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Fall 2011

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SR 153 Corridor Reconstructed to Carry 44th St and the PHX Sky Train™

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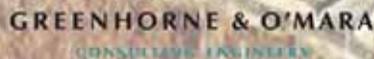


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Provide a forum for members and partners of the highway industry to promote a safe, efficient and sustainable highway system through education, innovation and fellowship.

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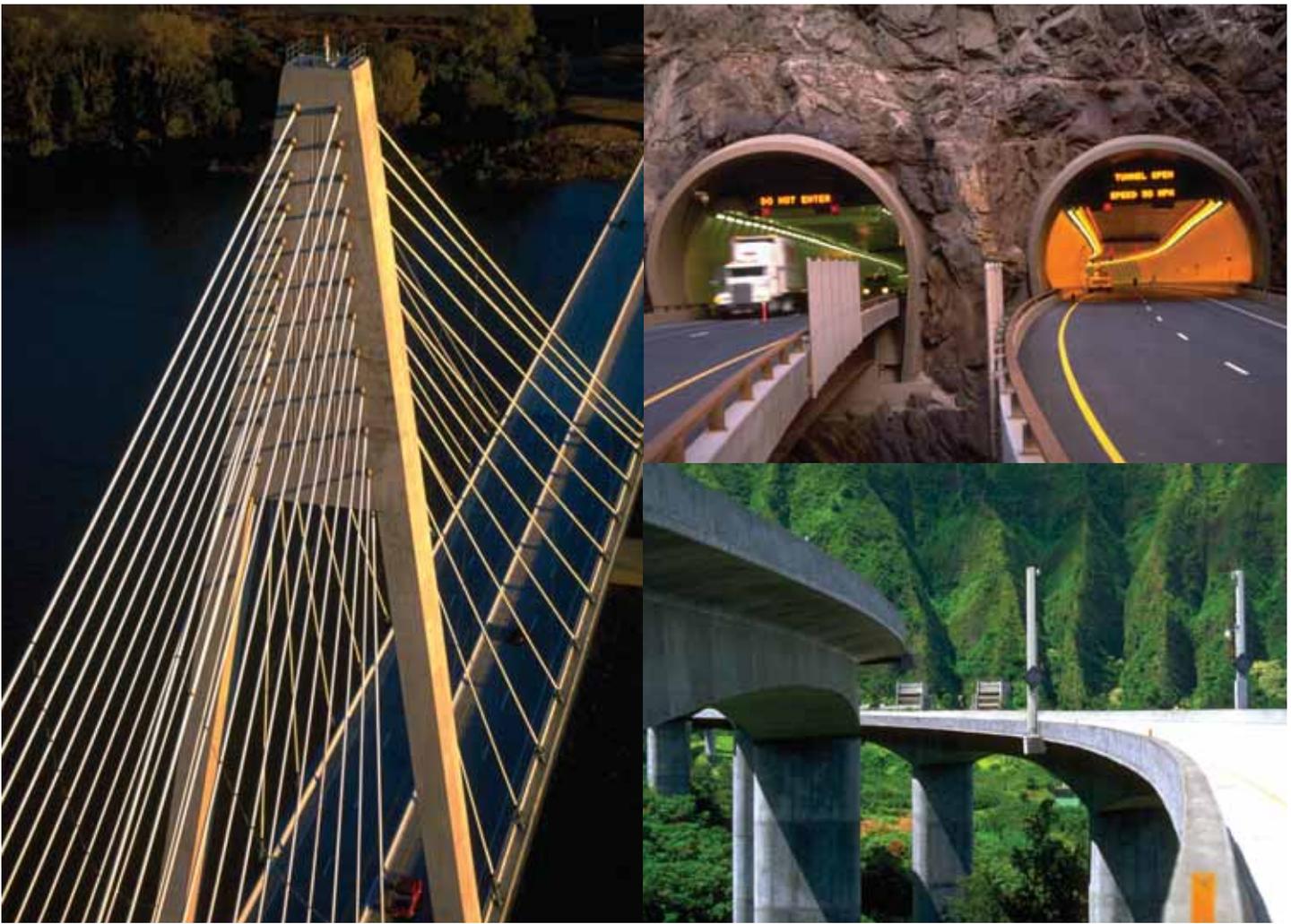
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Greetings! I need to start by thanking Sunsera Dalton and Chris Rizzolo and their Central Florida team for the great 2011 ASHE National Conference in Orlando in June. It takes a lot of hard work and planning to put together a major conference like this and they did an outstanding job. If you have never been to an ASHE National Conference, you are really missing a good time.

Click on National Conferences at www.highwayengineers.org to see past agendas, activities and photos.

I believe there are three major aspects to ASHE. It provides opportunities for continuing education to expand your knowledge and skill base. Keeping our skills up to date will allow us to continue to be leaders in our industry.

Another important function is to have fun. In our busy, pressure-filled world it is easy to overlook the value of just having a good time. Many studies have shown there are numerous physical and mental benefits to having fun. Laughing is good for you and we all should do more of it.

Primarily, the Society is about meeting other people who care for the highway industry and building relationships. I am firmly convinced that issues get resolved better, faster and cheaper when respected colleagues and friends are working together to achieve a mutually beneficial result then will ever be achieved by strangers. The ability to make contacts and develop friendships is the true value of ASHE.

Nowhere will you find a better mix of the three major elements of ASHE than at a National Conference. If you want to make great professional contacts, build relationships, and expand your knowledge base in an environment where you and your family can have fun, join me for the 2012 National Conference next June in Seven Springs, Pennsylvania. I guarantee you won't be disappointed!

I want ASHE to grow. How many co-workers do not know about ASHE, or are just waiting for an invitation to a meeting? We need to find them and bring them on board. My challenge to the membership is for each of us to be an ASHE ambassador. Wear something ASHE to work. Drink from an ASHE coffee mug in the office. Wear an ASHE ball cap to games. Talk about the benefits of ASHE when asked. The value of displaying the ASHE name is underestimated. I am convinced that seeing a colleague that you trust and admire wearing the ASHE logo is a much better advertisement than the most expensive billboard or magazine ad we could purchase. I want each of you to be that person that your

President's Message

Calvin W. Leggett, PE
ASHE President 2011-2012

colleagues see. Visit the ASHE Store online at highwayengineers.org for a variety of items sporting the ASHE logo.

We are at a major turning point for the highway industry in the United States. Americans spend 4.2 billion hours a year stuck in traffic. Poor road conditions cost motorists \$67 billion a year in repairs. A Congressional commission has reported that this country has a \$255 billion annual shortfall in transportation funding, but there is almost no public dialog on how to create the needed additional revenue. Between 2008 and 2035, the number of vehicle miles traveled (VMT) is expected to increase by 50% while fuel use will only increase 15%. This statistic is based on a recent report by the US Department of Energy. With the new CAFÉ standards proposed by the Administration, the 15% increase likely will not

appear. Due to the current economic situation, there seems to be little political will to discuss additional revenue.

This country needs its leaders to explain the true needs to the public, and make the case for reasonable solutions.

We need a federal program that expands

job opportunities, not one that further shrinks our work force. We must have leaders at every level who want to leave their children a stronger, better America, not one that is crumbling. But these folks need your support. ASHE has to help make the case for more investment at every level of government. We need each of you to let your elected leaders know that you support increased investment in highways and improved mobility. Show your representatives that they have support when they vote for additional transportation spending. Only with vocal grass roots activity can we turn the political tide that is choking off the funding that is desperately needed for our nation's streets and highways. The 6,200 members of ASHE can make this happen. I believe we can be a significant voice for improving America's highway system. The future of our industry and our country depends on it.

I look forward to serving as your President this year. I am truly honored and grateful for this opportunity. I look forward to traveling around the country meeting as many of you as possible. I wish each of you a wonderful upcoming holiday season, and a great 2012. ☺

SR 153 Corridor Reconstructed to Carry 44th St and the PHX Sky Train™



Multi-Agency Teamwork Achieves Multi-Modal Solution

Mark Pilwallis, P.E.
Mary Anne Derr, P.E.
Gannett Fleming, Inc.

Nate Walnum, P.E.
Frank Hoffman, P.E.
Kimley-Horn and Associates

Arizona State Route 153 was a two-mile expressway built in the early 1980's. The expressway ran between Washington Street and University Drive, east of Phoenix Sky Harbor International Airport. It was intended to become the main access point into the east side of the airport, but was never extended to connect to Interstate 10 where it would pick up the majority of its traffic volume.

To the east, State Routes 143 and 202 became better access options to the airport as the East Valley expanded. This left SR 153 underutilized from a traffic standpoint. In addition, the close proximity of it to the airport infringed upon runway protection zones.

In 2005, the Arizona Department of Transportation (ADOT) and Maricopa Association of Governments (MAG) considered connecting SR 153 to I-10 and increasing its usage. The City of Phoenix (who owns and operates Sky Harbor Airport) requested that a plan be considered to eliminate the connection to I-10.

Phoenix, ADOT and MAG worked with support from their consultants, Gannett Fleming, Kimley-Horn and Parsons Brinkerhoff, to come up with a plan to benefit both the airport and the regional transportation system:

- Eliminate the planned extension of SR 153 and turn the corridor back to Phoenix ownership.
- Use funds slated for the extension to improve the SR 143 interchange with Sky Harbor Boulevard, creating better airport access and improved freeway operations.
- Phoenix reconstructs SR 153 into a City Street corridor with continued airport access while also accommodating the new PHX Sky Train™, a new landside transit system at the airport with a connection to regional light rail.

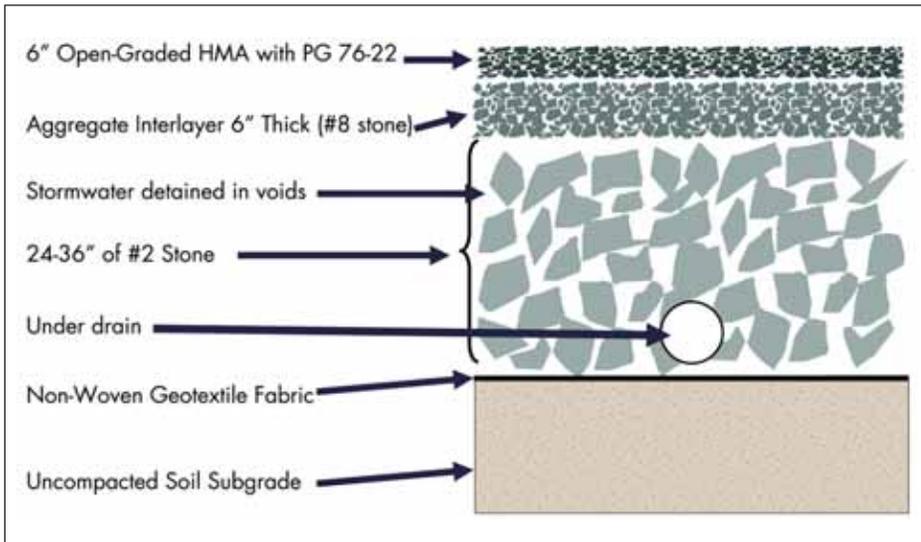
This solution provided benefits to all agencies involved and the local community

- Underutilized SR 153 becomes 44th St - a multi-modal corridor with the PHX Sky Train and a seamless connection to the regional light rail system.
- Reconstructed SR 143 and Sky Harbor Boulevard TI get improved level of service and new traffic movements - detailed traffic simulation models of the corridor were coordinated with the MAG regional traffic models for verification.
- Better overall use of sales tax revenues used for regional freeway funding.
- Regional freeways removed from the airport's runway protection zones.
- Improved development opportunities are created along 44th St as a City Street.

The teamwork and creative thinking used by Phoenix, ADOT, MAG and its consultants to move forward with this significant change to the regional freeway system created improvements for the community on multiple levels by upgrading: freeway operations, airport access, airport operations and transit connectivity. ☺

POROUS PAVEMENT

Northern Kentucky



Typical section



The Transit Authority of Northern Kentucky (TANK) is the public transportation provider for Boone, Campbell and Kenton Counties, Kentucky (suburban Cincinnati). TANK operates fixed route bus services throughout the region that include services to 19 Park & Ride (P&R) lots for commuters. In 2005, TANK received funds to expand the P&R network with the addition of two facilities; one in Boone County, Kentucky, near I-75 and one in Fort Wright, Kentucky, near both I-75 and I-275. TANK obtained federal Congestion Mitigation Air Quality (CMAQ) grants to fund both projects.

TANK's primary goal for both projects was to maximize parking spaces within the purchased property parcels. TANK also wanted to minimize the environmental impact of the lots with respect to storm water quantity and quality. This was especially important at the Fort Wright lot due to its proximity to Banklick Creek, a sensitive water resource.

TANK added the option of using porous pavement as part of the request for project proposals. TANK was looking for a team to use design/engineering expertise and knowledge of the construction process to deliver a design and application that could meet both the functional and environmental goals for the project.

In 2006, TANK hired the design/build team of KZF Design and Eaton Asphalt Paving Company. Opened by the end of 2007, the Boone County lot contains 75 parking spaces and the Fort Wright lot contains 192 spaces. Both lots have passenger waiting areas.

The 1.8-acre Fort Wright location was designed as 0.4 acres traditional asphalt pavement and 1.4 acres porous asphalt pavement intended for use by cars and

A GREEN STEP FORWARD

Henry L. Fedders, Jr., PE
Joe Vogel, PE
Stan Harris

light trucks. The buses drive along the non-pervious section that is graded toward the pervious section at the bottom of the lot. The entire lot has a 4% grade to the south. The pervious pavement has an under drain system that drains to one inlet at the bottom middle of the parking lot. The catch basin was constructed with a steel plate with holes (baffle) that acts as a throttling mechanism for the inlet. This allows post-runoff for the 2, 5, 10, and 25-yr storms to equal the pre-runoff per local storm water regulations.

Soil conditions, careful monitoring of incoming loaded trucks to prevent unnecessary compaction, multiple layers of various gradations of stone and a geotextile fabric create a system to detain surface water. The pavement is made up of 6" open graded HMA (hot mix asphalt) over 6" of #8 stone over 24"-36" of #2 stone over a non-woven geotextile fabric over an un-compacted subgrade. Storm water is detained beneath the parking lot within the voids of the #2 stone base and discharges

through an under drain system to an outlet, referenced above, which is monitored to measure volume and quality of water by Sanitation District No. 1 (SD #1), the local storm water permitting agency, before it enters a tributary of Banklick Creek.

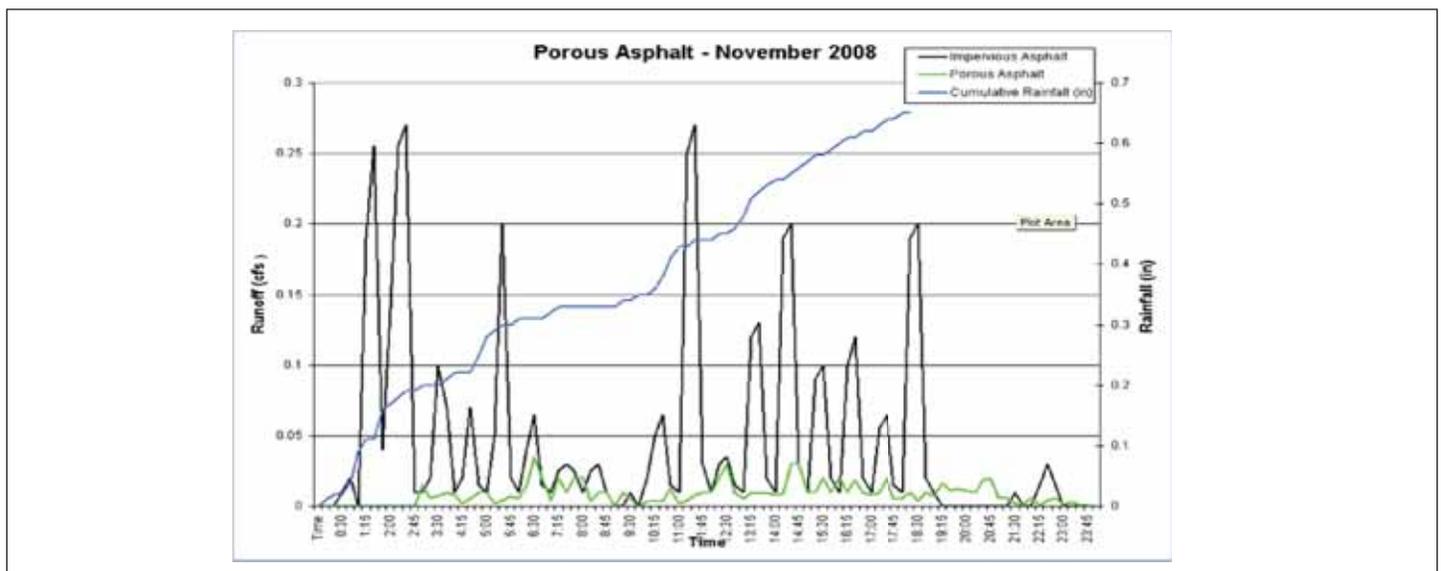
The #2 stone under the pervious pavement has a void ratio of approximately 40% used for storm water detention. The throttle plate was designed to discharge the flow at the respective 2, 5, 10, and 25-year design flow. The volume of water detained was approximately 6500 cubic feet, equivalent to approximately 516 linear feet of 48-inch pipe. The throttle plate was positioned in the middle of the inlet so if the water rose too high and began to break the surface of the lot, it would hit the curb and flow into the back side of the inlet before flowing over the curb.

Collecting and analyzing data for water quality and quantity, along with pavement porosity over time, will determine if this is a viable and successful best management

practice (BMP) for storm water management. Currently, flow data is being collected and water quality analyzed. Early indications show that only 25% of the water that falls on the parking lot exits through the discharge pipe. SD#1 vacuums the lot three to four times a year to keep the porous surface free from debris and is in the process of having piezometers installed to record the ground water elevation.

By collecting and analyzing water quality and quantity at this site, this BMP will be evaluated for efficiency (measures how well BMP removes pollutants), performance (measures BMP to meet goals of modifying storm water that it is designed to treat), and effectiveness (measures a BMP system to meets goals of managing overall storm water flows and quality).

For more information on the effectiveness of porous pavement, please contact Henry L. Fedders, Jr., P.E., Director of the Transportation and Municipal Group at KZF Design (hank.fedders@kzf.com). ☞



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Erdman Anthony provided preliminary engineering, final design, and construction consultation for the widening of Park Avenue in Altoona, PA from two to five lanes. The arterial roadway runs between commercial and recreational attractions on one side and a residential neighborhood on the other. Because the proposed widening would affect more than 80 properties, a strong public involvement effort was launched to keep local property owners informed about the project and involved. **Erdman Anthony's design team helped maintain amicable relationships with all project stakeholders, and positive feedback helped to shape the project's features.** The new Park Avenue streamlines traffic flow by means of fewer intersections and controlled access. It also provides a linear park with ornamental lighting, bus pull-offs, and pedestrian-friendly intersections that enhance the community's enjoyment of some of Altoona's best-known attractions.

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Hares Hill Road Bridge

Preserving the Past for the Future

*Jeffrey R. Raykos, P.E.
Kenneth R. Nadler, P.E.
Mackin Engineering Company*

Four years after the end of America's Civil War, Thomas William Moseley of Moseley Iron Bridge and Roof Company constructed a patented structure to replace the ford crossing French Creek, connecting the Village of Kimberton to Spring City in East Pikeland Township, Chester County, Pennsylvania.

Historically known as Thomas Moseley's "Wrought Iron Lattice Girder Bridge" and locally known as the "Silver Bridge," the Hares Hill Road Bridge carries State Route 1045 over French Creek. The structure is thought to be the only surviving example of Thomas Moseley's unique design. The bridge has been detailed and recorded by the Historic American Engineering Record and it was also listed on the National Register of Historic Places in 1978. In addition, French Creek is a Pennsylvania Scenic River and is also listed on the Nationwide Rivers Inventory.

The 103-foot, single-span, one-lane structure was built in 1869 and consisted of a timber floor system and wrought-iron riveted arch girders with lattice webbing. Three major rehabilitations were performed on the structure. In 1880, the timber joists were replaced with iron girders, diagonal tie-rods were added, and the structure was braced and strengthened. Intermediate floor beams and queen post trussing were added in 1933, and the timber deck was replaced with an open-grid steel deck in 1958.

Mackin Engineering Company (Mackin) was selected by the Pennsylvania Department of Transportation, Engineering District 6-0 (PennDOT) to rehabilitate the 'one-of-a-kind' structure. The challenge for Mackin was to preserve the integrity of the existing structure's historical features, while increasing its load capacity and functional use. Allied with PennDOT and the Pennsylvania Historic and Museum Commission (PHMC), Mackin went to work preserving this piece of history.

The bridge's structural deficiency stemmed from not only its load carrying capacity but also its physical condition. The steel stringers had large holes in the webs near the ends due to advanced corrosion. Additionally, the open steel grid deck allowed water and de-icing chemicals to wash over the stringers

"Hares Hill" continued p. 19

Lake Champlain Bridge: Part 2

Michael D. Hurtt, P.E.

CHA, Inc.

ASHE Albany Section President; ASHE Central New York Section Member



1929 Lake Champlain Bridge

Two months after its abrupt closure in 2009, the historic bridge at Crown Point, NY, lay in a heap of twisted steel and concrete on the muddy bottom of Lake Champlain. The bridge died in a spectacular explosion faintly seen through the ghostly haze of a snow squall to those few invited to witness the event from the adjacent historic site of Fort Saint-Frédéric. Hundreds of spectators at the public viewing area two miles up the lake barely heard the explosion that was muffled by the sudden snowstorm.

Most wondered if the bridge would rise again like a phoenix or remain forever at the bottom of the lake with so many a shipwreck. Did Albany and Montpelier have the fortitude, and the money necessary to back it, to reforge the iron economic and social link so vital to the upstate communities the bridge served?

These were fair questions. With an average daily traffic count of only 3,000 cars, was an expenditure over \$75 million for a new bridge worth the cost, especially since the decision-makers at the New York and Vermont state capitals could easily justify spending that kind of money in a thousand different ways?

The answer was made obvious an hour after the explosion. As soon as the snow squall cleared, the demolition contractor (Harrison & Burrowes Bridge Constructors, Inc. of Glenmont, NY) was working in earnest to begin clearing the debris from the lake.

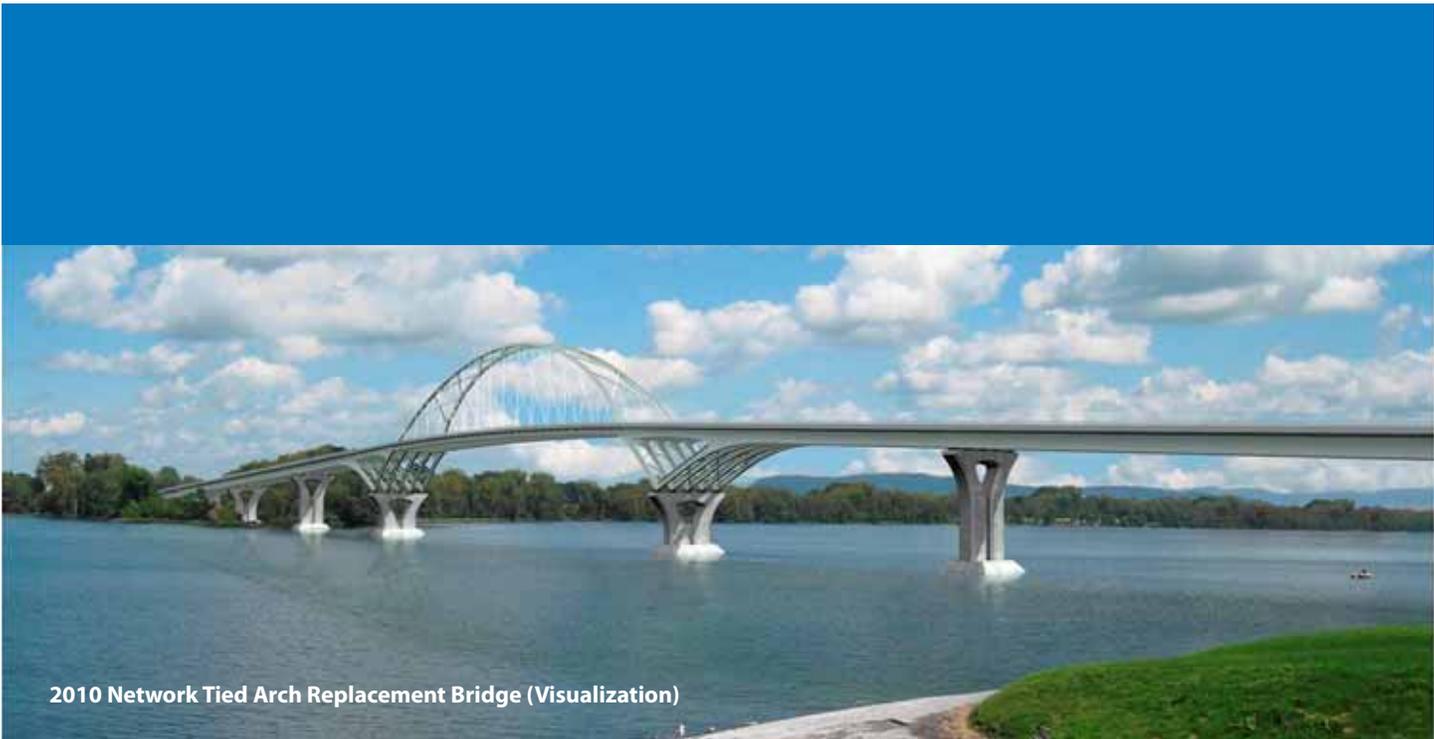
What wasn't obvious to the public however, was that the design team led by HNTB Corporation of New York City and subconsultants CHA, Inc. of Albany, NY and Fitzgerald & Halliday, Inc. (FHI) of Hartford, CT had already been advancing the design plans for the replacement structure, while MJ Engineering and Land Surveying of Clifton Park, NY was advancing design plans for a temporary ferry facility to partially alleviate the hardship inflicted on the local communities.

The New York State Department of Transportation (NYSDOT) and the Vermont Agency of Transportation (VTrans) shared the role as co-lead agencies with NYSDOT responsible for the progression of the replacement design. The Emergency Declaration from both states' Governors assured there would be a new bridge.

With that assurance came commitment that a new bridge would be opened to traffic before the end on 2011, a scant two years after the closure and demolition. The leadership and stewardship of NYSDOT Region 1 would ultimately prove instrumental in the design and construction process.

Five construction contracts would eventually be prepared for the project:

1. Bridge Demolition and Debris Removal
2. Temporary Ferry Terminal and Service
3. Bridge Replacement
4. Site Restoration and Commemoration (NY)
5. Site Restoration and Commemoration (VT)



2010 Network Tied Arch Replacement Bridge (Visualization)

“It is hard to fail, but it is worse never to have tried to succeed.” (Theodore Roosevelt, April 10, 1899).

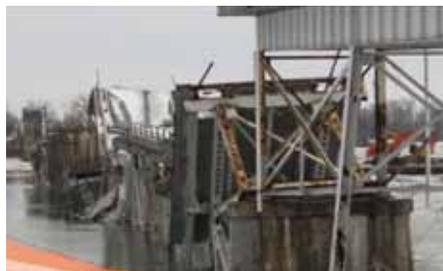
These words rang true for the design team, challenged to do the seemingly impossible. With preliminary concepts in-hand and a commitment to have the new bridge opened before the end of 2011, quick math showed that contract letting had to occur by April 2010...less than four months after the demolition. Putting aside for a moment the permitting and coordination with the multitude of affected and involved agencies (on both sides of the lake), the schedule would be a challenge just to design and prepare contract documents for a simple multi-span steel girder bridge. But the Bridge at Crown Point was no simple bridge. The 1929 bridge was a local landmark and had recently been added to the National Register of Historic Places. FDR (then governor of New York) presided at the ribbon-cutting. Movies were filmed on this bridge. The bridge had become more than a crossing of the lake, it was a part of the Adirondack landscape. No ordinary highway bridge was going to replace this structure.

With this realization and a ticking clock, the design team wasted no time developing bridge replacement concepts and colored visualizations for accelerated public review and comment. The effort by HNTB in such a short time to produce highly-accurate color visualizations, both for public consumption as well as for the involved agencies, and by FHI for the coordination effort of all the public involvement activities, sealed the deal in being able to quickly and confidently select a bridge type...a Network Tied Arch Structure (see visualization above.)

With the “easy” decisions made, the design team pushed forward at a blistering pace. The approach was simple - divide and conquer. The design team worked on tasks concurrently as there was no time to do it

consecutively. Constant communication via conference calls and face-to-face meetings were necessary to avoid re-work due to lack of communication. HNTB progressed the foundation design while CHA finalized the alignments. The superstructure was designed concurrently with the highway approach. Minimal assumptions were made and technical issues were solved as soon as they surfaced. NYSDOT was the hub through which all issues flowed into and out of to the appropriate decision-maker. FHI worked tirelessly during this period on the environmental documentation and required permitting. Twenty plus federal, state, and local agencies, ranging from the Army Corps of Engineers to the US Coast Guard to the State Preservation Offices and all those in

“Champlain” continued p. 19



Lake Champlain Bridge hours after the demolition



Center Arch Span Visualization



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The newly formed ASHE Mid-Atlantic Region held a 2011 Technical Conference on May 9 in Richmond, Virginia.

The conference provided an excellent opportunity for inter-region networking and professional development activities for ASHE members.

The following provides a review of dynamic transportation industry practices and developments taking place that will affect how we deliver the solutions to the traveling public in the future.

4-D and BIM Modeling for Heavy Civil Construction Projects

An example of the future of transportation engineering and construction was presented by PCL Civil Contractors (PCL) on the Gilmerton Bridge Replacement project (see illustration p. 15) which is currently under construction. The Gilmerton Bridge Replacement project on Military Highway in the City of Chesapeake will provide a new lift span bridge over the Southern Branch of the Elizabeth River to replace the existing double-leaf bascule bridge that was constructed in 1938. The new bridge will be 1,908 feet long and will have a vertical clearance over the channel of 35 feet in the closed position and up to 135 feet when the lift span is opened.

PCL is a heavy civil contractor selected by the Virginia Department of Transportation to remove and replace the existing Gilmerton Bascule Bridge with a new vertical lift bridge. This complex and access restrictive project required a new perspective on how to manage the different components necessary to construct the work.

Project Manager Jim Holtje, P.E. and Project Engineer Caleb Linn, P.E., both of PCL, provided a real-time review of the 3-D model developed by working in collaboration with the structural steel supplier. The Tekla 3-D model incorporates all associated access, machinery, electrical and concrete components which is then tied to the project CPM schedule. This 4-D linkage with the schedule allowed the team to mitigate construction and constructability conflicts in virtual space before they become real problems in the field. This showcase project by the Virginia Department of Transportation and PCL is an example of how 3-D and 4-D modeling can provide exponential efficiencies in construction costs and schedules – savings that are passed on to taxpayers.

Engineering Solutions and Sustainability in Transportation

*Old Dominion Section
of the ASHE Mid-Atlantic Region*

Countermeasures and Crash Prevention

Advancements in traffic engineering practices and assessment of driver behavior were provided by Wen Hu, Ph.D., a Research Transportation Engineer at the Insurance Institute for Highway Safety (IIHS). The IIHS is an independent, nonprofit, scientific, and educational organization dedicated to reducing loss — death, injury, and property damage — from crashes on the nation's highways. Ms. Hu's review included automated speed and red light camera enforcement, speeding and speed limits, vehicle crashworthiness testing, and crash avoidance technology. (<http://www.iihs.org/>)

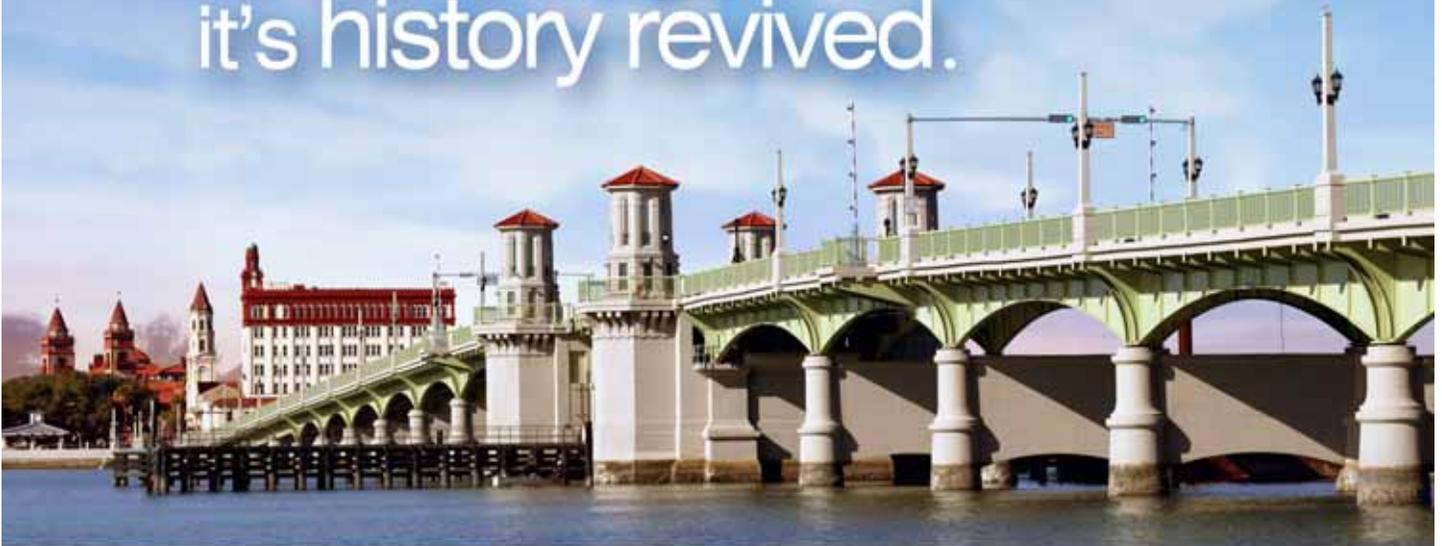
I-95 Express Toll Lanes Project

I-95 serves as the transportation backbone along the east coast. The Maryland Transportation Authority (MDTA) initiated the I-95 Master Plan Study to address safety and capacity needs from north of Baltimore City to the Delaware State Line. Dave Greenwood (ASHE National President 1996-97) of Wilbur Smith Associates, and Program Director for the MDTA's \$1.0 billion I-95 Express Toll Lanes Project, provided a presentation on how MDTA has proactively incorporated sustainability elements such as system impacts on the economy, environment and the quality of life for the public for the 49-mile corridor.

Dave reviewed the project's environmental mitigation efforts, both on-site and off-site, including the Whitemarsh Run Mitigation Site, a 180+ acre site being restored as an environmental asset through wetland creation, wetland preservation, creation of vernal pools, and stream restoration. The project includes congestion management methods for operations and multi-modal aspects such

"Solutions" continued p. 15

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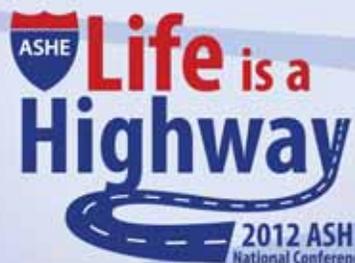
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"Solutions" continued from p. 13

as improved access to other facilities, including the Port and BWI Airport, and improved transit (express bus) access and service.

Sustainable Transportation Initiative of Richmond (STIR)

On the forefront of the exponential growth of electric vehicle usage, the mission of the Sustainable Transportation Initiative of Richmond (STIR) is to ensure that the Richmond region's future transportation system provides an array of cost-effective, sustainable transportation choices all designed to move people in a manner that maintains unprecedented access and mobility and minimizes the impact travel has on the environment. Mary Doswell, Senior Vice President for Alternative Energy Solutions at Dominion Resources and the Chairman of STIR, provided an overview of STIR's activities, including details regarding electric vehicle program development as well as infrastructure challenges and opportunities in Virginia.

FHWA's Green Streets and Sustainable Highways

David J. Carlson, Director of Sustainable Development for Parsons Transportation Group (PTG) provided a comprehensive review of sustainable transportation concepts, principles and practices and how they are potentially merging into one overall arching concept for delivery. Under the umbrella of sustainable transportation, a number of programs and policies have emerged that focus on specific elements of an overall sustainable transportation system, such as Complete Streets, and Green Streets. Mr. Carlson's presentation addressed the foundations of sustainable

transportation and where these issues are today.

Virginia Department of Transportation (VDOT) Stormwater Management Program

Closely tracking national trends in EPA compliance, Roy Mills and Charlene Harper provided a presentation on the current administrative and developing changes to the VDOT Stormwater Program, including erosion and sediment control, post development stormwater management, VSMP Construction permitting and MS4 permitting. Mr. Mills is a 45-year veteran of VDOT and currently serves as administrator of VDOT's statewide stormwater program. Mrs. Harper is a water resources engineer and sustainable design coordinator for Timmons Group whose duties include technical design and project management, LEED and sustainable design consultation.

Implementation Tools and Techniques for Road Safety Audits (RSAs)

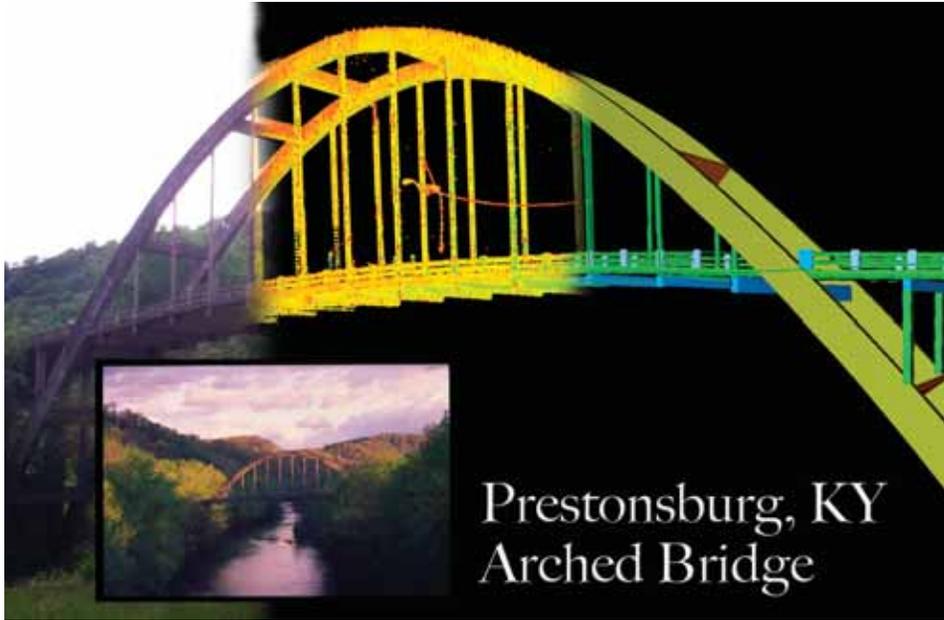
In coordination with the FHWA Road Safety Audit Program office, Mr. Nabors, a Senior Transportation Engineer with VHB, provided a comprehensive review of RSA including the eight-step process of how RSAs are conducted, guidance documents, tools and techniques for conducting efficient RSAs. Mr. Nabors has led RSAs or managed RSA programs in over 20 states for FHWA, State Departments of Transportation, and local agencies. He is the principal author of FHWA's Road Safety Audit Toolkit for Federal Land Management Agencies and Tribal Governments. ~



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Jim Mischler, Past President and Yung Koprowski, Membership Chair/3rd Year Director

ASHE National Grant Funds Promote ASHE to APWA

The ASHE Phoenix Sonoran Section took the opportunity provided by the ASHE National Exposure and Region-Section Grant funds to attend the 2010 APWA (American Public Works Association Arizona Chapter) Conference and 2011 ACEC (American Council of Engineering Companies of Arizona) Roads and Streets Conference this past year. These events, each with over 1,000 attendees, provided exposure of the ASHE name statewide and promoted membership in the ASHE Phoenix Sonoran Section.

The National ASHE booth display invited conference attendees to browse the ASHE *SCANNER*, brochures, and Phoenix Sonoran newsletter. Baskets of wine were raffled off to conference attendees who stopped by the booth. Small signs stating "Proud Member of ASHE" were placed in booths belonging to ASHE member's companies.

The most successful tactic was to walk around introducing ASHE to other vendors and exhibitors at the conference. ASHE business cards were handed out and several companies were interested in learning more about the organization.

As a recently chartered Section, assistance from ASHE national has been critical to the success of the ASHE Phoenix Sonoran Section's membership growth. Growth of 53.7% between April 2010 and April 2011 garnered the 2011 George Hart Award, which was accepted at the 2011 ASHE National Conference in Orlando, Florida. ☺

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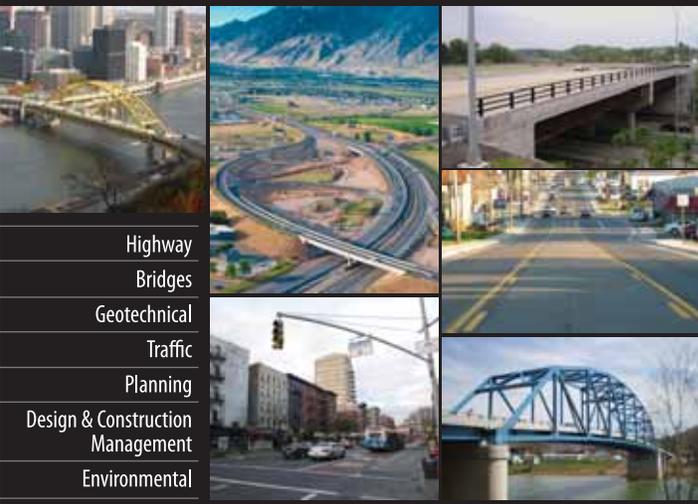
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“Hares Hill” continued from p. 9

and floorbeams causing deterioration of the stringers along the full length of the bridge. The tie-rod had been tack welded to the girder and had fatigue cracks. The original wrought-iron lattice girders and floorbeams were in fair condition.

Early in the project, Mackin met with the Pennsylvania State Historic Preservation Officer (SHPO) to come to an understanding as to how much could be done to the structure without affecting the historic properties. A field load testing program was then conducted by the ATLSS Center of Lehigh University and Mackin developed a three-dimensional finite element model of the structure. The load test data were used to calibrate the finite element model, which contained over one million elements.

Each structural member was analyzed to determine the weakest links. Members were systematically replaced, strengthened, or added where it was cost effective. After a certain point, repairs required disassembly of the entire structure. This was deemed not economically feasible due to the labor intensive effort of removing and replacing thousands of rivets. The end result increased the load carrying capacity from seven tons to 15 tons at a reasonable cost.



During the public meeting, several issues were discussed and addressed. Prior to being painted yellow in the 1970's, the bridge was known as the 'Silver Bridge.' In agreement with the SHPO, the Township Historic Committee selected silver as the proposed color that mostly resembled the long standing appearance of the structure.

A local bicycle group expressed safety concerns about crossing the steel grid deck. A four-foot wide concrete strip was added down the center of the structure for bicyclists to safely cross the structure. The SHPO was present and concurred that the concrete strip would not detract from the bridge's historic features. The local residents also wanted to retain the seven ton load posting. It was explained that the higher load limit was needed to allow school buses and emergency services vehicles to use the bridge, but would still restrict heavy trucks.

Construction was completed on schedule in December of 2010 by the Road-Con, Inc. This restoration effort will allow Moseley's "Wrought Iron Lattice Girder Bridge" to continue connecting neighboring communities while preserving the one-of-a-kind structure for future generations. ♪



“Champlain” continued from p. 11

between, were involved with the preparation and processing of upwards of 10 permits.

On March 3, 2010, an incomplete set of design plans and other materials were made available on NYSDOT's website so contractors could begin preparing bids. Two weeks later the project was officially advertised for bids with 80% plans for an April 15 letting. During the bidding period, almost the entire plan set was swapped out via an addendum, providing near 100% complete plans to bidders. Flatiron Construction Corp. was the low bidder and was awarded the construction contract on May 28, 2010. Construction began almost immediately.

To be continued...

Part 3: Construction of a unique bridge in a unique setting has its share of unique problems. Winter work on a lake that historically freezes, record low water levels in the fall followed by record high water levels in the spring, 80' of muck that someone classified as lake bottom, and navigation of numerous and stringent permit requirements were all part-n-parcel of the construction phase of the Lake Champlain Bridge. ♪

ASHE

First State Section

2010 Project of the Year

The ASHE First State Section held its first annual Project of the Year program at the Christiana Hilton on March 24, 2011. This program recognizes outstanding work of members.

Two awards were presented at the Awards Night dinner - one award for a project under \$2,000,000 and one award for a project over \$2,000,000.

To be eligible, a transportation project must have been completed in Delaware between January 1, 2010 and December 31, 2010 and submitted by an ASHE member.



ASHE First State Winning Project - Under \$2M

Streetscape Improvement Project

Old Lancaster Pike

New Castle County, Delaware

The Old Lancaster Pike Streetscape Improvement Project located in New Castle County, Delaware, in the historic Village of Hockessin, extends along Old Lancaster Pike from Valley Road to Erickson Avenue. The work was based on the Hockessin Community Redevelopment Plan which promoted improved pedestrian connections, enhanced neighborhood feel, and reduced through traffic. Chronic drainage issues and poor road conditions also needed to be addressed.

During extensive community outreach, meetings were held with all of the property owners. The design was adjusted to account for comments received and fast tracked to be completed as part of the American Recovery & Reinvestment Act (ARRA) program. The construction staff constantly communicated the work and schedule with the public and addressed several field changes while keeping the project under budget. Two speed tables, new curb and 1800 LF of pipe were installed to address traffic and drainage issues.

Just under 21,000 SF of new sidewalks with 28 decorative street lights and 32 ADA compliant curb ramps were added to this 0.6 mile section of the village. The project completed another phase of the long-term village redevelopment plan by improving the roadway to allow for a more traditional "Main Street" feeling that encourages a sense of community, promotes pedestrian activity and safety and reduces cut through traffic.



ASHE First State Winning Project - Over \$2M

Rehabilitation of
Bridges 1 & 1A
Rising Sun Lane over
Brandywine Creek

New Castle County,
Delaware

This project was one of the highest priority and most complex rehabilitation projects for DeIDOT. Bridge 1-001A, built in 1900, is a stone arch. The bridge ranked number one on DeIDOT's list of structurally deficient bridges due to the advanced deterioration of the mortar in the arch and spring walls.

Bridge 1-001 is a 123'-0" single span steel Pratt through truss over the Brandywine Creek, and was ranked number seven due to years of advancing deterioration and the concern of overstress in the deteriorated members and weakening of fatigue sensitive details. Bridge 1, built in 1928, is the last remaining truss of its kind in Delaware.

The route is a vital link for the community, and the team was committed to completing repairs necessary to reduce the structure's future maintenance and ensure the public's safety as expeditiously as possible.

Unfortunately, given the structure's age, the complex details, and the difficult access to portions of the structure prior to construction, some repairs could not have been anticipated or fully evaluated until construction began. This required the team to adjust the repair sequence to minimize impacts to the structural integrity of the system. The project team partnered to complete the work in a timely manner. 

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Albany Section

The Albany Section held its first golf outing June 16, 2011 at the Van Patten Golf Club in Clifton Park, NY. The event was a success with sponsors on every hole, beverage cart, competition holes, breakfast, and lunch. Ninety-two golfers attended the event which was a scramble format with strings and mulligans. Albany Section Treasurer (Kevin Hajos) and team won with a gross score of 21 under par. With a large amount of donated prizes, almost everyone walked away a winner.

The biggest winner, however, was the beneficiary of the event: Capital District Future City Competition. The Future City Competition is an educational program for middle school students (6th, 7th and 8th graders) to use their creative and innovative imaginations to design a city of the future. The students work with their teacher coach and an engineer-volunteer mentor from the community to design and build the city. The students apply math, science, engineering and technology, as well as enhance their writing and presentation skills.



ASHE Albany President Michael Hurtt presents the "big check" to Jen Smith, Capital District Future City Competition Regional Coordinator.



The team of Hajos, Smullen, Doughney, and Duprey show their winning style.

ASHE Operations Manual Updates

Shirley Stuttler, Chair

Sections are reminded to utilize the various documents contained in the Operations Manual found on the National Website (www.highwayengineers.org) under the dropdown link.

Revisions were made to the following documents during the past quarter:

- Program Summaries
- Sections Officers List

If you need assistance in locating any documents that are part of the Operations Manual, or have any questions, please contact Shirley at ssuttler@hughes.net.

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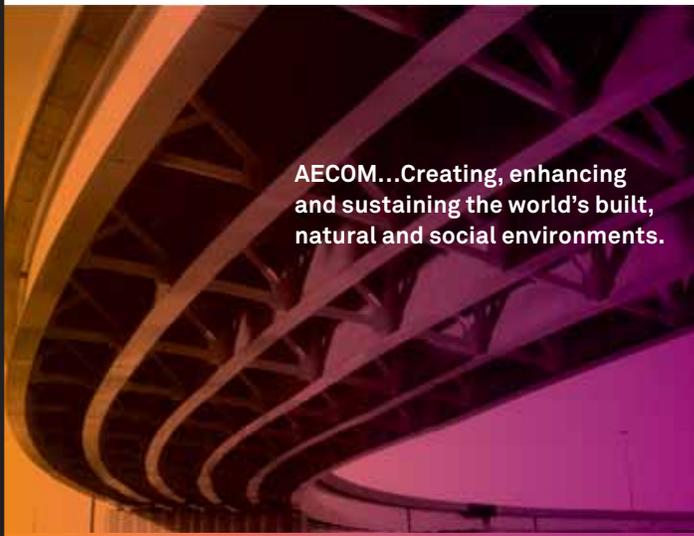
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- 13% are State D.O.T. Employees
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- 11% are Related Professions
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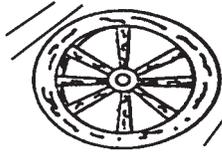
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As the Wheel Turns



John A. Nawn, PE, PTOE, recently received the 2011 Engineer of the Year Award from the Pennsylvania Society of Professional Engineers for outstanding occupational and professional achievements, civic and political affairs, engineering and educational affairs.

Mr. Nawn has served as a Principal, Project Manager, and/or Task Manager responsible for the design, engineering and management of various traffic, transportation, highway, bridge, mass transit, railroad, environmental, municipal and construction engineering projects. He is responsible for directing the activities of Project Managers, Project Engineers, staff engineers, CAD and field technicians, across multiple offices and locations, in the preparation of design and construction drawings and contract documents for all phases of design from concept to final plans and project close-out. Mr. Nawn also serves as Municipal Traffic Engineering consultant.

Mr. Nawn is presently the Executive Vice President and a member of the Board of Directors of Czop Specter, Inc., a Pennsylvania based Consulting Engineering, Inspection and Surveying firm with over 60 employees and offices in Worcester and Erie. With a staff that comprises an integrated team of exceptional engineers, the firm provides comprehensive solutions and planning expertise that enriches our communities by going above and beyond to make our environment a better place.

Most recently, Mr. Nawn was with KS Engineers, P.C., in Philadelphia, where he served as Vice President and manager of Pennsylvania operations. Mr. Nawn is a graduate of Drexel University. He serves as Chairman, Delaware County Transportation Management Association and is a member of Community Transit Board of Directors.

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SCANNER Guidelines

In order to fulfill our Mission, the National Technical/SCANNER Committee requires each Section to become involved in producing articles for publication in the SCANNER that stimulates and publicizes technological advances in the highway field, as well as social events, for the benefit and career growth of our members.

The Section Technical/SCANNER Committee is charged with obtaining information on technical advancement in the planning, design, construction, maintenance and operation aspects of the highway industry and distributing such information to the Section membership. Additional duties are to solicit and develop technical articles for publication in the SCANNER and to assist the Section Program Committee in identifying technological advances that can be presented at Section meeting programs.

In order to maintain the SCANNER in an appealing, informational and self-supporting manner, the Technical/SCANNER Committee established that the content be a mix of both technical and social articles, information concerning ASHE's operations and advertising. To maintain this balance, each Section is required to submit technical articles for publication in the SCANNER in accordance with the schedule in Attachment A. Articles of social interest and Section events may be submitted at any time, remembering that timeliness to the event is always desirable.

The following are guidelines in preparing articles for the SCANNER:

- Generally, articles should be limited to one-third to two-thirds of a printed SCANNER page (400-700 words) including photographs and illustrations. A maximum of one and one-half pages will be considered based on the article content. Articles are to be submitted in MS Word format.
- Refer to Attachment 'B' for suggestions to seek information on technical articles and various sources of information. (Ref: www.highwayengineers.org)
- Color photographs are preferred, however, black and white is acceptable. The size of photographs may be reduced at the discretion of the SCANNER editor. When submitting photos, please make sure people are identified and their titles noted. Photographs are to be submitted as separate files and not embedded in the MS Word document.
- Technical articles must be edited by the Section Technical Committee to meet these guidelines and to ensure that content is not lost when edited by the SCANNER editor.
- Businesses involved with projects may be named in articles, but we ask that blatant advertising for private companies be avoided. SCANNER editors will delete advertising portions from submitted articles.
- We are striving to ensure the financial independence of the SCANNER. In order to meet a balance in advertisements, each Section is required to solicit ad space on a per issue basis. Ads should be submitted directly to the ASHE SCANNER, c/o Jennifer Summers, by use of the "SCANNER ADVERTISING INSERTION ORDER" and associated rate/size insertion order contained in each issue of the SCANNER.
- To ensure timeliness, all articles are to be emailed or sent to the National Director representing your Region. The National Directors will review and email the articles to the SCANNER, directing them to the Managing Editor with a copy to the Editor as listed below.

Send SCANNER Ads to:
Jennifer Summers, Editor
908 N. Second Street
Harrisburg, PA 17102
Phone: (717) 236-2050
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Direct Questions to:
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Indiana, PA 15701
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Remember, the success of the SCANNER is dependent upon the Sections for input. Our goal is to publish a mix of articles from the various Regions and Sections in each issue in order to make the SCANNER a true national publication.

ATTACHMENT A SECTION SCHEDULES FOR TECHNICAL ARTICLES

Article Deadline October 15	SCANNER Issue Winter-December	Section Altoona Carolina Triangle Central New York Circle City Cuyahoga Valley East Penn Gold Coast Greater Hampton Roads North Central New Jersey Pittsburgh Tampa Bay	April 15	Summer - June	Albany Carolina Piedmont Chesapeake Clearfield Derby City Harrisburg Lake Erie Mid-Allegheny North East Penn Northwest Ohio Southwest Penn
January 15	Spring-March	Central Dacotah Central Ohio Delaware Valley Franklin Middle Tennessee North East Florida Potomac Potomac Highlands Southern New Jersey Williamsport	July 15	Fall-September	Blue Ridge Central Florida First State Georgia Long Island New York Metro North Central WV Old Dominion Phoenix Sonoran Triko Valley

S-4 Revised 08-01-11

ATTACHMENT B GUIDE TO SOURCE INFORMATION FOR SCANNER ARTICLES

Sources for Technical Articles:

Local Colleges and Universities - Many of these institutions conduct research in the civil works field and professors may be willing to publish in the *SCANNER*.

Transportation Departments - The Research and Development Divisions of State Transportation Agencies review new materials and construction techniques and may have information available for articles.

Environmental Protection Departments - State and Federal Departments have data, research and ideas on how highway design and construction procedures can improve in order to have more sensitivity to environmental protection concerns. Contacts with these agencies can lead to interesting discussions and *SCANNER* articles.

Section Speakers - Many of the presentations at our dinner meetings can be documented in writing by the speakers and presented as a technical paper.

Municipal Engineering and Maintenance Departments - Many City/County/Township engineering and maintenance departments have unique projects (especially in dealing with old truss bridges) that can be organized into a *SCANNER* article.

Sources for Social Articles:

Section/Region News of Interest (Mile Marker pages) - Many Section/Region activities and special programs such as technical field trips or technical programs, social functions, scholarship awards, adopt-a-highway, science fairs, photo contests and announcement of the National Conference are refreshing items of interest.

News of Members - Articles of significant accomplishments of Section members, including special awards will be considered for publishing.

ASHE SCANNER
 Tom Morisi, P.E., Managing Editor
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Membership

Northeast Region	
Albany.....	78
Altoona.....	209
Central New York.....	51
Clearfield.....	88
Delaware Valley.....	368
East Penn.....	105
First State.....	185
Franklin.....	201
Harrisburg.....	377
Long Island.....	33
Mid-Allegheny.....	109
New York Metro.....	140
North Central New Jersey.....	160
North East Penn.....	147
Pittsburgh.....	542
Southern New Jersey.....	204
Southwest Penn.....	300
Williamsport.....	140
Subtotal.....	3437
Mid-Atlantic Region	
Blue Ridge.....	77
Carolina Piedmont.....	56
Carolina Triangle.....	236
Chesapeake.....	164
Greater Hampton Roads.....	117
North Central West Virginia.....	48
Old Dominion.....	70
Potomac.....	173
Potomac Highlands.....	43
Subtotal.....	984
Southeast Region	
Central Florida.....	46
Georgia.....	400
Gold Coast.....	6
Middle Tennessee.....	123
Northeast Florida.....	224
Tampa Bay.....	103
Subtotal.....	902
Great Lakes Region	
Central Ohio.....	184
Circle City.....	49
Cuyahoga Valley.....	118
Derby City.....	61
Lake Erie.....	130
Northwest Ohio.....	39
Triko Valley.....	172
Subtotal.....	753
North Central Region	
Central Dacotah.....	106
Subtotal.....	106
Rocky Mountain Region	
Phoenix Sonoran.....	91
Subtotal.....	91
Total Membership.....	6273
Professional Status.....	54%
Government.....	13%
Consultant.....	69%
Contractor.....	7%
Other.....	11%

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