MAY/JUNE 2014

ENGINEERING INC.

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» BIM Grows Up

» Understanding Municipal Advisor Requirement

» Education Construction Boom

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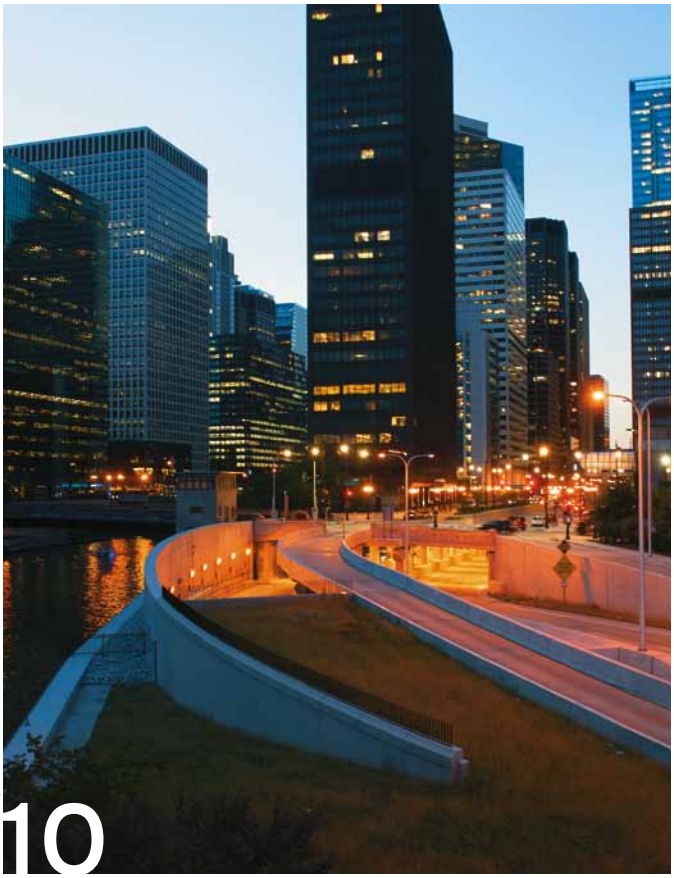
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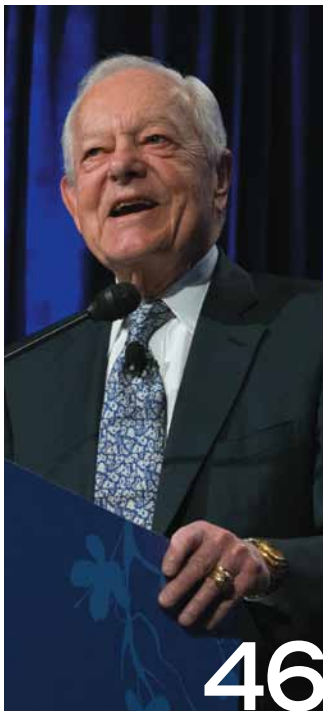

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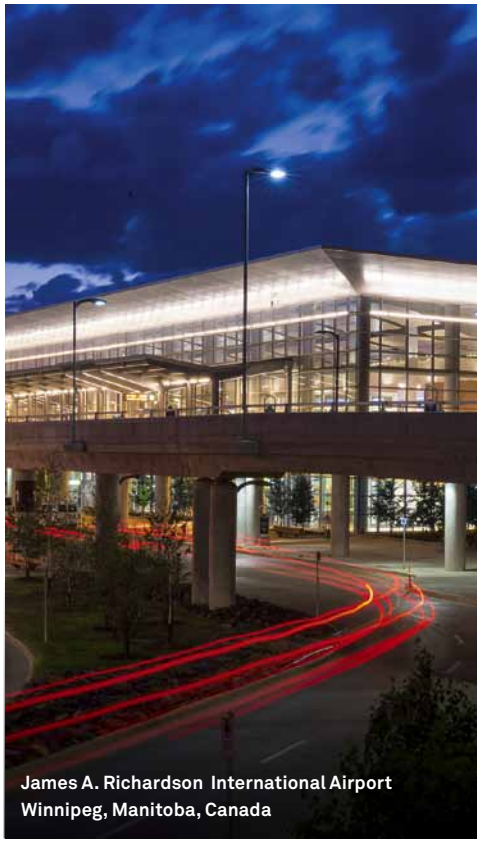

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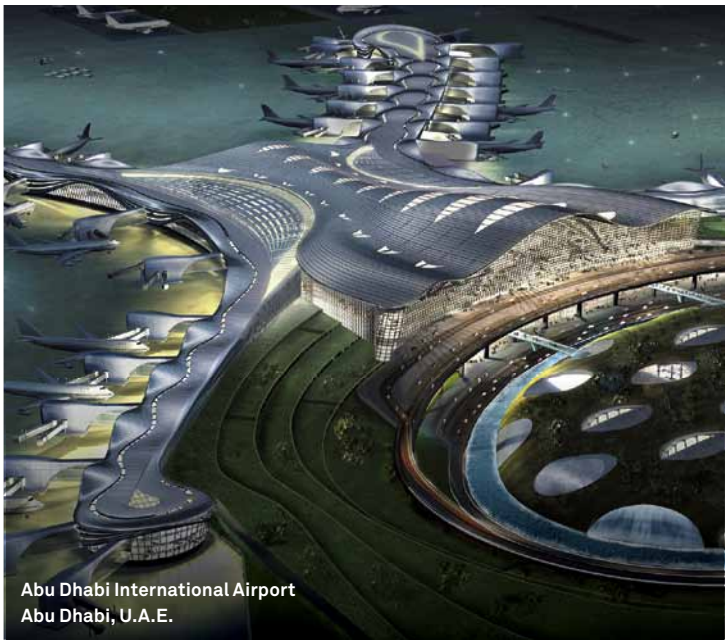

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From ACEC to You

Renewed Industry Optimism

Fueled by an improving economy, a buzz of optimism was clearly evident among the 1,350 attendees at the recently concluded 2014 Annual Convention. The upbeat attitude was reflected in packed Convention sessions.

ACEC's "citizen lobbyists" conducted hundreds of meetings with their congressional delegations to urge passage of infrastructure legislation and tax reform. Many came away from those meetings with the sense that legislators were actually listening.

Lawmakers who were with us at the Convention conveyed a positive outlook about the infrastructure agenda currently before Congress. House Transportation and Infrastructure Committee Chairman Bill Shuster (R-Pa.) broke the news to attendees that a deal was near on the final WRRDA package. He also emphasized his commitment to solving the nation's long-term transportation funding dilemma, saying, "I am committed to reforms, finding funds and getting a bill done."

House Transportation and Infrastructure Committee Ranking Member Nick Rahall (D-W.V.) said he believed that the process congressional leaders took to get WRRDA done will also be an effective model for getting the next transportation bill passed.

In the weeks following the Convention, the House and Senate approved the Water Resources Reform and Development Act (WRRDA), and a MAP-21 reauthorization bill was approved by a Senate committee.

Partisan bickering is by no means over in Washington, but what we've seen in recent weeks is that infrastructure continues to be a catalyst for bipartisan cooperation.

With a little hard work, we have an opportunity to score more wins in 2014.

Richard C. Wells
ACEC Chairman

David A. Raymond
ACEC President & CEO

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President Directs Labor Department To Update Overtime Rules

In March, President Obama issued an official memorandum directing the Department of Labor (DOL) to review and revise overtime pay regulations. In an appearance before the House Education and the Workforce Committee, DOL Secretary Thomas Perez discussed the agency's plans to carry out this mandate.

Secretary Perez stated that DOL would review both the salary threshold below which workers must be paid overtime and the rules regarding time spent on management duties. He did not specify how much the salary threshold would increase over today's level of $455 per week. However, Secretary Perez did note that if the original 1975 threshold of $250 per week had been indexed for inflation, it would be $970 per week today.

Secretary Perez indicated that the agency has begun to reach out to interested parties, and ACEC will engage closely with DOL and business allies as the rulemaking process moves forward.

T.J. KIRKPATRICK/GETTY IMAGES

U.S. Secretary of Labor Thomas Perez

ACEC Supports Amicus Brief to U.S. Supreme Court on Legal Protection for Federal Contractors

ACEC is participating in an amicus brief urging the U.S. Supreme Court to review a case that narrowed the scope of legal protection afforded to service providers, including engineering firms, when performing work for the federal government.

In the case of *KBR Inc. v. Metzgar*, ACEC joins the Associated General Contractors of America and the Professional Services Council in seeking to defend the principle of derivative sovereign immunity, which protects government contractors from tort litigation when they are performing the same functions that would entitle a government department or agency to immunity.

Key Senate Committee Advances Six-Year, $265 Billion Highway Bill

The Senate Committee on Environment and Public Works has approved a six-year, $265 billion MAP-21 reauthorization bill that would fund highway programs at current levels plus inflation.

The bill (S. 2322) includes an ACEC-developed provision to incentivize state departments of transportation to contract out more for engineering and design services. Section 1105 of the bill increases the federal cost share up to 100 percent for contracted engineering and design services. The language was inserted into an existing program to promote innovative and efficient project delivery methods, technologies and practices. It underscores the Council's consistent message that using private sector expertise helps agencies deliver projects more efficiently and effectively.

The bill would fund state highway programs at $38.4 billion in F.Y. 2015, ramping up to $42.6 billion in F.Y. 2020. It would maintain the existing core program structure and state funding formulas under MAP-21, while adding a new $6 billion freight mobility program beginning in F.Y. 2016. The bill authorizes $750 million annually for TIFIA loans, loan guarantees and lines of credit to continue leveraging state, local and private investment in projects. Projects of National and Regional Significance, a discretionary grant program to be administered by the U.S. Department of Transportation to fund critical high-cost projects that are difficult to complete with existing state formula funds, would receive $400 million per year.

The legislation would also create a research and development program to evaluate highway system financing alternatives, including multistate pilot projects to assess the implementation, interoperability, and public acceptance of new revenue mechanisms. ACEC has supported additional research and developments to begin the transition to a vehicle-miles-traveled fee or other direct-user charge.

The bill does not address the gap between current funding and revenue into the Highway Trust Fund. More than $100 billion in additional revenue will be necessary to meet the funding levels authorized in the bill over the next six years.

Action now turns to other Senate committees with jurisdiction over highway safety and transit to write those portions of the reauthorization before the bill comes before the full Senate later this summer. Funding for those programs is not reflected in the $265 billion total.

ANDREW HARRER/BLOOMBERG VIA GETTY IMAGES

Sen. Barbara Boxer (D-Calif.), chairman of the Senate Environment and Public Works Committee, speaks to ranking member David Vitter (R-La.).

Draft Tax Reform Plan Released; Focus On Tax Extenders

House Ways and Means Committee Chairman Dave Camp (R-Mich.) has released a comprehensive tax reform plan that may form the basis for future action, but Congress is expected to act in the short term on a smaller package of extensions of expired tax provisions.

Under the draft legislation released by Chairman Camp, the top corporate tax rate would drop from 35 percent to 25 percent. The top individual income tax rate would fall from 39.6 percent to 25 percent, with a 10 percent surtax for individuals with incomes over $400,000 and married couples with incomes over $450,000.

To offset the costs of lowering the tax rates and ensure that the legislation is revenue-neutral, Camp's draft would eliminate scores of tax preferences. Key changes

MARCO MARCHI/GETTY IMAGES

for engineering firms include elimination of the Section 199 domestic production activities deduction; limit on the use of cash accounting to firms with less than $10 million in revenues; repeal of the Section 179D energy-efficient commercial buildings deduction; increase in payroll taxes for S corporation owners; and repeal of the tax exemption for interest on newly issued private activity bonds.

Congressional action on the plan is unlikely this year, but the draft may form the foundation of future tax reform efforts. In addition, some members of Congress have expressed interest in using tax increases identified in the draft to offset unrelated legislation.

In the meantime, the Senate Finance Committee approved legislation extending for two years a package of expired tax benefits. Chairman Ron Wyden's (D-Ore.) legislation includes extensions of provisions used by ACEC Member Firms, such as the R&D tax credit, parity for employer-provided transit benefits, increased Section 179 expensing limits and 50 percent bonus depreciation. Chairman Camp intends to permanently extend a smaller number of these tax benefits, including the R&D tax credit and Section 179 expensing.

ISSUES ON THE MOVE	WHAT'S NEXT
MAP-21 Reauthorization	Senate action in June
Tax Extenders	Action likely in the fall
DOL Review of FLSA Rules	Possible action before the end of the year

Congress Clears Major Corps Water Bill; Includes Expansion of QBS

The House and the Senate have passed the final version of the Water Resources Reform and Development Act (WRRDA), completing work on the first major jobs and economic growth bill for 2014. WRRDA authorizes numerous new U.S. Army Corps of Engineers projects to develop, maintain and support the nation's waterway infrastructure, and support critical navigation, flood control and water supply needs. The measure also expands federal requirements in the use of Qualifications-Based Selection (QBS) for federally-funded wastewater projects.

The final WRRDA conference report incorporates many ACEC policy recommendations. The report provides for accelerated project delivery, innovative financing alternatives and a levee safety program. This includes a new Water Infrastructure Finance and Innovation Act (WIFIA) program, which will provide low-interest loans and loan guarantees to local governments for water infrastructure projects.

JEWEL SAMAD /AFP/GETTY IMAGES

The conference report also includes a number of critical reforms to the Clean Water Act State Revolving Fund (SRF), including a requirement to use QBS or an equivalent state QBS method for engineering and other design activities, as well as construction management, when using federal funds on wastewater projects. This represents the first time that QBS has been applied to the SRF program, which has been a key public policy objective for the Council for several years. The measure also includes provisions to expand the list of eligible uses for SRF financing, extended repayment periods and special financial assistance to communities facing major wastewater upgrades.

In addition, the report creates a National Levee Safety Program, which includes language requiring the Corps to make recommendations that "identify and address any legal liability associated with levee engineering projects," responding to ACEC's concerns over liability issues associated with levee inspections and certifications.

The president is expected to sign this legislation into law.

For More News

For weekly legislative news, visit ACEC's *Last Word* online at www.acec.org.

BY GERRY DONOHUE

Education Construction Market on Its Way to $100 Billion

The education construction market (grade school through graduate school) is in the midst of a massive transition. Schools are having to adapt to shrinking enrollments, tighter budgets and changing student priorities.

"These are very challenging times for our clients. They're trying to determine how to remain relevant in the 21st century," says Liz Cook, director of HDR's Academic Market Sector. "Our challenge is to be right there with them or ahead of them."

The educational market segment is by far the largest non residential vertical market in the A/E/C industry. FMI forecasts that total education construction put in place in 2014 will top $84 billion, far outpacing manufacturing ($52 billion) and commercial ($51 billion). Looking ahead, FMI projects the market will grow 6 percent annually through 2017, when construction put in place will top $100 billion.

One primary market driver is that renovations and additions will grow at a faster pace than new construction. Almost two-thirds of all public schools (K–12) were built before 1970, and nearly half of university buildings were built between 1950 and 1975.

"We're doing a lot of renovation projects, for example, taking old chemistry buildings and turning them into new, state-of-the-art facilities," says Steve Riojas, director of HDR's Science and Technology Group.

Industry Challenges

The educational market is split between the K–12 and the higher education segments. While the two sectors share many of the same challenges, they are dramatically different.

The vast majority of K–12 schools get their funding from public sources. In recent years, that revenue stream has dried up.

"We saw a downturn in school construction dollars when the economy slumped, and it's only now slowly turning around," says Price Jepsen, vice president at STV, which works in the K–12 and higher education segments. "There's an enormous backlog of work that has been deferred, but funding remains tight."

Higher education funding is more complex, but just as mercurial. Public funding and endowments have not kept up with current demand. Many colleges and universities have sought new revenue streams. In some parts of the country, colleges have sought to build research facilities for government and corporate partners, using the money derived from those ventures to fund other needs.

"Two-thirds of our business in the Science and Technology Group is now with academic clients," says Riojas. "Five years ago, it was less than one-third."

Demographic Changes

K–12 enrollments are expected to grow by 2.5 million over the next four years, which will put more pressure on limited school budgets. Many experts believe this trend will force state and local governments to loosen the purse strings and begin investing in new capital projects.

Educational Construction Put in Place

Millions of Current and Projected Dollars	
2008	104,890
2009	103,202
2010	88,405
2011	84,985
2012	84,618
2013	81,325
2014	84,344
2015	88,522
2016	94,023
2017	100,510

Source: FMI

Change From Prior Year—Current Dollar Basis

2008	8%
2009	-2%
2010	-14%
2011	-4%
2012	0%
2013	-4%
2014	4%
2015	5%
2016	6%
2017	7%

Source: FMI

"As a society, we all agree that an educated society is extremely important," says Maureen Clegg, manager of C&S Companies' Education and Health Care Group.

Higher education faces a different demographic problem. "For the first time in decades, universities are seeing a decline in applications," says HDR's Cook. "They're having to find ways to attract and retain more students."

Updating facilities is one way for colleges to make themselves more attractive to potential students. "That's driving a lot of capital improvement dollars," says Clegg. "They're installing the latest technologies and upgrading the original mechanical, electrical and plumbing systems."

In the Classroom

Both education segments must respond to dramatic changes in the way teachers teach and students learn.

"The traditional K–12 classroom with 30 chairs facing the chalkboard has given way to collaborative, high-tech learning environments," says Jepsen.

"Kids are stimulated in different ways," adds Riojas. "There's less need for the slope-floored auditorium. We're designing highly flexible spaces with lots of wall space and movable furniture so kids can assemble in small work groups. Lecture learning is largely conducted through web-based events."

A commitment to sustainability also links the two segments. Going green is more than an environmental maxim; it's quickly becoming a financial imperative.

"Schools have a huge number of buildings and infrastructure and use a tremendous amount of energy," says Cook, who has been involved in a carbon-neutral building for Georgia Tech. "Making their infrastructure more efficient can not only save a lot of money, but also allow the university to reallocate funding to student education."

With rising instances of school and campus violence, safety is also a prime concern.

"There is a significant amount of public funding going

AP PHOTO/THE ENTERPRISE, SONNY HEDGECOCK

toward items such as card access systems, entry vestibules with controlled access, fire detection and security cameras," says Clegg.

Firms Face Challenges

The size of the education construction market and its potential make it an attractive entry point for a lot of firms. And competition is high. "In the government and corporate sectors where we work, there are a lot fewer firms," says Riojas. "The academic sector is much more crowded."

With competition often comes price-cutting.

"There's a danger of this market segment becoming commoditized," adds Clegg, who says, "Fees are being driven down."

Academic clients also tend to have very specific demands. Their students are technologically savvy and expect the university to operate ahead of the technology curve, says Cook. Clients expect the firms they contract with to be ahead of the game.

But that's not all. Academic institutions are, by their very nature, consensus decision makers; there is more hands-on involvement, and larger groups of people must weigh in before decisions can be made. Plus, firms can expect pressure to spread work around. "Loyalty to any one firm or team is much more difficult to realize," Riojas explains.

Plus, state and local governments are adding more constraints. There is more pressure than ever to do business with local partners.

"The biggest trend is that funding streams are now more localized, so there's a drive for everything—and everyone—involved with the project to be local, too," says Cook. "Fifteen years ago, we'd have thought nothing of jumping on a plane for a project anywhere in the country. That's no longer the case."

Gerry Donohue is ACEC's senior communications writer. He can be reached at gdonohue@acec.org.

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The 2014 Engineering Excellence Awards Gala—known as the "Academy Awards" of the engineering industry—showcased 143 ACEC Member Firm projects from the United States and throughout the world.

A panel of 25 judges from across the nation representing a variety of built environment disciplines selected 24 top award recipients—16 Honor Awards, seven Grand Awards and the Grand Conceptor Award for the most outstanding engineering achievement.

Comedian Rex Havens hosted the black-tie extravaganza, which was attended by 600 members and guests.

EEA Gala attendees at the TranSystems table react to hearing their project, Wacker Drive/Congress Parkway Reconstruction, won the 2014 Grand Conceptor Award for the year's most outstanding engineering achievement.

2014 GRAND CONCEPTOR AWARD

Wacker Drive and Congress Parkway Reconstruction
Chicago, Ill.
TranSystems/Alfred Benesch & Co./T.Y. Lin International/Burns & McDonnell/Infrastructure Engineering/Parsons Brinckerhoff/Lochner
Chicago, Ill.

Trailblazing engineering totally reconfigured a primary downtown Chicago bi-level traffic interchange, while keeping 135,000 vehicles and 150,000 pedestrians moving through the construction zone each day. The 10-year, $300 million project involved reconstruction of upper and lower Wacker Drive, the major interchange with Congress Parkway, and new access ramps. Other features of the project are a three-acre public park, lighting and ventilation to improve visibility and air quality, and a new storm water management system to prevent runoff into the Chicago River. By effectively addressing heavy loads, unbalanced spans and geometric anomalies, the project is a testament to transportation innovation.

PHOTO COURTESY OF TRANSYSTEMS

THE WINNERS ARE

GRAND AWARDS

Ward County (Texas) Water Supply Project

From Monahans to Odessa, Texas

Freese and Nichols, Inc.
Fort Worth, Texas

A devastating water supply crisis was averted for over half-a-million West Texas residents when resourceful engineering generated a new emergency supply system in less than 18 months. The record drought of 2010–2011 produced serious water shortages at three Texas reservoirs serving the areas of Odessa, Midland, Big Spring, Snyder and San Angelo. Even with rationing, the reservoirs were expected to be completely dry by early 2013. The project team led design and construction of 21 new groundwater wells, 66 miles of new pipeline and four new booster stations. The project was completed two weeks ahead of schedule, nearly $27 million under budget, and is now pumping 30 million gallons of water a day to people in West Texas.

Dragon Bridge

Da Nang, Vietnam

The Louis Berger Group/Ammann & Whitney
Morristown, N.J.

The new bridge across the Han River in Da Nang, Vietnam, is a breathtaking blend of artistry and functionality, and a new prime tourist attraction. The 2,200-foot-long structure links the region's growing economic and cultural center to the developing eastern sectors. It features a distinctive structural system modeled after a dragon flying across the river. The bridge's center three spans employ a unique design in which steel box girders are supported by a central rib steel-and-concrete arch. The arch is composed of five steel tubes supporting the superstructure, which also provide the base for the dragon's scales. The bridge is illuminated by 15,000 LED lights and breathes fire and water on weekends in a dazzling show of ingenuity.

<

Cleveland Museum of Art Addition & Renovation
Cleveland, Ohio
Karpinski Engineering
Cleveland, Ohio

Engineers tailored the renovation of the nearly century-old Cleveland Museum of Art to meet the unique needs of a 21st-century art gallery. Prized artworks are protected by specially designed air-handling and distribution systems, which meet strict tolerances for temperature and humidity. A floor-embedded system uses circulated water to enhance occupant comfort and protect air quality for sensitive art displays. A centerpiece of the $350 million restoration project is a 39,000-square-foot atrium and its skylight, designed to restore the museum to its original daylight-and-skylight-illuminated state. Another feature is an innovative piping system that weaves unnoticed through the skylight to melt snow in the winter and reduce solar heat in the summer.

<

Dos Rios Water Recycling Center Filter Improvements
San Antonio, Texas
CP&Y, Inc.
San Antonio, Texas

An innovative, first-of-its-kind water treatment design doubles the filter capacity at the nation's largest recycling system, and reduces annual operating costs by almost $2 million per year. With filtration being the single most critical step before recycling at San Antonio's Dos Rios Water Recycling Center, the project team added new cloth media technology while maintaining the same structural footprint—the first such application of its kind—and for half the cost of a conventional facility expansion. The recycling center is now the world's largest cloth media filter installation. It will save $42.5 million over the life of the project, and will aid other utilities in retrofitting similar facilities and realizing hundreds of millions in potential savings.

Bill & Melinda Gates Foundation Headquarters V
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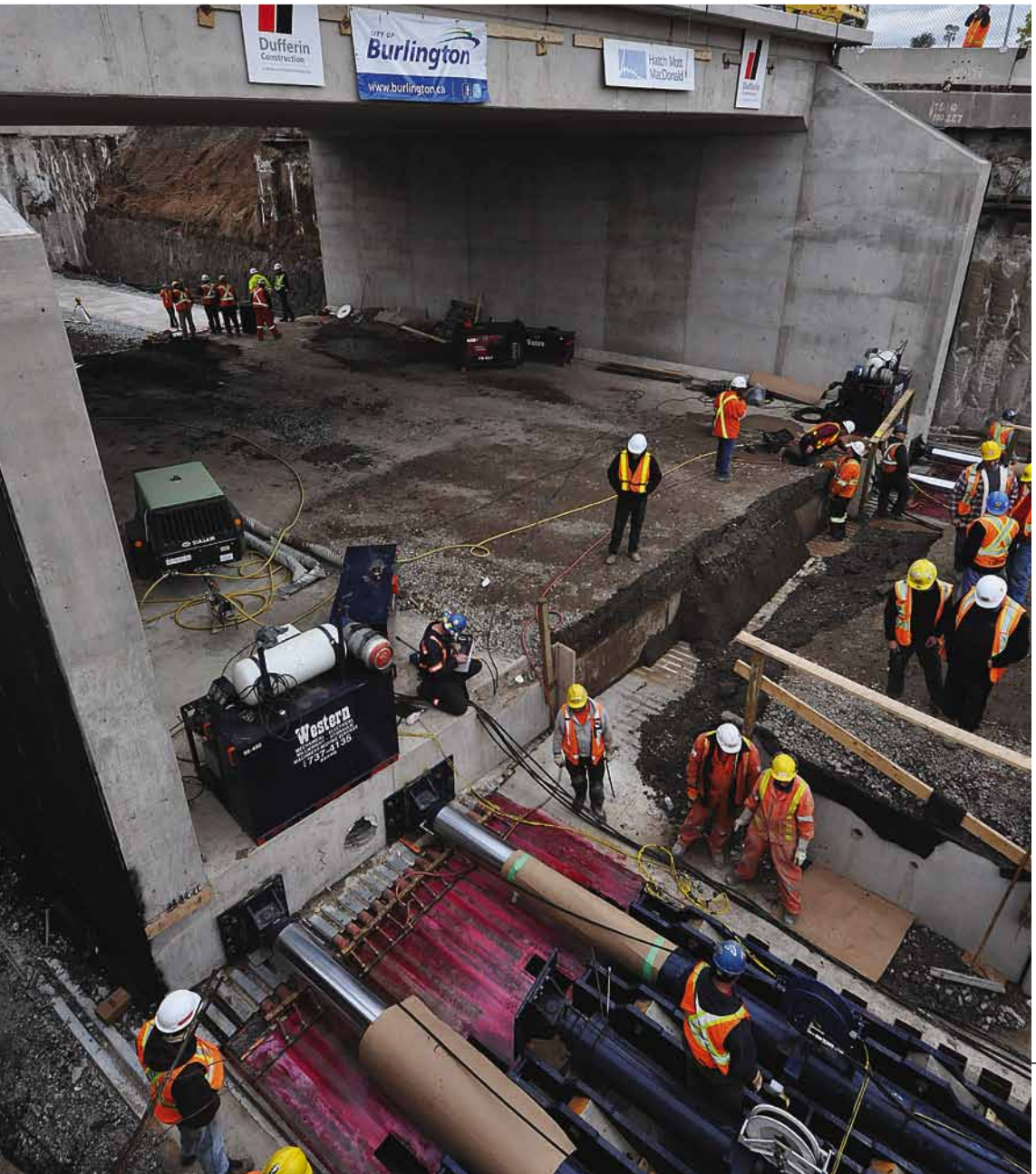
GeoEngineers/KPFF
Seattle, Wash.

Resourceful geotechnical engineering helped transform a little-used 12-acre brownfield into a world-class office campus. Prior to development, the Gates Foundation wanted assurances that the polluted site was salvageable. The project team removed 620,000 tons of contaminated soil and then designed and installed a 560,000-square-foot gasoline vapor barrier—one of the largest ever deployed in an urban environment—to prevent intrusion of chemical vapors from the remaining soils into overlying buildings. The design also included sustainable elements to capture rainwater and optimize cooling. The 900,000-square-foot complex of offices and conference center in two six-story towers is the world's largest nonprofit LEED Platinum building.

King Road Grade Separation >
Burlington, Province of Ontario, Canada
Hatch Mott MacDonald
Westwood, Mass.

Massive traffic delays at a railway crossing were alleviated with a new 2,500-ton concrete underpass that was separately built and jacked into place under the existing tracks. After excavating more than 4,000 cubic yards of soil, the project team used an open-cut bridge-jacking technique to slide the massive structure into place under the railway. Incredibly, rail traffic was still able to proceed via single-tracking while the underpass was being moved into place. It was the largest scale project of its type in North America, and it was accomplished entirely over a Thanksgiving Day weekend.



OTIA III State Bridge Delivery Program
Statewide, Ore.
HDR Engineering/ Fluor Corporation
Salem, Ore.

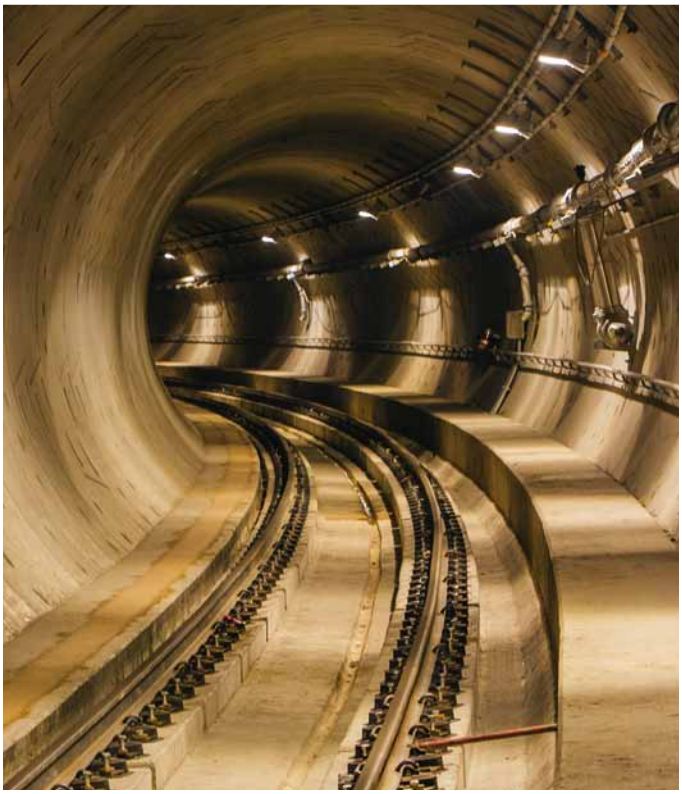
A revolutionary blueprint to deliver infrastructure helped spearhead repair or replacement of more than 270 aging Oregon highway bridges, all while creating 22,000 jobs and saving the state more than $45 million. The project team developed a streamlined program, comprising 90 major projects focused on sustainability and efficient project delivery. The $2.1 billion plan included cost-saving initiatives, such as a new Work Zone Traffic Analysis tool to minimize construction impact on the traveling public and local communities. The program shows how innovative program management can provide a high return on investment for massive public infrastructure projects without sacrificing the needs of local communities, the traveling public or the environment.

THE WINNERS ARE

HONOR AWARDS

Bing Performing Arts Center
Stanford, Calif.
Degenkolb Engineers
San Francisco, Calif.

Stanford University's new performing arts center features an innovative structural and seismic design to augment its visually stunning appearance. The project team had to shed traditional linear and rectangular design theories to accommodate the unique 111,000-square-foot art center design, yet ensure structural and seismic integrity. A complex steel skeleton was incorporated to support the formwork of the concrete shell that, fashioned as an elliptical valley, also acts as the seismic lateral system and allows sound to radiate. The concert hall features 48-foot-high ceilings made of structural steel and 100-foot-long trusses. Curved overhead acoustical panels provide enhanced sound from the 3,200-square-foot stage. The project shows how great structural design can also harmonize with great art.



U-Link Tunnels Under I-5
Seattle, Wash.
HNTB Corporation
Bellevue, Wash.

Groundbreaking geo-structural design made possible the boring of twin tunnels for a light rail line under Seattle's I-5 without any significant impact on surface traffic. Beneath the double-decked highway—one of the most heavily used highways in Seattle—are retaining walls with 10-foot-diameter drilled concrete shafts and nine-foot-deep encased steel I-beams that extend 75 feet deep. Since tunnel boring machines (TBMs) cannot bore through steel I-beams, the project team designed four large concrete underground boxes to buttress the retaining walls—one at each of four locations where the TBMs could pass through—resulting in less than an inch of movement from the walls and less than a quarter-inch of movement from the surface roadway. The $1.9 billion project will reduce travel time from 30 to six minutes from Pine Street in downtown Seattle to the University of Washington.

PHX Sky Train
Phoenix, Ariz.
Gannett Fleming, Inc.
Phoenix, Ariz.

A new state-of-the-art automated people mover system at Phoenix Sky Harbor International, one of the nation's 10 busiest airports, features the world's first transit bridge over an active runway. The driverless 1.9-mile sky train connects terminals, parking areas, ground transportation centers and local light rail while reducing airport traffic by 20,000 vehicles a day and greenhouse gas emissions by 6,000 tons a year. The project's centerpiece is a 340-foot bridge span with a vertical clearance of 90 feet above a live taxiway—tall enough for a Boeing 747 to pass underneath it. In becoming the world's first transit bridge over an active airport taxiway, the project helped establish the first Federal Aviation Administration design guidelines for such a structure. The project is also the only LEED-certified public transportation campus in the world.

Jacques Chaban-Delmas Vertical Lift Bridge
Bordeaux, France
Hardesty & Hanover
New York, N.Y.

A new vertical lift bridge helps preserve the status of Bordeaux, France, as an important port city. Crossing over the River Garonne, the bridge is accented by four sleek 387-foot-high pylons, which help produce a lift height of 150 feet. Realizing the more lightweight the deck, the less powerful the motor required, the project team incorporated a specially designed low-mass orthotropic box girder deck to optimize the lifting system and allow a reduction in pylon size, all resulting in a more aesthetically pleasing structure. The design also extended an operating rope system vertically through the pylons rather than horizontally from a central machinery room. The facility's 2,700-ton lift span is expected to operate 120 times a year, allowing passage of large ships, cruise ships and naval vessels.

Brooklyn Botanic Garden Visitor Center
Brooklyn, N.Y.
Weidlinger Associates, Inc.
New York, N.Y.

Blending seamlessly into the surrounding topography, the striking new visitor center is a model of creative structural design and sustainability. The project team applied several imaginative, yet cost-effective innovations, such as 29 architecturally exposed, structural rigid frames in an undulating grid that comprise the building's support, while an innovative trellis grid system sustains the center's custom-made curved glass canopy. A living roof garden supports 40,000 seasonal plants to annually capture 190,000 gallons of storm water. The LEED Gold-certified center also includes 28 geothermal wells to reduce energy consumption and three bio-infiltration basins that filter storm water to the Japanese Garden.

Tesla Water Treatment Facility

Tracy, Calif.

Stantec—Surrey, British Columbia

A new water treatment facility serving the San Francisco area, completed in nearly half the time of similarly sized plants, includes a ground-breaking power system to prevent the release of untreated water. The 315-million-gallons-a-day Tesla treatment facility is the largest UV disinfection plant in California and one of the largest in North America. The project team incorporated the UV process area, operations and electrical building into a single LEED Silver-certified facility, reducing capital costs and improving operability and maintenance. An innovative sand and grit removal system for upstream pipelines was also incorporated, as were flywheel uninterruptible power systems in one of the first such applications for a large load system in North America.

Chattahoochee River Ecosystem Restoration

Columbus, Ga.

McLaughlin Whitewater Design Group (a division of Merrick & Company) Greenwood Village, Colo.

Creative engineering has transformed a stagnant section of the Chattahoochee River into a world-class whitewater recreation destination. The river's ecosystem in downtown Columbus, Ga., had deteriorated because of two century-old dams from the textile mill era. The project team's removal of the dams quickly reestablished historic fall line rapids. Twenty-two new hydraulic structures, including grouted boulders, were added and channels were excavated to produce enhanced whitewater characteristics. The WaveShaper—an in-river tunable hydraulic jump feature that creates a six-foot wave for whitewater competitions—was also incorporated. The new design restored habitat areas for fish and wildlife, and changes the stretch of river from a lifeless static environment into an environmentally sensitive, dynamic centerpiece for the community.

New Runway 10C-28C and Associated Taxiways

Chicago, Ill.

O'Hare Airport Engineers: (Joint Venture) AECOM/Jacobs/Milhouse Engineering and Construction/Delta Engineering Group Chicago, Ill.

The new center runway at O'Hare International, the nation's second-busiest airport, provides a more efficient airfield, increases airport capacity and significantly reduces travel delays. Design of the new 10,800-foot-long by 200-foot-wide runway included 7.2 million cubic yards of earthwork, 1.3 million linear feet of airfield electrical cable, roughly 1 million square yards of PCC pavement, 680,000 tons of asphalt and more than 3,000 airfield lights. The project also involved relocation of two major cargo facilities and decommissioning of an existing 1,840-acre-foot detention basin. The massive undertaking was completed in strategic phases to allow for full operation of the airport during construction.

Bagby Street Improvements
Houston, Texas
Walter P Moore
Houston, Texas

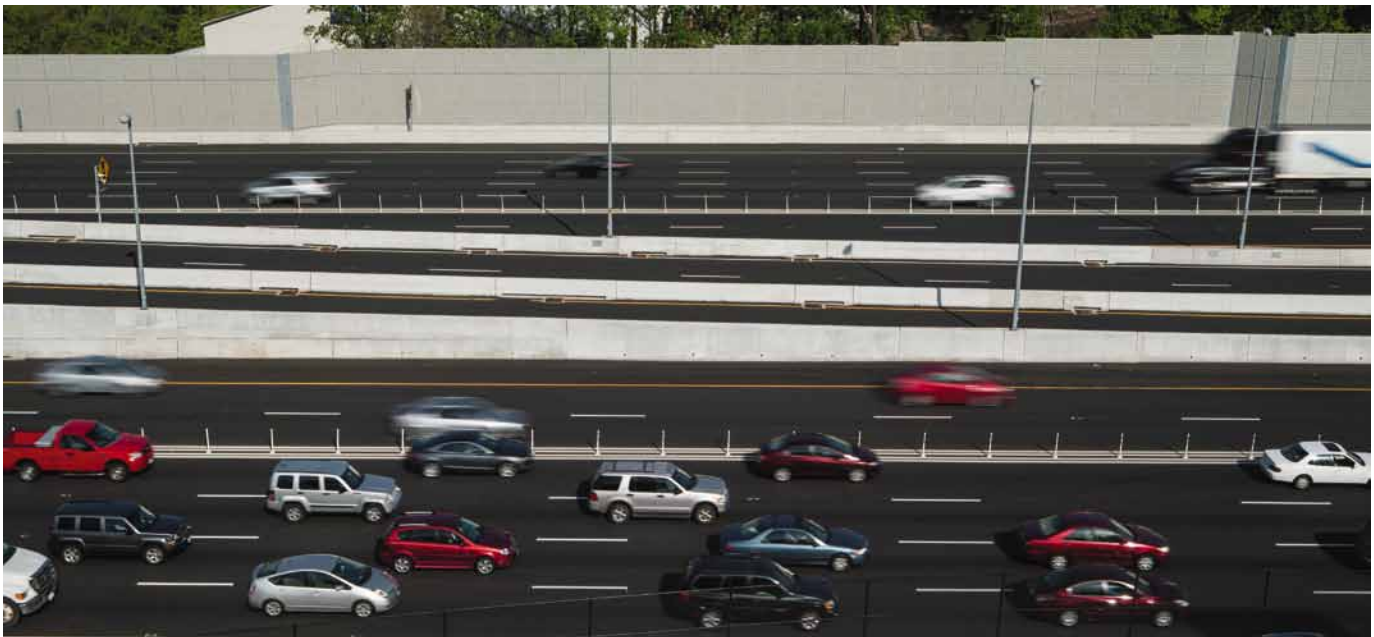
Resourceful engineering transformed a common drainage improvement project into a 10-block model of streetscape excellence and sustainability. The project team used a contextual design approach to address the unique needs of each block. Roadway materials, lighting fixtures and landscaping were carefully chosen to blend with the context of adjacent developments. Innovative storm water management features included rain gardens to filter storm water before it enters the storm sewers. The design solutions resulted in a vastly improved urban setting, a reduced heat island effect, increased storm water treatment and conveyance, improved air quality, better conditions for heritage trees and a significantly enhanced public experience.

Barclays Center
Brooklyn, N.Y.
Thornton Tomasetti
New York, N.Y.

Imaginative structural design for the new 675,000-square-foot home for the NBA's Brooklyn Nets includes a steel lattice artistically wrapped around the entire facility and an entrance canopy cantileved 85 feet over a plaza. The facade includes more than 12,000 pre-weathered steel panels. A tied-arch truss design supports a curved roof, which spans more than 380 feet. The arena, which hosts more than 200 sporting and cultural events annually, includes more than 18,000 seats, two levels of concourses, two levels of suites, bars/clubs, restaurants and retail shops, as well as an ice floor for hockey and other skating events. Despite facing unique foundation challenges in the tight urban setting, the steel superstructure achieved LEED Silver certification.

495 Express Lanes
Northern Virginia
HNTB Corporation
Arlington, Va.

A massive rebuilding of one of the nation's most bottlenecked highways has significantly reduced congestion while employing first-of-its-kind occupancy detection technology for HOV lanes. The project—covering a 14-mile stretch of the Washington, D.C., beltway—also included construction of four dedicated express lanes; the reconstruction of eight general-purpose lanes; and reconstruction or the addition of 57 bridges, 12 interchanges, sound walls, retaining walls and tolling infrastructure—all while 220,000 vehicles passed through the construction zone each day. The new HOV express lanes feature the new automated occupancy detection system.



Terraced Reforestation for Sustainable CSO Control

Covington, Ky.

Strand Associates, Inc.
Cincinnati, Ohio

Innovative green infrastructure design is averting millions of gallons of combined sewage overflows (CSOs) from entering the Ohio River. A roadside hill with steep topography (120 feet of elevation change) had each year produced more than 6 million gallons of storm water runoff year over year, which, after overwhelming the local storm sewer system, resulted in more than 4 million gallons of CSOs flowing into the river. The engineering solution featured 12 terraced berms totaling 4,740 linear feet installed on the hillside, a deep bio-filtration system and bio-retention soil mixes, in addition to an underdrain system to capture, store and slowly release storm water runoff. Three hundred trees and native plants were added to further enhance runoff reduction. The project is now a green infrastructure model for both storm water and CSO management.

The Bullitt Center

Seattle, Wash.

PAE
Portland, Ore.

A six-story commercial office building epitomizes sustainability by using nothing but nature to fulfill its needs for fresh air, light, power, and heating and cooling. With the knowledge that 45 percent of all energy produced in the United States is consumed by buildings, the project team sought to create the world's largest commercial "Living Building," in designing a closed-loop, vertical geothermal heating and cooling system; radiant floors; sophisticated shading to minimize solar heat gain; and natural ventilation. A 242-kilowatt PV system covers the entire roof and captures enough solar energy to power the entire building, and a 56,000-gallon underground cistern captures rainwater that is filtered for potable use. The project is 83 percent more energy efficient and saves 80 percent more water than a typical Seattle office building.

Spaceport America
Upham, N.M.
URS Corporation
Columbus, Ohio

A futuristic new hanger and terminal helps usher in the age of commercial space flight. The 110,000-square-foot Virgin Galactic Gateway to Space—the centerpiece of Spaceport America—features a sinuous-shaped steel-framed roof, a 45,000-square-foot drive-through hangar, and astronaut and visitor spaces. The project team designed the geometrically complex shape to blend with the visual impact on the nearby El Camino Real, a National Historic Trail. Mechanically stabilized earth was employed to create a 46-foot-high berm that abuts the facility, while an innovative underground earth tube heating and cooling system uses soil temperature to pretreat intake air and substantially reduce energy demand and costs.

Colton Crossing Flyover Rail-to-Rail Grade Separation
Colton, Calif.
HDR Engineering
Olathe, Kan.

Pioneering design eliminated a major rail bottleneck at one of the busiest at-grade rail-to-rail intersections in the nation. With more than 110 freight and passenger trains daily, rail congestion had become legendary, with trains frequently backed up for miles into nearby cities. Challenged by severe space limitations, the project team created an 8,150-foot flyover structure out of cellular concrete to take Union Pacific Railroad's east-west tracks 35 feet—a height record for this type of concrete—above the north-south tracks of the BNSF Railway. The use of lightweight yet strong cellular concrete also saved $30 million in project costs by eliminating the need to replace the underlying soils to support a heavier structure.

Checkered House Bridge Rehabilitation
Richmond, Vt.
FINLEY Engineering Group, Inc./Harrison & Burrowes Bridge Constructors, Inc./CHA Consulting, Inc.
Tallahassee, Fla.

New life was breathed into a historic but obsolete bridge by widening and reinforcing the steel-truss structure to handle today's transportation loads. The 1920s-era, 350-foot-long bridge is on the National Register of Historic Places but had significant weight restrictions and was too narrow for two vehicles to travel in opposite directions simultaneously. In a pioneering effort to widen that type and size of bridge, the project team deployed 10 specially designed hydraulic ram systems on the top and bottom chords and at each bridge abutment, which provided constant pressure to nudge the 65-ton north truss on rollers to its new location. The process allowed 80 percent of the original truss to be preserved, while adding approximately 12 feet, six inches to the bridge width and nine feet to its travel surface.

NATIONAL RECOGNITION AWARD WINNERS

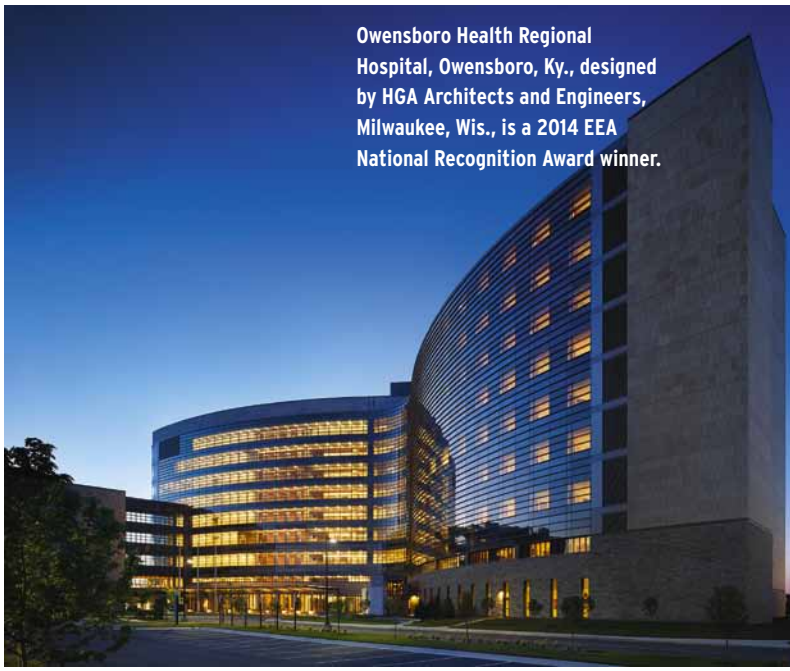
FIRM NAME	PROJECT NAME
ACEC/ALABAMA	
Barge, Waggoner, Sumner & Cannon, Inc.	Beaver Creek Wastewater Plant Decommissioning
ACEC/ARIZONA	
Gannett Fleming, Inc.	PHX Sky Train
HDR Engineering	Cordes Junction Traffic Interchange
ACEC/CALIFORNIA	
CH2M HILL	Sankey Diversion Project
David Evans and Associates, Inc.	Space Shuttle Endeavour Move
Degenkolb Engineers	Bing Performing Arts Center
HDR Engineering	Colton Crossing Flyover
HDR Engineering	Wastewater Treatment Plant Upgrade
HNTB Corporation	Tom Lantos Tunnels
Psomas	South Los Angeles Wetland Park
Stantec	Tesla Water Treatment Facility
Stantec	Wastewater Treatment Facility Upgrade
ACEC/COLORADO	
Beaudin Ganze Consulting Engineers, Inc.	Crestone Charter School
Frachetti Engineering, Inc.	Wastewater Treatment Facility Upgrade
McLaughlin Whitewater Design Group (a division of Merrick & Company)	Chattahoochee River Ecosystem Restoration
Merrick & Company	Airborn Geospatial Mapping of Power Lines
ACEC/CONNECTICUT	
AI Engineers, Inc.	Amtrak Bridge Replacement Over Route 1
TranSystems	Mystic Movable Bridge Rehabilitation
VHB/STV	West Haven Commuter Rail Station

2014 EEA National Recognition Award winner Panama Museum of Biodiversity, Amador, Panama, designed by Magnusson Klemencic Associates, Inc., Seattle, Wash.

FIRM NAME	PROJECT NAME
ACEC/FLORIDA	
AVCON, Inc.	State Route 600 Pavement Rehabilitation
Ayres Associates	Courtney Campbell Multiuse Trail Bridge
CDM Smith	Lakeside Ranch Storm Water Treatment Area
Finley Engineering Group, Inc./ Harrison & Burrowes Bridge Constructors, Inc./CHA Consulting, Inc.	Checkered House Bridge Rehabilitation
Hazen and Sawyer	Wastewater Treatment Plant Upgrade
Hazen and Sawyer/Federico, Lamb & Associates, Inc.	C-51 Reservoir Public-Private Partnership
Mathews Consulting, Inc.	Duck Key Utility Improvements
Parsons Brinckerhoff	Central Florida Water Initiative
RS&H	Depot Avenue Rail-Trail Pedestrian Bridge
RS&H	Mid-Atlantic Regional Spaceport Pad
RS&H	State Routes 408/417 Interchange
ACEC/GEORGIA	
AMEC Environment & Infrastructure, Inc.	Atlanta BeltLine Eastside Trail
Geosyntec Consultants	Kingston Peninsula Disposal Site
Heath & Lineback Engineers, Inc.	St. Sebastian Way/Greene Street Extension
ACEC/IDAHO	
EHM Engineers, Inc.	Buhl to Wendell Right-of-Way Surveying
Elite Edge Engineers/ EHM Engineers, Inc.	Chobani Yogurt Manufacturing Facility
ACEC/ILLINOIS	
Alfred Benesch & Company	Red Gate Road Corridor
AMEC Environment & Infrastructure, Inc.	I-294 Roadway Repair with Precast Pavement
Hanson Professional Services, Inc.	Revitalizing Rockford: Auburn and Main Roundabout
Joint Venture of AECOM/Jacobs Engineering Group/Milhouse Engineering & Construction/ Delta Engineering Group	O'Hare Runway 10C–28C & Taxiways
T. Y. Lin International	Dan Ryan Red Line Track & Stations Renewal
TranSystems/Alfred Benesch & Company/T.Y. Lin International/ Burns & McDonnell/ Infrastructure Engineering/ Parsons Brinckerhoff/Lochner	Wacker Drive/Congress Parkway Reconstruction
ACEC/INDIANA	
American Structurepoint	Cummins Parking Structure
American Structurepoint	Maplecrest Road Extension
ACEC/KANSAS	
Burns & McDonnell	Waste Water Treatment Plant & Conveyance System
George Butler Associates, Inc.	Resourceful Kansas Energy Use Assessment
HNTB Corporation	I-35 Corridor Optimization Plan
ACEC/KENTUCKY	
EN Engineering	Modular Syngas to Green JP-8 System

FIRM NAME	PROJECT NAME
Mason & Hanger	Training Area Infrastructure
Qk4, Inc.	The Parklands of Floyds Fork
Stantec	Strong Stand on Seismic Safety
Strand Associates, Inc.	Terraced Reforestation for Sustainable CSO Control
URS Corporation	U.S. 60 Bridge Over the Tennessee River
ACEC/MARYLAND	
EA Engineering, Science and Technology, Inc.	Bacterial Source Tracking for Sanitary Sewer Overflows
Johnson, Mirmiran & Thompson	11th Street Bridges, Phase 1
ACEC/MASSACHUSETTS	
AECOM	East Providence Wastewater & Collection System
Hatch Mott MacDonald	King Road Grade Separation
Kleinfelder/MWH Americas/ Bioengineering Group	Alewife Storm Water Wetland
ACEC/METROPOLITAN WASHINGTON	
A. Morton Thomas and Associates, Inc.	Stoney Creek at National Institutes of Health
Dewberry	I-95/I-495/Telegraph Road Interchange & Mainline Reconstruction
EBL Engineers	Net Zero Energy Residential Test Facility
HNTB Corporation	495 Express Lanes
The Louis Berger Group	Sheikh Zayed Street Project
T. Y. Lin International	New York Avenue Bridge Rehabilitation
Wetland Studies and Solutions, Inc.	Huntley Meadows Restoration
ACEC/MICHIGAN	
HNTB Corporation	Blue Water Bridge Plaza Booth Expansion
ACEC/MINNESOTA	
Braun Intertec	Trunk Highway 13/State Highway 101 Environmental Mitigation
Jacobs/TKDA	TH 169/I-494 Interchange Reconstruction
TKDA	Van White Memorial Boulevard
ACEC/MISSISSIPPI	
Compton Engineering, Inc.	Relocation/Reconstruction of Round Island Lighthouse
ACEC/MISSOURI	
Crawford, Murphy & Tilly, Inc.	Coldwater Wet Weather Storage Facility Tank
Crawford, Murphy & Tilly, Inc.	I-70 Interchange–New Mississippi River Bridge
HDR Engineering	Grand Avenue Viaduct Reconstruction
Stantec	Wenneker Treebrook Storm Channel Improvements
ACEC/MONTANA	
DOWL HKM	Water Treatment Plant Upgrades
ACEC/NEBRASKA	
Lamp, Rynearson & Associates, Inc.	Combined Sewer Overflow/ Nicholas Street Sewer Extension

FIRM NAME	PROJECT NAME
ACEC/NEVADA	
CH2M HILL	I-580 Freeway Extension
ACEC/NEW HAMPSHIRE	
HNTB Corporation	Hooksett Toll Plaza Conversion Project
HNTB Corporation	Portsmouth Memorial Bridge Replacement
ACEC/NEW JERSEY	
Cherry, Weber & Associates	U.S. Route 202 Full Depth Pavement Recycling
Dewberry	Peter J. Biondi Bypass
Dewberry	Superstorm Sandy Waterway Debris Removal
Greenman-Pedersen, Inc.	Garden State Parkway Interchanges 154 & 155P Improvements
Greenman-Pedersen, Inc.	Rova Farms Bridge Replacement
Hatch Mott MacDonald	Calgary's West Light Rail Transit Project
ACEC/NEW YORK	
AECOM	Cleaner Greener Long Island Regional Sustainability Plan
Arup	Delta JFK Airport Redevelopment Program
Arup	Fulton Center Corbin Building
Erdman Anthony	I-590/Winton Road Interchange
Greeley and Hansen/Hazen and Sawyer/ARCADIS	Newtown Creek NC-41 Central Residuals Building
Greenman-Pedersen, Inc.	Transit Signal Priority for New York City
HAKS/The RBA Group	Hamilton Avenue Asphalt Plant Reconstruction
Hardesty & Hanover	Jacques Chaban-Delmas Vertical Lift Bridge
Hazen and Sawyer/CH2M HILL	Disaster-Proofing Vital Infrastructure
Hazen and Sawyer/Montgomery Watson Harza	Advanced Wastewater Treatment Project



Owensboro Health Regional Hospital, Owensboro, Ky., designed by HGA Architects and Engineers, Milwaukee, Wis., is a 2014 EEA National Recognition Award winner.

FIRM NAME	PROJECT NAME
HDR Engineering	Emergency Stabilization of the Rockaway Line
HNTB Corporation	Squibb Park Bridge
Jaros, Baum & Bolles	Weill Cornell Medical College
The Louis Berger Group/ Ammann & Whitney	Dragon Bridge
Sam Schwartz Engineering	Aruba Tram System
STV	Delta JFK Terminal Redevelopment Program Phase I
Thornton Tomasetti	Barclays Center
Weidlinger Associates, Inc.	Brooklyn Botanic Garden Visitor Center
ACEC/NORTH CAROLINA	
Cavanaugh & Associates	Water Efficiency Training Program
Vaughn & Melton Consulting Engineers, Inc.	Hicks Grove Road Relocation
ACEC/NORTH DAKOTA	
HDR Engineering	Bakken Boom: Program Management for Power Growth
ACEC/OHIO	
American Structurepoint	Emerald Parkway Improvements
HNTB Corporation	Computerized Traffic Signal System
Karpinski Engineering	Cleveland Museum of Art Addition & Renovation
URS Corporation	Spaceport America
ACEC/OKLAHOMA	
CP&Y	John Kilpatrick Turnpike 8-Mile Widening
ACEC/OREGON	
HDR/Fluor Corporation	Oregon Transportation Investment Act III State Bridge Delivery Program
PAE	The Bullitt Center

Delta JFK IAT Redevelopment Program, Jamaica, Queens, N.Y., designed by Arup, New York, N.Y., is a 2014 EEA National Recognition Award winner.

FIRM NAME	PROJECT NAME
ACEC/PENNSYLVANIA	
Gannett Fleming	Mon/Fayette Expressway Uniontown-Brownsville
Michael Baker Jr., Inc.	AASHTOWare Bridge Design & Rating Program
Skelly and Loy, Inc.	I-99 Acid Rock Drainage Remediation
STV	Restoration of the Lumberville-Raven Rock Bridge
ACEC/SOUTH CAROLINA	
Michael Baker Jr., Inc./ Infrastructure Consulting & Engineering	Johnnie Dodds Boulevard Improvements
STV	I-385 Widening
Vaughn & Melton Consulting Engineers, Inc.	West End Wastewater Improvements
ACEC/SOUTH DAKOTA	
HDR Engineering	Lake Kampeska Phosphorus Removal
ACEC/TEXAS	
Burns & McDonnell	Parkland Hospital Central Utility Plant
CP&Y	Dos Rios Water Recycling Center Filter Improvements
Freese and Nichols, Inc.	Regional Groundwater Update Project
Freese and Nichols, Inc.	Ward County (Texas) Water Supply Project
HDR Engineering	President George Bush Turnpike–Western Extension
Huitt-Zollars, Inc.	Woodall Rodgers Freeway Extension
Jacobs Engineering Group Inc.	Superior Efficiency Power Plant Upgrade
Surveying And Mapping, Inc.	Cascade Tunnel Mobile LiDAR Scanning Solution
Walter P Moore and Associates	Bagby Street Improvements
ACEC/WASHINGTON	
Cary Kopczynski & Company	The Martin Apartments
GeoEngineers and KPFF	Bill & Melinda Gates Foundation Headquarters
Hart Crowser, Inc.	Federal Center South
HNTB Corporation	U-Link Tunnels Under Interstate 5
Jacobs Associates	Railroad Drainage and Avalanche Diversion System
Magnusson Klemencic Associates, Inc.	Panama Museum of Biodiversity
Tetra Tech	Chief Joseph Hatchery
Wood Harbinger	Cogeneration & Electrical Distribution Upgrades
ACEC/WEST VIRGINIA	
Freese and Nichols, Inc.	Dams and Lakes at the Summit Bechtel Reserve
HDR Engineering	Shenandoah River Bridge
ACEC/WISCONSIN	
Alfred Benesch & Company	Three Bridges Park on Hank Aaron State Trail
Bloom Companies	Rawson Avenue Bridge Reconstruction
HGA Architects and Engineers	Owensboro Health Regional Hospital
Mead & Hunt, Inc.	ATW General Aviation Terminal

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Hallowell, Maine

Fiona M. Allen
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Arlington, Texas

E. Bruce Barrett
New York City School Construction Authority
Long Island City, N.Y.

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U.S. Army Corps of Engineers
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Hatch Mott MacDonald
Dewberry
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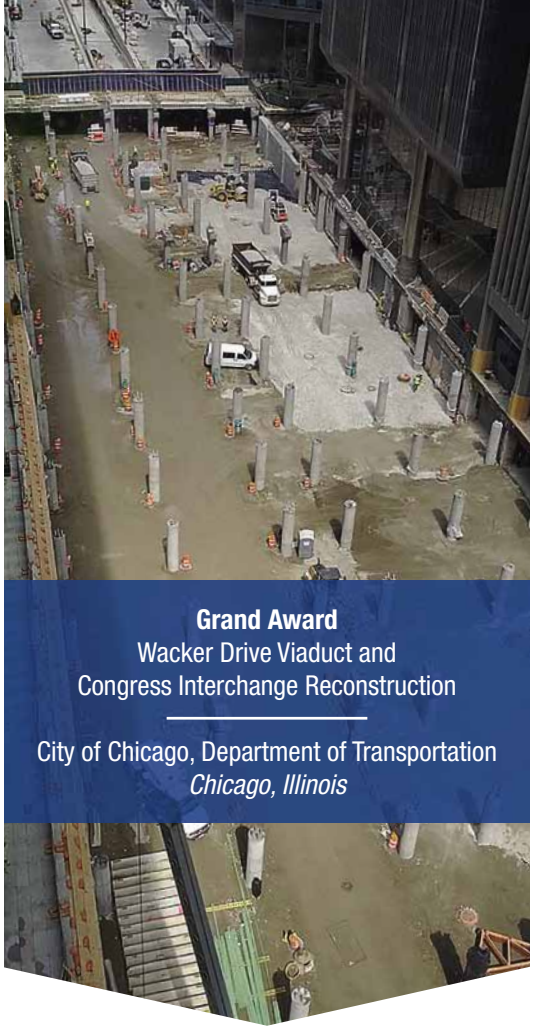

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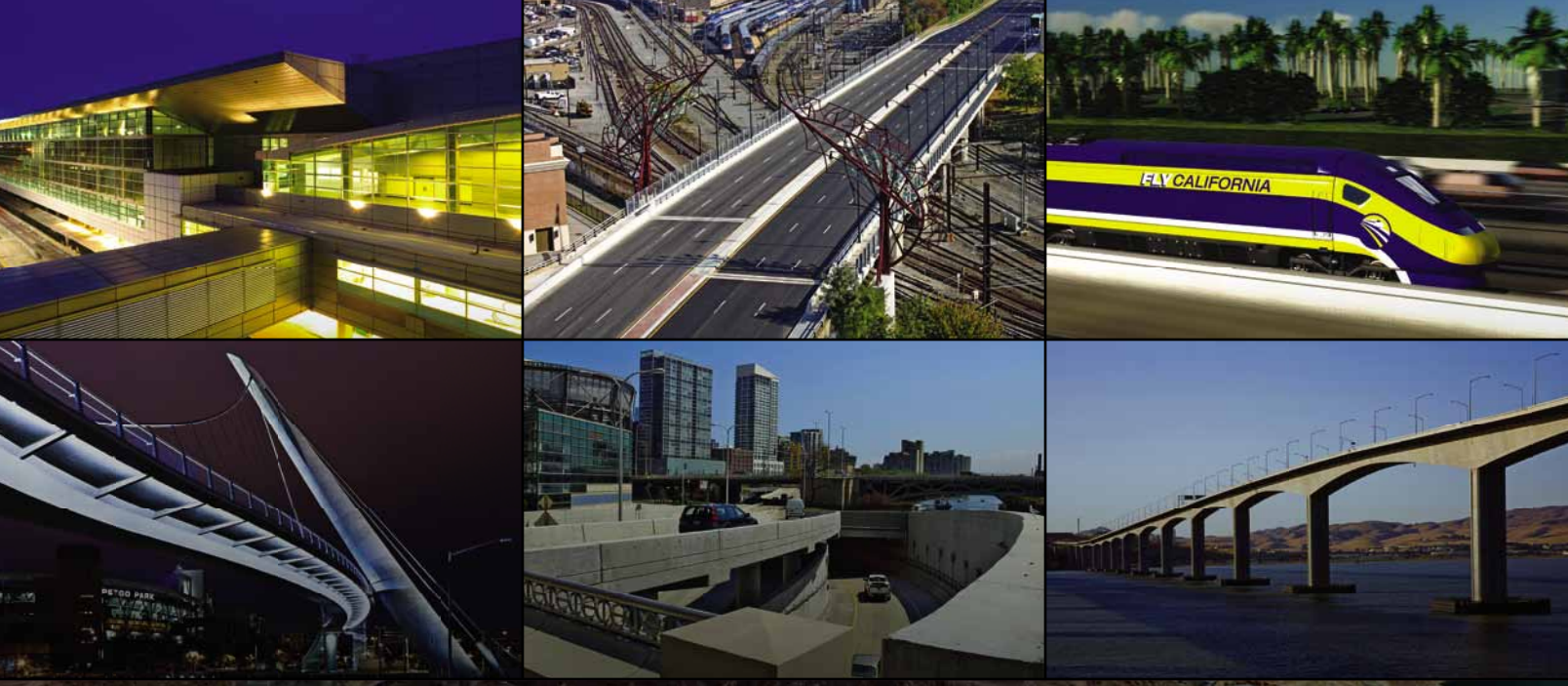
Left: Calgary West LRT Project Right: King Road Grade Separation



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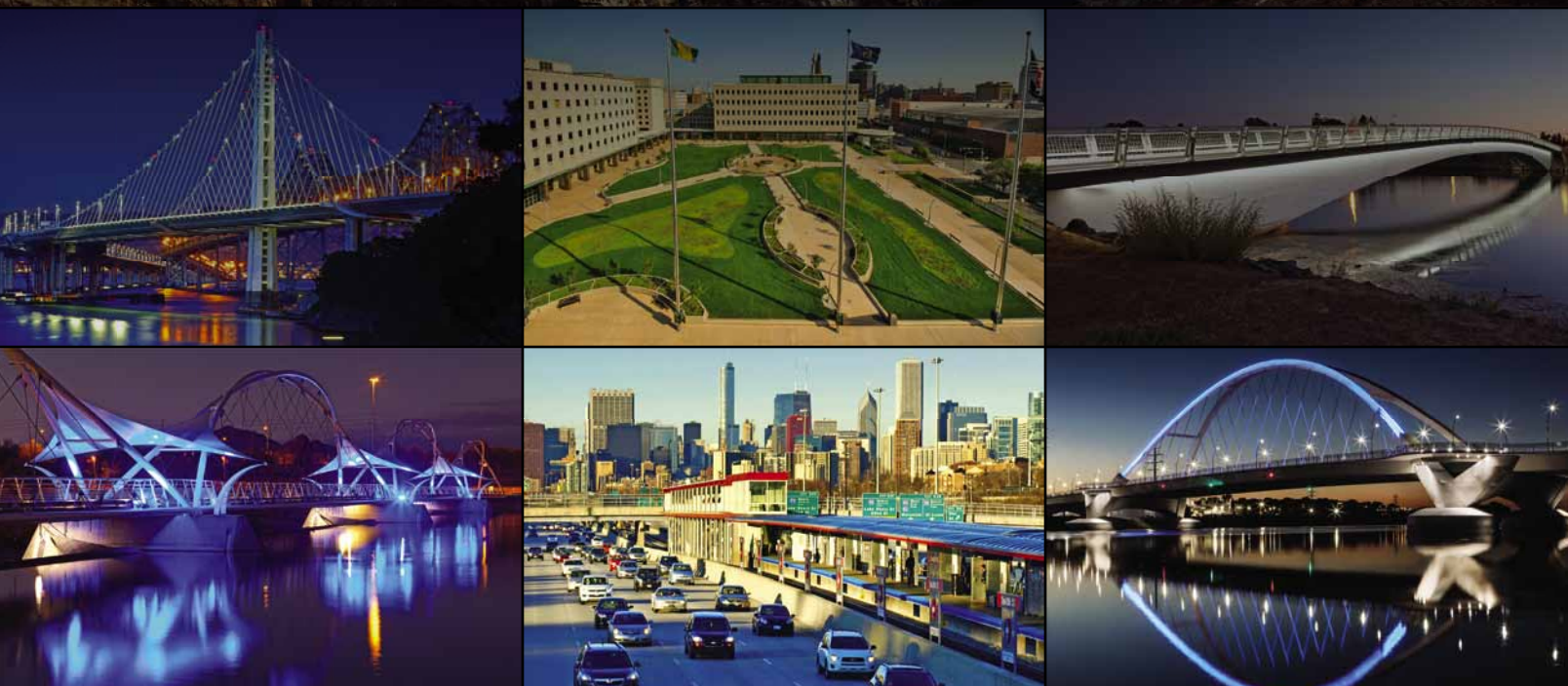

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TOP: Leonard P. Zakim Bunker Hill Bridge, Boston | LEFT: Columbia River Interstate Bridge between Oregon and Vancouver (1917) | RIGHT: Dallas High Five Interchange

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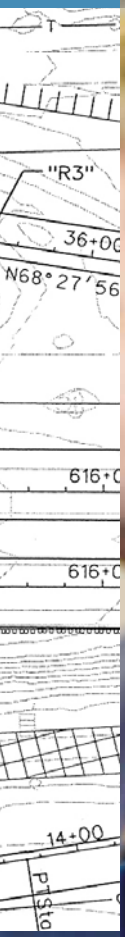

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All Grown Up

By Bob Violino

Building Information Modeling becomes the industry standard for project design

Building Information Modeling (BIM) has come a long way since a few years ago when it was seen as a potentially transformative, if not yet fully mature, design technology. >>

RANDY LYHUS

BIM

These days, engineers who use BIM say it is quickly becoming the new standard for modeling, a veritable must-have technology for any firm with a stake in complex building projects.

The maturation of BIM is significant. But it didn't happen overnight. In the move from CAD to BIM, the industry shifted from a dependence on two-dimensional designs and shop drawings to three-dimensional digital renderings of the physical and functional aspects of building projects.

"The conversation has shifted from 'Should we use BIM?' to 'How are we BIMming?'"
DAVID PLUKE
BIM READY CONSULTING

BIM is still evolving and, like a lot of relatively young technologies, engineering firms still face hurdles with adoption. But the technology continues to change the way project teams communicate and solve problems, often helping firms build better projects faster at lower costs.

In the early days, "we had some success with BIM and were pretty convinced we were on the right path, but it was not universally deployed across all offices," says David Pluke, president of consulting firm BIM Ready Consulting in St. Louis, and former principal of Minnesota-based design firm Ericksen, Roed & Associates.

"We thought BIM was something that was for real, but we hadn't quite seen the ability to apply it to every job," Pluke says. "The conversation has shifted from 'Should we use BIM?' to 'How are we BIMming?' There is much wider acceptance now, and it's more a matter of 'Are we using BIM to the fullest or in the right way?'"

CAD systems traditionally captured and recorded geometric characteristics for sharing details used to illuminate project design decisions, rather than to inform the ongoing process of design, explains Huw Roberts, vice president, platform advantage at Bentley, a provider of BIM and other engineering software products.

"BIM enables users to simulate how infrastructure will perform when in use, not just provide a static representation," Roberts says. "For example, how does a structure perform in an earthquake, or an energy system in different weather conditions? So you can use this feedback from BIM to revise your design decisions."

Initially, some practitioners envisioned BIM as an improved CAD with some additional features, says Erin Rae Hoffer, senior industry programs manager at Autodesk, another BIM provider. But it's proved to be more than that.

"Today, some firms look back on years of BIM experience and hundreds of completed projects. With growing sophistication and increasing skill in the capabilities of BIM, practitioners have become aware that BIM is a completely different category of technology," Hoffer says.

He adds, "BIM has the potential to impact operations and maintenance over the life of a building. The perception of BIM has expanded beyond a tool to aid in the 3D visualization of architecture, to embrace an information-rich view of a building throughout its lifecycle."

Data Proves It

Recent industry research shows the role BIM is playing in the industry. In a January 2014 McGraw Hill Construction study, contractors using BIM in nine of the world's top construction markets said the technology improved productivity, efficiency, quality and safety on projects. It also helped firms be more competitive.

800
Number of projects Jacobs Engineering Group has completed using BIM design technology.

"The Business Value of BIM for Construction in Major Global Markets SmartMarket Report" indicates that mature BIM markets, including the United States, Canada, France, Germany and the U.K., report a positive return on investment in the technology. Smaller, still-evolving markets indicate similarly positive findings.

Advantages to the technology include reduced errors and omissions; process improvements, such as the ability to enhance collaboration; and internal business benefits, such as enhancements to the user's corporate image, according to the report. Over the next two years, contractors expect the percentage of work that involves BIM to increase on average by 50 percent.

It's What They Want

Vendors say demand for BIM is high. "Among our users, BIM is the predominant way that new work is happening today" in design, Roberts says. "Nobody is coming to us and asking, 'Can you tell me what you've got in 2D?' We're seeing a good percentage of our users pushing for these new capabilities."

In addition to Bentley and Autodesk, vendors that provide widely used BIM products include Graphisoft, Solibri, Onuma and Riuska.

Among the factors contributing to the increased use of BIM: Files are better and larger, especially as designers add more intelligence to models; BIM tools are more portable, allowing users to access them via mobile devices; and BIM solutions are increasingly available as cloud-based services, making them more accessible to smaller firms, Pluke says.

Many clients launching building projects—especially large undertakings—expect firms to use BIM and are putting pressure on them to do so, Pluke says. "I think it's pretty hard to defend not using BIM as kind of the current state of the art," he says, adding that firms that choose not to use BIM would put themselves at greater risk for "errors and omissions."

Pasadena, Calif.-based Jacobs Engineering Group was an early adopter of the technology when it launched a project in 2005 as part of a strategy to have BIM turn into its primary design/production tool, says Tom McDuffie, group vice president.

"The only question was how fast, and could we accelerate our training and implementation to be a leader and add value to our projects," he says, adding, "This enabled us to make the transition on our own terms and to use our experiences to demonstrate the value to our clients and partners as they made their transition to BIM."

The firm's early success with BIM led to a decision to use technology on all new building projects, regardless of client

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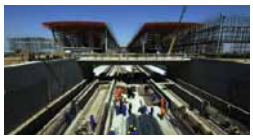
Opportunity Management	Market Analysis & Forecasting	Resource Planning & Skills Mapping	Recruiting & Onboarding			Scheduling & Dispatching	Project Construction Records Management	Fixed Assets & Procurement	Time & Expense Management
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requirements. "To date, we have completed more than 800 projects using BIM," McDuffie says. "Our perception today is that the BIM revolution is irreversible, in the same way that CAD replaced manual drafting."

Jacobs uses BIM as a full-spectrum tool for existing condition modeling, design authoring, energy analysis, design review, coordination, digital fabrication, virtual mockup, schedule simulation, quantity takeoff and facilities management.

Jacobs also identifies and tracks the value of BIM-based innovations, problem-solving and problem prevention techniques using criteria such as cost savings to client, schedule acceleration, reduced lifecycle cost, field problem prevention, and operations and maintenance problem prevention.

"Our perception today is that the BIM revolution is irreversible, in the same way that CAD replaced manual drafting."
TOM McDUFFIE
JACOBS ENGINEERING GROUP

Obstacles Remain

BIM technology has matured. But it's not without its challenges. Better interoperability between different software packages is chief among them. "There is still a requirement that you do too many translations between programs," Pluke explains of the technology. "Vendors are working as best they can toward a neutral format, but it's still fairly complex to get from one program to another."

McDuffie agrees. "There is considerable time and resources spent getting teams and clients up to speed for each individual use case for the BIM information collected or created. Many software packages are only upwardly compatible at this time, and not cross-compatible," except in select formats, he says.

The good news: Industrywide standards are evolving. The National Institute of Building Sciences has created the National BIM Standard-United States. "We are currently just completing the third version of this standard and we are starting to see how the pieces are beginning to fit together," says Dana Smith, executive director of the institute's buildingSMART alliance and program director of its Commercial Workforce Credentialing Council.

But there is still work to do.

"Never before has an industry this fragmented attempted to do this," Smith says. "To take a project from a plan which involves geospatial information and property records, through design and analysis, to procurement and product lifecycle management to construction, scheduling, prefabrication and assembly to operations, maintenance and occupancy for the next 100 years is a tall order."

The release of her organization's latest standard (Version 3) is expected this summer. "Once the consensus process has identified the direction any aspect of BIM is headed in the industry, others will implement the standards, and software vendors will make the investment to write the software to support the standards more conveniently," Smith explains.

What's Next?

In the future, software experts say firms should look for more mobile applications for BIM, as well as solutions that work across software platforms. The cloud will also play a larger role in BIM deployments.

"If you're using BIM on your desktop, accessing a cloud service for calculations for analysis can leverage racks of hundreds of powerful computers to calculate wave motion on an offshore oil rig," he says. "Completing calculations that would normally take weeks within minutes lets you consider many more options, and ultimately produce a better design."

The cloud will also help facilitate collaboration and the use of BIM on mobile devices.

"In the future, we expect BIM to become a reliable data source that is integrated" with geographic information systems, computerized maintenance management systems and other platforms, McDuffie says. "We anticipate that building design and construction will be continuously refined based on actual building performance data, and that buildings will continue becoming more efficient to build, with less environmental impact."

Through cloud technology, McDuffie says, "it is likely that information embedded in BIM can be accessed by anyone at any time, anywhere. That will enable us "to truly collaborate with our clients." ■

Bob Violino is a freelance writer based in Massapequa Park, N.Y.

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The International Federation of Consulting Engineers (FIDIC), founded in 1913, promotes and implements the strategic goals of the consulting engineering industry on behalf of its 100 Member Associations. FIDIC supports high standards of ethics and integrity among all stakeholders involved in the development of infrastructure worldwide to preserve and enhance our Quality of Life.

FIDIC is the only international federation dedicated to improving the business of the consulting engineering industry. FIDIC meets regularly with all the Multilateral Development Banks and is pleased to be part of the current World Bank review of its procurement policies and procedures. In these discussions, FIDIC continues to stress the need for policies and procedures, which will ensure effective development, and that the right projects are being procured, based on quality, sustainability and integrity. Such reforms will likely impact on our business worldwide.

FIDIC advocates professional ethics and integrity to combat corruption, still one of the major impediments to good investment in infrastructure. FIDIC's Integrity Management System (FIMS) most accurately reflects the importance of Business Integrity embedded in an organization's operations. FIMS is leading the way in identifying the business risks for consulting engineers, and in managing those risks.

FIDIC represents consulting engineers internationally with one voice as trusted advisors, dedicated to quality and sustainable solutions. Sustainable Infrastructure is vital to our Quality of Life and the key advisors to help determine the correct investment choice are consulting engineers. Sustainability is likely to influence all future investments.

Quality Based Selection has been promoted by FIDIC for many years, as it emphasizes the importance of selecting Consultancy Firms on the basis of qualification, experience, professionalism and integrity, rather than price. The advice of the consulting engineer should be regarded as an asset investment, not a project cost.

In 2013, FIDIC and the European Federation of Engineering Consultancy Associations (EFCA) published the new Sustainability Pack 2013. This is a collection of four complementary publications, which are designed as guidelines and tools for consulting engineers wishing to understand the principles of sustainability, use the tools to determine appropriate projects, understand the client's priorities, and to implement and monitor these. A new approach to urban development is advocated.

In June 2014, FIDIC and the UN Environment Programme (UNEP) will be launching a pilot training program on Sustainable Development with specific reference to buildings and cities. The course will cover a description of the various strategic programs and initiatives with an explanation and instruction on the use of some of the practical tools developed. Climate change is also on the agenda through another UN initiative, SBCI.

"For almost 10 years MCC has used FIDIC Red and Yellow Book contracts successfully as part of the implementation of its large works programs in over 20 countries."

JONATHAN S. SAIGER
Senior Director, Millennium Challenge Corporation

FIDIC strengthens the capacity of consulting engineers through its leading edge tools and guidelines, training events, and through communication of best practices. FIDIC organizes international training events with national Member Associations such as ACEC in the USA. Options include public courses or workshops, on-line courses, training programs organized as a series of courses, in-house events, assessments and conferences. The content of FIDIC training events covers not only FIDIC contracts but also business best practice topics. The use of the internationally accepted FIDIC standard construction contracts continues to expand though out the world, in both the private and public sectors.

FIDIC is proud to offer the Young Professional Management Training Program (YPMTP), now in its tenth year. This is an intensive online management training program for junior managers, based on case studies and discussions of management issues within an international team of participants and mentors. The program provides international networking and active participation in the annual international FIDIC conference, meeting key representatives from the consulting industry worldwide.

"Despite the economic and political challenging times we are living in, there is an increasing awareness among global leaders regarding the diverse and staggering worldwide infrastructure needs of the global community. Engineers have an obligation to do all they can to build upon this momentum and help steer the decision making process toward cost effective/ innovative solutions to the most pressing problems."

WILLIAM HOWARD
FIDIC Executive Committee Member and former Chairman of ACEC

FIDIC connects leading players and partners in infrastructure and industry, to create new and meaningful business opportunities. Each year FIDIC hosts over 100 events, which bring together key players and partners in the consulting engineering industry. Whether these are regional user conferences, training courses or the international FIDIC conference, these events provide invaluable networking opportunities for all members.

FIDIC activities in some regions are coordinated with the help of regional groupings of national member associations. FIDIC associations in the Asia-Pacific region are grouped together in ASPAC, and in the African region through GAMA. The ASPAC and GAMA annual conferences are the biggest annual networking events for all Consulting Engineers in those regions.

FIDIC is hosting the 2014 FIDIC Americas Contract Users' Conference in Miami, Florida from October 14-15 and the FIDIC International Infrastructure Conference in Rio de Janeiro September 28 – October 1.

FIDIC

2014 ANNUAL CONVENTION

New Optimism

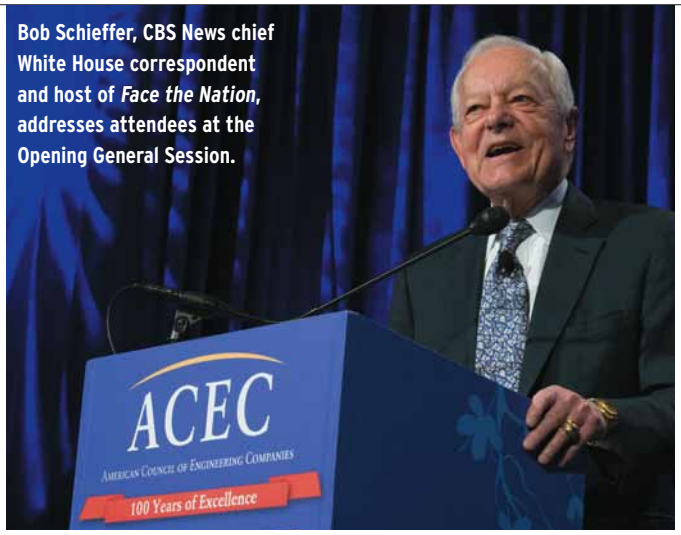
Advancing Industry Agenda

New ACEC Chairman Dick Wells greets attendees at the Welcome Reception and Dinner.

An energetic gathering of more than 1,350 ACEC members—a new record—converged on Washington, D.C., to hear insights on new markets and undertake political advocacy.

Hundreds of ACEC members "stormed" Capitol Hill to build support for restoring solvency to the Highway Trust Fund, passage of the Water Resources Reform and Development Act (WRRDA), and tax issues important to the industry.

House Transportation and Infrastructure Committee Chairman Bill Shuster (R-Pa.) praises the advocacy efforts of ACEC.



Bob Schieffer, CBS News chief White House correspondent and host of *Face the Nation*, addresses attendees at the Opening General Session.

Martin Regalia, U.S. Chamber chief economist, offers his take on U.S. economic trends.

"The Convention lineup of political and business sessions was very good," said James Porter of J-U-B Engineers, Inc., in Boise, Idaho.

"This was my first time attending the ACEC Annual Convention," said Jennifer Hanley of Ulteig in Fargo, N.D. "It was exciting to be exposed to so many ideas about the engineering business."

More than 600 guests attended the 48th annual black-tie Engineering Excellence Awards Gala, hosted for the first time by comedian Rex Havens.

Washington Needs 'Political Engineers'

Bob Schieffer, host of CBS's *Face the Nation*, told attendees, "The federal government has come to a complete stop," adding, "It's eternal gridlock. Are there any political engineers here? That's what Washington needs right now."

Schieffer, who has been reporting on politics for more than 40 years, bemoaned the outsized influence of money on politics, saying it has forced politicians in both parties to the edges. "We need to bring moderation back to American politics, because that's where most Americans are," he said.

Wells Succeeds Thomopulos as ACEC Chair

Dick Wells, vice president of San Diego-based Kleinfelder, took the gavel as ACEC Chairman for 2014–2015 during the ACEC Annual Convention. He succeeds Gregs Thomopulos, chairman of Stanley Consultants, Inc.

The Council also announced new members for the 2014–2015 Executive Committee: Treasurer Harvey Floyd, executive vice president, KCI Technologies; Lauren Evans, president and CEO, Pinyon Environmental; Randall Neuhaus, president and CEO, S&ME; and Mitchel Simpler, partner, Jaros, Baum & Bolles. ACEC/Colorado Executive Director Marilen Reimer will serve as the committee's NAECE representative.

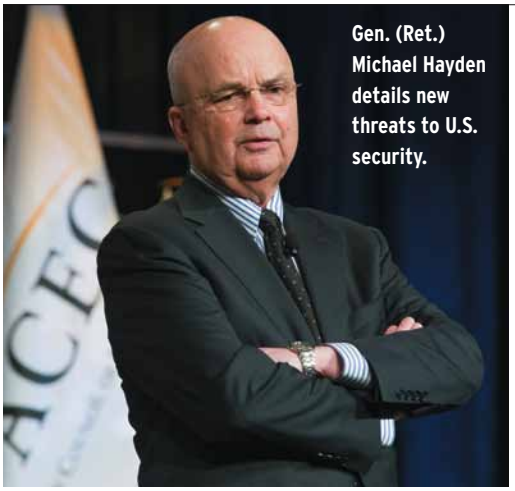
They join current ExCom members: Chairman-elect Ralph Christie, chairman, Merrick & Company; ACEC President and CEO Dave Raymond; Clinton Robinson, associate vice president, Black & Veatch Corp.; Manish Kothari, president and CEO, Sheladia Associates; and Chris Poland, principal, Poland Consulting Engineers.

The ACEC Board of Directors voted to update the Council's bylaws to strengthen compliance with state law and conform to current association best practices.

Promoting New Opportunities in Sub-Saharan Africa

U.S. officials and representatives from 12 African nations led a symposium on infrastructure opportunities in Sub-Saharan Africa. Participating nations Angola, Botswana, Democratic Republic of Congo, Gabon, Ghana, Lesotho, Nigeria, Republic of Congo, Senegal, South Africa, Tanzania and Zambia outlined projects already in the pipeline.

Leaders from the State Department, Commerce Department, U.S. Trade Representative, U.S. Agency for International Development, Millennium Challenge Corporation, U.S. Trade and Development Agency, Overseas Private Investment Corporation and the Export-Import Bank discussed plans for new infrastructure in the region.



Gen. (Ret.) Michael Hayden details new threats to U.S. security.

It was standing room only for this session that examined emerging trends in compensation.

Former IRS Commissioner Mark Everson briefs attendees on new IRS rules.

Chairman Shuster Praises ACEC Advocacy Efforts; Projects Short-Term Highway Funding Fix

House Transportation and Infrastructure Committee Chairman Bill Shuster (R-Pa.) thanked ACEC members for advocating a strong federal role in transportation and infrastructure investment.

Shuster encouraged engineers to work with the broader business community to increase support for important transportation projects. On the funding front, he predicted that Congress would pass a short-term funding bill this summer to supplement the Highway Trust Fund, which could run short of cash as early as July.

Shuster also said that passage of a new Water Resources Reform and Development Act (WRRDA) bill was imminent. "This bill, which is so important for our ports, harbors and waterway systems, is critical to the nation's health."

Former CIA, NSA Chief Hayden Cites Security Challenges

Shifts in global political "tectonic plates" will greatly affect U.S. national security, said Gen. (Ret.) Michael Hayden at the ACEC Convention.

"Changes in any border are a bad thing for security. There are a lot of lines moving, and a lot of lines that are just disappearing," he said, pointing to the current upheaval in Ukraine.

Hayden predicted upcoming dramatic changes in the Middle East, too. "The fault line for the future of the Middle East will be Shiites versus Sunnis," he said. "This is going to be a very troubled part of the world for the next few decades."

With security agencies increasingly turning to technological solutions, such as metadata collection, Hayden said Americans have to decide "What do you want your government to do and how far do you want it to go."

Regalia Forecasts 3 Percent Near-Term Economic Growth; Former IRS Leader Says Tax Reform Tough Sell

Martin Regalia, chief economist of the U.S. Chamber of Commerce, said that while the economy has been in "technical recovery" for 57 months, the 2.3 percent growth rate "just hasn't been fast enough."

Looking forward, he forecasts that the economy will grow "more in line with the 3 percent range for the rest of this year and into next year."

Alliantgroup Vice Chairman Mark Everson, who served as IRS commissioner from 2003 to 2007, told Convention attendees that "fundamental tax reform will happen only if a candidate for president campaigns on tax reform and wins."

Everson said House Ways and Means Committee Chairman Dave Camp's (R-Mich.) recent tax reform proposal "is very thoughtful...but it immediately raised an avalanche of concerns."

George Mulamula (left), CEO of the Tanzania Commission for Science and Technology, and his wife, Liberata (second from right), ambassador of the United Republic of Tanzania to the United States, greet ACEC Vice Chairman Manish Kothari (second from left) and Craig Covil, principal at Arup, during an invitation-only dinner that was part of a special Convention program on opportunities in Sub-Saharan Africa.

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Any reform to the tax system, he said, must incorporate three key features: permanency, adding, "This on-again, off-again tax code is crazy"; progressivity—"If anything, over time, taxes on the well-to-do will increase," he said; and reduced complexity, noting, "We need to make tough choices on big-item deductions."

Fundraising for ACEC/PAC Sets New Record

ACEC/PAC year-to-date fundraising set a record $371,000. House Transportation and Infrastructure Committee Ranking Member Nick Rahall (D-W.V.) participated in a fundraising event at the Annual Convention.

ACEC/PAC honored the six Member Organizations that have already surpassed their 2014 fundraising goals: Indiana, South Carolina, Delaware, Hawaii, Wisconsin and Tennessee.

In the ACEC/PAC Spring Sweepstakes, Karen Wood, HMB Professional Engineers, Inc., Frankfurt, Ky., won the $10,000 grand prize. Keith London, Kennedy/Jenks, Temecula, Calif., won $5,000, and Larry Hargrove, Life Cycle Engineering, North Charleston, S.C., won $2,500.

Winners of the $1,000 prizes were Jason Webber, Kimley-Horn, Delray Beach, Fla.; Gary Grigsby, Western Research & Development, Cheyenne, Wyo.; Gene Hinshaw, Trabue, Hansen and Hinshaw, Columbia, Mo.; Charles Geer, Greyling Insurance Brokerage and Risk Consulting, Gainesville, Fla.; Don Freeman, Parrish & Partners, Columbia, S.C.; Mike Hinton, Bernardin, Lochmueller & Associates, Evansville, Ind.; and Husam Ahmad, HAKS Engineers, New York, N.Y.

ACEC/Massachusetts leaders met with Congressman Joseph Kennedy III (D-Mass.). Pictured from left: Chad DaGraca, DiCicco, Gulman & Company; David Young, CDM Smith; Thomas Stokes, Howard/Stein-Hudson Associates; Kennedy; and ACEC/Mass. Executive Director Abbie Goodman.

Paul Navarro of Navarro & Wright Consulting Engineers in New Cumberland, Pa., interviews with Melissa Smith of EA Engineering, Science and Technology, Inc., at the Convention's Teaming Fair.

New EEA Gala Host Rex Havens entertains more than 600 award show attendees.

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BY AMY NATTERSON KROLL
AND ELIZABETH A. MARINO

Engineers and the Municipal Advisor Registration Requirement

Engineering firms have recently found themselves in the difficult position of assessing whether new Securities and Exchange Commission (SEC) rules apply to their activities and therefore necessitate registration as "municipal advisors" with the SEC and the Municipal Securities Rulemaking Board (MSRB).

Background of Municipal Advisor Registration Requirement

Amid concerns about the largely unregulated and unsupervised municipal securities market, municipal security losses during the 2008 financial crisis and allegations of unsavory business activities on behalf of some municipal market participants, the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) required "a range of municipal financial advisors to register with the SEC and comply with regulations issued by the MSRB." Under new rules adopted by the SEC, it is unlawful for any company or individual to provide certain financial advice to, or on behalf of, or to solicit municipal entities or certain other persons without first becoming a municipal advisor registered with the SEC.

The municipal advisor definition is broad and includes activities that ensnare many entities that have not historically considered themselves municipal advisors, such as engineering firms. A municipal advisor is defined as:

> **A person (who is not a municipal entity or an employee of a municipal entity) that provides advice to or on behalf of a municipal entity or obligated person with respect to municipal financial products or the issuance of municipal securities, including advice with respect to the structure, timing, terms, and other similar matters concerning such financial products or issues; or undertakes a solicitation of a municipal entity. (15 U.S.C. 78o-4(e)(4))**

The definition expressly excludes, among other things, "engineers providing engineering advice."

Although municipal advisors were required to register with the SEC and MSRB by Oct. 1, 2010, the SEC did not adopt final rules interpreting the statutory language and implementing a permanent registration regime until September 2013. In the SEC's final rules, the commission nominally clarified the exception for engineers and stated that an engineer is excepted from the definition of municipal advisor "to the extent that the engineer is providing engineering advice." More important, it provided several pages of interpretative guidance regarding what the SEC deems permissible/impermissible activities for engineers. Subsequent to the final rules, the SEC also published additional guidance regarding the municipal advisor rules in the form of frequently asked questions. The SEC has extended the effective date of the new rules to July 1, 2014; however, the temporary rules (as well as rules enacted by Dodd-Frank) already require registration if an entity is engaged in activities triggering municipal advisor registration status.

Engineering Firms and Advice

Engineering firms that are not registered as municipal advisors need to be vigilant not to provide "advice" regarding municipal securities or to limit activities that involve advice so that they fall within the exceptions. The SEC has indicated that "advice" includes "advice with respect to the structure, timing, terms, and other similar matters concerning [municipal] financial products or issues" as well as:

> **A recommendation that is particularized to the specific needs, objectives, or circumstances of a municipal entity or obligated person with respect to municipal financial products or the issuance of municipal securities, including with respect to the structure, timing, terms, and other similar matters concerning such financial products or issues, based on all the facts and circumstances. (Securities Exchange Act Release No. 70462 (Sept. 20, 2013), 78 FR 67468, 67479 (Nov. 12, 2013))**

The SEC has excluded from "advice":

> **The provision of general information that does not involve a recommendation regarding municipal financial products or the issuance of municipal securities, including with respect to the structure, timing, terms or other similar matters concerning such financial products or issues. (17 CFR § 240.15Ba1-1(d)(1)(ii))**

Information and conversations about financing of projects can inadvertently, and easily, morph into "advice" about issuance of municipal securities, so firms should be very careful about the content of their oral and written statements. Likewise, firms must avoid providing advice when they are asked pointed questions by

SAM EDWARDS/GETTY IMAGES

a municipal entity, because even if a firm does not provide express advice, the SEC has warned that it will deem "implicit recommendations" to also constitute impermissible "advice."

Independent Registered Municipal Advisors

Although persons are prohibited from providing certain "advice" to municipal entities without registering as a municipal advisor, engineers and others are exempt from registration if they provide advice to a municipal entity regarding municipal securities and the municipal entity has an "independent registered municipal advisor" (Independent Municipal Advisor Exception). An independent registered municipal advisor is a "municipal advisor registered pursuant to section 15B of the [Exchange] Act and the rules and regulations thereunder and that is not, and within at least the past two years was not, associated…with the person seeking to rely on [the exception]." In order to rely on this exception, the engineering firm must receive a written representation from the municipal entity that the municipal entity has an independent registered municipal advisor and that the entity will rely on the advice of such advisor, among other things. As long as the conditions of the Independent Municipal Advisor Exception are met, engineers can provide certain advice without triggering the municipal advisor registration requirement.

Requirements for Interactions with Municipal Entities

When engineering firms meet with municipal entities regarding financing options, even generally, the engineering firms must make certain oral disclosures to the municipal entity regarding their role and what it may and may not provide to them. Likewise, when engineering firms provide any written materials to a municipal entity, the materials must include certain disclosures intended to clarify the roles of the parties.

Compliance with The Municipal Advisor Rules

Violation of municipal advisor rules is avoidable; however, many engineering firms may not think that the rules apply to them. Likewise, municipal entities may not be fully aware of the rules and may ask their engineering firms to engage in activities that would deem them municipal advisors under the new rules. Therefore, engineering firms should not rely on municipal entities to set the permissible boundaries.

Due to the broad exclusion when a municipal entity has an independent municipal advisor, it would not be surprising if some firms, as a matter of practice, require that a municipal entity have an independent municipal advisor prior to agreeing to a work on a project to avoid accidentally running afoul of the municipal advisor registration requirements.

This area is still evolving, and we expect that questions will continue to arise both before and after the final rules become effective. The Commission has been receptive to concerns raised by the industry, and it is possible that additional interpretative guidance will be issued as new concerns are raised.

Amy Natterson Kroll is a partner in Bingham McCutchen LLP's Washington, D.C., office, and Elizabeth A. Marino is a counsel in Bingham McCutchen LLP's Boston office. Kroll and Marino focus on SEC regulatory issues and advise engineering firms, among others, regarding the new registration requirements applicable to municipal advisors.

ACEC continues to strongly advocate with the SEC for clarifications to the agency's understanding of the engineering exemption so that Member Firms will not have to register as municipal advisors for providing traditional engineering services.

SEI Celebrating 20 Years of Leadership Training

The ACEC Senior Executives Institute (SEI) program, the industry's premier leadership development initiative, helps executives identify and explore their unique brand of leadership style, with the goal of developing stronger, more effective corporate leaders.

Participants work to build core knowledge, skills and overall business acumen–and that is just the beginning. SEI's program is designed to encourage creative thinking and visioning beyond the day-to-day or even year-to-year approach of A/E business management and to foster greater awareness of the ebbs and flows of the industry environment.

By strengthening leadership skills, executives can better clarify what matters most for themselves and their businesses, thus creating an environment where compelling vision, goals and strategies emerge and take root. Applications are currently being accepted for SEI Class 20, which starts in September 2014, in Washington, D.C. To learn more, visit sei.acec.org.

Member Firm Leaders Optimistic on Industry, Economy in Inaugural 'ACEC Engineering Business Index'

The nation's engineering firm leaders are upbeat about the direction of both the industry and the overall economy, according to the initial *ACEC Business Engineering Index* (EBI).

The composite EBI score of 67.4 is solidly positive. The EBI is a diffusion index, consolidating answers to a series of questions about market and firm performance into a single number. Any number over 50 indicates expansion. More than 200 firms responded to the quarterly survey, which was conducted from March 27 to April 11.

Two-thirds of survey respondents reported a better economic climate today than six months ago. Nearly six in 10 said their firm's backlog is larger than it was a year ago. Looking ahead, respondents were optimistic about the long-term health of the industry, with more than half expecting their profitability to improve over the next three years.

The next EBI survey will be emailed to Member Firm leaders in mid-June.

New EJCDC Commentaries Now Available

The Engineers Joint Contract Documents Committee (EJCDC) released two new commentaries—one for the construction series of documents (C-001) and one for the engineering series (E-001).

These commentaries are essentially "how-to" publications that explain the purpose of each document and how they interact with one another. The aim of the documents and commentaries is to help illustrate, depict and explain in clear language the nationally accepted, customary divisions of functions and responsibilities in the contracting process.

Every engineer should be thoroughly familiar with the terms of their contracts with clients. It is the source of their rights, duties, privileges and responsibilities during design and construction. It explains what others expect and is determinative of their legal exposure. Few, if any, contract documents are so complete that they do not require clarification for guidance of the parties selected to implement the design concept and carry out the requirements of the contract documents. The commentaries are a valuable tool for such clarification. To access EJCDC documents, go to www.acec.org and click on "Contract Documents" under the Quick Links.

Tools and Publications That Land Development, Site/Civil and Geo-Technical Firms Can Use

The Land Development Coalition (LDC) Business Practices and Procedures Products are member-developed checklists, best practice guidelines and marketing tools aimed at positioning land development and site/civil firms for increased business and profitability.

LDC publications focus on these areas: (1) Marketing & Business Development; (2) Project Management; (3) Financial Management; (4) Risk Management; and (5) Staffing. Each focus area includes worksheets and sample documents for engineers engaged in the practice of land development to use in the daily operation of their firms and/or projects.

LDC has released new publications for the following focus areas:

Focus Area One: Marketing & Business Development

LDC 1C-1: Ethical Cost Proposals for Land Development Services focuses on the ethical issues for providers of professional services to the land development market.

Focus Area Three: Financial Management

LDC 3A-1: Establishing Financial Controls for Successful Development Projects provides A/E firms with best practices for managing a financially successful development project. Focused on four key areas—scope of work, fee structures, project billing, and collections—this new go-to resource for project managers also includes a customizable sample collection, stop work letters and a project setup spreadsheet.

All LDC-developed products are available in the ACEC bookstore at www.acec.org/bookstore.

ACEC's Business Resources and Education Department provides comprehensive and accessible business management education for engineering company principals and their staffs. Visit ACEC's online educational events calendar at **www.acec.org/calendar/index.cfm** or bookstore at **www.acec.org/bookstore**, or call 202-347-7474, ext. 324, for further information.

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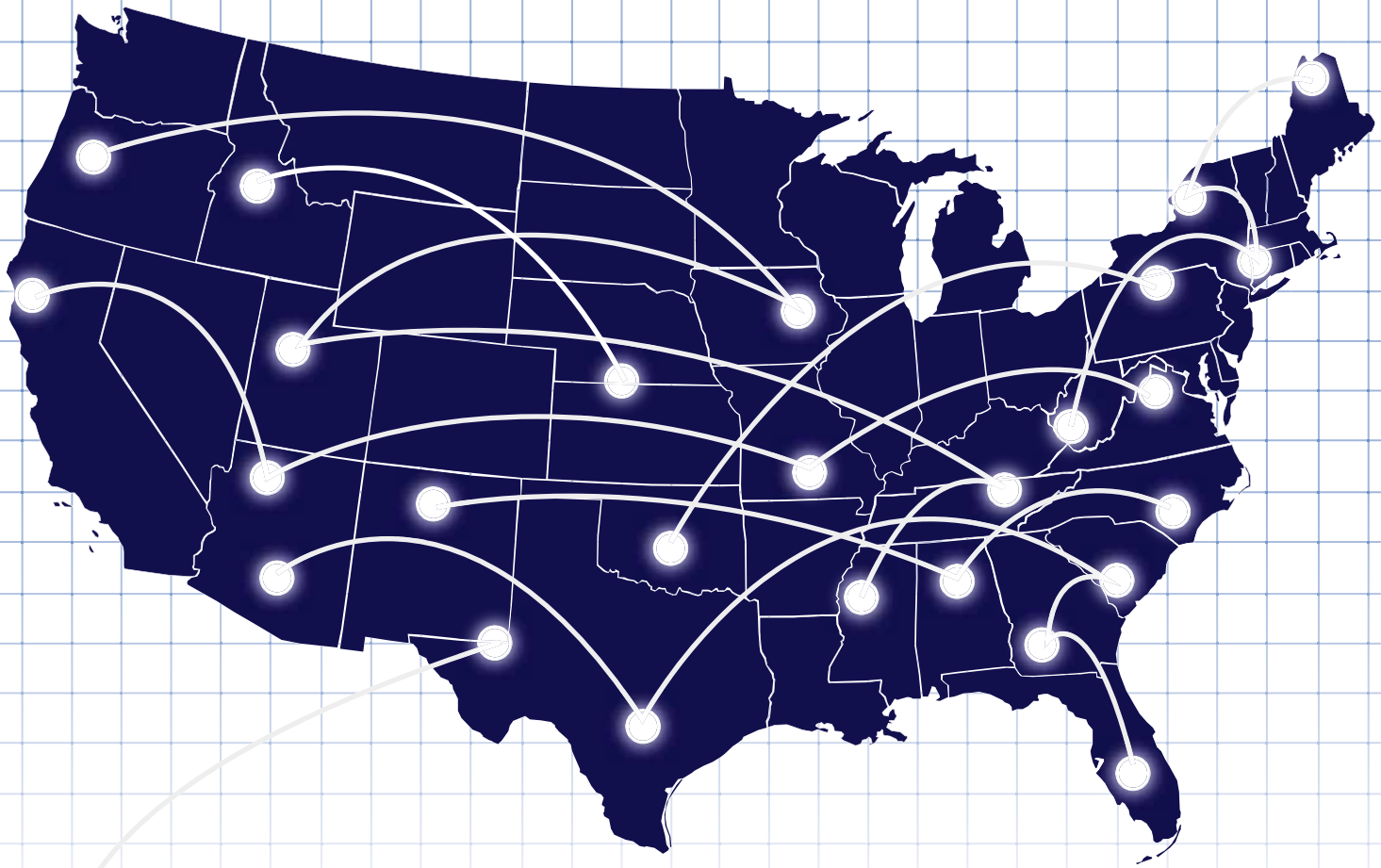

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On The Move

Dilip Choudhuri was appointed president and CEO of Houston-based **Walter P Moore**, effective Jan. 1, 2015, when current chairman, president and CEO Raymond F. Messer retires. Messer, who has served as CEO since 1993, will take on a new role at Walter P Moore, implementing the firm's strategic growth plan.

Donald J. Sipher was appointed president of **Froehling & Robertson, Inc. (F&R),** succeeding Samuel H. Kirby Jr., who retired. Sipher recently served as the firm's COO. He is a past president of the American Council of Engineering Companies of Virginia. Kirby will remain with F&R as president emeritus.

Ralph D. Csogi was named president and CEO of **Greenman-Pedersen, Inc. (GPI)**, in Babylon, N.Y. He succeeds Steve Greenman, who will remain chairman of the firm. Csogi has been with GPI for 30 years and has served as senior vice president of corporate marketing and business development and branch manager in Babylon.

Charles Dalluge joined **DLR Group** in Overland Park, Kan., as president and COO. Dalluge will be based in DLR Group's Phoenix office.

Lisa Glatch joined Englewood, Colo.-based **CH2M HILL** as chief strategic development officer. She previously served as senior vice president of global sales at Jacobs Engineering. **Greg McIntyre** was named president of **CH2M HILL's** Global Water Market, succeeding Bob Bailey, who was named president of CH2M HILL's Facilities and Urban Environments Market. McIntyre most recently served as senior vice president and managing director of international infrastructure, based in London.

Bernard M. Carolan was promoted to CFO of Philadelphia-based **Urban Engineers**. Carolan, who served as the firm's controller for 13 years, will be based in the firm's headquarters.

David Neitz joined Cambridge, Mass.-based **CDM Smith** as CIO. He will be based in the firm's headquarters.

David W. Huchel joined Long Beach, Calif.-based **Moffatt & Nichol** as general counsel. Huchel previously served as vice president and chief counsel for the West Region and North America Water groups at AECOM.

Pamela Townsend joined **Dewberry** as senior vice president and director of southeast strategic planning and growth. Townsend formerly served as senior vice president at AECOM. She will be based in Raleigh, N.C.

Thomas Feldhausen joined Pasadena, Calif.-based **Parsons** as a senior vice president and director of international strategy within its Government Services business unit. Feldhausen, who previously served as director of international operations for Lockheed Martin International, will be based in the Washington, D.C., metro area.

Mauricio Alonso joined **Thornton Tomasetti** as a senior vice president in its Property Loss Consulting practice. Alonso, who will lead the firm's efforts in the Latin American and Caribbean regions, will be based in the firm's Fort Lauderdale, Fla., office.

Dilip Choudhuri

Donald J. Sipher

Ralph D. Csogi

Charles Dalluge

Lisa Glatch

Greg McIntyre

Bernard M. Carolan

David Neitz

David W. Huchel

Pamela Townsend

Thomas Feldhausen

Mauricio Alonso

Members in the News

Welcome New Member Firms

ACEC/Alaska
EEIS Consulting Engineers, Inc., Anchorage

ACEC/California
Belden Consulting Engineers, Dublin
Gray-Bowen, Walnut Creek
JLB Traffic Engineering, Fresno
Precision Engineering and Construction, Belmont
SAGE Engineers, Inc., Granite Bay
UNICO Engineering, Inc., Folsom

ACEC/Colorado
White Sands Water Engineers, Inc., Boulder

ACEC/Florida
BBM Structural Engineers, Longwood
Bridging Solutions, LLC, Naples
C H Perez & Associates Consulting Engineers, Inc., Doral
Devo Engineering Co., Orlando
Fullone Structural Group, Saint Petersburg
Grimail Crawford, Inc., Tampa
Kelly, Collins & Gentry, Inc., Orlando
Mar & Associates, Jacksonville
MBV Engineering, Inc., Vero Beach
Nelson Engineering Co., Merritt Island
NGV, Inc., Miami
Peninsula Engineering, Inc., Orlando
Scheda Ecological Associates, Inc., Tampa
VIBE, Tampa

ACEC/Georgia
C.E.R.M., Atlanta
Chattahoochee Consulting Group, Inc., Doraville
Daniel Consultants, Inc., Atlanta
Infrastructure Consulting & Engineering, Norcross
Jordan & Skala Engineers, Norcross
McFarland-Dyer & Associates, Inc., Suwanee

ACEC/Illinois
Coordinated Construction Project Control Services, Oakbrook Terrace
The Anthem Corporation of America, Inc., McHenry

ACEC/Indiana
Primera Engineers, LTD, Munster

ACEC/Maine
M2 Structural Engineering, P.C., Windham
Walsh Engineering Associates, Inc., Westbrook

ACEC/Maryland
Blake Consulting Services, LLC, Columbia

ACEC/Metro Washington
Summer Consultants, Inc., McLean, Va.
Yoel & Joseph Engineering Consultants, Rockville, Md.

ACEC/Michigan
Geospatial Professionals, Inc., Saint Louis

ACEC/Mississippi
Schultz & Wynne, P.A., Jackson

ACEC/Missouri
Iteris, Inc., Kansas City
Jasun Technologies, LLC, Saint Louis
Malone Finkle Eckhardt & Collins, Inc., Springfield
Mettemeyer Engineering, LLC, Springfield
OBI Consulting Engineers, Inc., Kansas City
Renaissance Infrastructure Consultants, Riverside

ACEC/Nebraska
E & A Consulting Group, Inc., Omaha

ACEC/New Jersey
ACT Engineers, Inc., Robbinsville
Burns Engineering, Inc., Iselin

ACEC/New Mexico
Applied Technology Associates, Albuquerque
Cheney-Walters-Echols, Inc., Farmington
Griffith Engineering Services, LLC, Albuquerque
Thompson Engineering & Production Corp./dba/ Walsh Eng., Farmington

ACEC/New York
Distinct Engineering Solutions, Inc., New York City
IH Engineers, P.C., Staten Island

ACEC/Ohio
Fosdick & Hilmer, Inc., Cincinnati

ACEC/Oregon
Compass Land Surveyors, Milwaukie
Froelich Consulting Engineers, Inc., Portland
JAS Engineering, Inc., Oregon City
Project Delivery Group, LLC, Salem

ACEC/Tennessee
Energy Land & Infrastructure (ELI), Nashville
LG Environmental Engineering, Nashville

ACEC/Texas
Curtain Wall Design & Consulting, Inc. (CDC), Dallas
Engineering Alliance, Inc., Sugar Land
Frank W. Neal & Associates, Inc., Fort Worth
Frayre Engineering & Consulting, PLLC, Houston
GRV Integrated Engineering Solutions, LLC, El Paso
HT&J, LLC, Sugar Land
James F. Turner Engineers, LP, Dallas
Landev Engineers, Inc., Houston
Unified Building Sciences & Engineering, Inc., Richardson
Vic Thompson Company, Arlington

ACEC/Utah
Spectrum Engineers, Salt Lake City

ACEC/Virginia
William P. Johnson II, PE, PC, Fincastle

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Calendar of Educational Programs

JUNE

10 How to Give and Receive Effective Feedback—Improving Your Mental Flexibility or Change Your Thinking About the Way You Think—Spring 2014 (webinar)

12 Present with More Power and Less PowerPoint: How to Grow Your Influence and Your Business (webinar)

17 Positioning to Win: Taking QBS to the Next Level (webinar)

18 Writing Proposal Sections (webinar)

19 Industry Economic Update (webinar)

23-24 Mysteries of the FAR Revealed: Using the AASHTO Audit Guide One, Washington, D.C.

24 Dare to Be Different! Developing a Differentiation Strategy: The Key to Your Competitive Advantage (webinar)

25 Strategies for Managing Interruptions: Getting Work Done in an Interrupted World (webinar)

25-26 Mysteries of the FAR Revealed: Using the AASHTO Audit Guide Two, Washington, D.C.

26 The 35th Annual Deltek Clarity A&E Industry Study (webinar)

JULY

10 If You Haven't Planned It, You Can't Control It—2014 (webinar)

15 Defining a Winning Social Media Channel Strategy (webinar)

16 So What if You Stamp or Sign it? The Meaning of Using Your Professional Seal (webinar)

23 Creating a Social Media Policy (webinar)

24 Getting Out? Know Your Options (webinar)

30 Business Continuity Planning for Severe Weather and the Impact on Engineering Firms. Preparing for the Unexpected. (webinar)

AUGUST

12 Are You Fighting Fires Instead of Managing Your Employees?—Summer 2014 (webinar)

20 Ten Keys to Business Continuity Planning (webinar)

27 Mergers & Acquisitions 2.0 (webinar)

SEPTEMBER

9 Writing and Editing for Readable Proposals (webinar)

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Additional information on all ACEC activities is available at www.acec.org.

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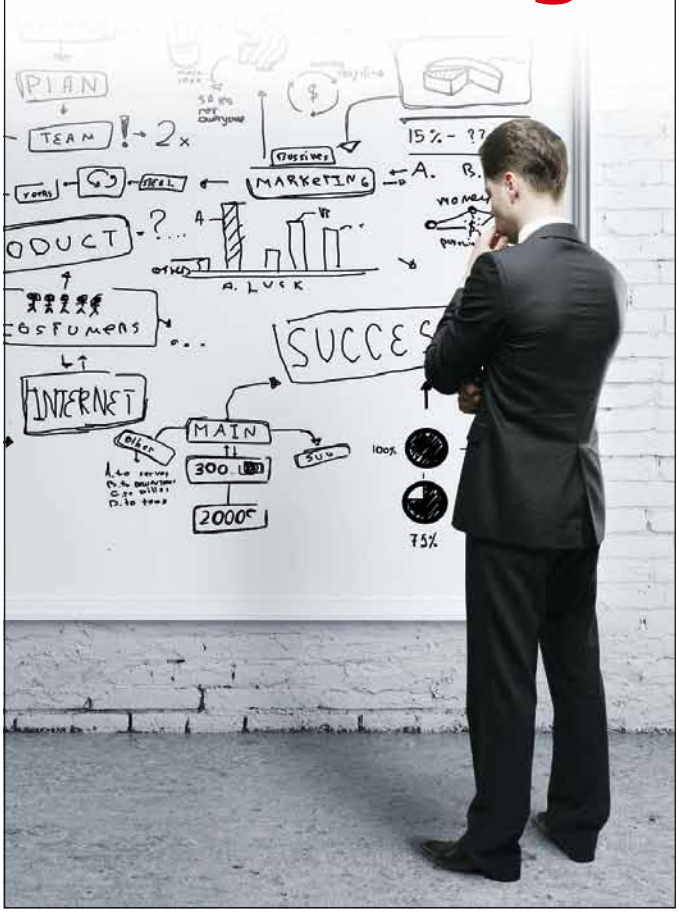


BY NEIL CHURMAN

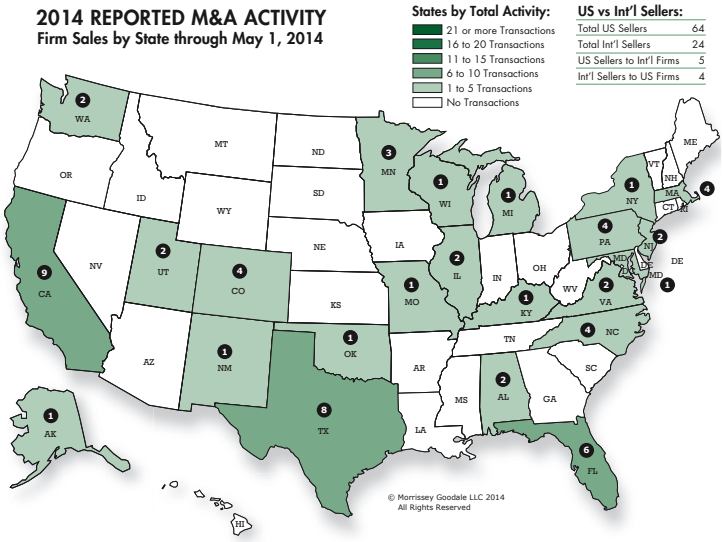
Southeast Becoming Hotbed For Industry Mergers and Acquisitions

More than 50 industry decision-makers recently gathered at Morrissey Goodale's Southeastern States M&A Seminar in sunny Miami. The event focused exclusively on industry mergers and acquisitions activity in Florida, Georgia, North Carolina, South Carolina, Mississippi, Alabama and Tennessee.

The takeaway? Interest in the Southeast is rapidly growing among industry dealmakers. Here's why:

- **The region's population continues to swell.** Three Southeastern states were among the top 10 in net population migration in 2013. Florida led the way with more than 200,000 people moving to the Sunshine State last year, placing it first among U.S. states. Population growth is driving the need for new construction and renovation of public infrastructure.
- **Regional job creation is kicking into gear.** When you hear "We're moving to Florida," you might picture Jerry Seinfeld's parents—snowbirds from the Northeast looking to leave their winter coats behind and retire in a warmer climate. The Southeast's latest surge in population, however, has been by driven by people flocking to new jobs throughout the region. Florida, Georgia, North Carolina and South Carolina are all projected to create new jobs faster than the national average, combining for more than 380,000 new jobs in 2014, according to *Moody's*. Much of the job growth is anticipated in the industrial sector, which will lead to a need for new facilities.
- **Ports are taking center stage.** The expansion of the Panama Canal is expected to shift the competitive landscape of U.S. ports, with multiple U.S. cargo hubs jockeying for more activity driven by the anticipated capacity increases to the canal. Ports in Charleston, S.C.; Savannah, Ga.; Jacksonville, Fla.; and Miami are all expanding to accommodate larger ships that can carry more goods. The ports themselves and their associated infrastructure needs have industry firms eyeing the region as a long-term M&A player.

2014 REPORTED M&A ACTIVITY
Firm Sales by State through May 1, 2014



We're anticipating an increase in deal activity in the Southeast as industry firms look to position themselves in a region on the rise. We saw the number of industry deals in the Southeast increase by more than 30 percent from 2012 to 2013. Through Q1 2014, we've already observed 11 deals in the region, putting this year on a trajectory to surpass the 34 regional deals in 2013.

Recent ACEC Deal-Makers

APRIL

ACEC Member **Professional Service Industries** (Oakbrook Terrace, Ill.) acquired **Midwest Engineering Services** (Waukesha, Wis.), a full-service engineering testing, inspection and consulting firm with five locations in Wisconsin.

ACEC Member **Parsons** (Pasadena, Calif.) acquired **Delcan** (Markham, Canada), an engineering, planning, management and technology services firm serving the transportation market.

MARCH

ACEC Member **Littlejohn Engineering Associates** (Nashville, Tenn.) acquired the assets of the Huntsville, Ala., office of ACEC Member **ICA Engineering** (Brentwood, Tenn.).

ACEC Member **Fay, Spofford & Thorndike** (Burlington, Mass.) acquired ACEC Member **Norfolk Ram Group** (Plymouth, Mass.), an environmental engineering, consulting and project management firm.

FEBRUARY

ACEC Member **Stantec** (Edmonton, Canada) signed a letter of intent to acquire **Processes Unlimited International** (Bakersfield, Calif.), a multidisciplinary engineering, project management and design firm.

ACEC Member **Mead & Hunt** (Madison, Wis.) acquired **H_2O in Motion** (Marquette, Mich.), a specialist in water and wastewater treatment focusing on facilities for municipal, industrial and mining clients.

To view the most up-to-date and "live" versions of the M&A heat maps accompanying this article and the buyers and sellers in each state, go to www.morrisseygoodale.com.

Watch the *M&A Takeaway* video that accompanies this article, presented by Mick Morrissey, at www.morrisseygoodale.com/ACECMergers/MayJune2014.

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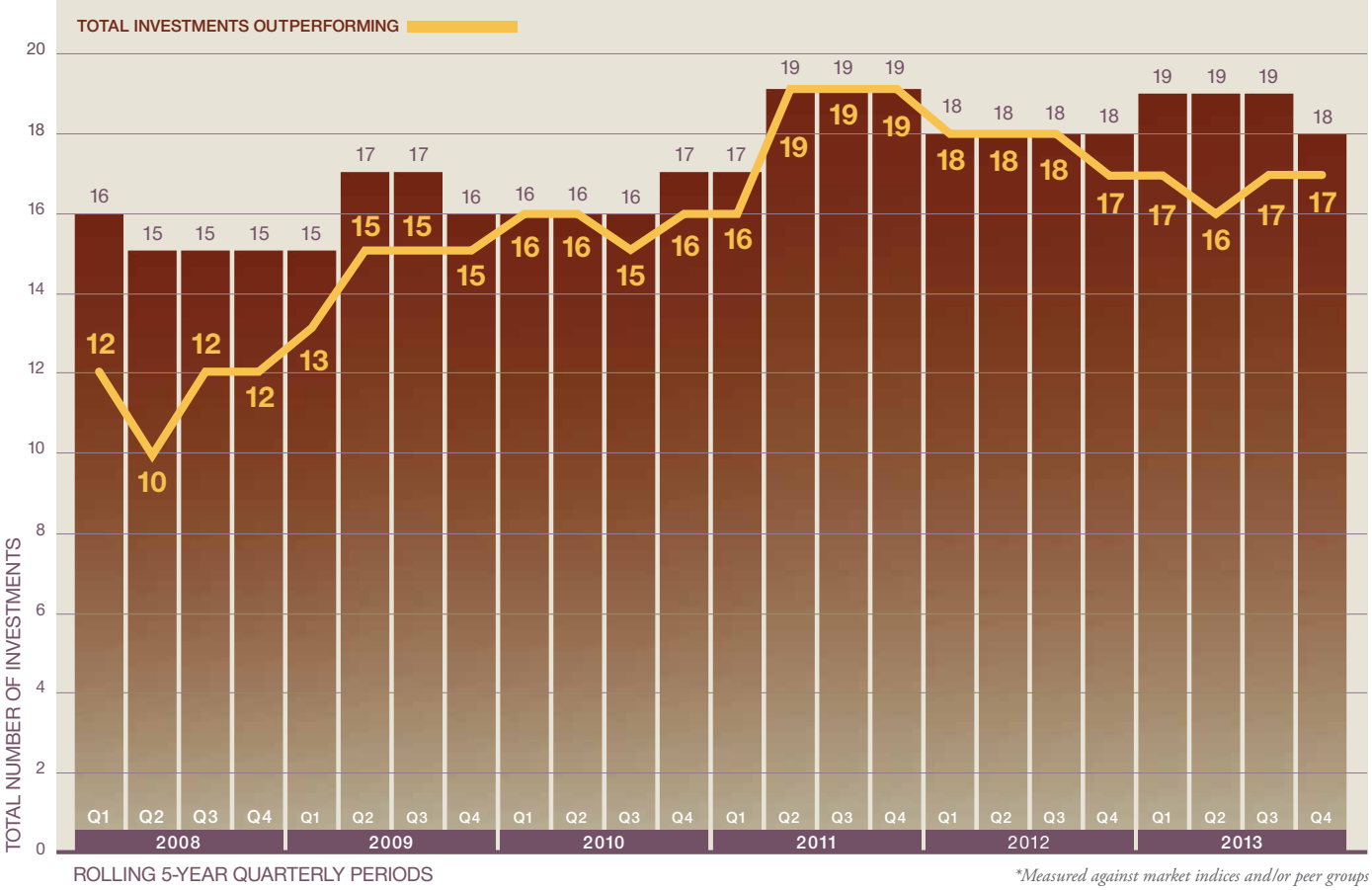

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*The ACEC Life/Health Trust offers 35 medical plan design options for groups with 2-50 eligible employees; and it offers 85 medical plan design options for groups with 51 or more employees.

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***Network statistic based on GeoAccess information and UnitedHealthcare standard network access mileage criteria, 2013.

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