innovator

Winter 2011

SEASONS GREETINGS!

On the Road to Mobility

Innovative Solutions to Reduce Urban Congestion in Washington, D.C.

Life may be a highway, but most commuters definitely don't want to ride it all night long. This winter, planners and engineers at KCI and the Federal Highway Administration's Eastern Federal Lands Highway Division will take a big step toward making that trip a little easier in our nation's congested capital when the Draft Environmental Impact Statement for the 14th Street Bridge Corridor, also known as Interstate 395, is released to the public.

The document demonstrates the likelihood that mobility and safety can be enhanced in an urban corridor without massive capacity improvements. Instead, management strategies focus on more efficient operations.

More than 230,000 vehicles travel along I-395 every day, making the five-mile stretch of interstate the most heavily traveled corridor in the region. It is also a gateway to the capital, a major commuter route, and a vital link between Northern Virginia and Washington, D.C.

On its way to the capital, the highway winds through one of the densest urban footprints in the metropolitan area. "The complexity of our study area was compounded by the concentration of historic and culturally significant destinations," said project manager Angela J. Jones, PE. "We have a national park, the National Mall, the Jefferson Memorial, the Pentagon, Arlington National Cemetery, countless monuments and government buildings, not to mention the utilities and infrastructure that support each site."

Although severe rush hour congestion is a daily occurrence throughout the I-395 corridor, drivers can experience major backups at any time, be it noon on a Saturday or late on a weekday evening, depending on scheduled events in and around Washington, D.C.

It was clear early on that the size and scope of build options were necessarily limited, and improvements had to consider a regional perspective. There would be no silver bullet to resolve transportation issues in the study area, according to Jones.

Instead, planners and engineers evaluated traditional build alternatives alongside intermodal opportunities and innovative strategies like telecommuting incentives, flexible work hours, and parking management. "We are addressing travel demand," said

[See Modal, page 4]

Cover photo courtesy of the National Park Service

KCI TECHNOLOGIES

INSIDE

Message from the CEO

Season's Greetings. I have just returned from the American Council of Engineering Companies (ACEC) fall conference where I was fortunate to hear the CEOs of Jacobs, CDM, Sargent & Lundy and AMEC give their views on the future of our industry. Their message was to be prepared for a permanently changed environment that will not be returning to the "good old days." Though this should be no surprise in any business, the engineering and consulting industry has a natural resistance to change due to our training and mission to protect the public's safety above all else. But change we must, and we need to constantly evaluate our clients' needs and then adapt our firm accordingly.

One of the above-mentioned firms does 30 percent of their work using design-build procurements and another focuses on integrated project delivery using best-value selection systems. KCI believes qualifications-based selection will continue as the major selection mechanism in the federal, state and municipal market using design-bid-build, but that majority is shrinking. We also believe those who bring financing to projects will have a competitive edge.

One final comment on industry trends involves the globalization of our industry. Just as the recent stock market volatility was influenced by the European financial crisis, our industry has become more global than we would like to believe. Non-U.S. firms are buying more U.S. consultants and vice versa. These acquisitions are currently concentrated in the mega firms, but we all have to acknowledge that our future as an industry may be partially beyond our shores.

We will continue to change and adapt at KCI, whether it be through innovative solutions like those proposed for the 14th Street Bridge Corridor, ground-breaking scientific studies similar to our work in Baltimore's Inner Harbor, or creative financing to support municipalities and private organizations in fulfilling their missions.

In closing, may you have a joyous holiday season and I would be remiss if I didn't let you know that we are extremely grateful for your past business and hope to continue to serve you in the future.

Sincerely,

Terry F. Neimeyer

Terry F. Neimeyer, PE, BCEE, FACEC
CEO & Chairman of the Board

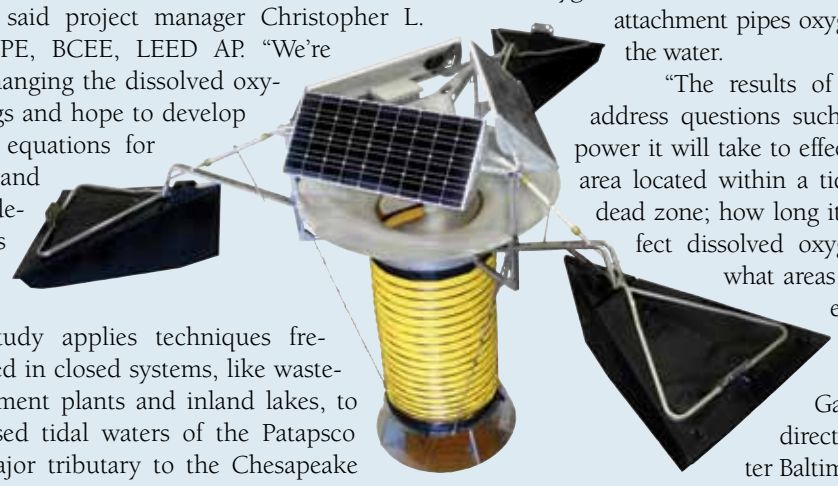
TROUBLED WATERS

Something unusual was floating in Baltimore's Inner Harbor this summer—something that looked like a cross between a miniature satellite and a science experiment—the latter being closer to the truth. Through a grant from the Abell Foundation, KCI teamed up with Blue Water Baltimore and the Baltimore Harbor WATERKEEPER—part of an alliance of on-the-water advocates—in launching a floating solar-powered device as part of a pilot study to monitor the effects of mixing and aeration in the harbor.

Green tracer dye was used to track the device's range of influence within the water. Engineers monitored dissolved oxygen levels along with water temperature, salinity, density and conductivity in predetermined areas around the mixing and aeration device throughout the summer.

"It's not surprising that our harbor water is dirty," said Baltimore Harbor WATERKEEPER Eliza Steinmeier Smith. "While years of industrialization have led to toxic sediment, it's the daily onslaught of polluted stormwater that keeps the harbor and the Patapsco River from recovering." If the study results demonstrate that mixing and aeration technology can be a feasible short-term solution to mitigate low-oxygen dead zones, she hopes to add it to other triage-type tools in her water quality improvement arsenal.

"The goal of the project is not to make a long-term impact, but to place a unit that we configured with known power settings and then measure its influence," said project manager Christopher L. Overcash, PE, BCEE, LEED AP. "We're seeing it changing the dissolved oxygen readings and hope to develop correlation equations for a mixing and aeration device and its associated impacts."



The study applies techniques frequently used in closed systems, like wastewater treatment plants and inland lakes, to the distressed tidal waters of the Patapsco River, a major tributary to the Chesapeake Bay. Throughout the world, estuaries like the Bay experience anoxic and hypoxic conditions, or dead zones, leading to algal blooms and fish kills. Low oxygen levels, most often a result of increased nutrient loading, prohibit growth of underwater grasses and increase mortality rates among many aquatic species.

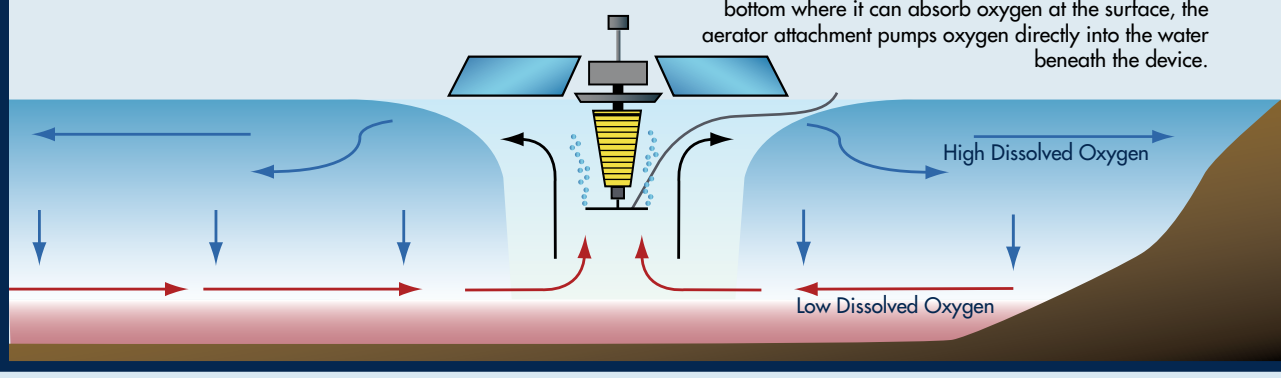
"Think of the Bay as an emergency room patient struggling for breath," said Senior Vice President Thomas G. Sprehe, PE, BCEE. "Oxygen is a key to recovery."

Overcash worked with marine engineer J. Ikaika Kincaid, PE, to design and build an aeration system that was attached to the floating SolarBee®, a device that draws cooler water up from near the bottom to absorb oxygen at the surface. In contrast, the aeration attachment pipes oxygen directly into the water.

"The results of the study will address questions such as how much power it will take to effectively aerate an area located within a tidally influenced dead zone; how long it will take to affect dissolved oxygen levels; and what areas will be impacted and over what distance," said Halle Van der Gaag, executive director of Blue Water Baltimore.

Once the results are documented and equations derived, the team will evaluate the cost and design requirements to scale up enough to make an impact on the Baltimore Harbor and other areas of the Chesapeake Bay that experience hypoxic dead zones. Overcash hopes to move the project into a second level pilot study or even a full-size model over the next few years.

While the floating Solar Bee® draws water up from the bottom where it can absorb oxygen at the surface, the aerator attachment pumps oxygen directly into the water beneath the device.



Office Updates

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DELAWARE

KCI is conducting a feasibility study for the South College Avenue Building on the University of Delaware's Newark campus.

The Delaware Department of Transportation selected KCI for a three-year contract to support their NPDES statewide storm drain inventory and inspection program.

As a subconsultant to Buck Simpers Architects + Associates, KCI is providing civil engineering services for a new sustainable energy and technology center on the Newark campus of the Delaware Technical and Community College.

MARYLAND

KCI was one of two firms selected for a three-year, $3 million basic ordering agreement with the Washington Suburban Sanitary Commission for water, sewer and meter rehabilitation design services.

As a subconsultant to Academy Construction Enterprises, LLC, KCI is providing design services to the U.S. Army Corps of Engineers Baltimore District under a $50 million single-award task order design-build contract.

The Maryland Department of Information Technology awarded KCI Convergent Technologies a five-year, $5 million open-end contract for outside plant cable and wiring materials and services.

KCI is working with Grimm + Parker Architects to prepare a master plan for Havre de Grace High School in Harford County.

The Maryland State Highway Administration selected KCI for a second consecutive on-call contract, this one for $3 million and five-years, for utility relocation design services statewide.

As a subconsultant to EwingCole, KCI is providing site/civil engineering services to expand the Johns Hopkins Bayview Medical Center's emergency department in Baltimore.

The city of Frederick selected KCI to conduct a cultural resources field survey and update the database for the Frederick Historic District, listed in the National Register of Historic Places since 1975.

NEW YORK

KCI is providing preliminary design services to convert steam mains from high to low pressure at the Eastman Kodak Campus in Rochester

NORTH CAROLINA

Progress Energy awarded KCI an on-call contract for utility designating and locating.

KCI will be providing construction engineering and inspection services for the Pine Knoll Shores bridge replacement project in Carteret County.

The North Carolina Department of Transportation awarded KCI two on-call

Funding Fore$ight

Money makes the world go around, and nowhere is that more evident than in the public sector, where financially strapped government agencies face the daily challenge of funding their capital improvement programs. KCI is assisting many of our public and private clients to identify, apply for and manage grants and low-interest loans to help advance public works and environmental improvement projects.

"As program managers, we are always actively looking for funding sources that any stakeholder can then pursue independently or otherwise," said Vice President Joseph P. Pfeiffer, PWS, who developed and is overseeing the implementation of the strategic restoration plan for Grand Lake St. Marys in Ohio. "Moving forward in the future, we have to be able to find ways of aiding and abetting the creation of funding to make projects work."

In Delaware, KCI project manager J. Ryan Flickinger, PE, maintains strong relationships with the water and wastewater agencies that administer and apportion federal funds. "Historically the state has a hard time getting towns to take this grant money," he said. "Municipalities don't always know how to go about it and often think there are many strings attached." KCI has supported or prepared grant applications for projects in Middletown, Smyrna and Dover.

"More than 90 percent of our funding for water and wastewater projects is derived from grants and loans," said Smyrna Town Manager David S. Hugg III. "They're probably the difference between doing the project and not doing the project." KCI recently helped Hugg secure 52 percent principal forgiveness for six capital improvement projects through Delaware's Office of Drinking Water, saving the town $1.9 million. Over the last five years, Flickinger's team has secured more than $10 million in support of more than 20 projects in nearby towns and municipalities, many focusing on sanitary and water system enhancements.

Whether a sewer line expansion, wetland restoration or a roadway resurfacing, alternative funding allows organizations and government agencies to improve the lives of their constituents while often surpassing their capital improvement needs. By facilitating grants or other innovative financing options, KCI is building pathways by which programs are funded, and progress is made.

Honey Creek Watershed Association
Tipp City, Ohio

KCI helped the organization meet the goals and in-kind matching obligations of an Ohio EPA 319 Grant by conducting a two-day stream restoration seminar for area watershed specialists and environmental scientists. The association originally received the grant for channel restoration work that was designed and built by KCI.

Grand Lake Restoration
St. Marys Restoration Commission
Mercer and Auglaize Counties, Ohio

As the General Engineering Consultant for the overall restoration effort at the 21-square-mile inland lake, KCI has prepared applications for Ohio EPA 319 and U.S. Department of Agriculture grants to build the Prairie Creek Treatment Train, an innovative ecological restoration tool combining constructed and restored wetlands with embayment, aeration and filter-feeder species introduction.

In addition to applications, the town of Smyrna also relies on KCI to monitor and document compliance with the special requirements associated with most grants or loans, including wage rate certifications or made-in-America stipulations.

Rockville Town Center
Montgomery County, Md.

KCI's Construction Management Practice monitored compliance during construction of the Rockville Town Center, a quasi-government project that included several public parking garages, a library, retail space and condominiums. Team members provided backup invoicing so the city could report to the granting agencies that funds were being properly allocated.

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agreements—one for construction engineering and inspection, and the other for bridge design and reviews statewide.

The University of North Carolina Wilmington selected KCI for an on-call contract for civil, mechanical, electrical and structural engineering services.

OHIO

KCI is providing construction inspection services for resurfacing Waterloo Road for the Portage County Engineer's Office.

The city of Elyria awarded KCI a design services contract for resurfacing, repairing and upgrading one mile of Middle Avenue.

PENNSYLVANIA

Under a $350,000 contract, KCI is providing environmental evaluation and design services for two safety improvement corridors—Henry Avenue and PA 896.

The Wildlands Conservancy selected KCI to conduct a feasibility study for the full or partial removal of two dams to facilitate fish migration along the lower Lehigh River.

The Seminary Ridge Historical Preservation Foundation chose KCI to conduct a Phase II archaeological investigation on Seminary Ridge, a Civil War battle site in Gettysburg.

TENNESSEE

KCI was selected by the Tennessee Department of Transportation to provide construction engineering and inspection services for widening and bridge replacements on SR 31 in McMinn County.

TEXAS

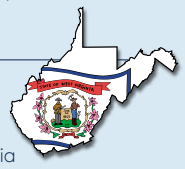
FiberLight awarded KCI a $540,000 design contract to extend fiber to 127 cellular sites in Houston, Dallas, Baltimore and Washington as part of Sprint's Network Vision Deployment.

KCI is conducting condition assessments for 400 units of a Houston Housing Authority facility, as a subconsultant to Torti Gallas and Partners.

VIRGINIA

Fauquier County Public Schools selected KCI to provide industrial environmental engineering services under a one-year open-end contract.

WEST VIRGINIA



KCI is providing commissioning services for Armed Forces Reserve Centers for the West Virginia Department of Administration.

People

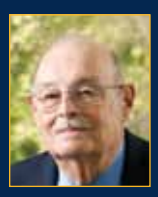
Vice President Gary M. Mryncza, PE, LEED AP, was promoted to Resource Management Discipline Head. He will be responsible for overseeing the firm's Natural Resources, Water Resources and Ecosystem Dynamics practices companywide, and will serve as principal for public and private projects from New England to Florida and west to Texas and Indianapolis.

KCI is proud to announce that the following individuals were recently hired as, or promoted to, practice leader: Donald J. Birnesser, PE, Solid Waste, Christopher W. Clark, RLS, LEED Green Associate, Surveys; and Eric D. Murtha, Power.

Jeffrey A. Tirschman, PMP, Geospatial Solutions, was promoted to senior associate. Tirschman is a senior project manager with more than 12 years of experience in IT and GIS system development.

The following individuals were promoted to associate: Gregg (Arch) Noha, Convergent Technologies; and Laurie Arensdorf, Resource Management.

A Fond Farewell …



In September, KCI celebrated the contributions of its most tenured employee, Richard L. Smith, as he retired exactly 56 years after his first day on the job. As a designer and later a project manager, Smith worked on many noteworthy and award-winning developments and facilities including the Baltimore SEED School and Bell Lincoln Multi-Cultural Middle and High School in Washington, D.C.

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The *Innovator* is a publication of KCI Technologies Inc., a full-service, employee-owned consulting engineering firm based in Sparks, Md. Please contact us with any comments or questions regarding the newsletter or the firm. You can find out more about KCI at our Web site:

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KCI TECHNOLOGIES

Chunkin' for Charity

KCI employees had a "gourd" time pumpkin chunkin' on October 21 to raise funds and awareness for wounded warriors through two non-profits—United Way of Central Maryland and Helping Hometown Heroes. Seven teams built slingshots and trebuchets (like Team Construction Pumpkinators shown left) to hurdle eight pound gourds across the parking lot at the Sparks, Md., headquarters. The Land Development Practice's slingshot took home the coveted golden trebuchet trophy for their soaring 600-foot throws.

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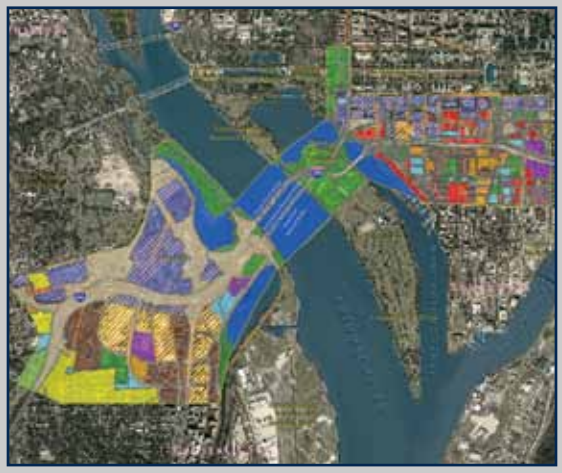
Jones. "Lessening the trips in the corridor could provide the same level of benefit, if not more, as capacity improvements like additional lanes or new bridge crossings, but at a much lower cost."

Even if large-scale construction were feasible from the perspective of available space, aesthetics and cultural impacts of a major system expansion were unacceptable. Instead of looking toward new bridges or wider roads, the KCI-led planning team applied livability and sustainability principles to the study's major challenges with a goal of creating an efficient intermodal, interconnected transportation system. Recommended improvements do include several smaller build options, including geometric and intersection improvements as well as added bicycle and pedestrian access. In all cases, alternatives were chosen for their economic feasibility as well as their benefit to corridor operation, public health and safety, and the surrounding environment.

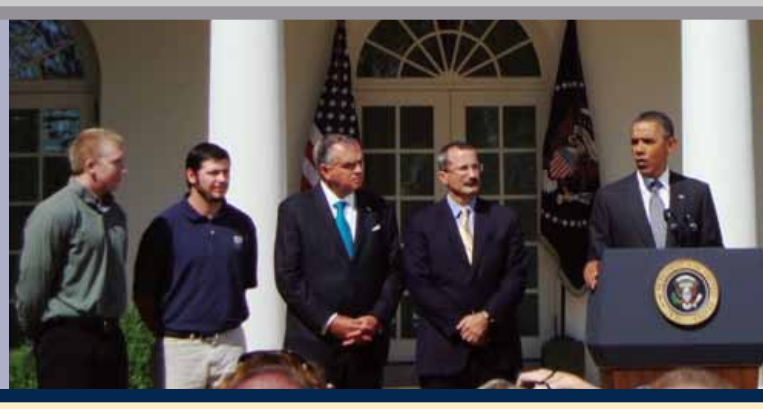
When the Final Environmental Impact Statement is published next spring, area residents and workers will be one step closer to increased mobility and maybe even more sustainable and stronger communities.



The planning team worked with the District Department of Transportation, Virginia Department of Transportation, Arlington County, National Park Service and Department of Defense to develop the alternatives recommended in the Draft Environmental Impact Statement.

A SHOW OF SUPPORT

On August 31, KCI construction inspectors. C. Adam Vencill and Christopher W. Negley joined President Obama on stage in the White House's Rose Garden for his press conference on the proposed transportation bill.



Professional Notes

David Koss, PE, LEED AP, Mechanical/Electrical, participated in a panel discussion on project delivery at the Public and Private Higher Education Design and Construction Symposium hosted by the American Council of Engineering Companies of North Carolina on September 22.

In August, Vice President **Timothy W. Wolfe, PE, BCEE**, Water/Wastewater/Solid Waste, presented, "Managing Baltimore's Infrastructure" at the Tri-Association Conference in Ocean City, Md. Later in October, Wolfe also joined Wazir Qadri, of Baltimore City, to present, "Cleaning the Lower Jones Falls Interceptor in Baltimore, Maryland," at the Water Environment Federation's WEFTEC 2011 conference held in Los Angeles, Ca.

Senior Vice President **Thomas G. Sprehe, PE, BCEE**, Environmental, moderated a session on "Sustainability in Enclosed Coastal Seas," on August 29 at the Environmental Management of Enclosed Coastal Seas Conference in Baltimore, Md. During that session, **Christopher L. Overcash, PE, BCEE, LEED AP**, presented, "Direct Intervention to Improve Hypoxic Conditions: A Baltimore Harbor Study."

Nicole D. Baer, PE, Land Development, has taken the helm as president of the American Society of Civil Engineer's Structural Engineering Institute—Maryland.

Environmental scientist **Michael J. Pieper, CSE**, Natural Resources, presented on monitoring the restoration success in the Red Hill Branch Subwatershed at the Mid-Atlantic Stream Restoration Conference in Flintstone, Md., on November 16.

At the Morgan State University National Transportation Center's Maryland Transportation Symposium on October 11, **Kenneth T. Briggs, PE**, Highways and Traffic, moderated a session on transportation investment.

Courtney M. Hugo, Natural Resources, received her Nutrient Management Consultant Certificate from the Maryland Department of Agriculture. **Jennifer A. Bird** and **Christopher S. Deibel**, Natural Resources, were certified as qualified professionals to prepare forest stand delineations and forest conservation plans by Maryland Department of Natural Resources.

In Naples, Fla., **Anupam Saxena, PE**, and **Jayant Saxena, PE**, Geotechnical, presented a specialty sinkhole seminar on detection, investigation, stabilization and remediation for representatives of Keys Public Adjustors and Merlin Law Group.

Bryan R. Lawson, LEED AP, Construction Management, passed the Certified Construction Managers examination.

Awards

At a luncheon on Thursday September 15, the *Tampa Bay Business Journal* presented KCI with a **Healthiest Employer** award for the firm's efforts in promoting the health and well-being of their employees.

At a banquet held on November 8 in Washington, D.C., the **Construction Management Association of America** honored the National Geospatial-Intelligence Agency Campus East with a **Project Achievement Award**. KCI was part of the program management team constructing the new East Campus at Fort Belvoir, Va., to consolidate the agency's eastern facilities.