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**GIPE ASSOCIATES GARNERS TOP AWARD IN ACEC/MD ENGINEERING EXCELLENCE AWARDS COMPETITION**

The American Council of Engineering Companies/Maryland (ACEC/MD) is pleased to announce that **Gipe Associates** received the **Grand Award** in the 2011 ACEC/MD Engineering Excellence Awards (EEA) competition for the *Old Towne Youth Center* project. The 12 finalists in this competition were recognized for diverse accomplishments that exemplify today’s engineering challenges.

The Grand Award winner **Gipe Associates Inc.** provided mechanical, electrical and plumbing design engineering services for the Olde Towne Youth Center in Gaithersburg, Maryland. The project achieved a LEED™ Platinum level of certification under LEED™ NC 2.2, exceeding client expectations.

The project has been recognized as a state-of-the-art youth center that will create an inviting environment for the youth and public  
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**2011 GRAND AWARD** Gipe Associates Inc. *Old Towne Youth Center*

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## PRESIDENT'S MESSAGE

by Joe Makar, P.E.

### ACEC/MD Excellence Awards-

Spotlighted in this Special Awards Issue, the 2011 ACEC/MD Awards Banquet was held at The Engineers Club at the Garrett-Jacobs Mansion on February 17, 2011. I would like to congratulate Gipe Associates, Inc. as the recipient of the ACEC/MD 2011 Engineering Excellence Grand Award. The Olde Towne Youth Center in Gaithersburg, MD was "recognized as a state-of-the-art youth center that creates an inviting environment for the youth and public using the facility. This building, which achieved a LEED™ Platinum level of certification, will serve as a benchmark for sustainable design in the City of Gaithersburg."

Thank you to all of the firms that submitted project entries for consideration. In addition to recognizing the Project Excellence finalists in this year's competition, Scholarship, Young Professional, Community Service, and President's Awards were presented. The evening provided the perfect opportunity to honor both current and future leaders of the profession.

**ACEC Annual Convention and Legislative Summit** - On March 30 through April 2, 2011, engineers from around the country converged on Washington, DC for the ACEC Annual Convention and Legislative Summit. Consulting engineers were able to discuss legislation, learn about future business opportunities from government agencies, and network with one another.



er. The convention concluded with the Engineering Excellence Awards Gala on Friday evening, which has become the academy awards for the profession.

**ACEC/PAC** - Once again, ACEC/MD is selling raffle tickets for \$100 with all contributions going directly to the national organization's ACEC/PAC. Only 150 tickets will be sold, and the drawing will be held October 13 at the ACEC/MD General Membership Meeting. A \$2,000 Grand Prize will be awarded along with \$1,000; \$400; and \$200 prizes.

### Important Dates to Remember:

**May 11, 2011:** Environmental Forum,

The Engineers Club -- Sonal Sanghavi, Office of Environmental Design, State Highway Administration, will be the keynote speaker to discuss Technical Solutions to the Bay Total Maximum Daily Loads (TMDLs). Registration and continental breakfast will begin at 8:00 am and the program will run from 8:30 am – 12:30 pm.

**May 26, 2011:** MDOT Modal Presentation, The Engineers Club -- MDOT Deputy Secretary, Darrell Mobley, SHA Administrator, Neil Pedersen, and representatives of the other MDOT modal administrations and the Maryland Transportation Authority will be discussing their programs for the coming year. Registration and continental breakfast will begin at 8:00 am and the program will run from 8:30 am – 11:30 pm.

**June 15 -17, 2011:** 23rd Annual Conference, Greenbrier, White Sulphur Springs, WV -- Join us to learn about Congressional issues impacting your firm, BIM and Dynamic Modeling, and hear WV Congressman Nick Rahall II, Ranking Member of the House Transportation and Infrastructure Committee speak during Friday's General Membership Meeting Luncheon. The deadline for room reservations is May 16, while the deadline to register for the conference is June 3. Registration packages are available from the ACEC/MD office.



## MEMBER NEWS

- **EA ENGINEERING, SCIENCE & TECHNOLOGY, INC. (EA)** recently announced the following:
  - **Melissa Smith**, EA's Business Development Manager, was recognized for her outstanding service to the Society of American Military Engineers (SAME), and inducted into the Society's prestigious Academy of Fellows.
  - The firm was recently honored by the Environmental Business Journal (EBJ) with a Business Achievement Award for the dynamic growth and success of its Pacific business unit.
- ACEC/MD's 2011 Young Engineer of Year Award winner **Abbie Adams, P.E.** was recently bestowed the same honor by the ESB Associate Society Council.
- **EBL ENGINEERS** is pleased to announce the following:
  - **Edward A. Hubner, P.E.** was selected as the Engineer of the Year by the Maryland Society of Professional Engineers (MSPE).
  - **Matthew Spencer, P.E.** and **S. Thomas Smith, P.E.**, recently received their professional licenses from the state of Maryland.
- **GANNETT FLEMING, INC.** was recently named by the ESB Associate Society Council as the Engineering/Construction Firm of the Year for 2010.
- **GEORGE, MILES & BUHR, LLC (GMB)** is pleased to announce that **Morgan H. Heilfrich, AIA, LEED AP** recently received her architectural license in the state of Maryland.
- **KCI TECHNOLOGIES, INC.** has promoted **Christine Y. Koski, CPA** to Vice President and Chief Financial Officer.



# ACEC/MD 2011 ENGINEERING EXCELLENCE AWARDS

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using the facility as well as those utilizing the facility for private events. Prominent green features noticeable on the building include the two vegetated roofs and the thin film photovoltaic system.

This project demonstrates that energy efficient buildings designed to be easily operated and maintained can be constructed to meet budget needs. The achievement of this high level of recognition by the U.S. Green Building Council (USGBC) in obtaining a LEED™ Platinum Certification means that this project has minimized the impact on the environment both in the long and short terms. In the short term, the project was constructed in a manner that utilized renewable materials and minimized introduction of carbon and ozone depleting substances into the environment. In the long term, this high-performance building will use a minimal amount of energy, thus reducing its carbon footprint for the life of the facility.

The owner of the building, the City of Gaithersburg, and thus the citizens, will reap the long-term benefits of decreased energy usage in the building. This building will serve as the benchmark for sustainable building design in the City of Gaithersburg and Montgomery County, Md., area.

## Outstanding Engineering Projects:

### *Gatehouse Anchorage System for Prettyboy Dam (Baltimore, MD) Alvi Associates*

Prettyboy Dam was built during the early 1930s and is owned by the City of Baltimore. It is a concrete gravity dam 150 feet high and 700 feet long, and is classified as a large high-hazard dam. The dam creates the Prettyboy Reservoir, which has a design storage volume of about 58,000 acre-feet. Together with the downstream Loch Raven

Reservoir, the reservoir provides about 60 percent of the water supply for the 2.7 million residents of the Baltimore metropolitan area. Control of water flow through the dam is via a concrete gatehouse which is monolithic with the dam.

Between 1978 and 1994, extensive cracking in the gatehouse and the adjacent main body of the dam was investigated by five different consultants, but with inconclusive and/or inconsistent findings. At that point, Alvi Associates performed a forensic structural/geotechnical investigation of the cracking. After much detective work, the mystery was finally solved by discerning that the cracks were clustered into eight distinct groups. There were three distinct general causes of the cracking, with each cause contributing in varying degrees to each crack group. In other words, a complex "cause-effect matrix" was developed, thus transcending the usual assumption of a simple one-to-one influence of cause to effect. This complex causal model was quantitatively validated by analyses of stresses and deformations, and represents a novel approach to forensic investigation.

The next step was to assess the implications of the cracking for a range of scenarios, and a stability analyses revealed a worrisome risk that the cracks could precipitate a catastrophic gatehouse stability

failure, with associated inability to regulate water flow through the dam.

To stabilize the gatehouse, Alvi designed a \$6 million anchorage system consisting of 38 post-tensioned steel threadbar anchors. The anchors were drilled up to 70 feet into the dam, in water depths up to 100+ feet, all while dodging many voids and obstacles within the dam. To prevent construction problems, the contract documents included many innovative measures such as a comprehensive integrated shop drawing process and a preproduction anchor testing program.

The project was recently completed ahead of schedule and under budget, and both Alvi and the contractor described it as among their best experiences on a construction project. Based on consultations with many international experts in anchoring and dam rehabilitation, this uniquely complex, innovative, cost-effective, and environmentally-friendly project appears to be the first of its type in the world. It thus represents a significant advancement for the engineering profession, and has already gained national attention.

### *I-70/MD 85/MD 355 Interchange (Frederick, MD) Whitman, Requardt & Associates*

The current average daily traffic on I-70 is 66,000 vehicles per day and is expected to increase to over 100,000 in just 10 years. To relieve congestion and improve traffic flow and safety, the I-70/MD 85/MD 355 Interchange project in Frederick, Md., involved the widening of I-70, reconstruction and widening of MD 355, relocation and widening of MD 85, reconstruction and widening of MD 914, and the construction of a new single-point urban interchange (SPUI) at I-70 with relocated MD 85.

With these changes, the number of signalized intersections along MD 355 was reduced from four to two, and the reconstruction of MD 355 eliminated flooding and connected existing



**Alvi Associates**  
*Gatehouse Anchorage System for Prettyboy Dam (Baltimore, MD)*

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## ACEC/MD 2011 ENGINEERING EXCELLENCE AWARDS

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**Whitman, Requardt & Associates**  
I-70/MD 85/MD 355 Interchange (Frederick, MD)

sidewalk networks previously separated by I-70. The SPUI replaces a substandard interchange at MD 355 and provides an alternate local route into Frederick. The SPUI was chosen because it uses only a single intersection on top of the new bridge. The SPUI was constructed as an aerial structure to carry MD 85 relocated over I-70.

The relocated MD 85 bridge is a two-span continuous steel plate girder structure measuring 172 feet long with a varying width from 117 feet to over 367 feet at its broadest point. This complex bridge contains both variably curved and tangent girder sections that provide the necessary structural framework to adequately support the SPUI's unique plan geometry.

The I-70/MD 85/MD 355 Interchange project is located in a karst area which is characterized by potentially highly variable rock surfaces, weathered zones, voids, and cavities. Due to the concern over the presence of sink holes adversely impacting project structures, a soil resistivity study was performed within the project footprint. A compaction grouting program ensued to stabilize the project site subsurface. The design team took additional measures to protect the new relocated MD 85 bridge from future sink hole potential by supporting the foundations on eight-inch diameter micropiles, which could successfully be installed into the highly variable limestone surface.

### *Masonville Dredged Material Containment Facility (Baltimore, MD)* *Moffatt & Nichol*

The development of Masonville Dredged Material Containment Facility (DMCF) will not only help the Maryland Port Administration (MPA) meet its needs for dredged material placement, but will clean up a blighted area in southeast Baltimore and enhance the surrounding habitat. This 130-acre facility, located on the south

bank of the Middle Branch of the Patapsco River, is planned to receive between 0.5 to 1.0 million cubic yards of maintenance and new dredge material every year. Total capacity is 16.0 million cubic yards. After the site is filled to capacity in 20 years, it will be developed into a marine terminal.

The containment system for the DMCF consists of 1,400 feet of vegetated sand dike and fringe wetland along the west side, 3,000 feet of armored sand dike along the north side, 1,200 feet of cellular steel cofferdams along the east side, and vegetated dikes along the land-side. The steel cofferdams will be incorporated into a future wharf structure. One of the more challenging engineering aspects was the relocation of a subaqueous 48-inch Baltimore City water line. A braced steel sheetpile cofferdam with tremie seal was constructed to 53 feet below the water surface. McLean

Contractors and Norfolk Dredging constructed the containment structures and relocated the water main.

A large component of this project is an extensive mitigation and community enhancement package. This environmental restoration program features capping of contaminated materials; construction of tidal and non-tidal wetlands; reef creation and harbor substrate improvement; stream restoration; upland habitat restoration and reforestation; and construction of a "green building" environmental education center.

Construction began in 2006 with removal of derelict structures/vessels and utility relocations. The waterside dikes and cofferdam structure were completed by June 2010. The site became operational on November 3, 2010. The total project cost, excluding the Seagirt dredging, is \$145 million.

MPA and Maryland Environmental Services directed the planning, permitting, engineering and construction of this project. Moffatt & Nichol has served as a member of the planning/permitting team and was responsible for the design of the cofferdam structure, dike coastal protection and mitigation projects. Gahagan & Bryant also served on the planning/permitting team, and designed the dredging,

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**Moffatt & Nichol**  
Masonville Dredged Material Containment Facility (Baltimore, MD)

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dikes and associated DMCF improvements. Other members of the consultant



**Whitney, Bailey, Cox & Magnani**  
 University of Maryland, Baltimore (UM,B) Campus Center  
 (Baltimore City, MD)

team include EA Engineering, Science & Technology Inc. (environmental assessment and permitting), Rummel Klepper & Kahl LLP (48-inch waterline relocation), and Whitney Bailey Cox & Magnani LLC (site clean-up and storm drain relocation).

**University of Maryland, Baltimore (UM,B) Campus Center (Baltimore City, MD) Whitney, Bailey, Cox & Magnani**

Whitney Bailey Cox & Magnani LLC (WBCM) provided structural engineering and design services for the new Campus Center for the University of Maryland, Baltimore. The new six-story, 113,665-square-foot Campus Center replaces the outdated student union built over a half-century ago. Part of the University's vision for the new Campus Center is a holistic facility where recreation, leisure, wellness, social and intellectual needs are met to enhance the student, alumni, and faculty experience in a high-achieving academic institution. This "campus universe" would be the symbolic heart of the University that would also support recruitment and retention of students by providing a sense of community.

The University Campus Center houses various amenities such as a ballroom, weight

room, aerobics rooms, swimming pool, conference rooms, food service and dining areas,

penthouse, and offices. As the Structural Engineer-of-Record, WBCM provided innovative design solutions to facilitate these amenities. Requirements such as large open areas without columns, vibration mitigation for building occupant comfort, designing around dense underground utilities, and designing within a constrained site were addressed.

As part of the project, the existing 30-year-old gymnasium located on the 10th floor of the adjacent Pratt Street Garage was upgraded to a modern athletic center that is fully integrated with the Campus Center. The new Athletic Center contains an elevated running track, basketball, volleyball, racquet ball courts, and administrative offices. WBCM provided structural design services for features such as the roof supported elevated running track, new mechanical equipment, as well as transitions from the Campus Center to the Pratt Street Garage.

**Honorable Mention Projects:**

**Community Safety & Enhancement MD 7 (Philadelphia Road) from US 40 to Golden Ring Road (Rosedale, Baltimore County, MD) Century Engineering**

Century Engineering Inc. provided highway and utility design services for the MD 7 (Philadelphia Road) Community Safety and Enhancement project. The project is located in Rosedale, Baltimore County, extending from U.S. 40 to Golden Ring Road, a distance of nearly 2.5 miles.

This portion of MD 7 was first constructed in 1927 and had been recon-

structed numerous times during the intervening years. The original concrete road substructure and bituminous asphalt widening had significantly deteriorated. Underground utility structures including water mains, gas lines and sanitary lines frequently failed. In fact there was a recurring 20 x 30-foot sinkhole in the area of an old buried cross culvert located within the project limits. The existing 22-foot roadway width was not bicycle compatible. The sidewalks were substandard and not continuous. The curb and gutter and drainage system was also broken and discontinuous causing flooding issues for adjacent properties. Intersection layouts presented safety and operational challenges. Field investigations uncovered over 100 locations in which existing elements did not meet ADA standards. The look and feel of the neighborhood was tired, neglected and uninviting.

The purpose of this project was to address roadway drainage issues, pedestrian and roadway safety, improve traffic conditions, and reestablish the environmental quality throughout the residential and business communities, while preserving Rosedale's historically unique elements.

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**Century Engineering**  
 Community Safety & Enhancement MD 7 (Philadelphia Road) from US 40 to Golden Ring Road (Rosedale, Baltimore County, MD)



## ACEC/MD 2011 ENGINEERING EXCELLENCE AWARDS

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The project scope included intersection improvements, roadway widening, asphalt grinding and resurfacing, replacement of the curb and gutter system, installation of ADA sidewalks and ramps, retaining walls, landscaping walls, replacing and upgrading the storm drainage system, reconstructing water and gas lines and landscape improvements.

Construction work on the \$12 million project began in late summer 2007 and was completed in July 2010. A ribbon cutting ceremony was held on July 29, 2010 with local residents and their political representatives in attendance.

### *Deck Replacement of Westbound Suspension & Through Truss Spans & Miscellaneous Repairs (Annapolis, MD)* **URS Corporation**

The westbound Chesapeake Bay Bridge (William Preston Lane Jr. Memorial Bridge) carries a major route for Eastern Shore traffic into Annapolis, including traffic returning from Ocean City, Md., during the peak vacation season. The existing bridge deck in these two spans was over 30 years old and showed signs of heavy use. A previous independent deck study confirmed the condition of the deck. In addition, the open steel grating in the two outer lanes of the suspension spans required constant maintenance. The Maryland Transportation Authority (MDTA)



**URS Corporation**  
*Deck Replacement of Westbound Suspension & Through Truss Spans & Miscellaneous Repairs (Annapolis, MD)*

contracted URS to develop deck replacement schemes that would have minimal impact to the users, eliminate the wind slots and improve safety features within these spans.

The deck replacement solution that was designed and implemented by URS included lightweight precast deck units in the suspension spans and lightweight precast deck panels in the through truss spans. The deck units in the suspension spans included new stringers and a new steel barrier that was the same size and shape as a TL-4 Texas HT barrier. The deck panels in the through truss spans included a TL-4 Texas HT lightweight concrete barrier. The wind slots were eliminated in the suspension spans by providing winglets with fairings in the stiffening truss of the suspension spans to aerodynamically stabilize the main span in hurricane force winds.

The sequence of construction involved closing the entire westbound bridge at night, then removing a section of the existing deck and replacing it with the new precast section.

After the new section was installed, the bridge was opened to traffic by 5:00 a.m. the following morning. The precast sections were approximately one-half the width of the bridge and varied in length. To minimize the number of closure pours, the precast sections between expansion joints were match-cast at the precast yard. When subsequent sections were erected on site, they were joined together using segmental



**Hardesty & Hanover**  
*Emergency Repair of the I-695 Drawbridge over Curtis Creek (Baltimore, MD)*

bridge adhesive and longitudinal post-tensioning, similar to the method of erection for a precast segmental concrete bridge.

### *Emergency Repair of the I-695 Drawbridge over Curtis Creek (Baltimore, MD)* **Hardesty & Hanover**

The Curtis Creek Drawbridge is a twin double-leaf bascule bridge on I-695 in Baltimore, Md., and is owned and operated by the Maryland Transportation Authority (MDTA). Mid-day on June 29, 2009, the northwest leaf of the bascule bridge malfunctioned during a routine opening, resulting in one leaf stopping in the open position. Hardesty & Hanover LLP (H&H), along with Covington Machine and Welding (CMW), was on-site within one hour to assess the problem and provide a solution to lower the span. A crane and manual equipment was successfully utilized and traffic was restored to the bridge within eight hours of the failure.

Through an emergency procurement, the MDTA then secured the services of H&H and CMW to perform an in-depth investigation of the failure and prepare design plans, a cost estimate and construction schedule. The investigation found that excessive friction in the trunnion bearings was a contributing factor to the mechanical failure of the northwest leaf.

A temporary repair was designed and implemented that restored function to the bridge within three weeks of the failure. For long term reliability, it was recommended that

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**Johnson, Mirmiran & Thompson  
Fairfax County Parkway Design-Build (Fort Belvoir, VA)**

all four main gear boxes and all eight trunnion bearings be rehabilitated. To commence with the project, close coordination with the U.S. Coast Guard and U.S. Army were required since both organizations heavily depend on a functional drawbridge for access to their marine facilities directly upstream from the bridge. The main gear boxes and trunnion bearings were rehabilitated during separate short bridge closures. To rehabilitate the trunnion bearings, the bridge had to be jacked and temporarily supported.

All work was completed within nine months of the failure. Close coordination between the designer and contractor resulted in the project having no delays and no cost over-runs. This ensured a positive perception of the MDTA by the traveling public, U.S. Coast Guard, the U.S. Army and other marine traffic that routinely utilize the bridge. As a result of this project, movable bridge owners can understand the need for proper maintenance and early detection of potential mechanical problems utilizing regular in-depth inspections.

**Fairfax County Parkway Design-Build (Fort Belvoir, VA) Johnson, Mirmiran & Thompson**

The Fairfax County Parkway (FCP) Phase I & II Extension completes a vital link to I-95. This project provides the needed highway improvements to address traffic impacts of the U.S. Army relocating 8,500

jobs to the National Geospatial-Intelligence Agency Campus East at Fort Belvoir North Area in Virginia as part of the Base Realignment and Closure (BRAC) Program.

This project was highly publicized as critical to the success of the region's BRAC initiative. In fact, President Obama made two visits to the project, initially to indicate the importance of the project to the Northern Virginia roadway network, and secondly, for the future Phase IV which was heralded for the project's timely and effective use of ARRA funds.

This fast track project was accomplished using the design-build contracting method and addressed many environmental challenges such as the presence of contaminated soil/groundwater, and possible unexploded ordnance in the Fort Belvoir Engineering Proving Ground, which the alignment traversed.

The design-build team of Johnson Mirmiran & Thompson (JMT) and Cherry Hill Construction was selected as the Best Value team for the FCP, Phase I & II project by the Federal Highway Administration - Eastern Federal Lands Highway Division, Virginia Department of Transportation, and U.S. Army Garrison, Fort Belvoir. During the bidding process, JMT prepared alternate technical concepts that

improved the overall project design and reduced the construction cost.

Phase I & II of FCP begins at Rolling Road and proceeds southeast on a new alignment, ending at the bridge over Backlick Road, a distance of approximately 1.5 miles. The new four-lane divided limited access highway includes two new interchanges which provide access at Boudinot Drive and the new Barta Road entrance to the National Geospatial-Intelligence Agency Campus East at Fort Belvoir North Area.

With the completion of Phase I and II, motorists have a direct route to I-95 through the southern portion of the area formerly known as the Fort Belvoir Engineer Proving Ground in Springfield.

Construction of the FCP Extension began with the ground-breaking in November 2008. The design-build team has met all schedule milestones, with the main-line parkway being substantially complete and open to traffic September 19, 2010, two months ahead of schedule.

**Lafarge Buchanan FGD Conversion (Buchanan, NY) Whitney, Bailey, Cox & Magnani**

Beginning in 2008, Whitney Bailey Cox & Magnani LLC (WBCM) provided the plan-



**Whitney, Bailey, Cox & Magnani  
Lafarge Buchanan FGD Conversion (Buchanan, NY)**

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# ACEC/MD 2011 ENGINEERING EXCELLENCE AWARDS

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ning, engineering design and construction administration of a major renovation to the Lafarge Gypsum Wallboard Manufacturing Plant in Buchanan, N.Y. Lafarge committed to converting the manufacturing process from mined gypsum rock raw material, to synthetic gypsum, using flue gas desulfurization (FGD) material, obtained from scrubbing the exhaust from a coal burning power plant. The project scope included the following components:

- Reconstruction and modification of the marine unloading terminal including the vessel unloading platform and materials handling equipment for FGD
- Modifications to the raw material feed system
- Installation of a new mill building and process equipment for the FGD material
- Equipment and process modification for tie-in of the FGD system to the existing equipment

This high-profile project carried an aggressive schedule in order to meet delivery dates for the FGD material, arriving to the plant by ocean-going barge. The project team elected to fast-track the facility design since the major process and unloading equipment required long lead times for fabrication and delivery. Further, the plant renovations involved permitting through local

and state agencies, which needed to be carefully programmed in the overall schedule.

The plant remained in operation throughout construction. The improvements were completed in March 2010. The final construction cost was \$32.8 million.

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## *Reconstruction of Eastern Avenue Bridge over Kenilworth Avenue, N.E. (Washington, DC) Greenhorne & O'Mara*

Due to the low vertical clearance, the single-span, grade-separation structure at the Eastern Avenue and Kenilworth Avenue, N.E., interchange in the District of Columbia had sustained significant damage from repeated collisions of trucks. The District Department of Transportation (DDOT) retained the services of Greenhorne & O'Mara Inc. (G&O) to design a "gateway" structure using accelerated construction methods that would increase the bridge's vertical clearance over Kenilworth Avenue, N.E.

In order to meet the DDOT objective, the G&O project team developed an innovative solution that included the use of prefabricated bridge elements and a pier in the median of Kenilworth Avenue providing a two-span structure, which reduced the superstructure depth and increased the vertical clearance. This solution accelerated construction significantly.

The footings and lower portions of the pier/median barrier were cast-in-place while the pier columns were prefabricated. These prefabricated pier units were lifted into position on the cast-in-place portion of the pier. Closure pours with reinforcement connected the prefabricated and cast-in-place components. The prefabricated superstructure units were erected

when the pier and reconstructed abutments were complete.

Accelerated construction methods were a key to the success of this project for several reasons. Kenilworth Avenue/I-295 serves as a major transportation corridor between Maryland and Virginia, and as a commuter route into Washington, D.C. In addition, Kenilworth Avenue is a U.S. Department of Homeland Security evacuation route. Maintenance of traffic schemes were developed to allow full closure of the bridge during off-peak traffic hours, but were flexible enough to allow for a minimum of three open lanes during high-traffic times.

These solutions provide a compelling example for extensive use of prefabrication in bridge construction, even though it is not frequently used in our region. The actual construction cost was \$1M less than the engineer's estimate without contingency, demonstrating that accelerated construction methods provide value to the client.

G&O also secured a \$1 million grant for the DDOT from the Federal Highway Administration through the "Highways for Life" program for incorporating accelerated construction methods.

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## *Suspended Span Replacement Bridge No. 2302100 MD 90 over Assawoman Bay (Ocean City, MD) URS Corporation*

The MD 90 Bridge over Assawoman Bay is located in Ocean City, Md. It is comprised of 136 prestressed concrete box beam spans, a main span unit comprised of two anchor spans, and a suspended span that consists of modified prestressed concrete AASHTO girders.

In August 2009, URS was contracted by the Maryland State Highway Administration (SHA) to determine potential non-destructive methods for evaluating the interior conditions of the box beam spans and the main span unit. The purpose of this evaluation was also to determine the suitability for a load test and the need for structural analysis.



**Greenhorne & O'Mara**  
Reconstruction of Eastern Avenue Bridge over Kenilworth Avenue, N.E.  
(Washington, DC)

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**URS Corporation**  
**Suspended Span Replacement Bridge No. 2302100 MD 90 over**  
**Assawoman Bay (Ocean City, MD)**

After the visual inspection, URS determined that the corrosion of a significant number of prestressing strands in the suspended span of the main span unit warranted a structural analysis. Load ratings using

both the AASHTO LFR and LRFR methods were performed to determine the live load carrying capacity of the main span unit. The results of this analysis suggested that the bridge be posted for a weight limit of 10 tons based on assumed losses in the strands.

A more detailed inspection on September 29, 2009, indicated that the amount of corrosion was even greater than originally assumed.

Based on this information, it was determined that the bridge should be closed to traffic.

In response to SHA's emergency decision to close the bridge to traffic, URS engineers

immediately developed a preliminary design overnight and presented it to SHA the next morning. URS' design replaced the existing prestressed concrete girder suspended span with a lighter shallow steel plate girder span supported on the dapped ends of the existing prestressed concrete girders in the anchor span. URS' decision to not replace the span in-kind had the added benefit of reducing the permanent load in the span, thereby allowing an increase in live load capacity.

SHA approved the new design and URS completed the final structural steel design so that fabrication could begin. One week later, the plans were advertised and the contract awarded. Because of URS' and SHA's quick reaction and team approach, the new bridge was reopened six weeks after being closed.



## NEW MEMBERS

The following firms have been elected to membership:

**J. K. Datta Consultants, Inc.**

**711 West 40th Street, Suite 355**

**Baltimore, MD 21211**

**Telephone: 410-243-2882; Fax 410-243-2888**

**Rep: Kim Adams**

**Website: [www.datta-consultants.com](http://www.datta-consultants.com)**

*Brief History and Activities of the Firm: Established in 1983, Datta Consultants is a minority-owned, full service engineering consultant firm providing engineering services for various local government municipalities and agencies. The field of operations for the firm include: Highway, Environmental, Electrical, Traffic, ITS, and Utilities. The firm's focus is in the design and engineering of Storm Drain Facilities, Erosion and Sediment Control, SWM facilities, Water Distribution Systems, Sanitation Systems, Roadway and Sidewalks, Traffic Signals, Street Lighting, Intelligent Transportation*

*Systems, Database Design, Maintenance of Traffic, Utility Planning for state roadways, and preparing and processing permits and other environmental applications. They also have extensive experience in Pavement Rehabilitation, Systems Design, and Geographic Information Systems (GIS), Construction Inspections, Pedestrian, Bicyclist and Vehicular Traffic Assessment, Critical Area Assessment, and Subsurface Utility Investigation.*

**Landmark Consulting Engineers**

**356 Congress Avenue**

**Havre de Grace, MD 21078**

**Telephone: 410-939-2144; Fax 410-939-1284**

**Rep: John Gonzalez/Ted Williams**

**Website: [www.landmarkjcm.com](http://www.landmarkjcm.com)**

*Brief History and Activities of the Firm: Established in 1987 by five professionals in Delaware to provide civil engineering services to the tri-state region, Landmark Consulting Engineers has grown to 60*

*employees in five offices. The field of operations for the firm include: Civil, Environmental, Highways, Survey, Site Development, Natural Sciences, Remediation and Green Buildings. Integrated civil-site engineering services include land surveys, GIS mapping, land planning, engineering design for civil, site, traffic/transportation, water resources, pre-development advisory, due diligence, and construction phase services. Environmental services include wetlands, forests and wildlife investigation and mitigation, pond and land management, brownfields redevelopment, site remediation, and green building consultation.*

We welcome these firms as members of ACEC/MD. Be sure to add their information to your records. The next time you see one of their representatives, please take the time to let them know we're glad that they have joined the Council!



## MAA'S PAUL WIEDEFELD RECOGNIZED WITH 2011 PRESIDENT'S AWARD

Paul J. Wiedefeld has 30 years of public and private sector transportation management experience. In 2009, he was appointed as the Executive Director of the Maryland Aviation Administration (MAA), where he is responsible for the planning, operation and management of Baltimore/Washington International Thurgood Marshall and Martin State Airports. He is also responsible for providing technical and financial assistance to over 130 publicly and privately-owned airports located throughout the state of Maryland.

Paul previously served as MAA Executive Director from 2002 until 2006, where he managed BWI through the largest expansion in the airport's history. During this period, he managed the design and construction of a 26-gate terminal for Southwest Airlines, an 8,400-space

parking garage, and a modern consolidated rental car facility. He also transformed the airport's food, beverage and retail offerings to the highly successful AIRMALL concession program. Prior to returning to BWI, Paul served as Administrator of the Maryland Transit Administration, the 10th largest transit system in the United States.

He is very familiar with ACEC/MD, having previously worked for member firm Parsons Brinckerhoff for ten years. Paul holds an undergraduate degree in political science from Towson University and a master's degree in city and regional planning from Rutgers University.



## EA'S ABBIE ADAMS SELECTED AS THE 2011 YOUNG PROFESSIONAL OF THE YEAR

Annually, in conjunction with our parent organization, the American Council of Engineering Companies, ACEC/MD presents a Young Professional of the Year Award. This award recognizes our member firms' young engineers by highlighting their interesting and unique work, and the resulting important impact on society.

This year's recipient, Abbie Adams, PE, CEM, started her career at EA Engineering, Science & Technology Inc. in 2003. Through exceptional work, she has advanced quickly into project management. Trained in mechanical engineering, Abbie has applied both her project experience in design of water/wastewater, energy and solid waste projects, as well as project, contract, and proposal management.

Currently Abbie manages \$1 million in engineering projects supporting the \$4-billion Base Realignment and Closure (BRAC)

program at U.S. Army Post Fort Belvoir. She leads the EA team in assisting the Directorate of Public Works with planning, design, review and management of this extensive infrastructure development program that includes a hospital, various Army agency headquarters and the National Museum of the Army.

Abbie utilizes her exceptional skills to mentor the next generation of engineers and to benefit underprivileged children. She coaches junior staff, providing leadership and teaching engineering skills. For four years, she has chaired Day with an Engineer for the local SAME post, connecting 100 high-school students with engineers to shadow for a day. In addition, for five years, she has coordinated a holiday gift drive for 75-100 kids living in a children's home.



## EILEEN STRAUGHAN RECOGNIZED AS 2011 COMMUNITY SERVICE AWARD WINNER

Annually, when appropriate, ACEC/MD honors a member firm representative that has made a significant contribution to the community by volunteering their time and expertise.

This year's recipient, Eileen Straughan, president of Straughan Environmental Inc., has donated a considerable amount of time and money to a variety of important community causes. She served on numerous boards and sponsored important organizations, such as West/Rhode Riverkeeper; Koolhof Earth; Casey Cares; and the American Heart Association. Eileen has also been a vocal public leader and has steadfastly advocated for sustainability in the community and environment.

Working with Sandtown Habitat for Humanity, Eileen donated her time to provide site design services for a LEED platinum pilot home that will lead to the sustainable redevelopment of a 15 block area in southwest Baltimore. She has been very involved in the improvement of local waterways having received a Governor's Citation for Community Service for her efforts as the Patuxent Riverkeeper, and she has given countless hours of her time as a technical expert on water quality in support of the Rock Creek Watershed Steward.

Through the non-profit organization of Koolhof Earth, Eileen performed an environmental survey for a 360-unit low income housing community in Adelphi, Md., developing recommendations for energy and water efficiency retrofits for the buildings and grounds to improve the environmental performance and sustainability of the community, buildings and environment.





# THANKS FOR BEING A SPONSOR

ACEC/MD would like to extend its sincere appreciation for the support of our Awards Banquet Sponsors. This event would not be a success without the participation of the following firms:

**PLATINUM:**

Stambaugh Ness, PC  
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**BRONZE:**

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# SCHOLARSHIP AWARDS

To qualify for a scholarship, a student must be a U.S. citizen pursuing a bachelor's or master's degree, or PhD, in an Accreditation Board for Engineering and Technology (ABET)-approved engineering program or in an accredited land surveying program. Candidates must be entering their sophomore, junior, senior, fifth or graduate year in the fall of this year.

**ACEC/MD 2011 Scholarship:**

**Molly Donovan** | Ms. Donovan is a Junior at the University of Maryland College Park (UMCP), pursuing her bachelor's of science degree. With a 4.0 GPA, Molly has pursued a number of impressive internships and part-time jobs, focused on fluid dynamics. During the Summer of 2010, she assisted with data analysis for the Nuclear Regulatory Commission, and is currently assisting with fluid mechanics research at UMCP. Molly currently serves as Secretary of the UM Chapter of the American Society of Mechanical Engineers, and is a member of the Society of Women Engineers; Pi Tau Sigma Mechanical Engineering Honors Society; and the Primannum Honors Society; Engineers without Borders; and UM Club Running Team, Terp Runners; and Catholic Terps. She has received the University Honors Citation, and the Pi Tau Sigma Outstanding Sophomore Award in 2010. Ms. Donovan is a resident of Hampstead, Md.

**Elizabeth Heisler** | Ms. Heisler is a sophomore at Virginia Polytechnic Institute and State University (VT), where she enjoys a GPA of 3.82

in pursuit of her bachelors of science degree in mechanical engineering. During the summer of 2010, Elizabeth worked for the Johns Hopkins University Applied Physics Laboratory Space Department on the thermal protection system on the Solar Probe Plus. She is a member of Engineers without Borders, and the Pianist at the Newman Catholic Ministry. She has participated in "The Big Event" at VT, as well as Relay for Life. Elizabeth is a resident of Hillcrest Honors Community where she manages the e-mail server, and participated in the 2010 Rising Sophomore Abroad Program as one of 21 students touring European corporations. Ms. Heisler is a resident of Millersville, Md.

**William R. Kahl 2011 Scholarship:**

**Adam Norris** | The recipient of the William R. Kahl Scholarship is presented to the outstanding civil engineering student, and the winner in this year's competition is Adam Norris, a junior at UMCP, sporting a 3.57 GPA. Adam spent last summer working as an intern with Hardesty & Hanover LLP in Annapolis, where he reviewed shop drawings, checked bridge calculations, and worked on AutoCad and MicroStation. He is a member of the American Society of Civil Engineers, and President of the InterVarsity Christian Fellowship. He has organized a canned food drive, raised funds for the Relay for Life, and assisted with the 4th Presbyterian Youth Group. He has received the University Honors Citation, and is a resident of Bethesda, MD.



## AWARD JUDGES PROVIDE VALUABLE SERVICE TO ACEC/MD

We would like to express appreciation to the following judges that played an integral part in the success of our Awards Program. The distinguished panel of judges for this year's awards included:

**EEA Judges**

Rachel Ellis, Gannett Fleming (Chair)  
James Jones, U.S. Army Corps of Engineers  
Stephen Silva, Maryland Transit Administration

David LaBella, Maryland Transportation Authority  
Alfred Foxx, City of Baltimore Department of Public Works  
Manny Sidhu, Sidhu Associates Inc.  
Chris Griffith, PE, CCM, KCI Technologies Inc.

**Individual Awards Judges**

Rachel Ellis, Gannett Fleming (Chair)

Ken Derrenbacher, PE, Schnabel Engineering  
Chris Griffith, PE, CCM, KCI Technologies Inc.  
Amy Lambert, CPSM, KCI Technologies Inc.  
Mike Myers, PE, Rummel Klepper & Kahl LLP  
Neil Robinson, PE, Century Engineering Inc.  
Ray Streib, PE, Development Facilitators, Inc.



# AMERICAN COUNCIL OF ENGINEERING COMPANIES/MARYLAND

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March-April, 2011

## PROFESSIONAL DEVELOPMENT

- May 11**     *Environmental Forum – A Panel Discussion on Technical Solutions to the Bay TMDL*  
Baltimore, MD. Presented by ACEC/MD. To register, contact the ACEC/MD office 410.539.1592.
- May 12-13**     *10 Top Legal Issues*  
Philadelphia, PA. ACEC presents Bernard Sacks, P.E., Senior Corporate Council, the Louis Berger Group, Inc.; Peter Coote, P.E., Vice President and General Counsel, Pennoni Associates; and Gerard Cavaluzzi, General Counsel, Chief Risk Officer and Vice President, Malcolm Pirnie, Inc., who will provide an indepth discussion of your firm's essential functions. For more information go to [www.acec.org](http://www.acec.org).
- May 26**     *MDOT Modal Presentation*  
Baltimore, MD. Jointly sponsored by ACEC/MD and ACEC/MW. To register, contact the ACEC/MD office 410.539.1592.
- June 15-17**     *ACEC/MD 23rd Annual Conference*  
White Sulphur Springs, WV. The Greenbrier will be the location of this annual conference. The deadline for room reservations is May 16th. Contact the Greenbrier at 1.800.453.4858 to make your room reservations. To register for the conference, contact the ACEC/MD office 410.539.1592 or go to [www.acecmd.org](http://www.acecmd.org).

