone Training with Jerry Teeler	Leadership Development (BCCC)

### DAY TWO - Presentation Sessions (Thursday, January 19, 2006)

	Room 1	Room 2	Room 3	Room 4
10:45-12:00	Environmental Compliance	Accelerated Construction - Precast Structures	Work Force Development and Immigration Issues	Life and Time Management
2:00-3:15	Mega Projects (Repeat)	Accelerated Construction - Segmental Construction	Construction Materials & Pricing - "What was learned on Day One"	Work Zone Best Practices
3:45-5:00	How to Estimate/Bid Environmental Requirements	Accelerated Construction - Total Closures	Design Build Risk Allocation (Contractor/Consultant Perspectives)	Congestion Mitigation Relief/Unconventional Intersections

More detailed information for all conference presentations can be found on-line at [www.mdqi.org](http://www.mdqi.org)

REGISTER ON-LINE AT [www.mdqi.org](http://www.mdqi.org)