SEPTEMBER/OCTOBER 2013

ENGINEERING INC.

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AWARD-WINNING BUSINESS MAGAZINE

CIL OF ENGINEERING COMPANIES

House Transportation & Infrastructure Chairman

Bill Shuster

Tackles Nation's Long-Term Infrastructure Funding Dilemma

>> Risks/Rewards Of ESOPs

>> Health Care Construction Surging

>> PPPs Growing In Global Prominence

>> Study Shows Midsize Firms Not Endangered

ACEC
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100 Years of Excellence

ENGINEERING INC.
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JAMES KEGLEY

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COVER PHOTO: JAMES KEGLEY

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Engineering Inc. promotes the advocacy and business interests of ACEC by offering news, legislative analysis and business practice information to member firms, clients, opinion leaders and policy makers.

From ACEC to You

Council Responds to Misguided QBS Commentary

The Council was duty-bound to respond to a recently published commentary that attempted to make the case that *QBS Is Killing Our Industry*.

In the July issue of PSMJ's newsletter, industry columnist Dave Burstein suggested that qualifications-based selection (QBS) should be abandoned because it is not profitable. He cited lower profit margins in government transportation work and higher margins in private industrial sectors.

The Council's response, to be published in the September issue of the same newsletter, points out that relatively low profitability in the transportation sector over the past decade tracks flat overall public investment in transportation. Even if QBS were repealed tomorrow, state DOTs would continue to face budgetary pressures—and squeeze firms accordingly. In many city and county projects not governed by QBS, profitability is even lower. Moreover, QBS represents good public policy because it protects the public's health and safety. That's why it has been used at the federal level since 1972 and why virtually every state has adopted the model.

In the industrial sector, many successful clients are handling procurement using principles of QBS (if not the formal methodology).

Cost is, of course, a factor in QBS. But cost is where it should be, on the back end of the process, after project scope and performance metrics have been established. If you flip this process and put cost on the front end, price will quickly become the dominant selection factor and design firms would be pressured to craft bids that sacrifice innovation and the use of experienced staff to win price competitions. Client agencies, for their part, would have to relearn the hard lessons of being penny-wise and pound-foolish when selecting A/E firms for public works.

This issue of *Engineering Inc.* features an exclusive interview with Congressman Bill Shuster (*see page 10*), the results of an important industry growth study (*see page 38*), and other highly informative articles.

Our Fall Conference is set for Oct. 27–30 in Scottsdale, Ariz. Among this year's keynote speakers, Federal Highways Administrator Victor Mendez and former Indiana Gov. Mitch Daniels. See you there! *(See page 34.)*

Gregs G. Thomopulos
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House and Senate Fail To Pass Transportation Spending Bills for 2014

Neither the House nor the Senate could muster enough votes to pass their respective spending bills for the Departments of Transportation and Housing & Urban Development for F.Y. 2014 due to differences in overall spending totals and how to allocate limited funding.

House lawmakers are working from a budget blueprint for F.Y. 2014 that caps all discretionary spending at $967 billion, an 8 percent reduction, as set in the 2011 budget deal. However, the House budget redirects the majority of cuts to domestic accounts and protects funding for defense, homeland security and veterans' programs. As a result, individual domestic spending bills are subject to significant cuts. The House bill would have reduced transportation and housing programs by $4.4 billion below current funding levels.

Democrats in the House unanimously opposed the bill because of its cuts to TIGER multimodal grants, Amtrak and passenger rail programs, and Community Development Block Grants, among other items. House Republicans could not get enough support from within their ranks to pass the bill, so it was pulled from the floor.

Reacting to the failure to pass the bill in the House, House Appropriations Committee Chairman Hal Rogers (R-Ky.) demanded an end to the deep cuts to discretionary spending imposed by sequestration, calling it "unrealistic and ill-conceived."

By contrast, the Senate budget plan assumes that the spending caps/sequestration will be eliminated or replaced with a broader budget deal. Senate lawmakers are working under a $1.058 trillion spending cap for F.Y. 2014. The Senate transportation-housing bill totaled nearly $10 billion more than the House version.

Senate Republicans opposed the bill because it violated the budget caps put in place in the 2011 deal. A procedural vote to shut off debate failed to garner 60 votes. The final tally was 54-43.

Both bills would have fully funded MAP-21, an ACEC priority. Since most of the highway and transit programs are funded through the Highway Trust Fund, they are not subject to the same budget caps as discretionary accounts from the General Fund.

The next fiscal year begins on Oct. 1. A continuing resolution will be necessary to keep federal programs operating beyond Sept. 30.

President Offers 'Grand Bargain' on Tax Reform and Infrastructure

President Obama delivered a series of speeches prior to the August congressional recess advocating the use of new revenues generated from tax reform for investments in infrastructure and other domestic priorities.

The speeches were intended to refocus the administration's efforts on jobs and the economy. At an event in Chattanooga, Tenn., the president presented a "grand bargain" that would lower corporate rates to 28 percent, close loopholes to raise revenues and use those revenues to fund infrastructure projects, as well as programs to promote manufacturing and education.

"While it's an open question whether the president's proposal will pass political muster on Capitol Hill, it does publicly acknowledge something that ACEC and others have been saying for months, which is that tax reform could be a viable vehicle for raising revenues for infrastructure," said ACEC President Dave Raymond.

ACEC and a coalition of groups continue to press House and Senate offices on the need to raise new revenues to pay for an expanded highway and transit program to replace MAP-21 next year. Lawmakers in both parties have acknowledged that a larger tax bill might provide an opportunity to do so, although significant differences remain on whether a tax reform bill should net new revenue.

MANDEL NGAN/GETTY IMAGES

House Continues Work On Immigration Reform

The House Judiciary Committee approved four bills that address separate pieces of the immigration reform debate, including additional visas for engineering and other STEM fields and a requirement that employers electronically screen new employees.

The SKILLS Visa Act (H.R. 2131) would increase the H-1B visa cap from 65,000 to 155,000, with an additional 40,000 visas reserved for advanced degree holders in science, technology, engineering and math (STEM) fields. In addition, the legislation would allocate up to 55,000 green cards a year for employer-sponsored STEM graduates.

HANNAH FOSLIEN/AP PHOTO

House Ways and Means Committee Chairman Dave Camp (R-Mich.) (right) and Senate Finance Committee Chairman Max Baucus (D-Mont.) (left).

ACEC Weighs In as Tax Reform Effort Moves Forward

House Ways and Means Committee Chairman Dave Camp (R-Mich.) and Senate Finance Committee Chairman Max Baucus (D-Mont.) have indicated that they intend to move tax reform legislation through their respective committees this fall. ACEC continues to outline its priorities for tax reform to lawmakers, including treating C corporations and pass-through businesses—such as S corporations and partnerships—equally, preserving cash accounting, and using the tax reform effort to address the nation's infrastructure funding needs.

Baucus and Camp spent the summer visiting employers to hear about their tax reform concerns. They have also held bipartisan meetings with their colleagues to discuss priorities for the legislation.

The lawmakers have both committed to comprehensive tax reform that considers the concerns of C corporations and pass-through businesses. In addition, Camp has released several pieces of draft legislation, including language on small businesses and pass-through entities. ACEC submitted tax reform principles to the House and the Senate, as well as comments on Camp's small business and pass-through entities draft.

A major point of contention between congressional Republicans and Democrats is whether the legislation should be revenue-neutral or raise revenue. Both sides agree that tax reform could move forward in connection with a larger agreement on the budget or raising the debt ceiling.

ACEC strongly supports H.R. 2131, as well as the H-1B visa provisions in the immigration reform bill approved by the Senate in June.

The Legal Workforce Act (H.R. 1772) would make the E-verify system for checking the legal status of new hires mandatory. H.R. 1772 would preempt state laws in this area and would protect employers from liability over hiring decisions if they can show they used the system in good faith.

House Speaker John Boehner (R-Ohio) has yet to decide whether the House will vote on a comprehensive immigration reform package or consider the bills one by one. A path to citizenship for undocumented people in the United States remains a significant point of disagreement.

ISSUES ON THE MOVE	WHAT'S NEXT
Funding for transportation, Corps energy programs	Passage of "continuing resolution" expected before end of September
Immigration reform	House action in the fall
Tax reform	Possible action as part of larger budget, debt ceiling agreement

House Approves Significant Cuts to Energy, Corps of Engineers

The House has approved a $30.4 billion appropriations bill that cuts funding for critical programs in the Department of Energy and the U.S. Army Corps of Engineers.

The Corps of Engineers Civil Works program was funded at $4.9 billion, $104 million less than F.Y. 2013. The construction account is funded at $1.343 billion, down $331 million from last year. The bill includes $2.7 billion for the operation and maintenance of existing river, harbor, storm damage and ecosystem projects. The measure prohibits the Corps from revising regulations on the discharge of fill material and the federal definition of water under the jurisdiction of the Clean Water Act.

The measure includes $5.5 billion for the Department of Energy Environmental Management program, which is $243 million below the level enacted for F.Y. 2013. The bill combines renewable-energy and electricity delivery programs into one account and cuts funding to $958 million, a 50 percent reduction from F.Y. 2013 levels.

Said House Energy and Water Subcommittee Chairman Rodney Frelinghuysen (R-N.J.): "The budget allocation we received this year made for some very difficult decisions, but in our bipartisan tradition we worked hard to incorporate priorities and perspectives from both sides of the aisle. The bill places the highest priority on national defense, Army Corps of Engineers and other activities on which the federal government must take the lead. It recognizes our fiscal realities and makes the tough decisions to ensure we get our spending under control without sacrificing our most critical of federal functions."

ACEC is working to restore the funding in the upcoming Senate bill.

For More News

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

WHERE HAVE ALL THE ENGINEERS GONE?

A Look at the U.S. Engineering Labor Market

At ExactSource, our clients ask us this question about recruiting engineering talent all the time: "Where Have All the Engineers Gone?" The answer relates back to the first law of Supply and Demand; *If demand increases and supply remains unchanged, a shortage occurs.*

This reality is one of the major issues facing the engineering industry today - a market growing faster than the talent pool can support. In turn, companies are finding it increasingly difficult to find qualified engineers that can manage projects, lead teams, and win work.

The Lack of Supply

The tech boom in the late 1990's is partly to blame for the current absence of talent, as people who might have become engineers pursued a career in IT instead.

Precipitating the already staggering lack of engineers is the low number of engineering graduates on an annual basis in the United States. According to the National Science Foundation, only 4.5% of all undergraduates leave school with a degree in Engineering.

The most recent census data supports the supply is anticipated to get worse. A vast majority of engineers in the current workforce are Baby Boomers, and while retirement for many has been delayed by recent economics, America's largest generation and majority of the workforce will retire within the next fifteen years.

According to a recent survey of 200 engineering firms, 74% of employers accounted "a lack of qualified candidates" as their biggest hiring challenge over "specialized job requirements" and "non-competitive salaries".

The issue of supply isn't just at the top; the shortage of talent affects mid-level and staff-level roles as well. For example, CAD designers have become one of the most highly sought after talent pools in the country.

The Demand

Hiring demand for civil engineers has been growing steadily. Over the past 90 days, there were more than 33,000 jobs advertised online for civil

engineers, a 9% increase compared to the same 90-day period in 2012, according to a report by Wanted Analytics. January 2013 saw a new high in engineering opportunities overall, with more than 280,000 open positions.

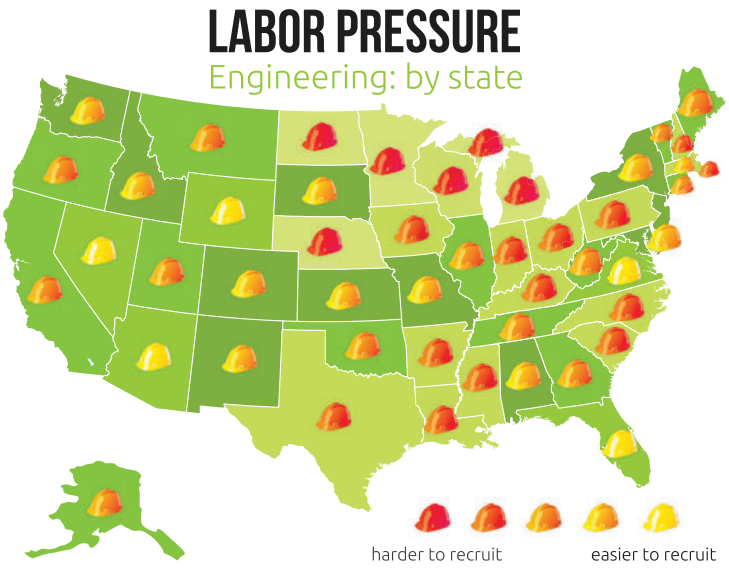
The metro areas with the most demand in the U.S. currently are Washington (DC), Houston, New York, Baltimore, and Detroit. Since last year, Los Angeles and San Francisco have dropped from this Top 5 list and were replaced by Baltimore and Detroit.

According to a recent survey of 200 engineering firms, 74% of employers accounted "a lack of qualified candidates" as their biggest hiring challenge over "specialized job requirements" and "non-competitive salaries".

The Backlash

Compensation Increases: Hinged to the laws of supply and demand - the shortage of engineers is likely contributing to significant compensation increases in the sector. In a study released by the National Association of Colleges and Employers, seven of the top ten highest-paid college degrees are in engineering. This is corroborated by staggering salaries seen in the market, especially in the Shale Gas market. A recent CNNMoney article cited: "salaries can reach as high as $200,000 to $350,000 for engineering professionals in senior, but not executive, managerial roles."

Based upon a 2013 survey released by Monster, only 39% of employers hiring engineers are confident in the ability to hire the talent they need.



Slowed Growth: Based upon a 2013 survey released by Monster, only 39% of employers hiring engineers are confident in the ability to hire the talent they need. The severe shortage and competitive dynamics may also slow economic growth as some companies delay big projects due to a lack of skilled workers.

Recruiting Engineers

By State: Depending on the type and location of recruitment, attracting qualified talent can range from difficult to almost impossible. From a talent pool perspective, those openings in states like Florida, Virginia, and Washington are easiest to recruit. Currently, the most difficult states to recruit engineers include Texas, North Dakota, Minnesota, California and Pennsylvania.

By Discipline: If you are looking for the following types of engineers, you're in good company. These are the most highly sought after disciplines across the country right now:

1. Industrial
2. Electrical
3. Mechanical
4. Oil / Gas

If any of these high-demand engineers are what you're looking for, there are candidates out there - you just need to know where to look. The following areas have the highest candidate supply for the most sought after disciplines:
Industrial: Detroit-Warren-Livonia, MI
Electrical: Los Angeles-Long Beach-Santa Ana, CA
Mechanical: New York-Northern New Jersey-Long Island, NY
Oil / Gas: Kansas City, MO- Chicago, IL-Dallas, TX

By Experience: According to CNNMoney, the most difficult engineers to recruit currently are ones with five to fifteen years of experience. The search for these engineers in 2013 has increased 13% since January of 2012.

Struggling with recruiting engineering talent at your firm?

ExactSource is a national leader in the delivery of talent solutions to A/E firms, bringing a revolutionary approach to support talent sourcing at every level.

We know architecture and engineering, and our process is based upon understanding industry needs and creating focused and targeted programs to assist A/E organizations in building exceptional talent.

BY GERRY DONOHUE

Population Demand Drives Surge in Health Care Construction

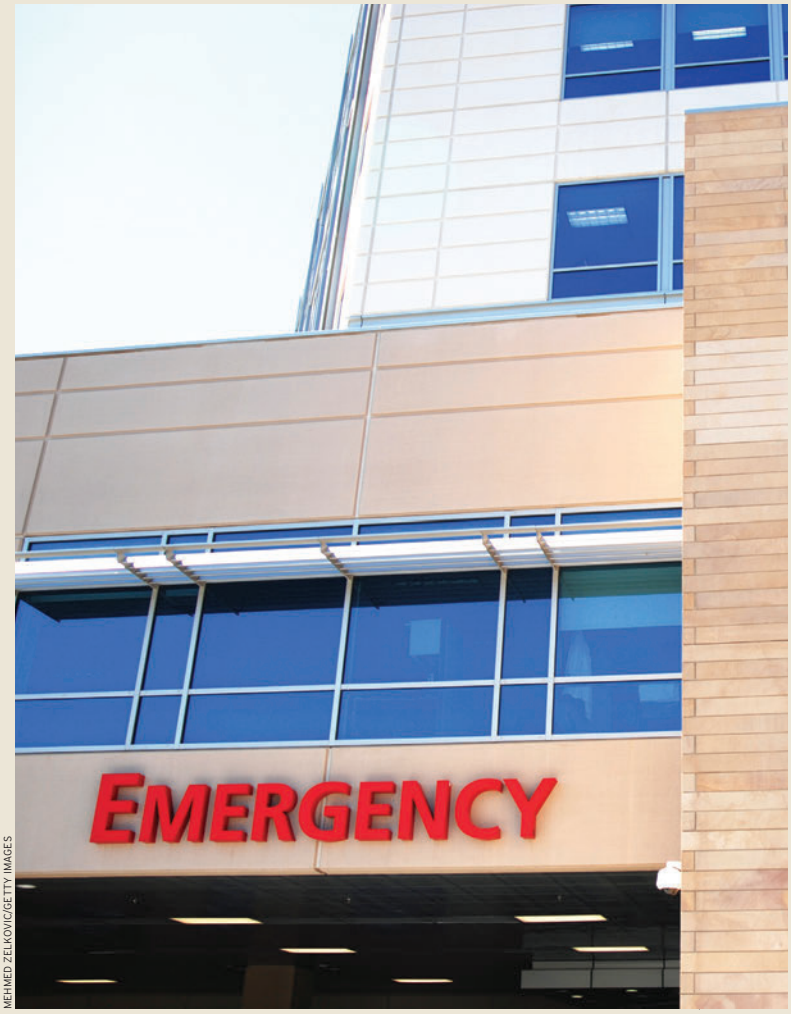
The $44 billion health care construction market is primed to bust out of its four-year slump. After shrinking by more than 15 percent between 2009 and 2011—and rising marginally in 2012—the health care market sector will grow at a 9 percent annual rate over the next five years, according to management consulting firm FMI Corp.

Beginning in 2008, the health care construction market absorbed two heavy blows in quick succession. First, the global economic implosion dried up the bond market, which hospitals have historically used to fund long-term capital projects. Second, uncertainty around the legitimacy and implementation of the Affordable Health Care Act paralyzed the health care industry.

"The market came to a screeching halt," says Clay Seckman, executive vice president at Smith Seckman Reid, Inc., in Nashville, Tenn. "But the drivers behind the market kept going."

Demographics are the biggest driver. The United States has the highest population growth rate among industrialized nations, adding about 2.5 million people each year. Additionally, that population is aging, requiring more health care. Finally, in 2014, the Affordable Care Health Act will pull 32 million previously uninsured Americans into the market. The pent-up demand is intense.

The other prime driver is the widening gap between health care costs and the reimbursement rates offered by Medicare and private insurers. This relentless top-line pressure is forcing health care providers to change how they deliver patient services, abandoning traditional methodologies in search of cost efficiencies.



MEHMED ZELKOVIC/GETTY IMAGES

Structural Changes

One of the longest-standing traditions in health care is the big central hospital. While these facilities remain the fulcrum of the industry, FMI reports that the number of hospital beds per 1,000 Americans is declining.

Rather than build new hospitals, many large regional health care providers are acquiring existing ones.

"This industry consolidation is happening so fast that I wouldn't be surprised if all hospitals in North Carolina are part of just six or eight health systems within a couple of years," says Dan Koenigshofer, vice president for healthcare at Dewberry in Chapel Hill, N.C. "The big health care systems are becoming like the feudal kingdoms in medieval Europe."

Many of these acquired hospitals are older. As a result, to compete for patient dollars, health care providers are investing in modernization.

"Renovation is the biggest piece of the market right now," says Dave Smith, national director of health care at KJWW in Madison, Wis. "Health care is a tremendously competitive market, and the overall atmosphere of the building plays into the patient decision. Providers are looking for ways to improve the experience, such as improving the acoustics or switching to more single-bed patient rooms."

Most new health care design and construction is focused on smaller, more cost-effective facilities, such as standalone outpatient clinics and acute care centers. According to research from the American Academy of Urgent Care Medicine, between 700 and 800 new clinics open each year. "These facilities are a lot cheaper to operate, and providers get a bigger profit margin than they can get in a hospital," explains Smith. Koenigshofer stresses that these facilities aren't the suburban medical office buildings of previous decades. "Providers are finally coming around to acknowledge that they need

more than just an ambulatory health care facility," he says. "These buildings need to be more robust, built to higher standards and subject to more stringent regulations."

Technological Advances

Technology is another critical driver in the health care modernization boom.

"Ten to 15 years ago, 1 percent to 3 percent of the budget was spent on information systems," says Seckman. "Now it's 6, 8 or even 10 percent."

Smith says KJWW "has a dedicated technology group that keeps track of the newest trends and the integration of medical systems. We also have a medical equipment planning group that works with the client on equipment specification and procurement," he says.

Health care providers are also demanding technological improvements to the physical plant. "The way we've designed HVAC systems just won't work anymore in terms of efficiency," says Seckman. "Hospitals used to employ one full-time engineer for every 10,000 to 15,000 square feet; now it's one for every 30,000 to 40,000 square feet. We need to design systems that require significantly less maintenance."

Business Challenges

Business pressures on engineering firms are intensifying. "There's tremendous pressure on fees," says Seckman. "When the market melted down, firms went into survival mode and cut their fees. Now owners think that's the level of fees forever and ever."

Total Construction Put in Place in Health Care Sector

YEAR	MILLIONS OF CURRENT DOLLARS	PERCENTAGE CHANGE FROM PRIOR YEAR
2008	46,902	7%
2009	44,845	-4%
2010	39,344	-12%
2011	39,713	1%
2012	41,100	3%
2013	44,248 (projected)	8%
2014	47,732 (projected)	8%
2015	52,525 (projected)	10%
2016	58,026 (projected)	10%
2017	63,271 (projected)	9%

Source: FMI Corp.

Competition among firms so far is keeping fees down. "When a North Carolina hospital sends out an RFP, we see firms coming in from all over the country," says Koenigshofer.

"The challenge for firms is the same as for our clients," says Seckman. "How can we provide better outcomes and better quality services at a lower cost?"

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

Problem Solver

Congressman Bill Shuster seeks long-term solutions for pressing infrastructure challenges

As the new chairman of the House Transportation and Infrastructure Committee, Rep. Bill Shuster (R-Pa.) is responsible for securing important funding for all modes of transportation: aviation, maritime and waterborne, roads, mass transit and railroads. Shuster has served on the Transportation and Infrastructure Committee since being elected to Congress in 2001 after his father, Congressman Bud Shuster, retired. In this exclusive interview with *Engineering Inc.*, Shuster discusses his bid to secure long-term, sustainable financing solutions for highways and the nation's water infrastructure. >>

JAMES KEGLEY

ACEC: MAP-21 contains some very aggressive project delivery reforms, particularly with respect to environmental and other regulatory reviews as well as a transition to performance-based programming and accountability. Based on your committee's oversight, how is MAP-21 implementation going so far? Have you identified any concerns that need to be addressed?

Congressman Bill Shuster: MAP-21 included many necessary and overdue reforms of surface transportation programs. For example, the law consolidated or eliminated over 70 duplicative federal programs. These changes provide greater focus on the core national systems and give states greater flexibility to meet their transportation needs. MAP-21 also made major reforms and improvements to the project delivery process. It is unacceptable that it currently can take almost 14 years for a transportation project to be completed if federal funding is involved. MAP-21 reforms were intended to cut bureaucratic red tape and quickly deliver economic and safety benefits. MAP-21 also started the process of holding states and transit agencies accountable for their funding decisions, and new performance measures will help states and transit agencies focus their limited federal resources where they will see the greatest benefits.

The Department of Transportation has met some of the required steps in MAP-21's reform provisions, but not others. The committee will continue to closely oversee the department to ensure they make progress on implementing these key reforms so that projects can move forward more efficiently and that resources are being put to best use.

"As this Congress progresses, we will continue to look at a variety of public and private financing tools for financing our infrastructure needs."

ACEC: Transportation-related revenues into the Highway Trust Fund aren't keeping pace with spending levels or funding needs. You've repeatedly stated that all options have to be on the table for a long-term, sustainable financing solution. What are the prospects for the House, Senate and the administration to reach consensus on this issue before MAP-21 funding expires in September 2014? Do you see this happening as part of a reauthorization bill or as an element of a larger agreement on a tax/budget deal?

Shuster: Developing the next surface transportation bill is one of my highest priorities as chairman. If we don't address these issues, we risk reaching a point where our transportation system may not recover, and we'll fall behind the rest of the world. Tax revenues for the Highway Trust Fund fall within the jurisdiction of the House Ways and Means Committee. The transportation committee will continue to work with Ways and Means, others in Congress and stakeholders to explore options for providing long-term stability for the Highway Trust Fund in the context of today's challenging fiscal realities.

ACEC: On a related note, some recent polling indicates that a majority of the public has not yet embraced higher user fees, even if they would be dedicated to transportation infrastructure projects. What can ACEC and its members do to help educate the public on the importance and value of these improvements to their communities and the nation?

Shuster: I believe the American people understand the importance of transportation, although they may not always be aware of all the ways it affects our daily lives. Transportation is about how we get to work, get our children to school, get to the store to buy food and clothing, and how we visit our families and friends. Transportation is also the backbone of our economy. An efficient national transportation network allows businesses to lower transportation costs, which in turn lowers production costs and ultimately product costs to us all as consumers. It allows American businesses to be competitive in the global marketplace and for our economy to prosper and grow.

Grassroots education and engagement is essential to ensuring all of these benefits are clearly understood by everyone. ACEC and other stakeholders can help in this effort. Regardless of the amount of resources that will be devoted to infrastructure as we move forward, it is imperative that those resources be invested as wisely as possible and for maximum benefit. The public, as well as our political leaders, need to continue hearing about why transportation infrastructure is so critical and why we must continue to reform transportation programs to make them work more effectively.

Rep. Bill Shuster (R-Pa.) (right) talks infrastructure funding wth ACEC President Dave Raymond on Capitol Hill.

The nation's fiscal issues present many challenges and some difficult choices, but the consequences of inaction are dire. By strengthening our infrastructure, we can ensure Americans' quality of life and facilitate economic growth for years to come.

ACEC: Federal passenger rail programs, including Amtrak and high-speed rail grants, are up for reauthorization this year. What is your vision for these programs? What are the best strategies for advancing a national high-speed rail network or regional networks?

Shuster: I have recently traveled across this country and have seen the need to fix our nation's ports, bridges, tunnels and rails so

JAMES KEGLEY

we can have a more efficient and reliable transportation network in the future. However, we must recognize that we do not have unlimited funds, and we need to focus on what makes sense and prioritize investment in infrastructure.

Intercity passenger rail plays an important role in our nation's transportation network, connecting major metropolitan areas and cities. The Northeast corridor, for example, is where passenger rail makes the most sense and has the greatest potential, given the population density, economic vitality, and heavily congested roadways and airspace of the region. In the past, there have been hearings on the prospect of high-speed rail in the Northeast corridor, but both Amtrak and the Northeast Corridor Commission have stated that we need to focus on the state of good repair of the existing infrastructure. High-speed rail, while great in theory, is not currently realistic in the near term given the immediate need for state of good repair improvements.

In developing a rail reauthorization proposal, we must explore all opportunities for more cost-effective and innovative approaches to improve passenger rail service, increase competition and leverage private-sector investment.

ACEC: A major focus for your committee this year will be the passage of the Water Resources Development Act (WRDA) to authorize new U.S. Army Corps of Engineers water projects. What objectives are you seeking to accomplish in crafting a WRDA bill?

Shuster: The House WRDA will provide critical policy direction to the Army Corps of Engineers and the administration. The bill will be reform-heavy, will be debt and deficit neutral, and will maintain constitutional congressional authority without containing earmarks.

Helping to maintain an infrastructure that connects American consumers, manufacturers and farmers to domestic and world markets has always been a key federal responsibility. The Constitution clearly tasks our country's government with facilitating the free flow of commerce throughout our nation. Some of the very first acts of Congress were authorizing navigation improvements at our burgeoning country's harbors. While America's water transportation system has been admired all over the world, like much of our infrastructure, our ports and waterways were built for the economies of previous centuries. Many structures within this aging transportation network are now improperly sized and inadequately maintained, pushing our most cost-effective goods delivery system towards obsolescence.

"If we don't address these issues, we risk reaching a point where our transportation system may not recover, and we'll fall behind the rest of the world."

Unfortunately, current efforts to maintain and improve this infrastructure are often mired in red tape. While major port improvements in the United States can take 17 years, the near-complete Panama Canal expansion will have taken less than 10 years. The nation's trade volume is expected to double within a decade, and double again by 2030. An inability of our ports and waterways to keep up with the demands of trade will lead to increases in inefficiencies and, more importantly, costs.

The goals of the House WRDA bill are cutting red tape and bureaucracy at the Army Corps of Engineers to accelerate project development, making sure the United States has modern ports and waterways infrastructure; fostering economic development and job creation; and strengthening America's competitiveness in today's global economy.

ACEC: As you know, funding for drinking water and wastewater projects continues to be a critical need throughout the country. What are your committee's plans for moving legislation to extend the State Revolving Fund (SRF) programs, and are you considering new financing mechanisms to assist communities in paying for upgrades to water systems?

Shuster: Our communities face significant wastewater and drinking water infrastructure needs, and these needs are growing as these systems continue to age and deteriorate. Numerous federal and state regulatory priorities, including nutrients and stormwater controls, are placing additional financial burdens on communities. A large portion of these regulatory mandates are going unfunded by the federal and state governments, forcing local governments—and ultimately the ratepayers—to pay for more and more of the costs.

While there is no silver bullet solution to this issue, we can reduce the overall cost of water infrastructure with good asset management. Innovative technologies, increased water efficiency, and regional approaches to water pollution problems also will help reduce costs. We also need an effective partnership with all levels of government and the private sector contributing, and we need to make a broader range of financing tools available for the infrastructure financing toolbox. This includes ensuring the SRF program is financially sustainable and developing alternative financing approaches that would make more funds available.

There is a tremendous amount of capital from the private sector and other sources potentially available for investment in our infrastructure. As this Congress progresses, we will continue to look at a variety of public and private financing tools for financing our infrastructure needs. ■

Navigating the Future Starts with Asking the Right Questions

As an engineering firm leader, you are currently operating in a climate of tremendous uncertainty. Clients, competitors and delivery models are changing and economic headwinds are strong. Navigating this challenging environment starts with asking the right questions:

- How can we prepare for an uncertain future?
- What is our strategy and is it effective?
- How can we differentiate ourselves from our competitors?
- Should we consider buying another firm, or selling to a larger firm?
- How can we attract, develop and retain new leaders?
- How do we prepare the firm for an ownership transition?

FMI is uniquely qualified to help you address these and other challenges. For 60 years, we have been a trusted advisor to the engineering and construction industry, working with firms of all sizes, disciplines and business models.

We understand how both normal economic cycles and unexpected events affect your business. FMI has a dedicated team of professionals who will work with you to evaluate, construct and implement sound business strategies and develop comprehensive solutions for your organization.

Services Provided by FMI:

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Our investment banking professionals take the time to understand your company's unique value and provide a full suite of M&A and financial advisory services, including buyer and seller representation, ownership transfer planning strategies, and valuations and fairness opinions. With over 600 successful M&A transactions, representing an aggregate value in excess of $15 billion, we are prepared to help your firm realize its full value.

Management Consulting

Our consulting professionals guide firms in introducing change initiatives, educating and developing their leaders and managers, and creating positive environments where employees can flourish and productively serve their clients and communities.

Leadership and Organizational Development

FMI works alongside thousands of managers to enhance their leadership skills, improve areas of weakness and prepare for future challenges. Our Leadership and Organizational Development group will help your organization build the infrastructure, systems, processes and internal knowledge necessary for cultivating its next generation of leaders.

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FMI's Market Research group will equip your organization with actionable insight and knowledge to assist you in making cogent decisions based on real-world data. Let our experienced team of researchers help you with customized market, geographic and competitive landscape assessments, demand forecasts, market perception studies and other firm-specific research.

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Experience, combined with a strong knowledge of the design world, allows our consultants to collaborate with you in building compensation and reward plans that drive employee and company performance.

About FMI

FMI is a leading provider of investment banking†, management consulting and market research to the engineering and construction industry. We work in all segments of the industry providing clients with value-added business solutions, including mergers, acquisitions and financial consulting†, strategic advisory, market research and business development, leadership and talent development, project and process improvement, compensation data and consulting, and risk management consulting.

† Investment banking services provided by FMI Capital Advisors, Inc., a registered broker-dealer and wholly owned subsidiary of FMI.

By Gerry Donohue

Personal

Employee Stock Ownership Plans are growing in popularity, but Member Firms say adopting these programs is not without risk

Engineering firms have long embraced the employee ownership model, awarding and selling shares to incentivize key staff, to create new principals and to buy out retiring ones.

The Employee Stock Ownership Plan (ESOP) takes that model to a higher, tax-advantaged level. Firm owners can gain substantial tax benefits when selling their shares to the ESOP, and employees can acquire ownership in the business and build a tax-deferred retirement nest egg. >>

MARTIN BARRAUD/GLOW IMAGES


Stake

An ESOP is an employee benefit program with a tax-exempt trust that acquires and owns stock in the firm. The firm funds the ESOP through tax-deductible contributions, which the trust uses to purchase company shares. The shares are proportionally allocated to individual employee accounts within the trust, typically based on their compensation levels and/or years of service. By law, there are no preferred classes of participants within the ESOP.

About 10,000 companies in the United States have ESOPs, covering approximately 10 percent of the national workforce, according to The ESOP Association. About 9 percent of engineering firms have ESOPs, the third highest penetration in any industry.

"When we first created the ESOP, we hired a firm to educate our staff on what an ESOP is, what it means to them and what it means to be a shareholder."

BLAKE MURILLO
PSOMAS

Christopher Staloch, managing director of the A/E practice at Chartwell Capital Solutions in Minneapolis, expects to see a lot more engineering firms adopt the model in the coming years. "Many firms already have broad-based ownership," he says. "They're essentially ESOPs without the tax benefits."

"ESOPs are a good model for professional services firms," agrees Jon Carlson, CEO of Braun Intertec, a 680-person S corporation in Minneapolis that is 100 percent ESOP-owned. "We have highly educated workforces that want and should have a fair amount of control and input in the direction of the company."

A 2012 survey by the Employee Ownership Foundation found that 76 percent of ESOP companies reported higher productivity after the creation of the ESOP, 76.2 percent reported increased revenue and 70.5 percent reported increased profitability.

Advantages For Ownership

"An engineering firm, because it's a personal services business, can be tough to sell to a third party," says Larry Goldberg, an attorney at the ESOP Law Group in San Francisco. "When you have a group of engineers getting to the age when they'd like to sell their equity, their options are fairly narrow."

In 1992, Waite Dalrymple and his partner in Parametrix, a Seattle-based engineering firm, considered those options and decided on an ESOP. "There were many reasons," says Dalrymple. "The company would remain Parametrix and belong to the folks who helped make it grow; we wouldn't have to work for someone else; no one would have to go into debt to buy us out; and the tax advantages."

Those tax advantages can be substantial, says Goldberg. "When selling stock into the ESOP, the owner has the opportunity to defer the capital gains tax on his shares. A lot of people who founded a firm have very little tax basis on their stock so it's all generally capital gains from dollar one."

In most instances, the ESOP takes out a loan to purchase the shares. Because of the tax emept status of the trust, the ESOP enjoys significant advantages, adds Loren Sokolow, CFO of Psomas, Inc., a 425-person firm operating primarily in California, Arizona and Utah. "The principal and interest payments are tax deductible and fully allowable in the overhead rate," he says.

ESOPs have some limitations for firms looking to transition their ownership. Most analysts say ESOPs are too expensive for small firms. They say firms need to have 50 or more employees to make the transaction affordable. There are, however, exceptions.

9%: Percentage of U.S. engineering firms with ESOPs.
Source: The ESOP Association

In 1996, when Taylor Engineering founder/owner Bruce Taylor created an ESOP, his firm had only 18 employees.

"It was expensive, most definitely," says Laura Rosenbaum, vice president of finance for the firm. "But the ESOP originally bought only 51 percent of the company, and we spread out the contributions over several years to pay off the loan. Fortunately, in those first years, we were very profitable."

ESOP transactions also tend to have lower valuations than third-party sales because by law an ESOP must be a cash-flow buyer.

"The ESOP is not going to pay any sort of strategic premium for the shares," says Chartwell's Staloch. "Having said that, we're increasingly seeing the selling shareholders engaging investment bankers to represent their interests and ensure they get a fair price for their shares."

If the firm has planned for its leadership transition, the selling shareholder may be able to leave the firm immediately. More often, the shareholder remains involved with the firm for a number of years. At Parametrix, for example, the two founders sold the firm to the ESOP in three stages over the course of almost 10 years.

(continued on page 23)

ESOPs by the Numbers

Among all ESOPs nationwide:

- In 2010, companies contributed 12.7 percent annually to the ESOP, with 74.4 percent of companies contributing more than 6 percent and 46 percent contributing more than 10 percent.
- Approximately half of all ESOP companies are majority owned by the ESOP.
- Approximately 4,000 companies are 100 percent ESOP-owned.
- At least 70 percent of ESOPs borrowed funds to acquire the employer shares held in the trust.
- Most ESOP companies have other retirement plans, such as a 401(k), to supplement the ESOP.
- Results from "The 2010 General Society Study" found that only 13 percent of employees in ESOP companies were looking to leave their companies, while the rate was 24 percent among non-ESOP companies.

Source: The ESOP Association

Ownership Transition Volume

Getting Louder!

Data from the Pew Research Center indicates the oldest of America's baby boomer generation started turning 65 on January 1, 2011, at a rate of 10,000 people a day - a trend that will last for the next 19 years. Since many baby boomers are business owners, it is expected that more than eight million privately-owned U.S. companies will be sold in the next ten to fifteen years. Even under the assumption it will take twenty years to transition all of these companies, that would equate to **400,000 transactions annually**. To put this into perspective, at its peak in 2007, the number of U.S. transactions totaled less than 12,000.

These estimates include many "mom & pop" operations, some of which will simply close their doors rather than trying to sell their companies. In addition, many of the smaller operations that do get sold will never hit the M&A statistics. That said, even if only 10% of the 400,000 businesses that are expected to change hands annually are perpetuated through a sale transaction, we will see a quadrupling of recent M&A activity.

In aggregate, these are astonishing numbers and will clearly have a significant impact on M&A in the AEC industry. Owners of privately held AEC firms have many alternatives for exiting their business. These alternatives include sellnig the firm to external parties or selling to related or internal parties.

There are numerous strategic buyers in the industry who have been actively acquiring smaller local and regional AEC firms. In addition, private equity firms have a growing appetite for investing in the AEC space.

Currently, the amount of cash available for investment held by private equity firms as well as publicly and privately held companies is substantial. With interest rates hovering near historical lows, the current borrowing environment is quite favorable for financing a busuiness transition.

While a sale to a strategic buyer or a private equity firm is a viable option for many AEC firms, often times owners wish to transition ownership through an internal process rather than taking their company to market.

Transition Ownership Strategically

As an alternative to a third party sale, transitioning ownership may be accomplished internally to the next generation of family, management, or employees. Family-based transitions require a specific set of circumstances that often times don't exist. Therefore, we will not address this alternative and will instead focus on other internal transactions.

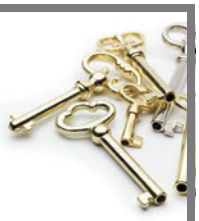
Current owners often look to management as a favorable solution to their ownership transition needs

Management Buyout

There are many benefits to involving management in an ownership transition plan. Since the buyer group is already well known, it provides an additional level of comfort during the process. There is already a deep understanding of the business, allowing for a smooth transition process. Some of the other benefits include:

- **Maintaining control during the buyout process**
- **Sharing in profits during the buyout process - if structured properly**
- **Reducing the number of outside parties involved in negotiating the transaction**
- **Retaining management and employees**
- **Limiting the business interuption and disruption**
- **Lowering risk by transitioning ownership gradually over time vs. all at once**

Gradually handing the "keys" to a known party can create a smoother, more comfortable transition for all involved - the owner, management, and employees



There are also challenges to be considered when implementing a management buyout. The most significant being management's lack of capital to acquire the company. As a result, financing the purchase can become a sticking point if funding mechanisms cannot be obtained or agreed upon. Other areas of concern needed to be evaluated include:

- **Risk due to less money up front - slower exit based on earnings/cash flow**
- **Sellers could end up holding notes with little recourse upon default by the buyers**
- **Potentially inefficient tax outcomes**
- **No gauge as to what the firm value would have been in an outside sale**
- **Existing owners ask - "Am I buying myself out with my own money?"**
- **Potential high level of scrutiny by creditors**

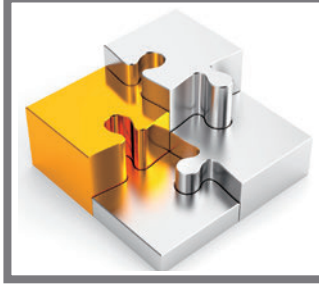
In the right situation and if structured properly, a management buyout can still provide a favorable outcome to selling business owners.

ESOPs

For many owners of AEC firms in the baby boomer generation, an ESOP may be a valuable transition alternative. While an ESOP may not be the right approach for every firm, the unique tax advantages and employee incentives are powerful transaction tools.

What are the characteristics of a good ESOP candidate? At least three important features should be considered. First, the firm should have a solid history of positive cash flow. An ESOP buyout is often is a leveraged transaction requiring cash flow support to repay the acquisition debt. Second, the firm needs a leadership team in place to operate the business post closing. Third, the owners generally desire to maintain the legacy of the firm and pass ownership to the next generation of employees. Structured properly, equity incentives provided through the ESOP can assist in the perpetuation of the enterprise.

ESOP companies can range in size from as few as 20 employees to thousands of employees. ESOPs can be minority shareholders, but also can own 100% of the outstanding shares. There is a great deal of flexibility in designing the role of an ESOP in an ownership transition strategy.



Benefits of the ESOP ownership structure can compile to create a firm strategically positioned for future success

Summary

We are entering a period in which many business owners will face increasing pressure on creating a successful ownership transition. In addition to considering a sale to a strategic buyer or private equity firm, AEC owners should consider an internal buyout to perpetuate their business.

These topics and more will be explored at the upcoming ACEC 2013 Fall Conference in Scottsdale, Arizona as part of the education series on Monday and Tuesday, October 28th and 29th. These sessions are sponsored by Chartwell Capital Solutions, ESOP Law Group, and Crowe Horwath. Please contact Leo Hoch at 202.682.4341 or lhoch@ acec.org for further information on the program. ■

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(continued from page 18)

Challenges and Opportunities

In the late 1990s, the three primary shareholders in Psomas were approaching retirement at the same time. "We needed to transfer their ownership and get them the money they were owed—and be able to afford it ourselves," says Psomas Chairman/CEO Blake Murillo, who was one of 18 other owners in the firm at the time.

The investment banking firm recommended an ESOP, which the firm implemented and then took out a loan to buy out the three senior owners. The ESOP originally owned 33 percent of the company; it currently owns 56 percent.

"We now had a new and major shareholder," says Murillo. "We had to think about the company differently."

Creating an ESOP requires firms to think differently in many ways.

"An ESOP requires a cultural shift," says John Moossazadeh, senior vice president at San Diego-based Kleinfelder, which has about 2,000 employees and is 45 percent owned by the ESOP. "Don't do it unless you mean it, because it's a major commitment. You create expectations among your employees that you have to meet."

Many employees have never heard of an ESOP and don't understand how it affects them, says Murillo. "When we first created the ESOP, we hired a firm to educate our staff on what an ESOP is, what it means to them and what it means to be a shareholder."

Stock ownership can create the expectation that "an ESOP is a democracy, that everyone gets a say or that decisions won't be made until everyone has been informed," says Dalrymple. "Finding and communicating the right balance takes constant work."

In most cases, it takes a few years for employees to see the tangible benefits of growth through additional annual contributions and appreciation of the share price," says Moossazadeh. "After about five years, the amount starts to snowball. Our challenge is to keep them excited in the interim."

Two groups of employees tend not to get too excited about the ESOP. Younger employees have limited interest because they don't have the compensation levels or years of service to build a big account balance, and retirement is the farthest thing from their mind. At the other end, says Dalrymple, are the "senior employees who may have been expecting to move into principal roles and are more comfortable in a more traditional ownership and management structure."

Like other qualified pension plans, ESOPs are governed by the federal Employee Retirement Income Security Act (ERISA). As a result, they can be somewhat cumbersome to administer.

"It was expensive, most definitely. But the ESOP originally bought only 51 percent of the company, and we spread out the contributions over several years to pay off the loan."

LAURA ROSENBAUM
TAYLOR ENGINEERING

The ESOP must have a trustee with fiduciary responsibility and an administrator. Smaller firms tend to keep these trustee functions in-house, while many larger firms work with outside institutional trustees.

"We're increasingly seeing the selling shareholders engaging investment bankers to represent their interests and ensure they get a fair price for their shares."

CHRISTOPHER STALOCH
CHARTWELL CAPITAL SOLUTIONS

Firms must also contract with an outside valuation company annually to determine the share price. Staloch estimates the valuation costs between $10,000 and $50,000 per year, depending on the size and complexity of the plan.

Firms often use the results of the valuation as part of their ongoing employee education about the ESOP. "When our valuation comes out in May, we have a big party and make a big deal about it," says Braun Intertec's Carlson.

When a company is doing well, everyone is ready to party. In tough times, such as what the industry has experienced over the past five years, not so much.

Joe Grabowski, CEO at Wenck Associates, Inc., a 200-person, completely ESOP-owned firm in Maple Plain, Minn., says being an ESOP puts additional pressure on management.

"We've had to become much more financially savvy," he says. "We have to focus on maintaining steady growth and profitability because people want to see growth in their annual statements. On top of that, we have to be very cash healthy."

Cash is king in an ESOP because of the repurchase requirement. When ESOP participants leave the firm, the ESOP must buy back their shares. ERISA provides for payment deferrals and a waiting period, but firms still need to have the cash.

No Federal Income Tax

While all companies can earn some tax advantages from the ESOP model, 100 percent-owned S corporations enjoy even more dramatic advantages.

"Because an S corporation is a pass-through entity, the company doesn't pay any income tax. Taxes are paid at the shareholder level," says Staloch. "And because the ESOP trust is a tax-exempt shareholder, tax payments are deferred until the participants terminate employment."

Braun Intertec was a C corporation that was 65 percent owned by its ESOP. "When we realized the favorable tax implications of being 100 percent ESOP owned, we changed to become an S corp," says Carlson.

"It's a huge benefit," concurs Grabowski. "We have extra money to invest in new markets, in more robust performance pay or greater contributions into the ESOP." ■

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

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A Map of the Future?

By Corey Murray

Recent advances in GIS software represent a new frontier in data-driven design

RANDY LYHUS

Geographic Information System (GIS) software has been around for years. But experts say recent advances in the technology have given rise to new uses and applications that are revolutionizing the design industry.

At the Irvine Company, a large California-based real estate investment firm, employees use a custom-made GIS system called LiveMap to monitor changing environmental and land parcel conditions relevant to new and ongoing development projects.

The system, built by RBF Consulting, a company of the Michael Baker Corporation, allows the firm to monitor and track thousands of acres of undeveloped land, keeping a watchful eye on changing environmental restrictions, fire codes and other variables that could affect its business.

As GIS comes of age, the technology has become a factor in an expanding number of engineering and design disciplines. Firms now use GIS software to aid site assessments, improve disaster response and recovery operations, perform environmental damage and infrastructure assessments, conduct asset and natural resource management, and conduct engineering and construction planning, among other uses.

"We're collecting so much data. We're basically creating a virtual world," says Tim Cawood, senior vice president for McKim & Creed, an engineering, geomatics and sustainable design firm with several offices in the southern United States.

At its most basic level, GIS technology enables designers to map out complex projects. But advocates say the real benefit of the technology lies in its increasingly sophisticated ability to help users visualize and analyze important statistical and geographic data.

McKim & Creed relies on GIS software to map complex projects for electrical utilities. One aspect of the software lets engineers plot required clearances for conductors, wires, trees and other potential design obstacles. The company also recently deployed GIS software to create a 3D map for a nuclear power facility, depicting pipes and a complex web of underground utilities.

The process of creating and gathering the many data sets needed to perform these analyses was once time-consuming and cost-prohibitive for many firms, says Steve Bein, vice president of GIS for RBF Consulting.

An average-size water district that services 80,000 to 100,000 customers could expect to spend upwards of $1 million converting traditional paper-based water atlases and facility management plans into complex GIS data sets.

"It could take up to eight years or more to recoup that initial investment in lower cost of operations or lower cost of capital improvements," explains Bein. These days, the technology is a much easier sell—and not just because data collection is more affordable.

> "We're collecting so much data. We're basically creating a virtual world."
>
> TIM CAWOOD
> MCKIM & CREED

"As GIS grew up, it became apparent that we could start to use GIS independently of CAD, or Computer-Aided Design," Bein says. Engineers and planners previously jumped between CAD for design and GIS for data analysis. Bein estimates that RBF now performs as much as 95 percent of its work entirely in GIS.

"I think the sheer amount of available data is the key because now you can look at a problem and with these data have all of the information to solve that problem," explains Cawood.

It's also a time-saver.

"In the old days, it was a monthslong process of shuttling paperwork between the county and the firm and maintenance crews and biologists and environmental protection groups, just to get the approvals needed to do the work," says Bein. Now, with GIS all stakeholders can look at a map, visualize the many components of a project and weigh in on the spot, often in real time.

A Package Deal

Engineers should not make the decision to invest in GIS lightly. Many firms, especially small engineering firms, lack the technical know-how and in-house resources to develop and maintain fully functional GIS programs.

Fortunately, experts say there are other ways for companies to tap into the technology. A number of providers, including Atlanta-based Photo Science, package custom-made GIS applications that its customers—local and regional utilities, environmental organizations and others—can access in the cloud. Such offerings, often called Geospatial Software as a Service (GSaaS), give engineers and other stakeholders access to GIS tools on a subscription basis.

Pepco Holdings, Inc., a regional electrical utility that services the Washington, D.C., metro area, Atlantic City, N.J., and other regions on the East Coast, uses GIS applications created by Photo Science.

The power company's Environmental and Geospatial Resource and Engineering Tool, or EGRET, was originally set up as an environmental planning tool. EGRET gives hundreds of users, including Pepco engineers, planners, technicians and others, access to layers of relevant project management data.

The system tracks and updates parcel and property line information, which Photo Science pulls from state and municipal land records and integrates, in real time, into its custom-built system.

3 Reasons to Invest in GIS

Steve Bein, vice president of GIS for RBF Consulting, has witnessed firsthand the growth of GIS among design professionals. He says there are largely three reasons for its continued success:

1 Ability to attach attributes to features (examples: network analysis of streets for fire response time, traffic analysis, hydraulic models for water systems, federally mandated inventories of materials and more).

2 Ability to visualize information geographically.

3 Ability to lay several pieces of seemingly disparate information on top of each other to visualize it in a different way—akin to looking through a special pair of glasses that might allow you to see problems in a new light.

"There is tons of data that is being maintained by the people who are experts in that field," says Jesse Glasgow, manager for Photo Science, which has built similar applications for at least a dozen clients.

Glasgow says there really is no limit to the types of analyses that companies can perform with custom-built GIS applications.

"Five years ago, there were some challenges with these different configurations," says Glasgow. "But the industry has matured."

Going Mobile

It's also evolved. The advent of mobile applications that allow GIS users to access data directly on smartphones or other mobile devices means engineers can conduct analysis on-site.

"That's another key advantage to having your data in the cloud; you can access it basically anywhere you have an Internet connection," Glasgow says.

Well, almost anywhere.

Engineers working in a remote location with limited or no high-speed Internet access can input and save data that can be synced with the system when they go back online.

All of the information is secure and password-protected, with security measures determined by the client on a case-by-case basis.

What's Next?

So, where is GIS headed?

California-based mapping company Esri has sought to build a GIS platform through its ArcGIS product that would allow just about anybody to create functional GIS maps. Google's Earth tool is another example of a product that attempts to bring the benefits of GIS to the masses.

"The major trend is that we are moving the processing and analysis to where the data is," explains Cawood. Complex analysis that used to take place on the ground can now be performed largely online—in the cloud.

But there's a catch.

"We're going to have a lot of people who believe they can make GIS maps by using this information," explains Bein. But creating GIS maps and using data effectively still requires specialized knowledge.

"There are complexities to this technology that go far beyond what the guy who knows how to use Google Earth is going to be able to do," Bein says. "While there is some great functionality—users will be able to build maps very easily—they won't know about projections. They won't have knowledge of how current and how well-kept the data that they are using is. And that can often lead to significant errors in the decision-making process."

That's where experience is key.

"We're engineering firms and we're in the construction industry. Things on the ground change day-to-day, month-to-month. Knowing that that site next door to yours has been bulldozed and that there is a 12-story building there is significant to our work," says Bein. "The engineer who just goes on Google and pulls it up and says, 'Oh, it is an open field,' is going to be sorry." ■

Corey Murray is managing editor of Engineering Inc.

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STEVE KRONGARD/GETTY IMAGES

By Bob Violino

Foreign DELIVERY

In contrast to the United States, PPPs are the preferred choice for large public projects overseas

Public-private partnerships (PPPs) for years have been lauded as one of the more promising alternative options of funding major infrastructure projects, especially in tough economic times. Adoption of PPPs in the United States, however, has been relatively slow compared to the rest of the world.

PPPs involve the collaboration of public bodies, such as central governments or local authorities, and private companies or entities to finance, design, build and operate facilities or other physical infrastructure.

With a PPP, construction, energy and service companies, banks, management consultants and law firms work with governments to develop schools, hospitals, ports, railroads, power plants, highways, airports, tourism facilities and other needed public projects.

Once the asset is built, it's typically maintained for a period of time by the private-sector contractor, after which it returns to public ownership.

Construction companies, financial institutions and engineering consultants can benefit from PPPs by having a larger workload and different revenue stream than under a limited public expenditure regime. The public benefits by gaining needed new and improved infrastructure more quickly.

The public-private partnership approach is widely seen as a first choice for large public projects in the international construction marketplace, given that many of them require significant investment and facility or cost management over the duration of the contract.

PPPs are particularly relevant in developing countries with low tax revenues and significant natural resources or tourist attractions that require accelerated infrastructure growth.

Public involvement often involves property, legal, tax and other accommodations to attract private partners into investments with the potential for long-term payback. The "build now, pay later" approach encourages private-sector development in exchange for other concessions, revenue payments or future user fees. Sometimes the projects also benefit the private sector directly such as with raw materials delivery via rail, roads and ports.

"While PPPs don't work in every situation, states have found them to be effective tools for delivering large, complex projects."
GEORGE PIERSON
PARSONS BRINCKERHOFF

PPP activity in the international market fluctuates each year, says Geoff Haley, global executive chairman of the London-based International Project Finance Association, which provides global PPP consulting.

"At present we are seeing a large expansion of activity in Canada and South America," Haley says.

PPPs are being launched all over the world, including Australia, Europe and the Middle East, Asia, Africa and Latin America.

"Virtually every country we work with is interested in PPPs, if not already doing it," says Jacques Cook, senior PPP advisor at the Institute for Public-Private Partnerships (IP3), which offers training to international clients on PPP implementation. "The key attraction [in the international market] is to get investors to take some of the risk and reduce the amount of government exposure to project risk, and also to reduce the amount of funding the government has to put in," he says. "With PPPs, governments may still have to put some money in, but not as much as they would otherwise."

What's the Holdup?

One reason for the lukewarm attitude toward PPPs domestically is that much of the U.S. infrastructure is funded through municipal bonds.

"Those are very attractive to investors," Cook says. "They are the least-cost option for financing opportunities, and that has made it difficult to do PPPs. The municipal bond market is there for public entities to finance infrastructure projects, and it has created a strong incentive to do traditional kinds of procurement without trying to attract private investors."

Another reason, Cooks says, is political resistance, including in the contractor community. "They are accustomed to doing traditional procurement, working with state and local governments," he says. "They're not interested in taking investor risk in projects and prefer to continue the way they have been billing the government for construction and leaving it to the government to manage projects once they are constructed."

In addition, the U.S. market is complicated and segmented politically between federal and state governments, Cook says. "Developers, looking at markets in France or Spain or someplace else, have a single country to deal with," he says. "They don't worry about what the rules are at the municipal or county level, because there are national procurement systems in place, and they can focus their attention on national projects."

It's much easier for developers to deploy procurement teams if they don't have to work their way through a maze of federal and state regulations, as they would have to do in the U.S. market, Cook says. "The institutional framework they have to deal with is simpler."

Also, important is the assumption of risk by the developer teams, both from the standpoint of construction and generating costs as well as potential user interest and actual use when complete if payback is user-fee dependent.

Experts say that while engineering firms can take advantage of the growing PPP opportunities internationally, they should not give up on opportunities in the United States.

"I've heard that there are more projects coming on stream," Cook says. "And as more come on, there is hope that the market will begin to take off."

Indeed, several ongoing stateside PPPs involve ACEC Member Firms. New York-based Parsons Brinckerhoff, the professional services division of international engineering conglomerate Balfour Beatty, is a team member on two PPPs that have currently closed in the United States, says George Pierson, president and CEO of Parsons Brinckerhoff.

The company is the lead designer for Elizabeth River Crossings (ERC), the PPP consortium responsible for the $2.1 billion Midtown Tunnel PPP in Norfolk, Va. Parsons Brinckerhoff is also part of the design team for the new commuter rail connection between Denver Union Station and Denver International Airport, a $2.9 billion PPP project. The company has also been involved in PPPs in Texas, Indiana, Florida, New York, California and Ontario.

"On PPP projects, we team with a variety of major contractors and developers" as well as other Balfour Beatty group companies, Pierson says. "Parsons Brinckerhoff also provides technical services to states and authorities who are developing PPPs, performing feasibility assessments and 'value for money' evaluations."

"Virtually every country we work with is interested in PPPs, if not already doing it."
JACQUES COOK
INSTITUTE FOR PUBLIC-PRIVATE PARTNERSHIPS

PPPs are increasingly becoming the preferred method of procuring large projects in many states, Pierson says.

"While PPPs don't work in every situation, states have found them to be effective tools for delivering large, complex projects," he says.

Particularly appealing to owners: the greater degree of price and schedule certainty associated with PPPs and the fact that they don't have to have all the funds before starting. "As well as whole-life considerations and innovations that can reduce the overall cost of the project over the concession period," Pierson says, "PPPs will

What's Happening Overseas

The Public-Private Partnerships Transaction Advisory Department of the World Bank Group's International Finance Corp. (IFC) provides technical assistance to national, state and municipal governments that are seeking PPPs to improve infrastructure. Here are some of the latest international PPP projects cited by the department that have been successful:

An unused telephone outside the Teleco company building in Port-au-Prince.

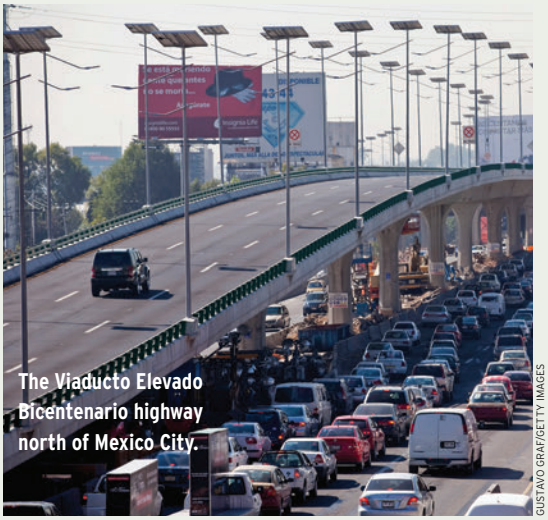
ESTEBAN FELIX/AP PHOTO

- Under a PPP, Viettel, Vietnam's largest mobile telephone operator, will initially invest $100 million to upgrade services offered by TELECO, Haiti's national telecommunications company. The investment is expected to significantly contribute to the country's recovery from the 2010 earthquake by rebuilding much-needed infrastructure and increasing Haitian access to fixed, mobile telephone services and high-speed Internet.
- IFC was engaged by the Mexican government to review and provide recommendations on the Mexican road concession project. IFC's study was completed in 2010, and some of its recommendations were included in the new concession law as well as in the future concession structures. The project was executed with the collaboration of the World Bank.
- Another PPP involves the first emergency hospital built in 20 years in the Brazilian metropolitan area of Salvador. The hospital will dramatically improve access to high-quality emergency hospital services in an area of 1 million people. The project was awarded to Promedica, a leading health care company in the northeast of Brazil, and Dalkia, a French company that specializes in facilities management and non-medical services.
- In Egypt, a landmark agreement was reached between the government and a private consortium to build two teaching hospitals in the city of Alexandria. The project, the first health care PPP in the country, is expected to benefit 78,500 patients.

Patients wait to see a doctor at Medical Surgical Hospital in Salvador.

LUIS ROMERO/AP PHOTO

As clients and firms continue to look for new ways to fund important road and highway projects, experts say it isn't a matter of if PPPs will become more popular in the U.S., but when.



The Viaducto Elevado Bicentenario highway north of Mexico City.

GUSTAVO GRAF/GETTY IMAGES

continue to be an attractive way for states to deliver projects, and pipelines will increase in the future."

Another ACEC Member Firm, CDM Smith in Cambridge, Mass., has provided PPP consulting services for various projects, primarily in the transportation marketplace. It's currently advising transportation agencies on their PPP programs and projects in Texas, Virginia and Pennsylvania, says Peter Tunnicliffe, executive vice president.

CDM Smith is seeing a maturation of the PPP markets in the United States, as an increasing number of states are delivering successful projects, Tunnicliffe says. "States such as Texas, Virginia and Florida have laid the foundation for the institutional framework for PPPs, and we are seeing other states, such as California, New York, Pennsylvania, Ohio and New Jersey, use this framework to deliver very significant infrastructure."

The bulk of CDM Smith's assignments have been advisory in nature, Tunnicliffe says, "though we have acted as a design-builder in a limited number of situations. As a design-builder, and as a designer involved with a PPP procurement, we have additional risks and significantly greater procurement-related development costs than in more traditional design or design-build projects."

As such, the company expects to participate in a limited number of PPP projects in a capacity other than as a sell-side adviser, "and only after a careful risk evaluation, partner evaluation and owner evaluation," Tunnicliffe says.

One promising development for PPPs in the United States, Cook says, is that federal legislation, such as the Water Infrastructure Now Public Private Partnership Act and the Water Resources Development Act of 2013 that includes additional funding for PPPs from the federal government, is finally working its way through Congress.

There is potentially much to be gained from PPPs, Cook says. "The assumption is you get lower-cost projects and better quality because the private sector is operating under the profit motive," he says. "For engineering firms, the main advantage is that usually they are selected to monitor these projects during the development and operational stages. That opens up more business" for these firms. ■

For more information on PPPs, see the Business Insights column on page 40.

Bob Violino is a business and technology writer based in Massapequa, N.Y.

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How Technology Will Transform the Business of Engineering

CEO Panel: Trends in Private Client Markets—Commercial, Industrial, Energy

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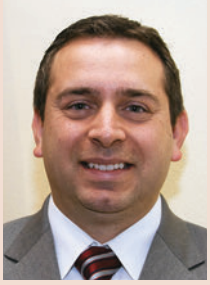
Expert Panel: Transportation Funding Options and Outlook



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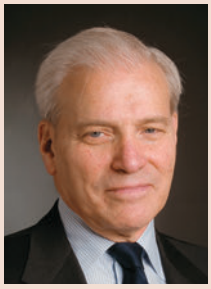
President & CEO
American Highway Users Alliance



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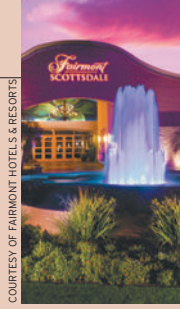

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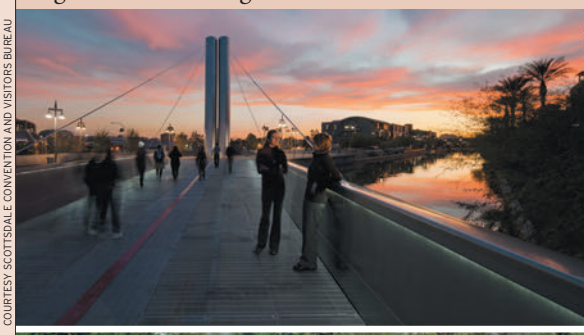
The highly acclaimed 5-star Fairmont Scottsdale Princess Resort offers world-class amenities in a breathtaking environment. Surrounded by mountains and sun-washed stone, the resort offers something for everyone—an array of award-winning restaurants, championship golf courses, cultural activities and shopping. ACEC's room rate is $279, single/double occupancy, plus tax for the Fairmont Rooms. Room reservations must be received by Sept. 27.

Conference Registration Is Now Open!

- Early-Bird Registration Discounts are available until Sept. 27–Save $100
- Additional Discounts are also available for First-Time Attendees as well as Additional Registrants from the Same Firm.
- For more information and to register online, go to www.acec.org.



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ECS: A QUARTER CENTURY OF CLIENT SOLUTIONS

IN 1987, Henry Lucas and his partners recognized the need for a different kind of consulting firm; one that focused on innovative, yet practical, approaches to engineering and consulting issues. In addition, there was a need for solutions that focused on the specific needs of clients, with emphasis on the need for highly responsive consultants. Another key ingredient that was missing at that time was industry professionals who understood the complexities of designing, constructing, and maintaining modern infrastructures, and who understood the importance of project schedules and budgets. The culmination of these efforts resulted in Engineering Consulting Services (ECS) opening its doors in 1988.

"Our culture of client cooperation, safety first, and excellence in all that we take on has made us a trusted consulting partner. I see ECS as an important player in the growth of our nation's infrastructure and economic future."

Henry L. Lucas, P.E., President, ECS, Ltd.

Twenty-five years later, employee-owned ECS is an established U.S. industry leader in geotechnical, environmental, construction materials testing, and facilities consulting, with over 1,000 employees and more than 45 offices located in the Mid-Atlantic, Southeast, and Midwest. In 2013, ECS ranked #98 in the *ENR* Top 500 Design Firms and #60 on the Zweig White Hot Firm List. The core of what has enabled ECS to achieve these accomplishments is reflected in their motto: ***"Setting the Standard for Service"***.

ECS's 25-year history of success is reflective of steady growth in multiple industry sectors and its deep belief in developing the people, systems, and expertise required to focus on client needs.

With a primary mission of solving problems, ECS provides innovative client-focused solutions for a variety of disciplines—from environmental site surveys, geotechnical engineering evaluations, construction materials testing programs including Special Inspections, existing facilities support, LEED construction plans, and Third Party Inspections in certain jurisdictions.

ENVIRONMENTAL CONSULTING

For clients who need experienced insight into federal, state, and local regulations to manage a variety of environmental conditions, ECS offers a wide range of **Environmental Services** including:

- **Phase I and II Environmental Site Assessments** to evaluate the presence and potential environmental impacts of contamination;
- **Phase III Feasibility Study and Remedial Design** to develop effective approaches to remediating problematic environmental conditions;
- **Wetlands Delineation, Permitting, and Mitigation** to guide site design and construction so that applicable regulations are complied with, and to aid clients in dealing with the permitting process; and
- **Asbestos and Lead-Based Paint Services** to evaluate the presence of, and need for, remediation of asbestos and lead-based paint in existing facilities.

GEOTECHNICAL ENGINEERING

ECS is a respected leader in **Geotechnical Engineering Services**, including subsurface explorations and evaluations, design assistance, and value engineering consulting. ECS has developed extensive subsurface databases for local geologies, and utilizes numerous specialty testing equipment in their evaluations. ECS also specializes in geophysical surveys, including seismic refraction, electrical resistivity, and ground penetrating radar. Design services include retaining walls, slopes, shallow foundations, deep foundations, underslab drainage systems, and geosynthetic reinforcements. ***Project examples include: Student Union, University of North Carolina at Charlotte; Coton Bridge, Loudoun County, VA.***

CONSTRUCTION MATERIALS TESTING

ECS provides **Construction Materials Testing and Special Inspections** for new construction, additions, and building renovations. ECS conducts testing services required by the International Building Code (IBC), state and local codes, and project specifications. Materials tested include foundations, concrete, structural steel, earthwork, and sprayed-on fireproofing, among others. In some jurisdictions, ECS conducts **Third Party Inspection Programs (TPIP)**. ECS utilizes a proprietary electronic reporting system that enables delivery of engineer reviewed reports and test results within hours of being on site. ECS also provides **Civil Testing**, which involves parking lots, utilities, stormwater ponds, drainage systems, asphalt and concrete pavements, and retaining walls. ***Project examples include: National Air and Space Museum, Chantilly, VA.; J. Murray Atkins Library, University of North Carolina at Charlotte.***

FACILITIES MANAGEMENT CONSULTING

ECS offers a wide range of evaluation services for existing structures and associated areas specifically designed to assist property owners, property managers, developers, financial institutions, contractors, and prospective buyers understand the condition of existing facilities and future maintenance needs. Services include: **Roof Maintenance Plans; Structural Evaluations**; **Fall Protection Testing and Certification**; **Parking Structure Restoration**; and **Forensic Engineering**. ***Project examples include: National Constitution Center, Washington, D.C.***

RECOGNITION

Each year, ECS projects are recognized by industry peers for innovation and excellence. In 2013, ECS received *"Engineering Excellence Merit Awards"* from ACEC/Virginia for engineering expertise on the Department of Homeland Security – U.S. Coast Guard Headquarters, Washington, D.C.; and the National Geospatial-Intelligence Agency, New Campus East, Ft. Belvoir, VA. ECS also received the prestigious *"Project of the Year"* award from the Greater Richmond Association for Commercial Real Estate for innovations incorporated into two Amazon.com Fulfillment Centers.

SAFETY

Many companies consider safety a priority; however, ECS does more than make safety a priority. In 2010, ECS launched their **STAR Safety Program,** which stands for ***Stop-Think-Act-Refine*** and utilizes behavior-based safety principles. Working more safely has become a core value and fundamental part of the ECS culture. The program includes regular safety training and meetings, as well as proactive safety observations in the field, in offices, and in laboratories. Conducted by both managers and peers, safety observations are tracked anonymously using SafetyNet®, which identifies leading indicators which allow ECS to anticipate and correct at-risk behaviors before they lead to injuries.

The program has been highly successful resulting in ECS's Total Recordable Incident Rate (TRIR) being reduced by more than 50 percent. To date, ECS employees have conducted over 12,000 STAR Safety Observations, and have observed more than 130,000 behaviors.

By ***"Setting the Standard for Service"*** with its solution- and client-oriented focus, ECS has an industry-wide reputation as the firm to call when exceptional service matters.

Groundbreaking Research Shows Midsize Firms Are Far From an Endangered Species

For decades, *Engineering News Record (ENR)* has been ranking architecture/engineering (A/E) design firms based on revenues. Many company leaders use these annual rankings to compare their growth with that of peers in an industry that boasts more than 116,000 firms, 1.4 million employees and accounts totaling more than $254 billion in revenue.

To further understand growth trends of engineering firms, research was conducted using information contained in 35 years of *ENR* rankings. This study, using statistical analysis techniques, was led by Professor Paul Chinowsky and a team of researchers at the University of Colorado.

The study team first selected five categories to characterize the size of firms (see table below). Research reveals that 66 percent of the 2011 total industry revenue was generated by small firms not listed among the 2012 *ENR* Top 500 Design Firms (*ENR 500*). In contrast, mega, very large and large firms accounted for 27 percent of total industry revenue.

In recent years of economic recession, the question of firm size and how it relates to competitive position and ongoing consolidation in our industry is on the minds of many practitioners. Specifically, how can midsize firms—which currently account for 7 percent of total industry revenue—possibly survive?

Much of the discussion around this question is steeped in anecdotal evidence and conjecture and not unbiased historical evidence.

Are Mega Firms Killing Midsize Firms?

The A/E industry overall has enjoyed significant growth over the past 35 years, fluctuating with general economic conditions but usually trending in a positive direction. While the revenue of very large, large and midsize firms has been relatively static as a percentage of total industry revenue, it's the small firms and mega firms that have seen the most dramatic changes in their share of total revenue.

While small firms accounted for 66 percent of industry market share in 2011, this is down from a high of 83 percent in 1986. Research shows that a small firm's loss is often a mega firm's gain. Mega firms owned 14 percent of market share in 2011 compared with the low single digits in the 1980s.

Rather than highlighting the long-forecasted doom of midsize firms, which held steady at 7 percent of total revenues over that same period, the data may be more indicative of the ongoing challenges faced by small firms. This is particularly important when considering leadership and ownership transition within smaller organizations. While larger organizations have more resources to manage these events, small firms can put themselves at risk, especially if advance planning is not devoted to this crucial business process.

Initial review of these data suggest there is a place for firms of every size in the current A/E marketplace, even factoring in the ups and downs of the economic cycles over time.

There is little variance in market share of very large, large and midsize firms over an extended period of time (see graph on page 39). Data show that small firms have witnessed an erosion of market share in recent years and mega firms have experienced gains.

It's All in the Perception

The midsize A/E firm is not dead or dying, as some prognosticators have alluded, but sustaining itself.

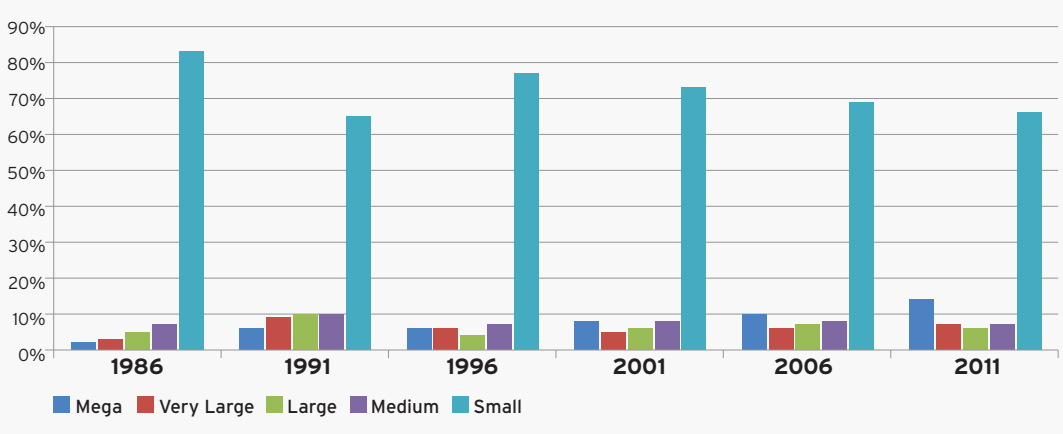
The latest research proves that the A/E industry is not a monolithic entity, but is composed of diverse "clusters" of market sectors. The University of Colorado research team statistically analyzed the *ENR* data using a cluster analysis and identified seven clusters of A/E design and consulting work: transportation; general building; wastewater; industrial; power; hazardous waste; and balanced (firms that are diversified across market sectors with less than 60 percent of a firm's revenue from any one of the other six categories). Current *ENR 500* breakout categories such as telecommunications, water supply and manufacturing—

Study Categories for Data Analysis, 1978–2011

CATEGORY	ENR RANKING RANGE	% OF 2011 TOTAL REVENUE	2011 ENR REVENUE RANGE
Small	Not on ENR Top 500	66%	< $17 M
Midsize	ENR 500 to ENR 101	7%	$17 M to $113 M
Large	ENR 100 to ENR 31	6%	$114 M to $447 M
Very Large	ENR 30 to ENR 11	7%	$481 M to $1.59 B
Mega	ENR Top 10	14%	$1.68 B to $6.87 B

Source: *Engineering News Record* and 2007 Economic Census

Percent of Total Market Share by Firm Category, Historic Comparison



Source: *Engineering News Record* and 2007 Economic Census

while important—were statistically less of a primary focus for most firms.

Midsize firms currently hold 17 percent of total industry revenues in the general building category, an area where mega firms focus less. This figure has held steady since 1986. In addition, midsize firms now hold 16 percent of transportation revenue, down significantly from 1986.

The number of midsize firms in the transportation cluster have remained relatively steady over time (47 in 1986 versus 49 in 2011). In the general building cluster, the number of midsize firms increased 11.6 percent from 147 to 164—hardly an indicator of the decline of midsize firms.

Mega firms have dominated revenues in the industrial cluster, increasing from a 25 percent share in 1986 to a 72 percent share in 2011. These data also show that mega firms dominate the more diversified balanced clusters, while highlighting areas in which they are less of a factor, such as general building and transportation clusters. The power cluster, meanwhile, is dominated by very large firms.

International Growth

One area in which mega firms have outgrown their smaller brethren is in garnering international work.

Looking at *ENR 500* firms, not total industry revenue, it is apparent that since 1981, *ENR 500* international market share by mega firms has almost doubled (not historically tracked for small firms) from 16 percent to 31 percent of *ENR 500* market revenues. However, not all firms have benefited equally from this increase. Beginning in 1996 (the first year that firm size data is available) analysis reveals that midsize firms have held steady in *ENR 500* international income at around 5 percent. Meanwhile, mega firm revenue from international sources increased from 30 percent to more than a 50 percent share of *ENR 500* market revenues. In an uncertain domestic economy, international billings are a good source of portfolio balance and a trend that seems likely to continue for mega firms.

Competing With The Big Guys

Looking at M&A historical records (*ENR 500* data only) it is apparent that, contrary to prevailing opinions, mega firms are not primarily targeting midsize firms. Data reveals that compared with the '80s and '90s—when midsize firms frequently joined forces to create larger firms—since 1995, mostly large and very large firms have consolidated midsize and small firms in an effort to compete with mega firms.

Large and very large firms are not simply buying smaller firms to add staff and assets. Rather, the study shows that industry consolidation is more focused. In recent years, firms targeted for M&A activity are in one of the following areas: general building, transportation or balanced.

The vast majority of M&A activity takes place between firms that do business in different clusters. In other words, large and very large firms have recognized the specific strengths of midsize and small firms and seek to add those strengths to their portfolios to better compete in the marketplace.

Building a Sustainable Business

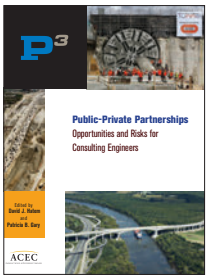
The data clearly supports what many have suspected—that the midsize firm is alive and well. In fact, only 37 firms have maintained a position on the *ENR 500* for the past 35 years. But how have some firms not only sustained themselves but continued to grow? And what are these firms doing differently, if anything, to achieve their goals? The second phase of this research effort is currently underway to answer these questions. Stay tuned for the results!

To learn more about this *ENR 500* study, as well as surprising A/E industry trends, be sure to attend the ACEC Fall Conference session *The Consulting Engineering Game: Does Size Really Matter?* on Monday, Oct. 28, at 10:30 a.m.

Contributors: **Paul S. Chinowsky**, PhD, University of Colorado; **Rod C. Hoffman**, CEO, S&H Consulting, Evergreen, Colo.; **Jeff Holcomb**, chief development officer, Larson Engineering, White Bear Lake, Minn.; **Colvin Matheson**, managing director, Matheson Financial Advisors, McLean, Va.; and **Gerry Salontai**, CEO, Salontai Consulting Group, Rancho Santa Fe, Calif.

Public-Private Partnerships: Opportunities and Risks for Consulting Engineers

For many public owners and other infrastructure project stakeholders, public-private partnerships (PPPs) represent tremendous promise as a source of development and financing. But the risk profile for consulting engineers involved in PPP projects is significantly greater than with more traditional project delivery approaches. Further, the concerns of consulting engineers often conflict with other private-sector project participants, such as the concessionaire or a design-builder, all of whom maintain a longer-term equity interest in the PPP venture. Engineers must address professional liability risk in PPP projects through effective and robust contractual, risk management and insurance coverage strategies.



PPPs involve new challenges and risk exposures for consulting engineers and raise several questions, including:

- What is different about PPP project risks evaluation?
- What are the PPP project roles and opportunities?
- What are the responsibilities and risks associated with those varying roles?
- How should consulting engineers effectively manage PPP risks?
- What type of contract terms impact risk exposure for consulting engineers?
- What is the role of insurance in managing risk on PPP projects?

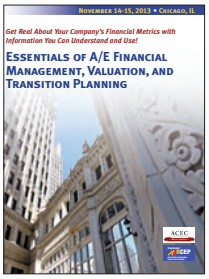
ACEC's latest book, *Public-Private Partnerships: Opportunities and Risks for Consulting Engineers*, is scheduled for release in late October and is available from the ACEC Business Resources Center at www.acec.org/bookstore. This new publication provides an objective, realistic and pragmatic look at PPP projects to help industry professionals make informed decisions about their pros and cons.

To learn more about PPPs, be sure to attend the ACEC Fall Conference session *P3s: Opportunities and Risks for Consulting Engineers* on Tuesday, Oct. 29, at 9:00 a.m.

A/E Financial Management

Financials are the lifeblood of every business organization, yet many A/E professionals don't fully understand their company's financials or what the numbers really mean. It is important to understand the many accounting tools that can energize your business. Start with project management financials and see how your contract revenue flows to your income statements, which provide key data for the firm's balance sheet.

The ACEC program *Essentials of A/E Financial Management, Valuation and Transition Planning*, to be held Nov. 14–15, in Chicago, explores the impact that a volatile economy has on financial management above and beyond revenue, profits, backlog and staff size. Participants will learn to effectively extract and apply key financial measures such as breakeven overhead rate, target billing multiplier and labor utilization percentage. Attendees will examine various performance, liquidity and leverage ratios and learn how to benchmark these results to make the causal link to shareholder value—including the acceptable valuation methodologies for engineering firms—and the valuation's relationship to internal owner transition planning. The program also features an expanded module on financial aspects of various forms of transition planning.



Visit the ACEC Education website at www.acec.org/education/index.cfm for more information.

Creating a Culture of Accountability Within a Small Firm

The new normal is here, and even firms thriving in growing markets have been forced to adjust strategies as large or out-of-town competitors sweep in. For most firms, the competitive advantage lies not in a better plan, but in a much murkier area of organizational life: culture. Industry professionals are increasingly being asked to do more with less, with both resources and people. A/E firm leaders need employees to step up. But they know that accountability is an attitude, and it can't be forced.

This will be a main topic of discussion when ACEC's Small Firm Council (SFC) holds its annual Winter Meeting Feb. 7–8, 2014, in New Orleans. Facilitator Geordie Aitken of Aitken Leadership Group will lead a two-day discussion and exploration of how accountability—the personal "ownership" employees demonstrate in their work—is developed.

This program will offer ways for firms to achieve competitive advantage and explore how to build a culture of accountability by recognizing and reinforcing industry best practices.

SFC was established to protect and promote the interests of the smaller firms within ACEC. Its winter meeting provides an exclusive forum for small firm principals to attend seminars, network with peers, address key issues affecting their firms, and learn and share new ideas. Attendees provide valuable input that helps SFC direct the business and legislative agenda for the coming year. To learn more about SFC, visit www.acec.org/sfc, or go to the ACEC Education website at www.acec.org/education.

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/publications**, or call 202-347-7474, ext. 324, for further information.

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From energy and resources projects, to the expansion of the Panama Canal, to RTD Denver's multi-modal transit program, to highways, railways, hospitals and schools, we help owners, engineering firms and project managers to deliver projects on time and within budget, improving returns and reducing risk.

Aconex is pleased to participate in the ACEC 2013 Annual Convention, and invites you to **join the *CIO Council Symposium: Navigating Challenges of Culture vs. Systems* on Monday, October 28 from 2:30 – 5:00 pm**, or visit us at booth #16 to hear about how we support multiparty engineering projects like yours.

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Members in the News

On The Move

Steven R. Heyer was named interim CEO of **HR Green, Inc.** He succeeds Michael G. Daniel, who had been CEO since 2009. Heyer is based at the firm's headquarters in Cedar Rapids, Iowa.

2010–2011 ACEC Chairman **Jerry Stump** was named COO at **Volkert, Inc.**, headquartered in Mobile, Ala. Previously, he served as COO and executive vice president at Wilbur Smith Associates.

David S. Johnson was named CFO of **Kleinfelder**. Johnson is based in the firm's San Diego headquarters.

Jeff D'Agosta joined **MWH Global** as the company's chief legal officer and general counsel and is based at the firm's headquarters in Broomfield, Colo.

Paula Hammond was named senior vice president and national transportation market leader at **Parsons Brinckerhoff**, based in New York City. Hammond formerly served as secretary of transportation for the state of Washington. She will be based in the firm's Seattle office.

Gregory T. Nettuno was promoted to senior vice president at Homestead, Pa.-based **GAI Consultants, Inc.** Nettuno will be based in Jacksonville, Fla.

Elizabeth Baldwin and **Bradlee Mezquita** were promoted to vice president at **Tighe & Bond**. Baldwin is based at the firm's headquarters in Westfield, Mass., and Mezquita works out of Tighe & Bond's Portsmouth, N.H., office.

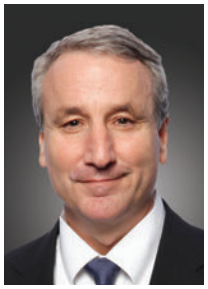
Scott Smith joined Albany, N.Y.-based **CHA** as a vice president and regional director–Midwest. He will be based in the firm's Syracuse, N.Y., office.

Michael Baker Jr., Inc., announced the following promotions to vice president: **Mark Alisesky**, based in the Philadelphia office; **Scott Armstrong**, based in the Columbia, S.C., office; **Greg Cerminara**, based in the firm's Moon Township, Pa., headquarters; **Juan Contreras**, based in the Arlington, Texas, office; **Tom Donatelli**, based in the firm's headquarters; **Matt Natale**, based in the Harrisburg, Pa., office; **Anthony Pisano**, located in the Phoenix office; and **Kenton Zinn**, located in the Chicago office.

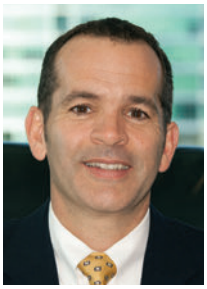

Steven Heyer


Jerry Stump


David Johnson


Jeff D'Agosta


Paula Hammond


Gregory Nettuno


Elizabeth Baldwin


Bradlee Mezquita

Welcome New Member Firms

ACEC/Arizona
Vertech, Phoenix

ACEC/California
Base Consulting Group, Inc., Reedley
Flint Builders, Inc., Roseville
Heitec, Palm Desert
Southstar Engineering and Consulting, Inc., Riverside

ACEC/Colorado
Belt Collins West, Boulder
Maxson Engineering, Littleton

ACEC/Connecticut
A.DiCesare Associates, PC, Bridgeport
Champion Engineering, LLC, Essex

ACEC/Florida
Advanced Engineering Consultants, LLC, Grant Valkaria
Atlas Engineering, Inc., Redington Beach
EltonAllan, Inc., Jacksonville
Florida Transportation Engineering, Inc., Punta Gorda
Genesis Group, Tampa
Johnson Engineering, Fort Myers
Mainstream Engineering Corporation, Rockledge
Pegasus Engineering, LLC, Winter Springs
Thompson Engineering Group (TEG), Orlando
TKW Consulting Engineers, Inc., Fort Myers
VIA Consulting Services, Inc., Orange Park

ACEC/Illinois
AAA Engineering, Niles

ACEC/Maine
Blais Civil Engineers, South Portland

ACEC/Maryland
A/I/DATA, Baltimore
KCE Engineering, Inc., Ellicott City
Mercado Consultants, Inc., Columbia
Qodesh CM, Baltimore
Samms Engineering, LLC, Ellicott City

ACEC/Massachusetts
C&C Consulting Engineers, LLC, Boston
CDW Consultants, Inc., Framingham
Commonwealth Engineers & Consultants, Inc., Providence, R.I.
Reliance Engineering, Wellesley

ACEC/Minnesota
Steen Engineering, Inc., Crystal

ACEC/Mississippi
Airport Development Group, Inc., Jackson

ACEC/Missouri
Frontenac Engineering Group, St. Louis

ACEC/Nebraska
Miller & Associates Consulting Engineers, P.C., Kearney

ACEC/New Jersey
Prestige Environmental, Inc., Somerset

ACEC/New Mexico
Advisory Inspection and Operations Company LLC, Santa Fe

ACEC/New York
Ensign Engineering, P.C., Bronx
SIMCO Engineering, P.C., New York City

ACEC/Ohio
Advanced Civil Design, Gahanna

ACEC/Oklahoma
Engineering Inc., Edmond
James H. Stewart, PE, Oklahoma City
Utley & Associates, LLC, Oklahoma City

ACEC/South Carolina
Parrish & Partners, LLC, Columbia

ACEC/Texas
Apex Geoscience, Inc., Tyler
B&H Engineers, Inc., Irving
Bayco Products, Wylie
BRG Engineering, Dallas
Corgan Associates, Dallas
Edgar Stacy & Associates, Plano
Encotech, Austin
Kalmans Marshall Engineering, Houston
P.E. Structural Consultants, Austin
Watson Services, Houston

ACEC/Utah
Cambric, Salt Lake City
Epic Engineering, Heber City
Red Leaf Resources, South Jordan
Select Engineering Services, Layton

ACEC/Virginia
WDP & Associates, Manassas

ACEC/Washington
CTS Engineers LLC, Bellevue
Emerald City Engineers, Shoreline
Metrix Engineers, Renton

ACEC/Wisconsin
Fusion Integrated Solutions, LLC, Green Bay
Oneida Total Integrated Enterprises (OTIE), LLC, Green Bay

Calendar of Events

SEPTEMBER

4 Using PowerPoint Effectively in Presentations (online seminar)

5 Improving Alternative Delivery Projects from Cradle to Grave (online seminar)

10 Your Clients Talked, We Listened: Top 10 Research Findings Every Firm Should Know (online seminar)

11 Forget (Almost) Everything You Know About Business Development (online seminar)

17 Negotiating Better Engineering Contracts (online seminar)

18 The Benefits of Cloud Computing for A&E Firms (online seminar)

24 Strategic Decision-Making in Uncertain Times (online seminar)

26 Fast Future: Fifteen Uber-Trends that Will Rock Our World (online seminar)

OCTOBER

1 Trends in Internal Ownership Transition Planning (online seminar)

2 Sell While You Sleep: Building a Website that Supports Referrals and Word of Mouth (online seminar)

9 Client Research: Debunking Myths and Maximizing ROI (online seminar)

10 "Creativeship": The Evolution from Management to Leadership to Creativeship (online seminar)

15 The Engineered Interview: A Civil, Structured, Electrified Approach to Winning More Business (online seminar)

16 If You Haven't Planned It, You Can't Control It (online seminar)

17 Ready/Aim/Fire: Achieving Record Sales and Profits, Even in a Competitive Market (online seminar)

22 How Can You Exceed My Expectations If You Don't Know What They Are? (online seminar)

27-30 ACEC Fall Conference, Scottsdale, Ariz.

To sign up for ACEC online seminars, go to **www.acec.org/education**.

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

Mergers and Acquisitions

BY NEIL CHURMAN

Global Deal Making in a Funk

While mergers and acquisitions (M&A) activity has remained relatively robust in the United States, global deal making has cooled off. We tracked 315 global architecture and engineering M&A deals in 2012, down from a record 332 deals in 2011 (*see Figure 1*). So far in 2013, we have recorded only 158 global deals.

By contrast, we recorded 180 U.S. firm sales in 2012—the highest total since 2008. Year to date through July 2013, we have seen more than 100 sales of U.S.-based A/E firms (*see Figure 2*). If this pace continues through the remainder of the year, 2013 could set a new record for domestic A/E industry M&A activity.

What's the reason for the split between domestic and international deal making? When you consider that M&A generally follows economic cycles, it's not a surprise that global deal making has cooled. Recent reports have shown a slowing of the global economy with continued uncertainty and volatility. Europe's economy remains sluggish, dragged down by the Eurozone debt crisis of the last four years. The BRIC countries (Brazil, Russia, India and China), while still showing strong growth compared to the United States, have seen growth forecasts dialed back as well. China's economy in particular has witnessed a tapering of economic growth, which has led to greater global economic concerns.

Figure 1: Historic Global M&A Activity

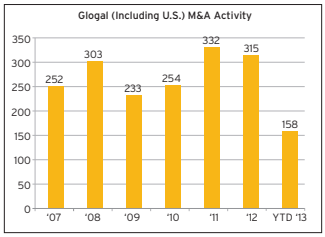
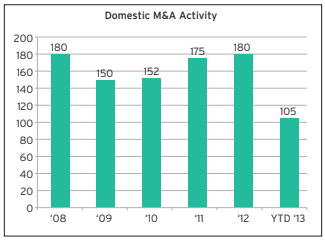
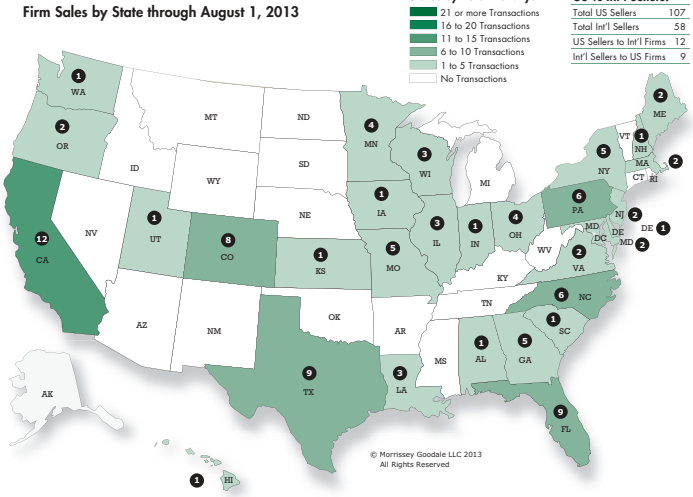


Figure 2: Historic Domestic M&A Activity



Source: Morrissey Goodale LLC

2013 REPORTED M&A ACTIVITY
Firm Sales by State through August 1, 2013



Energy and Natural Resources in Focus

Though the global economy presents its share of challenges, global industry deal making continues to be driven by two relatively hot markets—energy and natural resources, especially expansion into the oil and gas, metals and mining and energy sectors. Notable deals this year include:

Global engineering and construction firm **Ausenco** (South Brisbane, Australia) acquired the Canadian oil sands business of EPCM firm **PROJEX Technologies** (Calgary, Canada).

Oil and gas-focused engineering and construction firm **Chiyoda** (Yokohama, Japan) acquired a majority share of infrastructure and energy consultancy **Xodus Group** (Aberdeen, Scotland).

Engineering and technology group **SENER** (Las Arenas, Spain) acquired engineering firm **EXEN** (São Paulo, Brazil).

Global engineering, architecture and environmental firm **GHD** (Sydney, Australia) acquired key business assets of **ProMet Engineers** (Perth, Australia).

If the U.S. economy continues to gain steam, these firms might soon look to the States for expansion opportunities.

Recent ACEC Deal Makers

ACEC Member Firm **GEI Consultants** (Woburn, Mass.) merged with **Feld, Kaminetzky & Cohen (FKC)** (New York City), a structural and civil engineering firm providing services to architectural and engineering firms, builders, contractors, private clients and public agencies for more than 80 years.

ACEC Member Firm **Terracon Consultants** (Olathe, Kan.) acquired **Dunkelberger Engineering & Testing** (West Palm Beach, Fla.).

ACEC Member Firm **Stantec** (Edmonton, Canada) acquired the assets of 50-person buildings engineering firm **IBE Consulting Engineers** (Sherman Oaks, Calif.).

Stantec also acquired the assets of water/wastewater and municipal engineering firm **Roth Hill** (Bellevue, Wash.).

To view the most up-to-date and "live" versions of the M&A heat maps accompanying this article and to see 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/SeptOct2013.

Neil Churman is principal consultant of Morrissey Goodale LLC—a strategy, M&A and human capital solutions firm serving the A/E/C industry. Churman, who is based in the firm's Houston office, can be reached at nchurman@morrisseygoodale.com.

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The American Council of Engineering Companies (ACEC), the ACEC Life/Health Insurance Trust and UnitedHealthcare Insurance Company are three separate legal operating entities and, as such, the organizations are governed and function independently. UnitedHealthcare's services are provided with the authorization of the ACEC Life/Health Trust. Questions related to health benefits offered through the Life/Health Trust should be directed to 1-800-573-0415. HMO products don't apply. ACEC membership qualification is determined by the association.

*Potential 12% savings on annual premiums for businesses with 2-99 employees, as compared to UnitedHealthcare products sold outside the ACEC Life/Health Trust.

**Network statistic based on GeoAccess information and UnitedHealthcare standard network access mileage criteria, 2010.

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