

SUMMER 2022

ENGINEERING INC.

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Severud Associates'
Moynihan Train Hall
takes top prize at
the 2022 Engineering
Excellence Awards

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MOYNIHAN
TRAIN HALL



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Ticketed Waiting Room

Meet the New ACEC
Executive Committee

What Makes an
Effective Board
of Directors?

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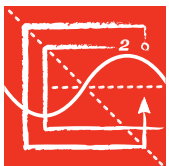


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And the 2022 Grand
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Severud Associates' Moynihan
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2022 ENGINEERING EXCELLENCE AWARD WINNERS

The event showcased 195 ACEC
member firm achievements
from throughout the nation
and internationally.

The ACEC Research Institute provides the engineering industry with cutting edge research, trend data, and economic analysis to help firm owners make decisions and delivers thought leadership that advances engineering's essential value to society.

The ACEC Research Institute wishes to extend its sincere appreciation to its generous contributors.

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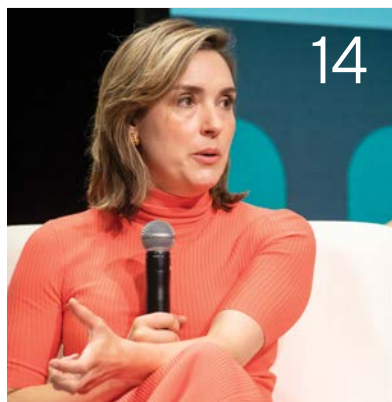
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Back Together Again in D.C.

The recently concluded 2022 ACEC Annual Convention in Washington, D.C., was a great event that gave our attendees the tools and information necessary to forcefully advocate for the full implementation of the Bipartisan Infrastructure Law.

The Convention was also highlighted by the 55th annual Engineering Excellence Awards Gala—the first time it has been held as an in-person event in two years. It was wonderful to get back into the swing of things and celebrate 195 examples of engineering excellence with the glitz and glamour our industry deserves from a gala evening.

As we concluded the Convention, we shared the appreciation of a grateful Council to Robin Greenleaf, who stepped down as our Board Chair after a packed year of legislative action spanning from Paycheck Protection Program loan forgiveness to the enactment of the historic Infrastructure Investment and Jobs Act. We look forward to continuing the momentum Robin spearheaded as we welcome our new Board Chair, W. Arthur Barrett II, senior vice president at Gannett Fleming, along with other new members of the Executive Committee.

A major Convention highlight is always our lineup of speakers, and this year did not disappoint. We were treated to a fireside chat with Margaret Brennan, the moderator of CBS News' *Face the Nation*, as well as remarks from Mitch Landrieu, President Joe Biden's coordinator on infrastructure, and Clarence Anthony, CEO of the National League of Cities.

More than 500 members and guests attended the black-tie Engineering Excellence Awards (EEA) Gala, hosted by the ever-popular Ross Shafer. Congratulations to all award winners. Special congratulations goes to our Grand Conceptor Award winner for 2022, the new Moynihan Train Hall by Severud Associates. This truly amazing project will be a model for major facility repurposing going forward. Check out the EEA coverage beginning on page 18.

Rounding out this issue of *Engineering Inc.* is a spotlight on the 2022-2023 Executive Committee, as they weigh in on new opportunities and challenges facing the industry (see page 56).

Thank you to everyone who joined us in Washington, D.C., in May. We look forward to seeing you again this October in Colorado at The Broadmoor.

Sincerely,



W. Arthur Barrett II
ACEC Chair




Linda Bauer Darr
ACEC President & CEO



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Transportation Market Poised for Long-Term Growth

BY GERRY DONOHUE

Engineering firms were already optimistic about the next few years in the transportation market before the passage of the \$1.2 trillion Infrastructure Investment and Jobs Act (IIJA). With the IIJA's passage into law, that optimism turned to elation.

"Before the IIJA was approved, we were filling up with a lot of work with our state departments of transportation (DOTs) and local municipalities," says Kyle Anderson, EVP at Felsburg Holt & Ullevig in Omaha, Neb., and chair of ACEC's Transportation Committee. "Now, though, I think we're looking at probably the strongest five-year period that we've seen in a very, very long time."

Three factors in the IIJA will contribute to that market strength: the level of funding, the long-term commitment, and the transformational approach.

FUNDING

The \$1.2 trillion infrastructure law includes \$550 billion in new funding on top of the reauthorization of many Fixing America's Surface Transportation (FAST) Act programs and other initiatives, such as water, electrical grid, and broadband.

Combining the reauthorization and the new transportation funding in the IIJA, the sector will receive \$351 billion for roads and bridges, \$91 billion for public transit, \$66 billion for rail, and \$42 billion for airports and ports.

"States are expecting roughly a 50 percent increase in their transportation spending over the life of the IIJA," says Jon Gray, chief economist at the ACEC Research Institute. "It can't be overstated how important this program is to the overall transportation market."

Andy Lauzier, transportation planning and design director at HDR and vice chair of the ACEC Transportation Committee,

12963744/GETTY IMAGES

says the firm had anticipated a fairly strong market going forward but now, “from a numbers perspective, we’re looking at 15 percent, or maybe a little bit more, year-over-year growth.”

The massive influx of money also presents new opportunities for firms, Lauzier says. “Some of the services we see growing are upfront advisory services and program management, because our clients are going to need help managing the huge increase in work.”

LONG-TERM COMMITMENT

The five-year duration of the IJIA gives state DOTs and local municipalities a steady stream of committed funds, allowing them to begin long-term projects.

The winding down of the FAST Act and the systemic shock of the COVID-19 pandemic over the past two years “had a chilling effect on capital improvement projects,” says Lauzier. “With this long-term funding commitment, the transportation agencies can advance their projects and programs with more confidence.”

Anderson says, “Early on, we’re going to see fairly quick implementation of some maintenance and 3R projects (resurfacing, restoration, and rehabilitation), but our state agencies and others are already gearing up for longer-term projects, recognizing that our average project delivery is close to seven or eight years.”

The longer-term focus also helps firms. “When the funding comes in short bursts, or maybe a year or two of increased funding, it’s really hard to grow your base of employees,” says Anderson. “When you have a five- or six-year horizon, though, you can start to be more aggressive and make those investments.”

Labor availability, though, could be an issue over the life of the program.

“The biggest limitation to how well our industry does will be our ability to find people,” says Anderson. “And that’s not just in the firms. A concern among some of the DOTs and contractors that we’ve talked to is that they won’t have the capacity to deliver this program in the way they would like.”

Inflation could also eat into the impact of the program in the out years. “Prices are going up because of the increased cost of materials and people,” Anderson says. “If you look at a five-year bill and you infuse this much money into it, you could easily see 30 percent or more of it eaten up by inflation by the end.”

TRANSFORMATIONAL APPROACH

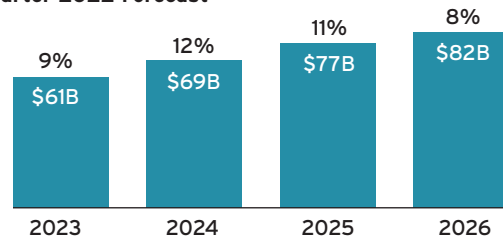
“This legislation represents a shift in the way we look at transportation,” says Lauzier. “We need to look at it holistically and not in mode-by-mode silos. It’s not just about highways or transit or aviation, but it’s about overall mobility and how that mobility comes together at the local level. Because at the end of the day, an efficient transportation network is a quality-of-life issue.”

For instance, he suggests that rather than just increase the number of interstate lanes, DOTs might build express lanes or hard shoulder running lanes to make bus transit more efficient. Or they could invest in a complete streets program, with on-street parking converted to more community space or areas for bicyclists and pedestrians.

“This legislation requires that we think about transportation differently,” Lauzier says.

CONSTRUCTION SPENDING PUT IN PLACE: Forecast Growth for U.S. Transportation

2nd Quarter 2022 Forecast



Source: FMI North American Engineering and Construction Outlook, Second Quarter Edition

As a bottom-line issue for engineering firms, the IJIA will have a tremendous impact. Gray estimates that engineering firms will receive between 5 to 10 cents of every infrastructure dollar. In addition, much of engineering firms’ work will come at the front end of these projects, so the dollars will start flowing sooner.

The IJIA will also ripple through the rest of the economy. “One report estimates that the sales multiplier for infrastructure is 3.5, which means that each dollar invested in infrastructure through the IJIA will generate \$3.50 in additional spending across the entire economy,” Gray says. “Given the size of the program, there will be an enormous impact.” ■

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New ACEC Study Shows Clients Save Time and Money With Qualifications-Based Selection

The use of Qualifications-Based Selection (QBS) in federal, state, and municipal procurement provides significant direct and indirect benefits over alternative procurement methods, according to a comprehensive study published in March by the ACEC Research Institute.

QBS is the cornerstone procurement process for the design services industry in the public markets in which firms compete for work based on experience and technical expertise, rather than aiming to submit the lowest bid.

Since QBS was introduced at the federal level in 1972, ACEC has asserted that QBS produces the best project results for clients. Other organizations, including the American Public Works Association and the American Bar Association, have endorsed the method, and numerous studies over several decades have demonstrated the benefits of QBS over other procurement options.

The Research Institute study, *Savings, Innovation, and Efficiency: An Analysis of QBS in the Procurement of Engineering Services*, reinforces those findings. The researchers, Paul S. Chinowsky of the University of Colorado–Boulder and Gordon Kingsley of the Georgia Institute of Technology, analyzed 68 projects that utilized QBS, as well as a host of other procurement methods.

RESEARCH REVEALS BENEFITS OF QBS

In the traditional project metrics of cost and schedule, the study found that QBS outperforms the national performance in cost growth by 50 percent (3 percent growth versus 6 percent growth) and in schedule growth (7 percent growth versus 10 percent growth).

These efficiency gains stem primarily from the production of higher-quality design documents, which are more likely on QBS procurements because the method puts such a large emphasis on

ANDRES/GETTY IMAGES



ACEC RESEARCH INSTITUTE

the many benefits of collaborating with an experienced design team, including the opportunity to build on the design team's experience to better position their proposals for future funding.

Finally, the study found that QBS projects are more likely to produce innovative solutions, once again because of the emphasis on firms' past experience and previous project success on the front end of the competition.

LOCAL GOVERNMENTS FACE CHALLENGES

Given all these benefits, it's no surprise that most of the states and many local governments mandate the use of QBS to some degree.

At the state level, the majority of ACEC state Member Organization executives reported that all their state agencies use QBS at least 80 percent of the time, and only two states reported the lack of a state QBS mandate: Indiana and Vermont.

The use of QBS drops off, however, at the local levels. Counties, municipalities, school districts, and other agencies only use QBS between 41 percent and 60 percent of the time. The researchers attribute this decline to two factors: education and capacity.

Turnover in procurement departments has increased in the past decade, and less experienced individuals are now in charge. Additionally, there has been a significant increase in advocacy efforts by groups promoting cost-based methods. As a result, knowledge and understanding about the core benefits of QBS have dropped in many localities.

Finally, many smaller jurisdictions don't have dedicated procurement staff. Procurement is just a part of a larger set of responsibilities for a single individual. In these cases, individuals have reported that they believe QBS takes longer up front, and this presents a capacity issue.

REPORT BOLSTERS ADVOCACY EFFORTS

This Research Institute report can be a powerful tool for the engineering and design services industry to expand the reach of QBS in these local jurisdictions.

"Advocating for QBS is an evergreen effort because officials change, and we need to repeat the education on a regular basis because some have never heard it before," says ACEC Indiana Executive Director Beth Bauer. "It helps to have fresh information to tell our story about QBS and why it is the way to go."

In Virginia, Executive Director Nancy Israel is sharing the report with the Virginia Association of Governmental Purchasing. "This is the best information shared with the states in many years," she said.

And in Illinois, the ACEC Member Organization has incorporated the data from the report into the drafting of Illinois House Resolution 682, which outlines the benefits of QBS and reaffirms it as the preferred procurement method in Illinois.

For more information and to download the free report, visit: <https://program.acec.org/qbs-resources-portal>. ■

the designer's past performance and proficiency.

The Research Institute study also revealed some important indirect benefits of QBS.

While QBS has a positive impact on all projects, there is substantial added value from contracting with experienced and stable design teams on highly complex projects.

For example, Milwaukee's Lakefront Gateway Project, consisting of the redesigning of ramps to I-794, required a significant amount of public outreach and involvement between the city, state, county, and numerous other stakeholders. According to a designer on the project, "Projects with community involvement, social components, and additional community features require design firms with broader knowledge and understanding. This brings QBS into a positive position."

Additionally, QBS projects more consistently achieve the client's objectives than non-QBS projects. In the study, owners on projects that utilized QBS commented repeatedly about

House and Senate Committees Advance Water Resources Development Bill

Two key congressional infrastructure committees unanimously approved their versions of legislation to authorize Army Corps of Engineers programs.

The biennial Water Resources Development Act (WRDA) authorizes funding for navigation, flood control, coastal restoration, and environmental protection projects. The Senate measure (S. 4137) includes feasibility studies for 36 new projects, advances or modifies 21 projects for construction, and provides program reforms to facilitate dredging and maintenance at critical ports. The House bill (H.R. 7776) would authorize 72 new feasibility studies and construction of 16 pending projects.

Both bills provide additional resources and assistance to tribal communities and underserved areas to complete water resources improvements.

ACEC supported the measures and encouraged lawmakers to stay on track to enact WRDA 2022 before the end of the year. “The bipartisan work on this bill builds on the success of the Infrastructure Investment and Jobs Act and recognizes the vital need to continue to focus on our ports, inland waterways, locks, dams, and other critical infrastructure essential to economic growth,” said Council President and CEO Linda Bauer Darr.



TANES NGAMSON/GETTY IMAGES

“Engineering firms are eager to partner with the Corps on these and other projects to make our ecosystems more resilient and sustainable.”

Both the House and Senate are expected to take up the respective bills sometime this summer.

ACEC Advocates for Competitiveness Legislation

Congressional negotiators are working toward resolution of wide-ranging legislation that would enhance research, innovation, and competitiveness. ACEC supports anticipated provisions on STEM education and research hubs.

The legislation is expected to include key provisions to address the talent pipeline for engineering and other STEM professions. ACEC particularly supports programs that seek to improve the alignment of undergraduate and graduate STEM education with workforce needs. The

bill also seeks to provide technical assistance, mentorship, and targeted outreach to institutions of higher education, including historically black colleges and universities (HBCUs), minority-serving institutions (MSIs), and tribal colleges and universities (TCUs).

Another key provision of interest to engineering firms is the regional technology and innovation hub program. These centers would spur the growth of technology, health care, and science research throughout the country, and would have spillover effects on commercial real estate.

Council Engages on New Build America, Buy America Requirements

The Infrastructure Investment and Jobs Act includes new Build America, Buy America Act (BABAA) domestic preference requirements for iron, steel, manufactured goods, and construction materials used in infrastructure projects receiving federal financial assistance. The new rules took effect on May 14, and the Office of Management and Budget issued preliminary implementation guidance to federal agencies concerning project and program waivers

based on cost, availability, and public interest. The Council is engaging with implementation actions by several key federal agencies.

ACEC has informed policymakers that the engineering industry supports efforts to strengthen the domestic manufacturing base, including through domestic sourcing requirements on federally funded projects. However, there are many situations where particular materials or technologies essential for certain infrastructure projects are not available in the United States, and the BABAA waiver process ought to be efficient and reasonable to avoid project disruptions.

For water infrastructure, the EPA is soliciting information from affected manufactur-

ACEC Pushes Back Against Proposed Davis-Bacon Expansion

The Department of Labor (DOL) has issued a proposed rule that would expand the Davis-Bacon Act to cover surveyors, and ACEC is working with the National Society of Professional Surveyors to push back against this change.

The Davis-Bacon Act requires that laborers and mechanics on federally funded or assisted construction projects must be paid prevailing wages and fringe benefits. The regulations include an exemption for learned professionals that explicitly covers engineers and architects.

ACEC argued in its comment letter that, as licensed professionals, surveyors should fall under the learned professionals exemption. This would align the Davis-Bacon regulations with the Brooks Act definition of architectural and engineering services.

The DOL is expected to finalize the rule later this year.



KADIN/GETTY IMAGES

ers, suppliers and distributors, engineers, contractors, and owners and operators. Based on public interest in avoiding delays, increased costs, and public health, the EPA proposed—and ACEC supported—a waiver of BABAA requirements for projects financed under the Water Infrastructure Financing and Innovation Act (WIFIA) program that initiated project design planning prior to May 14. The EPA is considering additional waivers for Clean Water and Drinking Water State Revolving Fund projects and other programs. ACEC will continue to collaborate with the water utility industry in support of reasonable waivers.

For transportation, the U.S. DOT issued a temporary public interest waiver for

construction materials for a period of 180 days, beginning on May 14. During the time of the transitional waiver, “DOT expects states, industry, and other partners to begin the compliance process,” according to the notice. “DOT, using feedback from this proposed waiver and continued engagement through the waiver period, will work to ensure the creation of robust enforcement and compliance mechanisms.” ACEC is working with member firms, suppliers, and other stakeholders to inform DOT about the domestic availability of certain categories of construction materials and the potential impact on highway, transit, and other projects funded through the Infrastructure Investment and Jobs Act.

ISSUES ON THE MOVE

WHAT'S NEXT

Water Resources Development Act

House, Senate floor action by August

Buy American regulations

Further regulatory action expected this summer

Davis-Bacon expansion to surveyors

Final action before the end of the year

Council Leads Construction Industry Effort to Increase Flexibility for Army Corps of Engineers

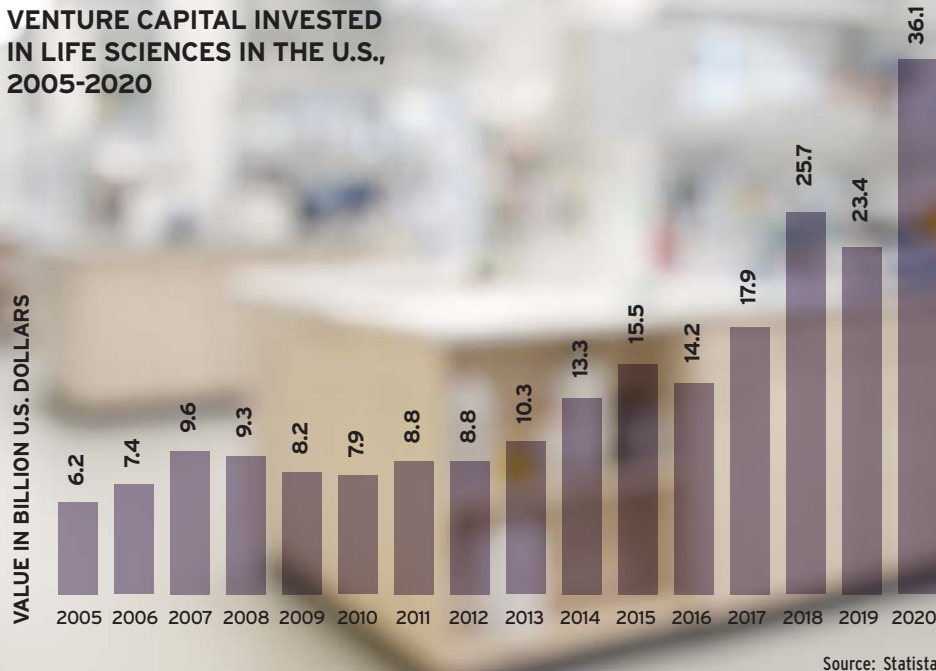
ACEC led an effort with the construction industry to urge the House and Senate Appropriations Committees to revise their reprogramming policy, specifically related to Military Construction (MILCON) and family housing construction accounts.

Congress provides the Department of Defense (DoD) limited authority to obligate funds for purposes other than originally approved. These authorities allow the DoD to reprogram funds, which involves shifting money within the same account. When the requested reprogramming exceeds the threshold prescribed in law, the department is required to provide written notice to the defense authorization and appropriations committees for their approval, which affords them the flexibility to respond to unanticipated budgetary conditions.

Currently, the reprogramming limit for MILCON projects is the lesser of 25 percent of the project funded amount or \$2 million, and this has remained unchanged since 1982. We believe it is important to provide the military services with an appropriate level of flexibility to proceed with construction contracts without disruption or delay, especially in our current inflationary environment. In addition to cost-estimating challenges, it is not uncommon in the private or public sector to encounter unanticipated environmental issues during construction; thus, we also support the flexibility Congress has provided for paying for unanticipated environmental hazard remediation issues that may arise.

The Council was joined by the American Subcontractors Association, Associated General Contractors of America, Construction Management Association of America, Design-Build Institute of America, International Institute of Building Enclosure Consultants, National Association of Surety Bond Producers, National Electrical Contractors Association, National Society of Professional Surveyors, Sheet Metal and Air Conditioning Contractors National Association, and the Surety & Fidelity Association of America. ■

VENTURE CAPITAL INVESTED IN LIFE SCIENCES IN THE U.S., 2005-2020



WHAT MAKES UP THE LIFE SCIENCES SECTOR?

The companies included in life sciences are generally involved in the research, production, and sales of services and products connected to:

- Biomedicine
- Pharmaceuticals
- Biophysics
- Neuroscience
- Cell biology
- Biotechnology
- Nutraceuticals
- Food processing
- Cosmeceuticals
- Life systems technologies
- Environmental sciences

Source: Straits Research

Life Sciences Growth Driven by VC Funding, Demographics

By Erin McLaughlin



The life sciences market remains one of the hottest for engineering, architecture, and construction firms. The reasons for this are the demand for facilities due to employment growth and solid streams of increased funding from venture capital and other sources—thereby boosting research, development, and facility spending.

Even before the global COVID-19 pandemic began in early 2020, for the past two decades the life sciences industry has been considered by many analysts to be “recession-proof” due to demand and the necessity of services connected to this market. That trend has only accelerated in the last few years. Having modern facilities for those who work in the health care and life sciences industries is key, as many employees cannot work remotely and competition for talent is fierce.

Venture capital (VC) continues to pour into the life sciences sector, reaching \$36.1 billion in 2020, a 482 percent increase in 15 years (see table). According to Colliers, nearly 60 percent of all VC deals benefit

companies in the Boston and San Francisco Bay areas—the two largest life science clusters nationwide. This wave of capital drives real estate markets, and developers are building to suit this market (or even transforming existing office buildings when feasible). A recent report by commercial real estate firm CBRE showed that in the Boston-Cambridge market for life sciences space vacancy was 1.1 percent, with office space at 12.7 percent; in the San Francisco Bay area the story was the same, with 2.6 percent life sciences vacancy, compared to 14.8 percent for office space (Q3 2021).

The growth of life sciences is supported in large part by a growing need to find innovative solutions connected to supporting an aging population. By 2030, all baby boomers will be age 65 or older. At an estimated 73 million, this generation is the second largest age group after millennials, according to the U.S. Census Bureau. With people 65 and older visiting the doctor 2.5 times more than those aged 25-44, as reported by Marcus & Millichap Research Services, the need for facilities will continue to grow in large part due to demographics and a drive toward innovation.



Indrani Ghosh, Ph.D., with Weston & Sampson, addresses attendees of ACEC's Private Market Symposium in Boston.

2022 ACEC SYMPOSIUM FOCUSED ON LIFE SCIENCES

At the end of April, ACEC hosted its first "private market symposium" focused on the health care and life sciences sector, convening experts on the booming industry in the Boston suburb of Cambridge.

The symposium reflects both how the life sciences sector has become a major growth area for

A/E companies along with the emergence of the Boston area as the hottest geographic market for this sector. Other U.S. markets with demand for new lab and biotech research space include Philadelphia, Washington, D.C., Chicago, Seattle, Raleigh/Durham, and San Francisco.



Commercial & Residential Real Estate



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Health Care & Science+Technology



Energy & Utilities



Economic Outlook



Education

The Private Side is a regular department of *Engineering Inc.*, focusing on the private-sector markets listed above, and information and insights on economic data relevant to the industry. For more on these topics, subscribe to ACEC's bimonthly *Private Industry Briefs*: <https://programs.acec.org/industrybrief>.

U-HAUL 2021 INDEX: TOP 10 STATES BY MIGRATION GROWTH



U-Haul Migration Trends Show Continued Growth in Sunbelt

Increased migration to the Sunbelt, with Texas the leading state in 2021, has been confirmed by U-Haul's annual migration trends report. Data such as this is interesting for our industry to track, as engineering firms look to target growing markets that will be investing in more housing, retail, and infrastructure. Texas regained its number one spot on the list, which it previously held from 2016-2018, according to U-Haul. Florida ranked first in 2019, with Tennessee taking the lead in 2020. While waiting for U.S. Census Bureau data to confirm population shifts, U-Haul provides us with a list of how states are faring by calculating the net gain of one-way U-Haul trucks entering a state versus leaving that state within a calendar year; this is what economists refer to as "alternative data." U-Haul says this migration trend data is compiled from more than 2 million one-way U-Haul trips annually. ■

A RETURN TO NORMAL



MORE THAN 900 CELEBRATE IN PERSON



Chair Emeritus Robin Greenleaf addresses State Organization leaders from throughout the federation during the 2022 Annual Convention Board of Directors meeting.



"An informed electorate is a key part of a successful democracy," CBS's *Face the Nation* moderator Margaret Brennan emphasized.



W. Art Barrett, senior vice president at Gannett Fleming, was installed as the new 2022-2023 Council Chair, succeeding Robin Greenleaf.



ACEC members and MO execs took to Capitol Hill during the Convention. Left to right: ACEC of South Dakota President Doug Wessel, ACEC of South Dakota Executive Director Nancy Hoines, Sen. John Thune, and ACEC of South Dakota National Director Chad Hanisch.

"The priority for IIJA is now implementation," ACEC President and CEO Linda Bauer Darr told the Board.



AT THE 2022 ANNUAL CONVENTION

Amid a constant atmosphere of reconnecting with good friends, more than 900 individuals attended the recently concluded in-person ACEC Annual Convention and Legislative Summit in downtown Washington, D.C.

Despite a pandemic-fueled pause in live events, the 2022 Annual Convention restarted the way many members remembered. There were numerous compelling speakers, highlighted by CBS's *Face the Nation* host Margaret Brennan, and more than 20 cutting-edge business education sessions (including firm roundtables) covering topics such as the Infrastructure Investment and Jobs Act (IIJA), transportation opportunities, and the remote workplace.

W. Art Barrett, senior vice president of Gannett Fleming, was installed as new 2022-2023 Council Chair, succeeding Robin Greenleaf.

Convention special guests included Clarence Anthony, CEO and executive director for the National League of Cities, and Mitch Landrieu, former New Orleans mayor and special White House Advisor for implementation of the historic bipartisan infrastructure law.

ACEC/PAC enjoyed a successful Convention, highlighted by hosting a "home base" lunch gathering area at the ACEC Townhouse for those making Capitol Hill visits.

Additionally, more than 500 attended the 55th annual black-tie Engineering Excellence Awards Gala, hosted by comedian and author Ross Shafer.

More Annual Convention highlights include:

CONVENTION BOARD URGED TO EMBRACE EXCITING TIME TO BE AN ENGINEER

During her report before the Council Board of Directors, ACEC President and CEO Linda Bauer Darr was thrilled about anticipated robust times ahead for the industry.

"2021 was the best year ever in our industry's history," said Darr. "We were already seeing new projects move forward before the IIJA. This unprecedented investment should keep our firms busy for quite a while."

She cautioned, however, that significant growth in engineering demand will not come without challenges for member firms.

"The priority for IIJA is now implementation," Darr emphasized, while adding that the boost in investment is expected to create 82,000 new engineering jobs—jobs that must be filled.

"It's a tough time to hire engineers and a tough time to retain," she said. "Our ability or inability to fill those jobs will determine whether IIJA succeeds."

CBS' BRENNAN WARNS OF DIVIDED, MISINFORMED ELECTORATE IMPACT ON DEMOCRACY

Face the Nation moderator Margaret Brennan told an Annual Convention audience that democracy is endangered, and public misinformation is a leading cause.

"The view of Washington, D.C. journalists is almost as dismal today as the view about Congress," Brennan said. "An informed electorate is a key part of a successful democracy."

A major example of the misinformation she noted was how it was known by the government, including the former president,

that COVID-19 was extremely contagious and dangerous, yet they kept the information from public knowledge until it became a crisis.

“Accurate information about the pandemic mattered directly to people’s well-being, but it was kept silent,” Brennan noted. “As a result, the national trauma of the pandemic will shape our politics for a long time to come.”

She also pointed to recent CBS News polls that show how a majority of U.S. voters would more likely label Democrats weak, while labeling the GOP as extreme and hateful.

“These divisions are toxic and worrisome,” she said.

She urged news watchers to be more cognizant of the difference between commentary and journalism, and to question the source before taking what’s said at face value.

“Remember there are people here, including those I work with, who came to Washington, D.C. to make a difference.”

CHARITY: WATER PROVIDING LIFE-SAVING BENEFITS

A self-titled “good religious kid” who wanted to be a doctor, Scott Harrison lost his way as a drugged-out New York nightclub promoter—only to have a major life pivot and become someone key in the saving of thousands of lives and counting.

Annual Convention attendees were captivated by the disturbing details of Harrison’s early life, including a tragedy surrounding his mother and a subsequent fall into the depths of nightclub depravity.

But in a dramatic life reversal, Harrison volunteered with Christian charity Mercy Ships, which operates a fleet of hospital ships offering free health care worldwide. It was while docked in Liberia that his life changed forever.

“There was one doctor for every 50,000 residents,” he said. “I also learned that one-half the country was drinking extremely contaminated water.”

He showed the audience a photo of a woman who had a tumor growing out of her mouth so large she would cover it in public for fear of being stoned to death. “Another child had a tumor in his mouth that literally was suffocating,” he said.

“No human should be drinking water filled with worms and parasites. I knew what I had to do.”

After returning to New York in 2006, he founded charity: water—a charity that raises money and awareness of the need to install clean water systems throughout the world.

ACEC/PAC SPRING SWEEPSTAKES WINNERS

The annual ACEC/PAC Spring Sweepstakes sold out all 1,500 tickets, bringing in \$300,000 and boosting PAC receipts by 15 percent over 2021.

The winners of this year’s PAC Sweepstakes: **Claudia Irvin** of **S&ME** in Raleigh, North Carolina, won the \$10,000 Grand Prize. **Tim Blair** of **J-U-B Engineers** in Boise, Idaho, and **Andrew Bender** of **VS Engineering** in Indianapolis each won \$5,000. **Gene Sieve** of **Burns & McDonnell** in Bloomington, Minnesota, and **Abdelmadjid Lahlaf** of **Lahlaf Geotechnical Consulting** in Billerica, Massachusetts each won \$2,500.

Ten people won \$1,000 prizes: **Eric Fosmo** of **Kimley-Horn and Associates** in Saint Paul, Minnesota; **Andrew McCune** of **Wade Trim** in Detroit; **Van Collins** of **ACEC Washington** in Bellevue, Washington; **Fred Seling** of **Engineering Associates** in Wooster, Ohio; **Jenny Sallee** of **Garver** in Tulsa, Oklahoma; **Chad Hanisch** of **Infrastructure Design Group** in Sioux Falls, South Dakota; **Gary Pohl** of **Butler, Fairman & Seufert** in Indianapolis; **Mary Hall** of **GZA GeoEnvironmental** in Boston; **Dawn Cartier** of **CivTech** in Scottsdale, Arizona; and **Miranda Patton** of **MNS Engineers** in Santa Barbara, California.

The organization is making a tremendous impact. To date, more than 19,000 projects in 29 countries have been completed through the charity’s efforts, providing nearly 15 million people new access to clean water and a brighter future.

Yet 771 million people today still lack basic access to clean and safe drinking water, which impacts a person’s health and education.

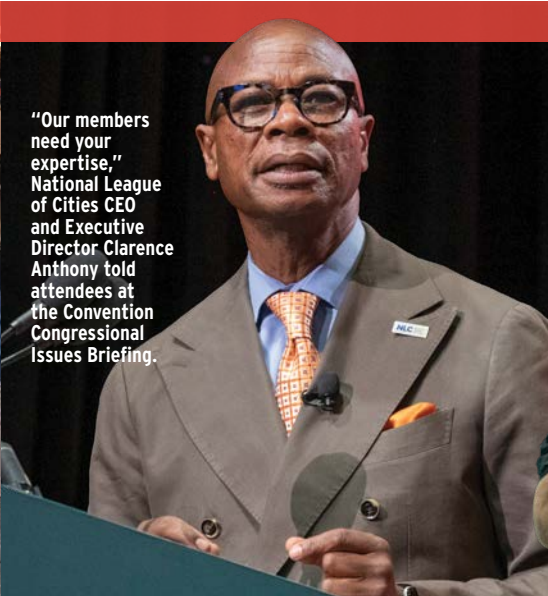
“We plan to keep up exhibitions and campaigns and continue to address this huge human problem,” Harrison said.

PIONEER WOMAN FIGHTER PILOT DELIVERS INSPIRING LIFE KEYS

The first woman pilot ever to earn a place on the U.S. Air Force Air Demonstration Squad—better known as the Thunderbirds—provided Convention attendees with an inspiring speech on overcoming challenges and bringing your best in everything you do.



Convention attendees enjoyed the Exhibit Hall, which featured displays from more than 40 vendors.



“Our members need your expertise,” National League of Cities CEO and Executive Director Clarence Anthony told attendees at the Convention Congressional Issues Briefing.



“No human should be drinking water filled with worms and parasites,” implored Scott Harrison, founder of charity: water.

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Strand Associates

Retired Col. Nicole Malachowski talked about how the legendary success she has achieved in her Air Force career has been based on her ability to harness within herself the courage, trust, and vulnerability in facing seemingly insurmountable challenges.

"To start, there was a time I was afraid of heights," she said. "But I always had the ability to push the envelope to overcome an obstacle."

During her career, she also commanded an Air Force fighter squadron, served as a White House Fellow, and was selected by First Lady Michelle Obama and Second Lady Jill Biden as the new executive director of Joining Forces, an initiative to support veterans, service members, and military families.

She admitted that her career ascension was filled with numerous instances of unconscious bias—including being told by a superior that it was unlikely the Air Force department would want to waste its one recommendation to nominate a Thunderbird on a woman.

She used internal strength and a little luck to overcome such instances. "I realized I didn't want to censor my strength because of someone else's opinion," Malachowski said.

She left the audience a few other insights that have served her well, including, "Nothing of significance is ever accomplished alone," and "You build trust by showing you are trustworthy."

MARS MISSION SCIENTIST PROPONENT OF TEAM LEADERSHIP

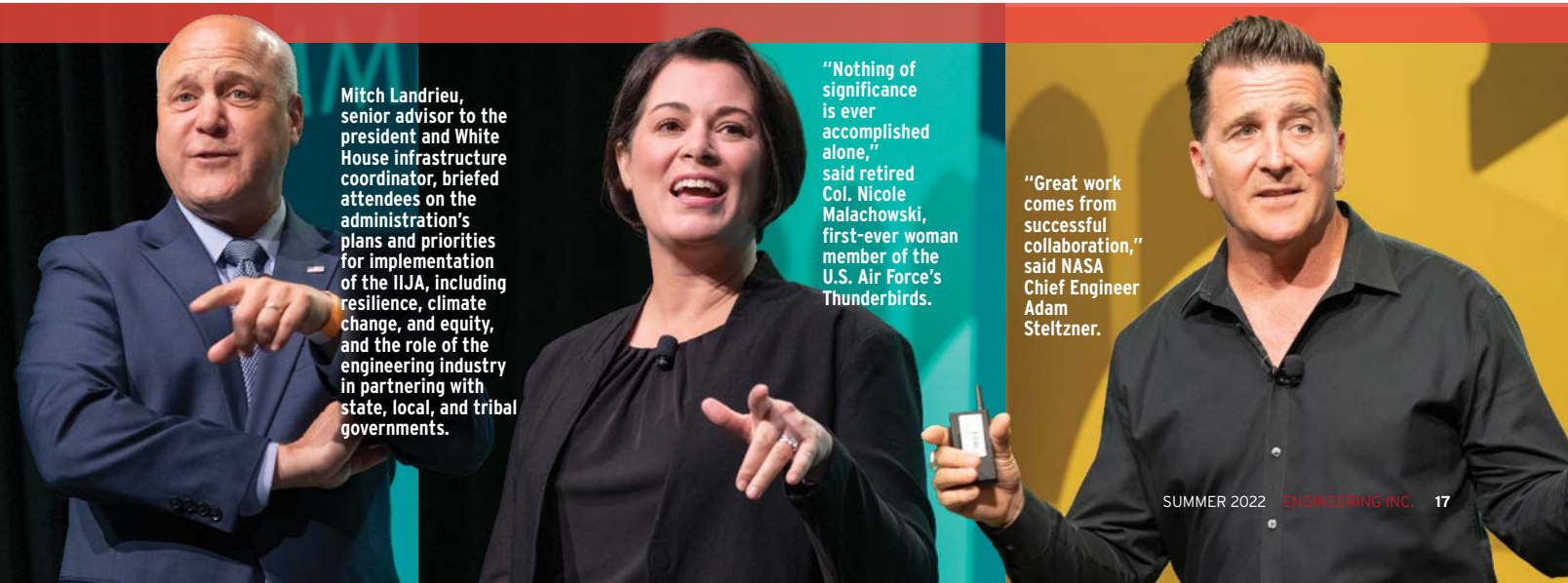
From aspiring rock star to history-making Ph.D. rocket scientist, Adam Steltzner is recognized as one of NASA's leading—and most unique—innovators.

For nearly a decade, Steltzner led and inspired the breakthrough team that invented the ingenious "sky crane" landing system that so spectacularly landed the Mars rover Curiosity on the Martian surface in 2012.

Steltzner is the team lead and chief engineer of NASA's Mars 2020 Perseverance Rover mission, which will gather core samples on Mars for scientific discovery, with the goal of finding signs of ancient life.

He emphasized to the Convention audience the importance of teams. "It's been my perspective that humans succeed best in teams," he said. "It allows the sorting facts and balance from differing perspectives. Great work comes from successful collaboration."

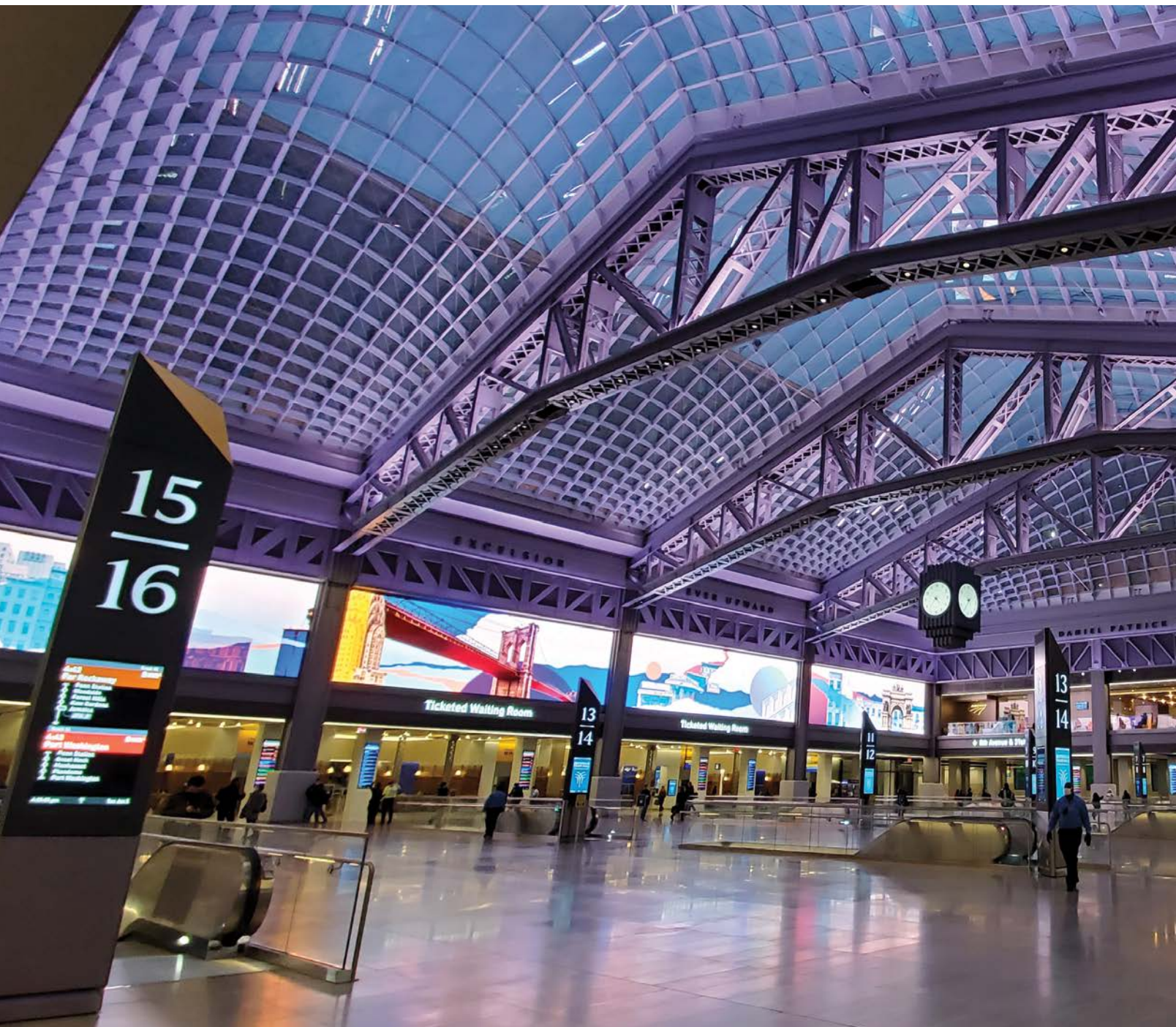
Steltzner is author of *The Right Kind of Crazy: A True Story of Teamwork, Leadership, and High-Stakes Innovation*, acclaimed in 2016 by *The Washington Post* as "the best leadership book of the year." ■



Mitch Landrieu, senior advisor to the president and White House infrastructure coordinator, briefed attendees on the administration's plans and priorities for implementation of the IIJA, including resilience, climate change, and equity, and the role of the engineering industry in partnering with state, local, and tribal governments.

"Nothing of significance is ever accomplished alone," said retired Col. Nicole Malachowski, first-ever woman member of the U.S. Air Force's Thunderbirds.

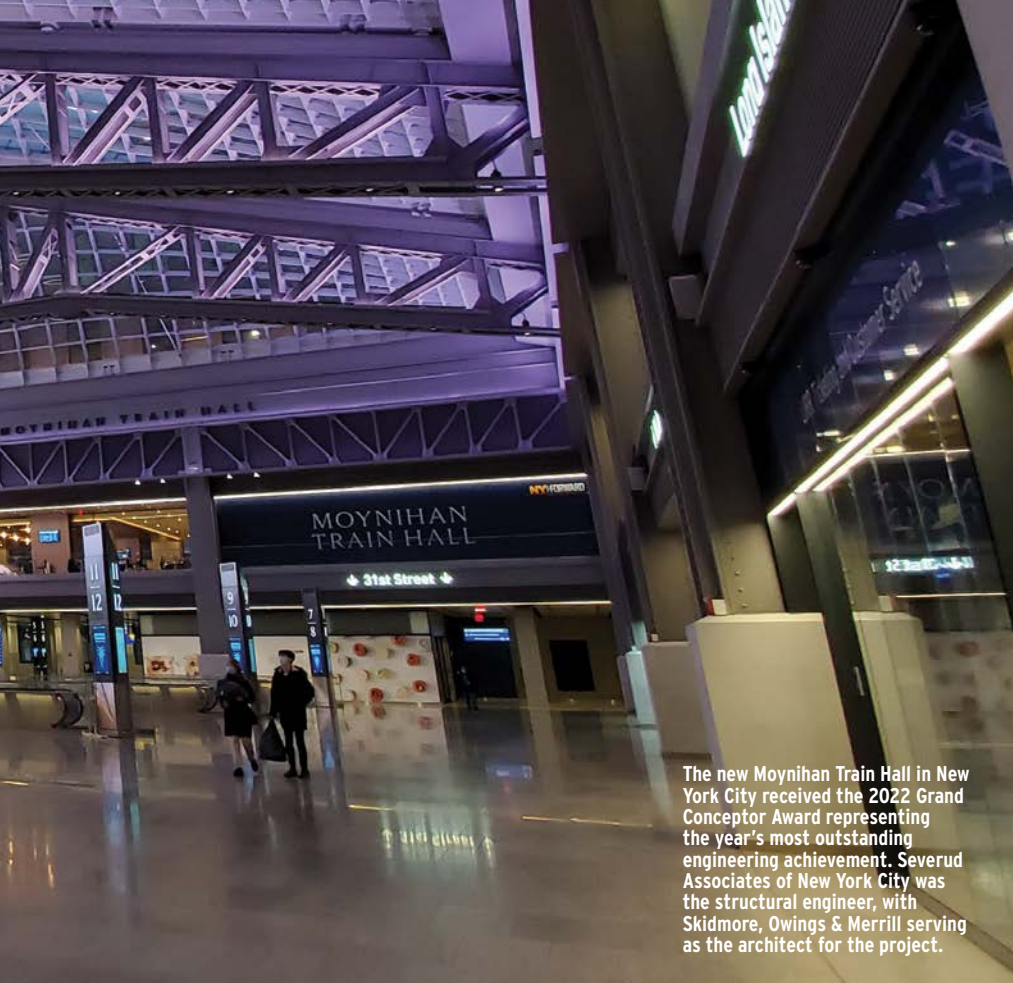
"Great work comes from successful collaboration," said NASA Chief Engineer Adam Steltzner.



2022 ENGINEERING EXCELLENCE AWARD WINNERS



The Severud Associates' project team with their 2022 Engineering Excellence Awards, including the Grand Conceptor Award for best engineering achievement.



The new Moynihan Train Hall in New York City received the 2022 Grand Conceptor Award representing the year's most outstanding engineering achievement. Severud Associates of New York City was the structural engineer, with Skidmore, Owings & Merrill serving as the architect for the project.

2022 GRAND CONCEPTOR AWARD

Moynihan Train Hall New York

Severud Associates

Client: Skidmore, Owings & Merrill

More than five decades after demolition of the original Penn Station and almost 30 years after conception of a plan to augment it, the new Moynihan Train Hall now provides visitors with a breathtaking entrance and dignified sense of arrival to New York City. The 255,000-square-foot hall expands Penn Station across Eighth Avenue and into the landmarked James A. Farley building, the former main city post office. It includes a 30,000-square-foot main boarding concourse, formerly the mail sorting room, and a 92-foot-high roof featuring dramatically arched skylights supported by original but previously hidden and reinforced latticed steel trusses. Other Moynihan Train Hall enhancements include multiple new station entrances, an expanded West End Concourse, and the intermodal Midblock Hall. It restores a grand entrance to New York City, greatly improves access and interconnectivity, and provides many amenities to improve visitors' experience.

The 2022 Engineering Excellence Awards Gala Dinner and Awards Program, considered the greatest celebration of engineering excellence in the world, recently showcased 195 ACEC member firm achievements from throughout the nation and internationally.

A panel of 29 judges representing a wide spectrum of built environment disciplines selected 36 projects for top awards: 20 Honor Awards, 16 Grand Awards, and the Grand Conceptor Award for the year's most outstanding engineering achievement.

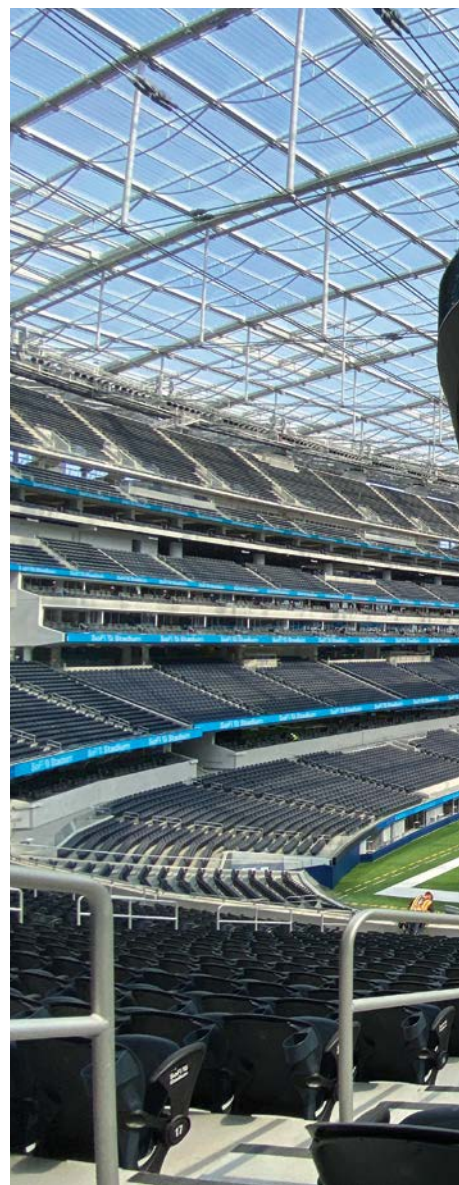
Hosted by comedian and Emmy Award-winning television host Ross Shafer, the black-tie Gala drew more than 500 members and guests to witness nearly 200 examples of exceptional engineering innovation.



The Pavilion at Penn Medicine, Philadelphia

HDR on behalf of Penn First
Client: University of Pennsylvania Health System

This new \$1.6 billion, 17-story hospital provides more than 500 new private patient rooms and 47 operating/interventional rooms, while also providing a benchmark for the future of hospital design. Rising majestically from a 690-stall underground parking garage, the 1.25-million-square-foot high-rise will house inpatient care for the Abramson Cancer Center, heart and vascular medicine and surgery, neurology and neurosurgery services, and an emergency department. The project delivery team used another warehouse to create a 30,000-square-foot model of the hospital to refine project elements and spatial relationships.





Hernando de Soto Bridge Emergency Repairs, Memphis, Tennessee

Michael Baker International

Client: Tennessee Department of Transportation

Within hours after Michael Baker inspectors discovered a fractured tie girder in the bridge, a multipronged effort was underway to determine the extent of the damage and how quickly the key Mississippi River crossing could be restored to traffic. After a quick scan of the structure using unmanned aerial systems finding no additional damage, the project team developed a three-phased repair effort beginning with installation of temporary stabilization plating, then post tensioning to reduce the stresses in the tie girder, and eliminating the potential of future tie girder cracks. Just 83 days following the initial fracture, the de Soto Bridge was again safely handling local and cross-country traffic.

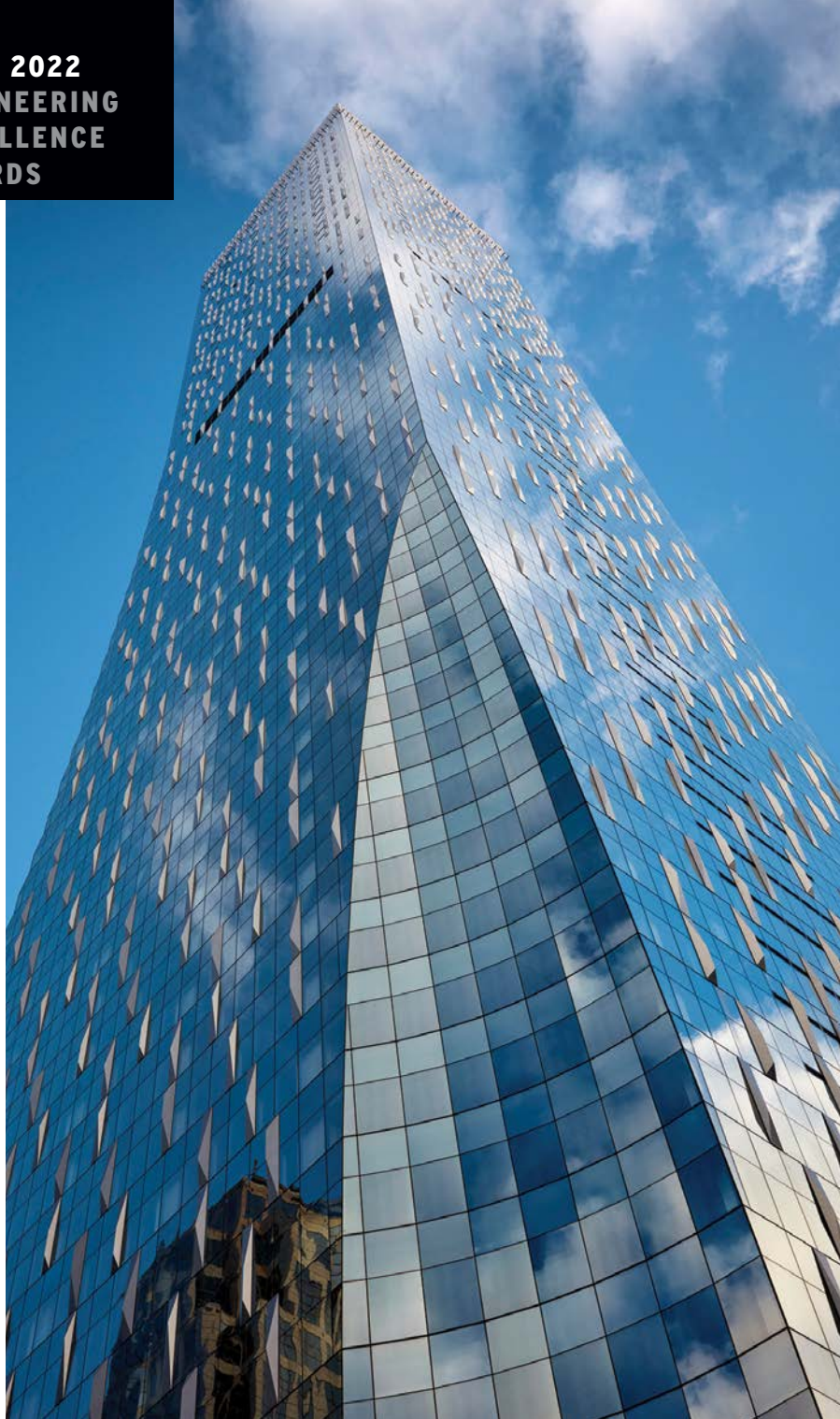


SoFi Stadium Inglewood, California

Walter P Moore

Client: Hollywood Park

Already hailed as being a stunning example of building design, the new SoFi Stadium is also a marvel for structural system innovation. The project team overcame myriad technical, management, and site challenges to create the now-iconic facility, which is near an active earthquake fault and directly below the two primary flight approach paths to Los Angeles International Airport. The project features three seismically independent structural systems that help define the beautiful project aesthetic but will also help keep patrons safe during seismic events. Serving as the home of two Los Angeles professional football teams, the stadium is one of three venues—including American Airlines Plaza and the YouTube Theater—all under the single 800-foot-long span canopy.



▲
Ranier Square, Seattle

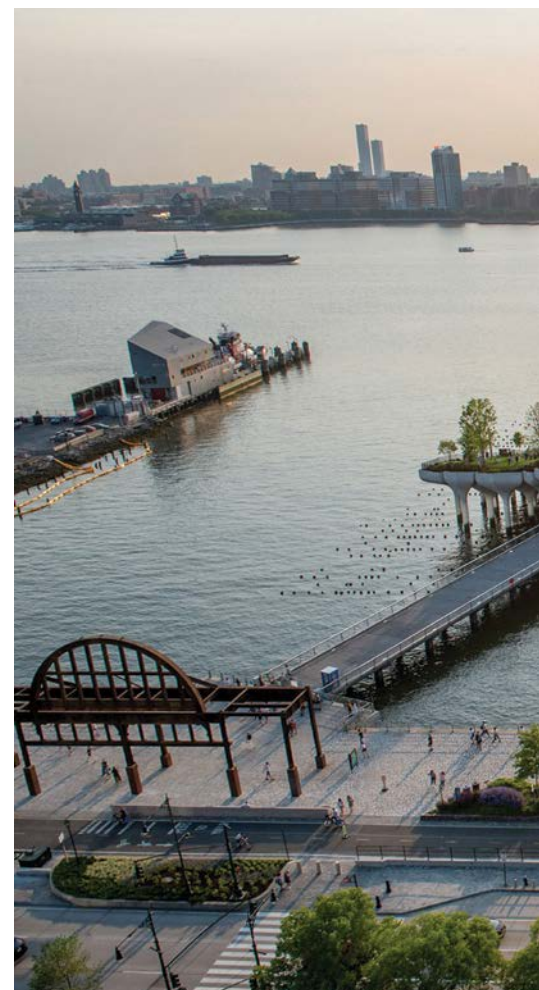
Magnusson Klemencic Associates
Client: RSQ Tower

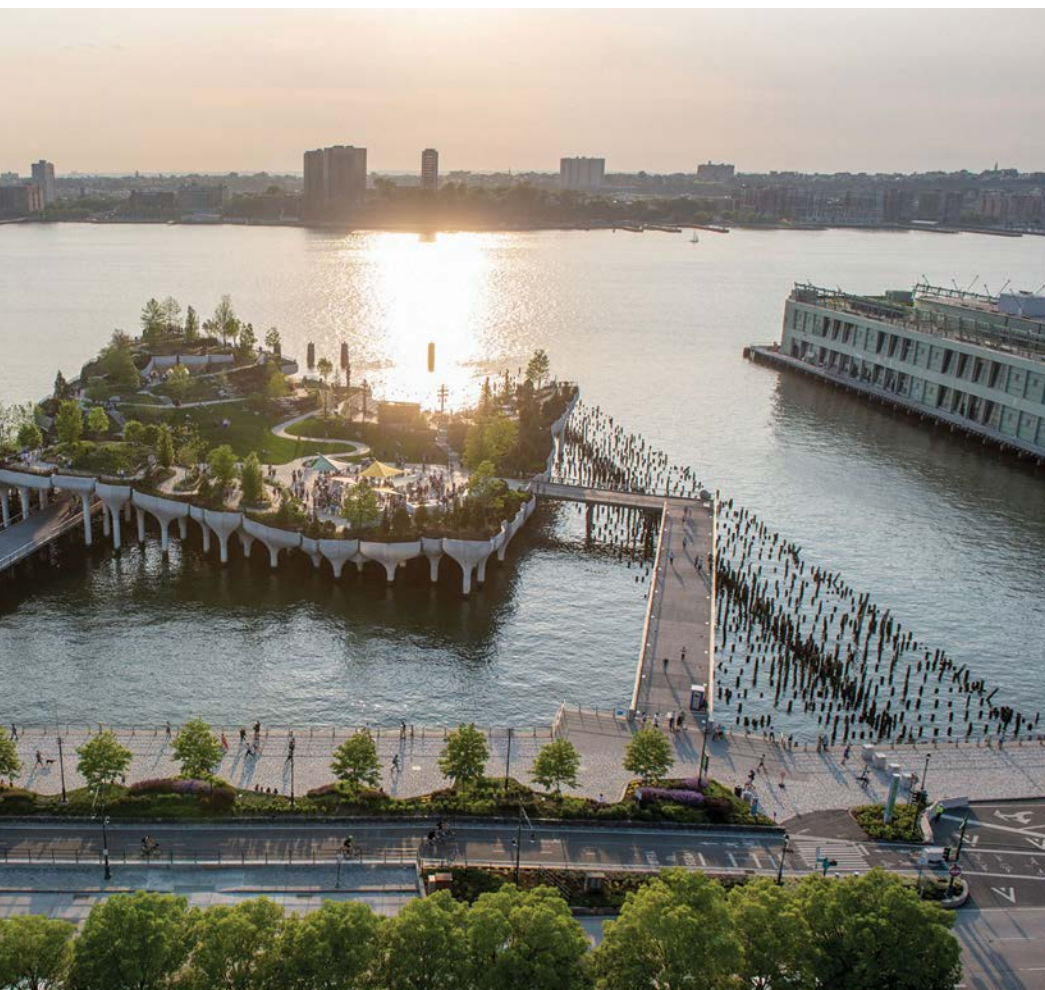
The majestic 58-story tower utilizes a first-of-its-kind structural system that built environment experts believe will change the way high-rise structures are built throughout the world. Utilizing “SpeedCore” enabled the project team to cut nearly a year off the construction schedule and saved millions in construction costs. Instead of conventional concrete walls with steel reinforcing bars inside, the new system places large, prefabricated, steel-plate panels on the outside of the wall with only concrete inside, thus eliminating the need for concrete forms and rebar installation. SpeedCore has already been adopted for other high-rise projects from San Jose to Boston.

▶
**Rodney Cook Sr. Park
at Vine City, Atlanta**

Freese and Nichols / HDR
Client: City of Atlanta

The new \$40 million park showcases how engineering can improve community health and economic well-being, combining innovative stormwater and flood design with an oasis of acres of recreational amenities. The 16-acre park’s vibrant green space doubles as a hardworking system to alleviate persistent area flooding by capturing and storing up to 10 million gallons of stormwater. Natural filtration systems also improve water quality without the need for additional infrastructure, a feature that helps lower park maintenance costs and peak loads on Atlanta’s wastewater treatment system. The urban oasis is a catalyst for future economic development, while highlighting the importance of stormwater resilience.



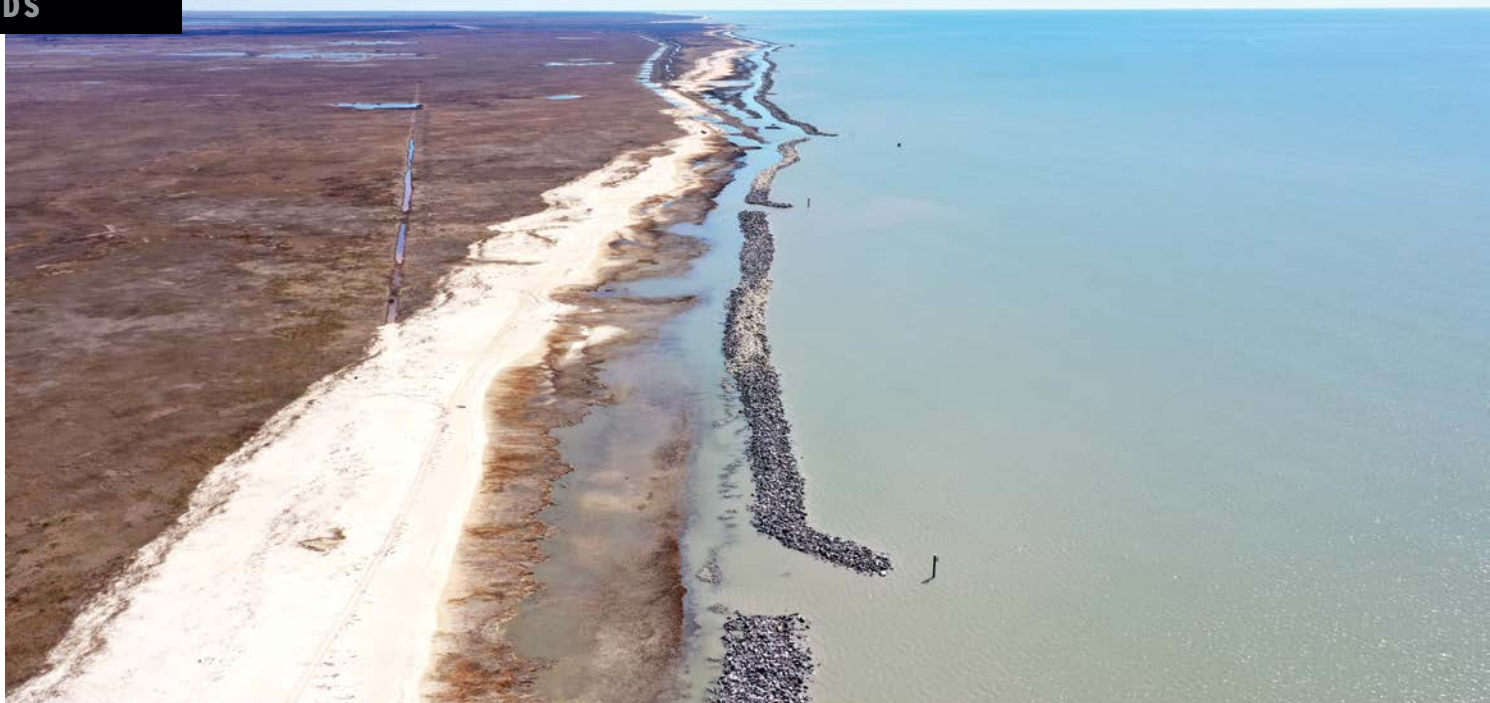


Little Island, New York

Arup

Client: Hudson River Park Trust

An eye-catching 2.4-acre public green space and performance venue appears to “float” about the Hudson River. Utilizing a system of precast pots, the design creates an underlying pattern that maintains randomness while allowing for the efficient use of precast concrete. The project team incorporated a complex geometry into a precise framework of 12 basic pentagon patterns. Instead of 132 unique precast molds, the entirety of Little Island was achieved with fewer than 40 repeatable pots. As a dual community park and event space, Little Island serves as an acoustic oasis amidst the hustle and bustle of New York City that is also conducive to concerts thanks to new landscaping that helps create a sound barrier between the event stages and the highway.



**Rockefeller Refuge Gulf
Shoreline Stabilization
Grand Chenier, Louisiana**

HDR

Client: Coastal Protection and
Restoration Authority

The 71,000-acre biologically diverse refuge provides a habitat for abundant fish, migratory birds, and alligators. However, the marshland has lost more than 15,000 acres over the past century and continues to erode at a rate of more than 50 feet each year. The project team designed a unique stabilization system featuring a four-mile lightweight aggregate core breakwater that significantly reduces the quantity and severity of waves hitting the shoreline. The final design recovered more than 5,500 tons of armor stone and utilized locally sourced core aggregate. It represents a valuable example for other coastal areas in safeguarding environmentally sensitive shorelines from accelerating erosion.

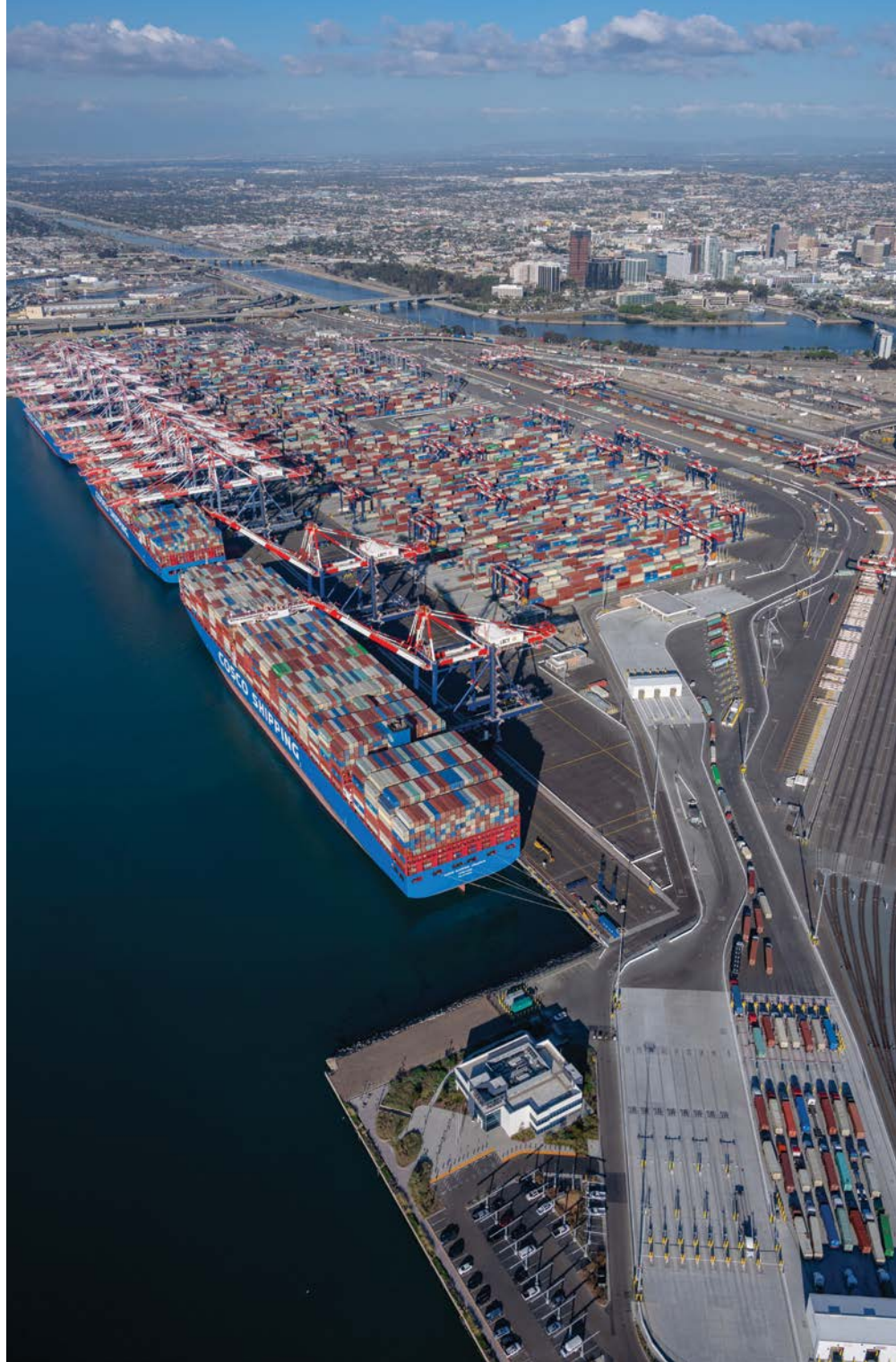


Lick Run Valley Conveyance System and Greenway, Cincinnati

Strand Associates

Client: Metropolitan Sewer District of Greater Cincinnati

The new conveyance system and greenway project reduces combined sewer overflows by 370 million gallons annually and reintroduces South Fairmount to its historic creek, while simultaneously reinvigorating a struggling community and constructing a beautiful new civic park amenity. The project team's sustainable and community-based solution provides the same high level of treatment and flood control and is less than half the cost of the originally planned \$500 million deep tunnel. Restoration of the historic Lick Run waterway includes reconstruction of roadways and 11 intersections, streetscape improvements with five new vehicular bridges, and two miles of shared-use paths and sidewalks.



Middle Harbor, Long Beach, California

Moffatt & Nichol

Client: Port of Long Beach

The decade-long, \$1.5 billion redevelopment project combined two aging shipping terminals into a single, fully automated, 304-acre complex with an annual capacity of 3.3 million 20-foot equivalent units (TEUs)—more than double the two terminals' previous capacity. Middle Harbor is also one of the world's cleanest container terminals, with electric-powered cargo-handling equipment and shoreside electrical access that allows vessels at berth to shut down their diesel engines. The project team was responsible for operational master planning and facilities planning, design of dredging and fill, and permitting assistance and support during construction. The firm also designed the 4,250-foot-long wharf and container yard structures, including the automated stacking crane foundations.



▲
**International Gateway Bridge
Long Beach, California**

WSP USA

Client: Port of Long Beach

Nicknamed “the bridge to everywhere,” the six-lane, nearly two-mile-long cable-stayed bridge rises 205 feet above the port’s access channel to accommodate today’s larger cargo ships and the dramatic increase in trucking traffic. Supported by two 515-foot-tall towers, the new bridge’s main span stretches approximately 2,000 feet across the channel. Along with additional traffic lanes in each direction for improved traffic flow, the bridge provides emergency lanes on both the inner and outer shoulders in each direction to reduce delays and safety hazards from accidents and vehicle breakdowns, gentler approach grades, and a dedicated bicycle path/pedestrian walkway with scenic overlooks.





Mid-Coast Extension of the UC San Diego Blue Line, San Diego

WSP USA

Client: San Diego Association of Governments

The \$2.17 billion trolley extension provides much-needed additional transportation capacity for a fast-growing corridor that includes the University of California–San Diego campus, considered to be San Diego's second downtown. The 11-mile extension to the existing San Diego Trolley Blue Line offers connections to nearby communities and promotes the use of transit, walking, and biking for travel while creating job opportunities, providing access to education, and boosting economic activity. WSP was the lead engineer and was responsible for environmental, planning, and preliminary and final engineering. Transportation models indicate that the new extension will attract 20,000 new transit riders a day to the system.



Northgate Link Extension, Seattle

McMillen Jacobs Associates

Client: Sound Transit

Northgate Link connects Sound Transit's University Link light rail segment to the Northgate business/retail center, helping connect four major urban centers to the existing Central Link, which extends from downtown Seattle to SeaTac airport. The new link features 4.3 miles of double-track light rail, three-quarters of which are in twin bored soft-ground tunnels built using precast concrete segments. The project also includes two underground transit stations, an elevated station at Northgate, a portal structure, and more than 20 cross passages. The project team was challenged by the area's dense, urban neighborhoods and complex subsurface and groundwater conditions.



Climate Pledge Arena, Seattle

Haley & Aldrich
Client: CAA Icon

The arena home for the WNBA's Seattle Storm and the NHL's Seattle Kraken was being challenged by its 57-year-old and brittle 22,000-ton roof. Under and around this fragile structure, the project team guided design and construction of more than a mile of excavation shoring and 187 temporary and permanent foundation-drilled shafts. The goal was to safely expand the interior and create a modern facility for the arena customers and fans. A sophisticated automatic survey monitoring system alerted engineers to any movement of 700 points on the roof and around the site every four hours. Throughout renovation, the roof moved no more than ¼ inch.





◀ **Mason Mega Rail, Garden City, Georgia**

Moffatt & Nichol

Client: Georgia Ports Authority

The project effectively extends the reach of the Port of Savannah's Garden City Terminal to better serve existing destinations and expand into new destinations across inland U.S. markets. The project team identified nearly 200 acres of underutilized property well suited for connecting two existing rail yards, creating a continuous rail facility capable of serving both the Norfolk Southern and CSX railroads. The project features 18 separate 2,700-foot-long working tracks and a series of run-around tracks totaling 20 miles of new rail. With a large portion of the expansion area located atop a former landfill, the project team developed a dynamic compaction solution that allowed the existing material to remain in place, saving millions of dollars in remediation costs.



▲ **Pettit Lake Creek Weir, Blaine County, Idaho**

HDR

Client: Shoshone-Bannock Tribes

A long-standing obstruction to fully restoring the Snake River as a migration route for sockeye salmon has been eliminated by replacing the existing Pettit Lake Creek Weir with a new structure tailored to the creek's peak flow. Its innovative design is also friendlier for fish and the Shoshone-Bannock Tribes, as it traps juveniles and, for the first time, adults to help biologists gather data for implementing additional measures to restore salmon migration. The project is part of a plan to ensure a healthy future for sockeye in Redfish, Pettit, and Alturas Lakes, where they spend two years growing before embarking on a two-year, 1,800-mile round trip to the Pacific Ocean and back—the longest and highest distance to travel for any fish.



One Vanderbilt Avenue New York

Jaros, Baum & Bolles (JB&B)

Client: SL Green Realty Corp.

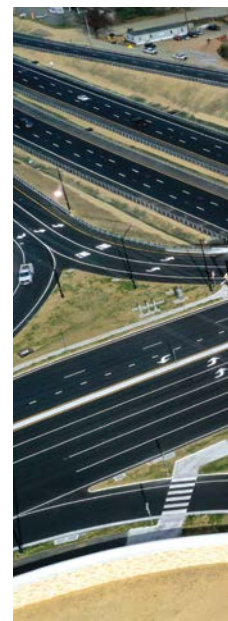
One of the newest and most picturesque New York City towers also sets a new benchmark for sustainability in high-rise structures. The project team aimed to create a future-oriented building that could be adapted in step with evolving building codes and technology. With one of the smallest carbon footprints compared with similarly sized buildings in New York City, the new tower features a high-performance glazing system that regulates insulation for heating and cooling and a highly efficient mechanical distribution system. These technologies allow the mechanical systems to provide enhanced filtration, thereby increasing the volume of outside air circulating through the interior and offering flexibility for future air cleaning technology.

Uncovering the History of D.C.'s Buried Streams, Washington, D.C.

Straughan Environmental

Client: District Department of Energy and Environment

An analysis of maps spanning more than 200 years concluded that since 1792, more than 70 percent of known surface waterways in the District of Columbia have been permanently lost. To identify the modern location of underground streams that might be suitable for restoration into surface waterways and natural habitat, the project team developed a geographic information system-based comparison of the historic stream network against the modern drainage and sewer network. Out of more than 500 storm drain networks studied, the project team identified 100 candidates for restoration, of which four streams considered the most promising are undergoing grant-funded restorations.





Little Island, New York

Mueser Rutledge

Client: Hudson River Park Trust

Little Island is a 2.5-acre park featuring an innovative foundation system that allows the park to seemingly float in the Hudson River. The park is situated atop more than 130 huge tulip-shaped pots carefully installed on slender columns created with unique pre-cast concrete composite piles. The composite foundation piles are set at different heights to create an almost futuristic undulating topography of artificial hills. It also features winding paths along a gentle, rolling grade through beautiful plantings that connect several open-air performance areas—one capable of seating 5,000 people.

Olbrich Botanical Gardens Frautschi Family Learning Center, Madison, Wisconsin

Salas O'Brien

Client: City of Madison

For the new 9,700-square-foot Learning Center, the project team engineered mechanical, electrical, and plumbing systems that use two-thirds less energy than conventional technologies. The facility combines low-energy radiant heating and cooling slab technology to provide year-round indoor comfort. The project team also designed a stormwater collection and filtration system that supplies 75 percent of the water for a new 11,500-square-foot greenhouse, minimizing impacts to the area's watershed. This all helped the Learning Center achieve a LEED Platinum rating from the U.S. Green Building Council.



Route 7 and Battlefield Parkway Interchange Leesburg, Virginia

Parsons Transportation Group

Client: Virginia Department of Transportation

The new highway grade separation eliminates the last signalized intersection along a nine-mile stretch of Route 7 around Leesburg. Along with easing congestion for the 100,000 motorists who traverse the area each day, the project facilitates continued economic and population growth in and around the city. The new Battlefield Parkway Bridge, along with new sidewalks and a shared-use path, allow for safe and direct access to the Washington & Old Dominion Trail and adjacent mixed-use developments, providing alternative transportation options to pedestrians and cyclists. The project team's innovative design approach serves as a benchmark for ultra-wide, joint-free, low-maintenance decks in Virginia.



Globe Life Field Arlington, Texas

Walter P Moore

Client: Texas Rangers
Baseball Club

Home of Major League Baseball's Texas Rangers, the facility features an exterior design that blends a historic brick façade with structural steel accents and a sprawling glass wall that frames the main entry for the adjacent Texas Live! Entertainment District. A distinctive retractable roof—featuring a 300,000-square-foot “racing stripe” of fluorine-based plastic—protects players and fans from rain and the sweltering Texas sun while ensuring an abundance of sunlight within. Structural elements in the stadium's two 360-degree concourses—the first of their kind in major league stadiums—were intentionally placed away from the field to prevent visual obstructions.



Delaware Memorial Bridge UHPC Pilot Project, New Castle, Delaware

WSP USA

Client: The Delaware River and Bay Authority

When it was determined that the northbound deck of the 1950s-era Delaware Memorial Bridge was reaching the end of its service life, the owners considered complete deck replacement. But in coordination with the project team, it was determined that an ultra-high-performance concrete (UHPC) overlay, which greatly outperforms conventional concrete, could be a tool to rehabilitate the deck, providing an extended life cycle at substantially less cost and with less disruption to traffic. The result was the first-ever application of an UHPC overlay on a suspension bridge. The project is now a model for bridge deck repair at significant savings, while extending the life of an entire bridge deck by 50 years or more compared to other replacement options.



Central Industrial District Green Infrastructure and Improvements Project, Kansas City, Missouri

HNTB

Client: City of Kansas City

An eight-acre public green space built on a former gravel parking lot contains an interactive boardwalk system that invites the public to observe the native plants and innovative nature-based rainwater harvesting system. Also known as the West Bottoms, the area had lacked an adequate stormwater management system and parks to complement years of significant residential growth. The creative approach allows the capture of 18,050 gallons of rainwater per cistern, providing a long-term water supply to the community. The collected water is currently being used by a local nonprofit that maintains green infrastructure plantings.

Citizens Reservoir Fishers, Indiana

Arcadis U.S.

Client: Citizens Energy Group

As the newest addition to Citizens Energy Group's surface water supplies, the reservoir increases raw water storage capacity by 3 billion gallons via the repurposing of a decommissioned rock quarry. The project also enhances Central Indiana's drought preparedness by allowing use of stored raw water under abnormally dry conditions. The project team adapted the large decommissioned quarry and its natural bedrock as integral design elements that achieve both simplicity and longevity. The reservoir also features pumps with energy-saving variable frequency drives, spill containment facilities, noise barriers, and native prairie plantings.



Great Northern Transmission Line, Grand Rapids, Minnesota

HDR

Client: Minnesota Power

The 224-mile transmission line connects Minnesota Power's transmission system to Manitoba Hydro's grid in Canada. Along with helping the utility achieve an important milestone toward its goal of using 100 percent renewable energy, the new transmission line complements an existing 500 kV tie line to enhance the overall transmission system's performance and reliability. Due to border crossing complexities and permitting requirements in both countries, the project team involved agencies early in the route development process. This early participation allowed the team to build relationships, understand permitting needs, and address concerns that might have delayed the project.



Doan Valley Storage Tunnel, Cleveland

McMillan Jacobs Associates/Wade Trim (Joint Venture)

Client: Northeast Ohio Regional Sewer District

A major component of a program seeks to reduce the Cleveland area's combined sewer overflow (CSO) discharges by nearly 4 billion gallons a year. The new tunnel and associated infrastructure system will control overflows, flooding, and pollution at 11 permitted CSO locations along Doan Brook, a major tributary to Lake Erie, and reduce CSO volumes by 350 million gallons each year. The system consists of 3.7 miles of tunnel through rock, ranging from 8.5 feet to 18 feet in diameter, routed through a major medical and cultural hub just east of downtown Cleveland. The project also includes five drop shafts, near-surface structures with consolidation sewers, and an emergency overflow basin.



Issaquah-Fall City Road Widening, 242nd to Klahanie Drive, Sammamish, Washington

HW Lochner

Client: City of Sammamish

Innovative public engagement strategies helped achieve consensus to replace existing traffic signals with three roundabouts. Along with improving safety and access to the Seattle metro area, the one-mile arterial street improvement eliminated a blocked fish passage, opened a wildlife migration route, preserved established trees, and restored a key wetland. Sustainability priorities were achieved by eliminating 5,000 truckloads of fill material from city streets, replacing an area of engineered fill with a bridge, and reducing area impervious surfaces for more than 27,000 square feet to improve surface water runoff quality.



SR 167/70th Avenue East Vicinity Bridge Replacement, Fife, Washington

Jacobs

Client: Washington State Department of Transportation

Using an innovative concurrent design-build project delivery method, the project team designed a replacement structure for the 70th Avenue East Bridge over Interstate 5 and a new roundabout intersection with SR99. The project included an innovative roadway alignment that allowed for a single-span bridge with no median pier, eliminating the need for a median work zone and any temporary and permanent widening of I-5 to accommodate the new structure. The design also reduced permanent wetland impacts for more than two acres. The new bridge carries four lanes of traffic and completes a new link for the multiuse InterUrban Trail.



LIRR Train Hall Renovation—33rd Street Entrance, New York

AECOM

Client: MTA-Long Island
Rail Road

In the first major upgrade in 50 years to the iconic train station, the project team incorporated a more spacious east concourse and wayfinding upgrades, in addition to a new glass canopy entrance that provides direct access to the LIRR concourse. The 50-foot-high canopy incorporates pretensioned steel cables with a smooth, curved, glass enclosure. The innovative use of high-performance glass allows natural light to penetrate the concourses, increasing the station's energy efficiency. The canopy is also furnished with an air curtain that promotes faster pedestrian traffic flow in and out of the station while maintaining overall efficient climate control.



Core and Rail Redevelopment, Kalispell, Montana

KLJ

Client: City of Kalispell

An obsolete gravel pit overlapping a Superfund site has been transformed into a new economic-generating industrial rail park. As part of the \$40 million project, the team relocated rail-served operations to the park from downtown, replaced the old rail line with a 1.6-mile linear park and trail, and created a new "complete street" and signaled intersection on U.S. Route 2. The project also includes new stormwater, lighting, and other infrastructure systems. By mitigating environmental impacts and reorganizing rail service, the project has already spurred an estimated \$200 million worth of new housing, commercial, and lifestyle amenities across Kalispell's core area.



Mukilteo Multimodal Ferry Terminal, Mukilteo, Washington

KPFF

Client: WSDOT, Washington State Ferries Division

The new terminal improves safety for motorists, creates seamless connections with other transportation modes, and provides pedestrians with direct access to the ferry's passenger deck. Inspired by traditional Native American longhouse architecture, the new facility also features movable passenger and vehicle loading bridges, berthing structures, a vehicle holding area, a six-bay transit center, a waterfront promenade, a public fishing pier, a city street, and an extension of State Route 525. By relocating ferry operations to a new terminal away from Mukilteo's town center, the project team was able to utilize an innovative seismic system of concrete-filled steel tubes, developed at the University of Washington, which provides safeguards in the event of an earthquake, while building and site elevations accommodate projected rises in sea level.



Pathway to Hope, Tulsa, Oklahoma

Garver

Client: Oklahoma Department of Transportation

Engineering innovation was needed for a rare task to design a special project for Tulsa in the healing process of the 1921 Tulsa Race Massacre, which resulted in at least 176 deaths. To mark the 100-year anniversary of the massacre, the project team incorporated special structural elements, including a unique 22-foot soil nail wall adjacent to a major highway to combat landslides and a 20-foot-wide corridor with other retaining walls. Visitors can travel the pedestrian Pathway to Hope and view historic and artistic contributions before connecting with the John Hope Franklin Reconciliation Park.



City of Brodhead Water Quality Trading Brodhead, Wisconsin

MSA Professional Services

Client: City of Brodhead

Water quality trading (WQT) offers municipalities the ability to generate “credits” to meet U.S. EPA effluent standards and improve stream health. To help Brodhead reduce the amount of phosphorus entering the greater Sugar River watershed and Decatur Lake, the project team developed a strategy that included stabilizing more than 60 actively eroding streambanks along Searles Creek and working with local farmers to make sustainable changes to their manure management practices. Over time, these upgrades are expected to offset approximately 1,090 pounds of total phosphorus per year—substantially more than the 190 pounds that would have been achieved annually with a costly \$4.2 million wastewater facility upgrade.

Trans-Alaska Pipeline Lost Creek Thermal Improvements, Livengood, Alaska

Shannon & Wilson

Client: Alyeska Pipeline Service Company

The Lost Creek site is located on a steep slope with complex soil and thermal conditions caused by degrading permafrost. This resulted in continuous slope movement and posed the threat of a landslide that could disrupt the Trans-Alaska Pipeline System. The project team utilized emerging 3D thermal modeling and testing technologies to replace the pipeline’s vertical support structures. They also stabilized the slope using passive permafrost cooling and surface insulation. The solution promotes environmental sustainability by reducing waste and nearly eliminating wetland impacts, and is a good example for future stability mitigation of slopes at risk from permafrost degradation.



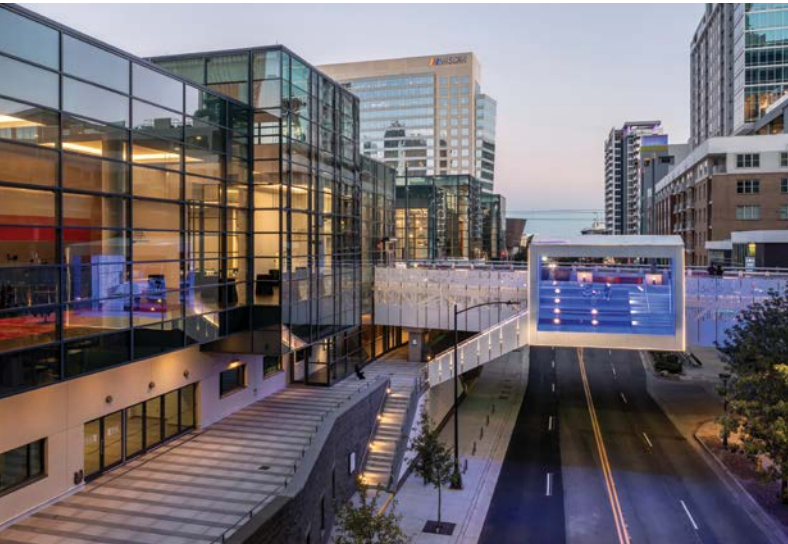
Keauhou Beach Hotel and Site Demolition Kahalu’u, North Kona, Hawaii

Bowers + Kubota Consulting

Client: Kamehameha Schools

To make way for a new Hawaiian cultural educational program, the project removed a seven-story, 309-room hotel built in and over tide pools, close to wetlands and coral reefs, and on a parcel with 15 significant historic properties, including the remains of five ancient heiau—a traditional place of worship. To avoid disturbing the tide pools and nearby cultural sites, the hotel was removed in a controlled manner with the use of remote-controlled demolition robots and a high-reach excavator fitted with a concrete processor. Pollution-control devices such as silt curtains as well as archaeological, water quality, and wildlife monitors ensured that natural, historical, and cultural resources were protected throughout the construction.

NATIONAL RECOGNITION AWARD WINNERS

FIRM NAME	PROJECT NAME	FIRM NAME	PROJECT NAME
ACEC ALABAMA Building & Earth Sciences Sain Associates TTL, Inc.	VA Mental Health Clinic Carvana Bessemer Homewood Suites Hotel	ACEC-FL AECOM Chen Moore and Associates Half Associates Hardesty & Hanover	Selmon West Extension HDD of 7 miles of 54 FAMU Way SW 1st Street Bridge over Miami River C-44 Reservoir and Stormwater Treatment Area Crosstown Parkway Extension Design-Build IKE Smart City Kiosks Project Turnpike Widening from Osceola Parkway to Beachlin
ACEC ARIZONA HDR	Tres Rios Water Reclamation Nutrient Recovery Project	HDR RS&H WGI WGI	
ACEC CALIFORNIA AZTEC Engineering Group Degenkolb Engineers HDR/BKF Engineers/ MNS Engineers Kennedy/Jenks Consultants Kleinfelder Mott MacDonald/Bechtel Ninyo & Moore Geotechnical & Environmental Sciences Consultants Psomas	I-15 Express Lanes Project Design-Build 400-430 California Street Voluntary Seismic Retrofit Salinas Intermodal Transportation Center Pure Water Monterey Advanced Water Purification Facility Miramar Clearwell Improvements Project BART Silicon Valley Berryessa Extension, Phase 1 Los Angeles International Airport Terminal North Spring Street Viaduct Widening	ACEC GEORGIA Heath & Lineback Engineers, Inc. Parsons Transportation Group Thomas & Hutton Walter P Moore	SR 25 Savannah & Middle River Bridges Replacement I-285 at I-20 East Side Interchange Reconstruction Jackson Street Plaza Redevelopment Charlotte Convention Center Expansion
ACEC COLORADO Felsburg Holt & Ullevig HDR and Silman Martin/Martin Muller Engineering	39th Avenue Greenway Wyoming Capitol Square Project City Park Golf Course Redesign Chatfield Storage Reallocation Project	ACEC ILLINOIS Baxter & Woodman Ciorba Group HNTB HR Green Jacobs Engineering Group Klingner & Associates MSA Professional Services TranSystems	Wastewater Treatment Plant Biological Improvements Edens Spur Reconstruction O'Hare International Airport Runway ATC Enhancements and Pedestrian Bridge over the Fox River Midway International Security Checkpoint Expansion Bill Klingner Trail Extensions Mount Carroll Wastewater Treatment Facility Randall Road Corridor Improvements
ACEC-CT CDM Smith WSP USA	Special Accelerated Water Main Replacement York Correctional Institution	ACEC INDIANA American Structurepoint CHA Consulting Greeley and Hansen	Newman Road Underpass Project Monon Trail Bridge over 38th Street West Wastewater Treatment Plant Expansion and CSO
		ACEC/IOWA HDR	Council Bluffs Interstate System Dual, Divided Freeway
		ACEC KANSAS HDR HNTB HW Lochner TranSystems TranSystems WSP USA	Lone Elm and Old 56 Highway Improvements Mahaffie Street Extension Dwight D. Eisenhower Airport Pavement & Electrical SW Butler Road and SW 150th Street Turner Diagonal Interchange Design/Build Project East Kellogg Expansion and Improvements
		ACEC-KY HDR Heritage Engineering Michael Baker International	Blue Grass Airport Runway 4-22 Rehabilitation Portland CSO Basin Brent Spence Bridge Fire & Rehabilitation

The Charlotte Convention Center Expansion in Charlotte, North Carolina, designed by Walter P Moore, is a 2022 EEA National Recognition Award winner.

FIRM NAME	PROJECT NAME	FIRM NAME	PROJECT NAME
ACEC OF LOUISIANA Duplantis Design Group	Lakeshore Villages	ACEC/MISSOURI CDM Smith	Co-Digestion to Renewable Gas at Des Moines Water Reclamation Facility
ACEC/MD Gannett Fleming HDR	Fullerton Reservoirs Little Patuxent Water Reclamation Plant	Crawford, Murphy & Tilly	Webster County U.S. Highway 60 Rail Study
McCormick Taylor	MD 30 Business (Main Street) Community Safety and Enhancement Project	ACEC-MONTANA DJ&A	Little Bighorn Water/Wastewater System
Stantec	Replacement of Edmondson Avenue Bridge over Gwynn Falls Park	HDR HDR	Landfill Drop-Off Facility St. Mary Canal Drop 2 & 5 Replacement
ACEC/MA AECOM	Peirce Island Wastewater Treatment Upgrade	Northern Engineering & Consulting	Survey; Hotchpotch to Standardization
Arup	Harold Alfond Athletics & Recreation Center	ACEC NEBRASKA HDR	Children's Hospital & Medical Center — Hubbard Center
Environmental Partners Group	Restored Resilience in Coastal Cedar Point	HDR	Theresa Street Water Resource Recovery Facility Biogas Conditioning System
HDR	North End Pedestrian Path under the Connecticut River (Transit) Line	HDR	Zorinsky Water Quality Basin No. 2 Dam
Howard Stein Hudson	Columbus Avenue Center Running Bus Lanes	ACECNJ AKF Group	Kroger High Tech Fulfillment Centers
Kleinfelder	Port Flooding Resiliency Project: Parking Lot No. 6 Stormwater Tank	DeSimone Consulting Engineers Dewberry Hazen and Sawyer Hazen and Sawyer	Greenpoint Landing Block D Route 206 Bypass Contract B Inundation Model
ACEC/MW AECOM	Rehabilitation of the Arlington Memorial Bridge	HDR	Revitalization of Existing Water Supplies
EBA Engineering	Emergency Repair of Water Main under I-83 Bridge	H2M architects + engineers	Southern Water Pollution Control Facility Cogeneration Improvements
M.C. Dean	Metro Platform LED Lighting Replacement	Jacobs Engineering Group	SUEZ Water N.J. Lead Service Line Replacement Phase
ACEC/MICHIGAN HNTB Michigan	I-375 Reconstruction Improvements	Naik Consulting Group	Rt. 495, Rt. 1&9 / Paterson Plank Road Bridge
Hubbell, Roth & Clark Prein&Newhof SME	Recreating Conventional Walker Avenue Bridge Removal Beekman on Broadway	R3M Engineering	Construction Management of Henderson Substation
ACEC/MN Barr Engineering	Grassy Point-Kingsbury Bay Habitat Restoration	Stantec	Restore/Protect MCUA Sayreville Pump Station
Inter-Fluve	Minnehaha Creek, Arden Park Restoration	WSP USA	Rt. 3, Rt. 46, Valley Road & Notch Road Rebuild, Contract A MSLA 1-D Landfill Closure
Kimley-Horn LHB LHB	Levee Park Dock Improvements Superior Street Reconstruction TH 61 Roadway Rehabilitation & Safety Improvements	ACEC NEW YORK Cameron Engineering & Associates	FDNY Training Academy Live-Fire Training Building
Short Elliott Hendrickson (SEH®)	Detroit Lakes Wastewater Treatment Facility	Dewberry Mains	Two 20-Inch Sub-Aqueous Water to City Island
Short Elliott Hendrickson Inc. (SEH®)	Trunk Highway 246 and Jefferson Parkway Reconstruction	H2M architects + engineers Jacobs	Posillico Soil Wash Plant
Stantec	Baudette/Rainy River International Bridge Replacement	Langan Langan Stantec	Flood Mitigation and Resiliency: 148th Street Yard
TKDA TKDA	Dale Street Bridge Reconstruction Runway Conversion to Dual Use Taxiway	STV and AECOM	Moynihan Train Hall
		Thornton Tomasetti Wendel	One Vanderbilt
		WSP USA	N.Y. State Thruway Conversion to Cashless Tolling
			World Trade Center Vehicular Security Center
			Capital One Hall
			Hertel at Deer — Real Time Control Project
			Farley Building Redevelopment-Moynihan Train Hall

NATIONAL RECOGNITION AWARD WINNERS

FIRM NAME	PROJECT NAME	FIRM NAME	PROJECT NAME
ACEC/NC CDM Smith	River Arts District Transportation Improvement Project	ACEC/PA Gannett Fleming	I-83 Exit 4 Improvements
HDR	CONNECT Beyond	Gannett Fleming	Penn State Ancient Biomolecules Research Environment
HDR	Green Street Pedestrian Bridge	Langan	UGIES Bethlehem LNG Facility
STV	Sanitary Sewer Improvements at Charlotte Douglas International Airport	Urban Engineers	Harrisburg International Airport Levee System Rehabilitation
S&ME	Dominion Energy Natural Gas Pipeline	Whitney Bailey Cox & Magnani	The Roundhouse at Hazelwood Green
		WSP USA	A 5-Year Capital Plan
ACEC NORTH DAKOTA Barr Engineering Barr Engineering	Karey Dam Rehabilitation Mouse River Enhanced Flood Protection, Phases 2&3	ACEC-SC Civil Engineering Consulting Services	S.C. 153 Extension, Pickens County, S.C.
		HDR	I-526 Wando River Bridge Tendon Repairs
ACEC OHIO Hazen and Sawyer	Celina Water Treatment Plant DAF-Bioreactor	Infrastructure Consulting & Engineering	U.S. 21 over Harbor River Bridge Replacement
HNTB	Smart Columbus — U.S. DOT Smart City Challenge	Infrastructure Consulting & Engineering	85/385 Gateway Project
KS Associates	Wendy Park Access Bridge	ACEC TENNESSEE CDM Smith	WeGo Nolensville Bus Shelters Project
Michael Baker International	33 Smart Mobility Corridor	CDM Smith	West Hills Roundabout Commercial Development & Access Improvement
The Kleingers Group	Blue Ash Road Corridor Improvements	EnSafe Inc.	Dave Donaldson Wildlife Management Area Hydrology
Woolpert	CVG CONRAC Terminal Drive Bridges		
ACEC OKLAHOMA CONSOR Engineers	Pawnee Nation CM/GC Safety and Enhancement Project	ACEC TEXAS BGE, Inc.	IH 635 / Dallas North Tollway Traffic Signal
HNTB	Peoria AERO Bus Rapid Transit	Freese and Nichols	Camp Mabry Building 1 Historical Renovation
Olsson	I-44 / Turnpike Interchange	Half Associates	Storm Drain Rehabilitation Program
ACEC OREGON HDR	Elwert Road-Kruger Road Intersection	Huitt-Zollars	Caruth Park Underground Detention
		Huitt-Zollars	North Operations Battery Electric Bus Yard
		Mbroh Engineering Walter P Moore	Giving the Power to Deliver Houston Botanic Garden
		ACEC OF VERMONT HDR HDR	I-91 Rockingham Bridges Roxbury Fish Culture Station
		ACEC WASHINGTON AECOM	Seattle-Tacoma Airport North Satellite Modernization
		HDR	Anacortes Water Treatment Plant Resiliency
		HDR	I-90, Barker Road Interchange Improvement
		Inter-Fluve	Nason Creek Upper White Pine Restoration
		Otak, Inc.	Manley Road and Stream Improvements Project
		ACEC WISCONSIN IMEG Mead & Hunt	Verona High School City of Madison Nakoosa Trail Fleet/Fire/Radio Shop Facility
		Michael Baker International	Leo Frigo Software for Pile Deterioration
		Strand Associates	Verona Road Stage 2



Greenpoint Landing Block D in Brooklyn, New York, designed by DeSimone Consulting Engineers, is a 2022 EEA National Recognition Award winner.

ACEC thanks the 2022 Engineering Excellence Awards (EEA) judges and EEA Committee members for their time and dedication to this year's competition.

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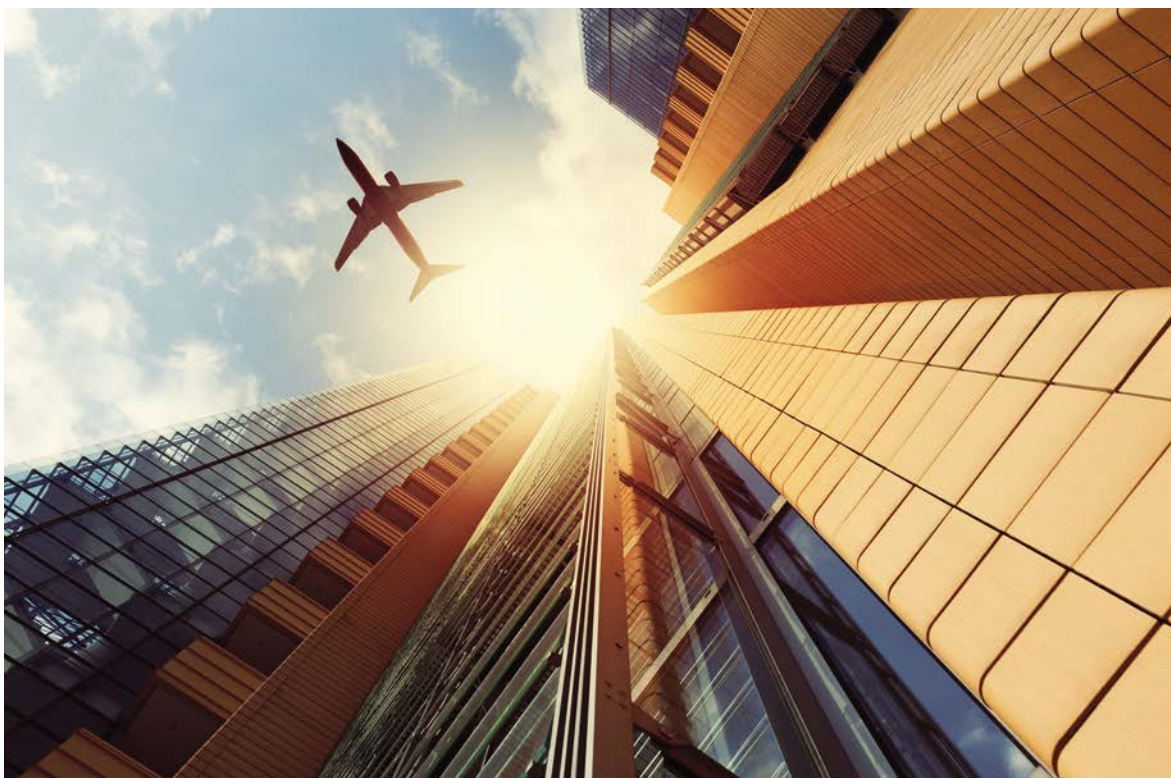


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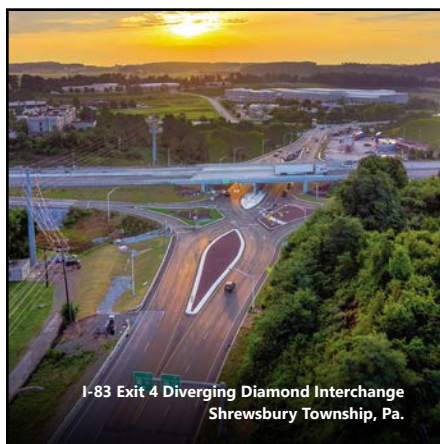
AECOM is proud to receive the Honor Award for our work on the LIRR Train Hall renovation from the American Council of Engineering Companies.

We are also honored to receive National Recognition Awards for the Rehabilitation of the Arlington Memorial Bridge; Pierce Island WWTF Upgrade Project; SEA - North Satellite modernization; Selmon West Extension; and the World Trade Center Vehicular Security Center project.

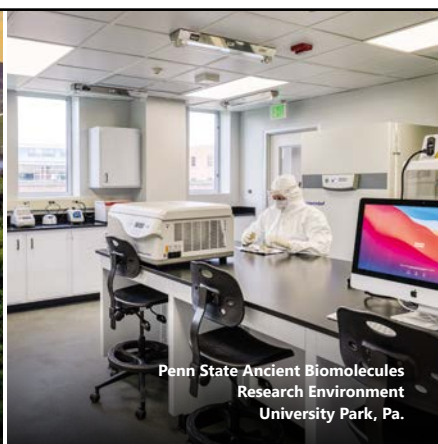
We congratulate all our partners, as well as all of tonight's honorees.

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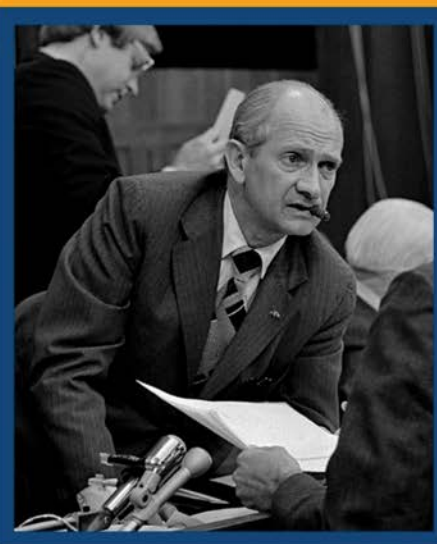
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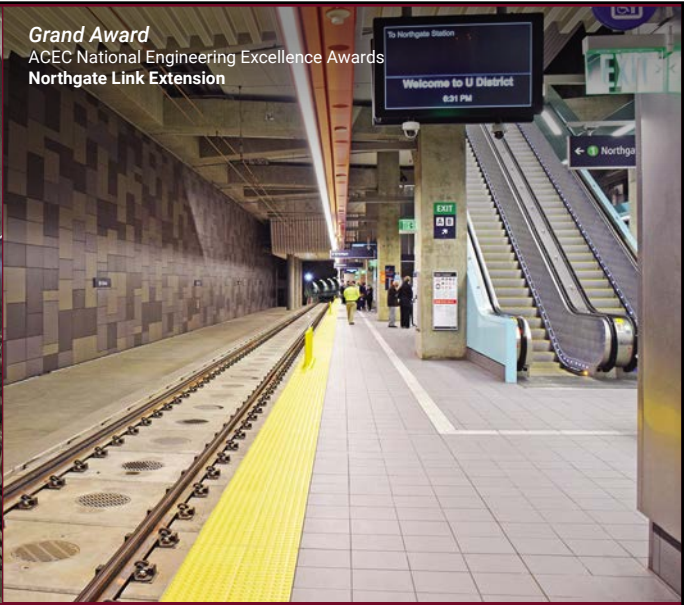
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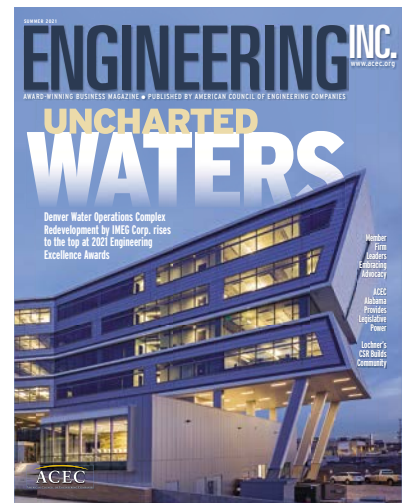


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Ruby + Associates staff donates school supplies to the Judson Center to support children in the center's foster care and adoption programs.

THE GREATEST



Ruby + Associates, a firm with 50 employees, has donated over \$625,000 to local and national charities with a special focus on STEM opportunities for underrepresented groups.

Ruby + Associates encourages employees to identify charitable causes they're passionate about.

BY MICHELE MEYER

GIFT

Tricia Ruby tears up when describing year-end gifts from workers at her firm, who pick a new charity annually and donate on her behalf.

"They choose really thoughtfully," says Ruby, president and CEO of Ruby + Associates, based in Bingham Farms, Michigan, in the suburbs of Detroit.

Last year, the staff of 50 raised \$4,595 for the Oxford Community Memorial and Victims Fund, benefiting families of the four students who died last November in the shooting at Oxford High School in Oxford, Michigan.

Community service has been a major focus at Ruby + Associates in the two decades since she joined the structural engineering firm founded by her father, Dave Ruby, in 1984.

Also with a branch in Grand Rapids, Michigan, Ruby + Associates specializes in structural engineering for the construction, architecture, and steelmaking industries. It has worked on high-profile projects such as a 480,000-square-foot automotive supplier plant in downtown Detroit, the national headquarters of insurer Zurich North America in Chicago, and a new roof on Syracuse University's Carrier Dome.

As Ruby + Associates' CFO and COO, Ruby helped form a community service committee in 2008. Then, taking the reins as

President and CEO in 2011, she committed 1 percent of annual revenue to charitable groups, especially those that aid the underserved and marginalized.

Since then, the company's generosity has topped \$625,000. "Giving is at the core of who I am," says Ruby, whom ACEC recognized with a 2019 National Community Service Award. "You get back so much more than you give. It replenishes your soul."

'GENEROSITY OF SPIRIT'

To encourage employees to give their time more readily, Ruby + Associates grants eight hours of paid volunteer time yearly.

"I don't want to be the only one who feels delight in giving back," Ruby says. "As company leader, I want to encourage others to experience that joy—not out of obligation, but out of generosity of spirit."

Ruby searches for one trait in particular in new hires: empathy. "Empathy is essential to being a great teammate, and construction is a team sport," she says. "Generosity to others is a wonderful byproduct."

She encourages employees to bring their ideas to her. "Tricia has never turned down any idea we've had," says Hollie



Each year Ruby + Associates sends volunteers to clear blight in a Detroit neighborhood for Life Remodeled, a local nonprofit.



Employees volunteer with Gleaners, a local food bank, to help set up and run a mobile food pantry for seniors.

Wall, project engineer and leader of the community service committee. “Instead, she asks, ‘What else can we do?’”

A back-to-school drive for foster kids is dear to Wall, mother of a 2-year-old and a newborn. “I can’t imagine sending my children to school without the supplies they need to succeed,” she says.

A personal mission for committee member and Project Engineer Evan Fredline is the Juvenile Diabetes Research Foundation. His brother has Type I diabetes. “If he forgets or takes the wrong amount of insulin, it could put him in the hospital,” Fredline says.

Another committee member cares deeply about hunger, having experienced it. “His family immigrated with nothing,” Ruby says. “You don’t learn calculus if you didn’t eat breakfast before class. Giving to food causes is so meaningful to him.”

Among Ruby’s passions is the Judson Center, a nonprofit that helps 12,000 families coping with abuse, neglect, autism spectrum disorder, or developmental disabilities. She says her two-year term as board chairperson was the biggest privilege of her life.

“My best friend has two boys with autism,” Ruby says. “I’ve watched her raise them to be wonderful adults, but it was a major struggle without services such as those at Judson Center.”

Ruby also wants to help change her field’s demographics, and



“Instead of putting our philanthropy on hold, we’ve kept our foot on the gas.”

EVAN FREDLINE
PROJECT ENGINEER
RUBY + ASSOCIATES

she acknowledges the industry is predominately white. Ruby is a founding supporter of the NCSEA Foundation Diversity in Structural Engineering Scholarship, and she serves on the group’s committee charged with funding those scholarships. Ruby’s engineers mentor high school students in science, technology, engineering, and math (STEM) through the Southeast Michigan ACE Mentor program.

PANDEMIC PIVOTS

While the pandemic has pushed much of Ruby + Associates’ work online, it hasn’t stopped the company from pursuing charitable goals.

“Instead of putting our philanthropy on hold, we’ve kept our foot on the gas,” Fredline says.

That has often meant tailoring activities to handle the constraints of remote meetings.

Virtual coordination ramped up for a back-to-school drive to help the Judson Center, for example. “Staffers jumped on Microsoft Teams to share online deals they found for lunchboxes, headphones, and other school supplies,” Fredline says. The company also contributed backpacks and Texas Instruments engineering calculators for 30 students.

Everything was shipped to Fredline’s house, resulting in boxes piled high in his kitchen and dining room. Committee members masked up, went to the house, and took it all to the center.



“Empathy is essential to being a great teammate, and construction is a team sport. Generosity to others is a wonderful byproduct.”

TRICIA RUBY
PRESIDENT AND CEO
RUBY + ASSOCIATES

For the Judson Center's Holiday Gift Program, staff at Ruby + Associates purchase holiday gifts for families in need.

3 SECRETS TO ENCOURAGING EMPLOYEE GIVING

Two-thirds of Ruby + Associates staff contribute to the firm's community service, a figure Tricia Ruby credits to three approaches:

1. BE HANDS-OFF.

"Community service committees can't be successful if they're dictated," Ruby says. "You need to set a vision and step away, then watch and support as it takes on a life of its own."

2. SAY YES.

Contribute to the charities that matter to your employees and allow them to volunteer with organizations of their choice. "I'm open to any form of their philanthropy because it comes from their hearts," Ruby says.

3. HIRE EMPATHETIC PEOPLE.

Ruby says empathy is key to a cohesive team, and her staff agrees. "People at Ruby + Associates are so generous, and we never have to push," says Evan Fredline, project engineer. "They jump in. That's our people—good people."

The company's generosity has topped \$625,000

The annual Halloween costume competition also moved online, and the company gave \$25 on behalf of each contestant to Forgotten Harvest, a Detroit food bank.

When Gleaners Community Food Bank's rules limited in-person volunteering last Thanksgiving, workers raised \$5,000 and timed the delivery of their donation for a date when Kroger and Ford Motor Co. planned to match donations. Since Ruby + Associates did the same, the \$4,575 quadrupled to \$18,300.

"It wasn't as personal as being there in person, but it might have had a much larger impact," Fredline says.

Other activities have also adapted within current limits, such as Life Remodeled, a yearly project where volunteers clear blight in urban Detroit neighborhoods. "It's fun to break a sweat and do some good," Fredline says. "Neighbors drop by and thank us, which is so heartwarming."

Wall says volunteering brings her gratitude. "We're very aware of how lucky we are, especially in these hard times," Wall says. "In the city and the suburbs, people may struggle to feed their children."



"We're very aware of how lucky we are, especially in these hard times."

HOLLIE WALL
PROJECT ENGINEER
RUBY + ASSOCIATES

A GOOD PROBLEM

Ruby + Associates has had an unusual problem the past two years: Greater financial success meant it wasn't always so easy to meet its 1 percent annual revenue goal for giving.

When Ruby learned the company still had another \$20,000 in its 2020 philanthropic budget to distribute, she announced that the firm would match employee giving to the causes they cared about. The result was that workers gave \$20,000 to 41 charities—and the company matched their gifts. Last year, Ruby matched the donated total again for 39 nonprofits that staff especially valued.

"I loved getting lists of their chosen charities," she says. "I loved getting insights into our people's hearts. It's the greatest gift ever." ■

Michele Meyer is a management and marketing writer based in Houston. She has written for Forbes, Entrepreneur, and the International Association of Business Communicators.

MEET THE NEW 2022-2023 ACEC EXECUTIVE COMMITTEE:



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ATING

NEW OPPORTUNITIES, HOT MARKETS

BY BOB VIOLINO

THE PAST TWO YEARS HAVE BEEN FILLED WITH CHALLENGES

and uncertainties for engineering firms. But looking ahead, the new 2022-2023 ACEC Executive Committee (ExCom) sees plenty of profitable industry potential.

Two main areas dominate committee members' outlook for this year and beyond: infrastructure improvements and sustainability.



WHAT SEPARATES A "GOOD" FROM A "GREAT" ENGINEERING FIRM LEADER?



“ Good leaders are accountable to their boards or supervisors, to their peers, and to those they lead. They assemble and

listen to their diverse team to provide optimal solutions to complex problems and projects, and they have the agility to adapt to our constantly changing work environment. A great leader assures alignment of their team as they compel those same characteristics, creating a culture in their organization where all of those collaborative characteristics flourish. ”

—Art Barrett, chair



“ To me, leadership boils down to the ability to influence others to achieve a desired outcome. Desired outcomes

for engineering firms might be achieving a targeted annual growth rate, delivering flawless design solutions, or winning specific projects or awards. So it follows that the most effective engineering firm leaders consistently inspire their teams and their firms to reach or exceed these desired outcomes. ”

—Thomas Cascino, vice chair



GREAT OPPORTUNITIES

Engineering firms are being presented with a variety of prospects, thanks in particular to the robust level of infrastructure funding that's being generated by the Infrastructure Investment and Jobs Act (IIJA).

“The current business climate is a once-in-a-lifetime growth opportunity for engineering firms, and many ACEC member firms have already started to increase staffing in a variety of their market sectors in anticipation of higher levels of government and private sector spending on infrastructure,” says **Vice Chair Thomas Cascino**, vice president of transportation at AECOM.

The IIJA provides the industry with a chance to design and build projects that will be resilient and sustainable well into the future, says **ExCom Chair Art Barrett**, senior vice president of Gannett Fleming.

“The historic funding and language in the bill allow engineers to develop infrastructure projects which will enhance communities instead of isolating them,” Barrett notes.

The timing of the IIJA coincides with several states passing various forms of infrastructure funding increases over the past few years, says **Treasurer and Vice Chair Daniel Larson**, CEO of American Engineering Testing.

“The net result is a significant investment in our infrastructure,” Larson says.

With the significant amount of work coming out at both the federal and state levels of government, there's a lot of competition for firms' best teams, says **Joe Fiordaliso**, president of ACECNJ and president of the National Association of Engineering Council Executives (NAECE).

“Public and private market clients need to be cognizant of this competition and recognize that unless they have an attractive business climate, firms will take their A-teams elsewhere,” Fiordaliso says. “This reality opens the door for engineering firms and the ACEC federation to push for enhanced business practices and procurement policies that create a more favorable business climate for our firms.”

Greater demand for engineering and consulting services will allow firms “to hire and retain new staff, to increase and diversify professional service offerings, and to deliver projects using both traditional design-bid-build and alternative design-build and Construction Manager at Risk methods,” notes **Vice Chair Gary Hartong**, president of The Wooten Co.

FORWARD-LOOKING GROWTH

Many markets are becoming more environmentally conscious, and that will also provide opportunities for the industry.

"They are tracking ESG, which is a system for how to measure the sustainability of a company or investment in three specific categories: environmental, social, and governance," says **ExCom Chair-Elect Jay Wolverton**, executive vice president and chief growth officer at CHA Consulting.

Another growing market is renewable energy. "Renewable energy, often referred to as clean energy, comes from natural sources or processes that are constantly replenished," Wolverton says. "Firms that are out in front of these initiatives should be positioned well for future growth."

There's a critical need for expertise to address complex problems in the world, and engineers are uniquely qualified to be the thought leaders in providing these solutions, says **Immediate Past Chair Robin Greenleaf**, CEO, Architectural Engineers, Inc., now IMEG.

"The engineering industry is poised for some of the most complex and future-looking opportunities we have seen," Greenleaf adds. "Climate change, resilience, sustainability, and the desire to achieve significant goals relating to net-zero energy and carbon reduction solutions will have impact across all of the built environment disciplines in engineering."

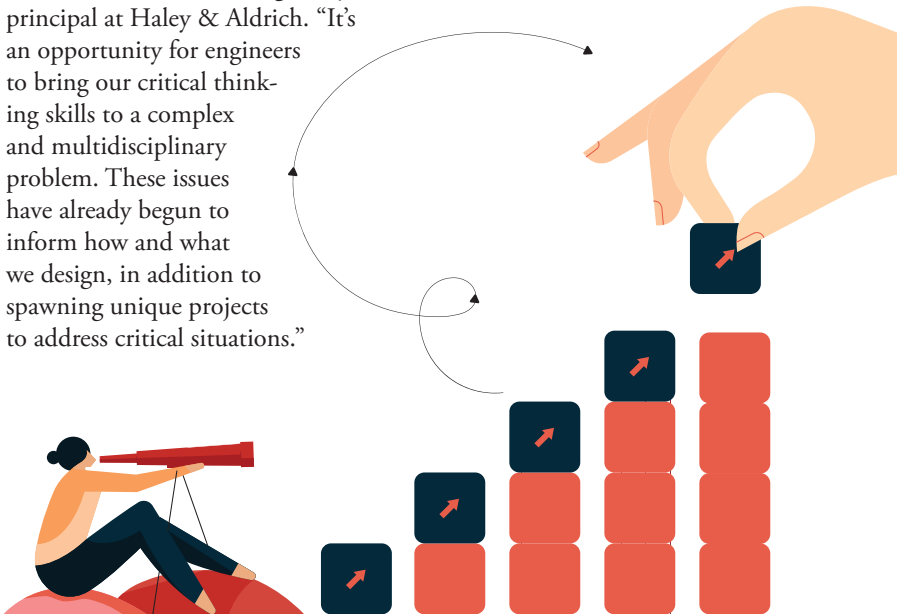
There also is renewed interest in equitably rebuilding and enhancing infrastructure to improve mobility, according to **Vice Chair John Rathke**, principal at Mead & Hunt.

"Today's technology enhances the accuracy in our designs through the creation of digital twins of our natural and built environments," Rathke says. "This further provides an opportunity for firms to improve the nation's buildings, infrastructure, water treatment and distribution systems, and energy production, providing a safe and sustainable future for all."

Engineering firms can also make an impact on future generations by providing sustainable job opportunities and clearly defined career paths, says **Vice Chair Ralph Guida**, president of Guida Surveying.

He notes that "the past recessions and recent and anticipated attrition have created a vast need for young professionals to enter the A/E/C industry." The infrastructure bill will create more roles to fill, Guida adds. "This is not just specific to transportation, but to improving our broadband infrastructure, climate change mitigation, electric vehicle chargers, and upgrades to water infrastructure."

Engineering firms are uniquely qualified to serve as innovative leaders. "Beyond infrastructure rebuilding, over the next 20 years our talents will be essential in understanding how infrastructure and our communities can be more resilient to the effects of climate change," says **Vice Chair Janice Marsters**, senior principal at Haley & Aldrich. "It's an opportunity for engineers to bring our critical thinking skills to a complex and multidisciplinary problem. These issues have already begun to inform how and what we design, in addition to spawning unique projects to address critical situations."



“The ability to see the big picture. We all have day-over-day responsibilities and deliverables, and it is easy to

focus on these exclusively. What makes great leaders different is their ability to also focus on big picture issues and systemic changes that will benefit the organization in the long term.”

—Joe Fiordaliso, NAECE president



“A great engineering firm leader is someone who has a great sense of where potential opportunities

may lie and has the skill to put together the group that can execute on their vision. A great leader will also recognize where pitfalls and obstacles lie as well. Having a broad 'bandwidth' or big-picture vision separates a great leader from a good leader who has strong execution skills but may not be able to see beyond the weeds.”

—Robin Greenleaf, immediate past chair



“Recognizing and taking the opportunities available to better our profession. For instance, utilizing the

latest technology to deliver design in both digital and 'real time.' It's important to inspire and empower staff to find new ways of efficiency and productivity while maintaining a healthy work-life balance.”

—Ralph Guida, vice chair



“A great engineering firm leader understands that clients and employees don’t operate in a single silo, and

that new information and ideas must be conveyed through multiple communication streams to be effective. And that over-communication is often better than under-communication.”

—Gary Hartong, vice chair



“Most engineering firm leaders have a vision of where they want to take their company. I believe

what separates a good leader from a great leader is the way they go about making that vision a reality. In today’s world, it has never been more important for leadership to engage employees and energize them to go on the journey together.”

—Daniel Larson, treasurer and vice chair



“Good leaders have the skills: integrity, communication, self-awareness, accountability, empathy, patience.

But I believe great engineering firm leaders inspire. They are passionate about developing and coaching the emerging leaders around them, are strategic thinkers and planners, and are able to articulate their vision to inspire their team to work together toward a common purpose.”

—Janice Marsters, vice chair

HOTTEST MARKETS

ExCom members have various opinions on what will be the hottest new markets for engineering.

The COVID-19 pandemic will continue to drive improvements to existing buildings as air quality and social distancing needs remain a concern—and as companies rethink the role of the office. “With the disruption that COVID has caused to our everyday way of life, there may be a big need to repurpose existing and future buildings to keep occupants safe,” says **Senior Vice Chair Melvin Williams**, senior client development manager and vice president at Terracon.

Fiordaliso notes that the IIJA represents a historic level of investment not only in roads, bridges and transit, but also in broadband and water.

“The amount of formula funding New Jersey is slated to receive on the water side—for drinking water system upgrades, lead pipe replacement, and more—will have a transformative impact on New Jersey communities but also create significant new opportunities for A/E firms,” Fiordaliso says.

Although infrastructure such as highways, streets, airports, bridges, and water treatment and distribution is not a new market, “the increased emphasis makes this a hot market when combined with sensing technology, data analytics, and artificial intelligence,” Rathke says, adding that a firm’s ability to attract and develop professionals with skills in these areas is critical to fully leveraging advanced technology to improve planning, design, and construction.

Hartong points out that with continued aging of buried infrastructure and the increased competition for federal and state funding, the need for utility system owners to engage in active asset management will become increasingly important. “System owners need to understand where available funding should be prioritized to continue providing reliable customer service.”

Engineering firms “have ample opportunities to assist their client owners with enhanced data gathering, in-depth assessments, and making necessary operational adjustments,” he says.



UNIQUEPIXEL/GETTYIMAGES

Over the next few years, most traditional markets that engineering firms serve will be hotter than the past few years by all indications, Cascino says. “However, we see a particular increase on the horizon for engineering services to support green energy projects such as offshore wind development, installation of large-scale solar arrays, and electric vehicle charging stations, which will also increase the need to upgrade our overall electrical grid infrastructure.”

Williams mentions that with the growing popularity of electric vehicles, “there may be a great need to develop associated infrastructure such as battery plants and charging stations.”

Energy “is serving as the nexus between so many different sectors and continues to evolve rapidly,” Barrett says. “The world is grappling with the issues of sustainable energy sources, zero-carbon footprints, and microgrids, just to name a few, and the energy market is drawing upon traditional and new disciplines of engineering together to find solutions.”

Not only is the reduction of greenhouse gases and conservation of natural resources necessary, “it’s the right thing to do,” Larson says. “In this regard, the global warming discussion is acting as an accelerator for innovation in how we build, repair, and maintain our physical infrastructure. Engineering firms are uniquely situated to lead this effort, whether it’s utilizing low-carbon construction materials in a new roadway or renovating an office building to reduce its carbon footprint.”

In some cases, the hot markets are not so much new as redefined, Guida says. “For example, electric vehicle stations in addition to or instead of gas stations, the potential for vehicle miles traveled to replace the gas tax, and the use of unmanned aerial vehicles for mapping areas,” he says.

The private sector building market is also expected to continue along a path of strong growth, “as there appears to be greater interest in returning to urban centers post-pandemic,” Cascino says. “Of course, the infrastructure needed to support all of these growth areas will also require the modernization and rehabilitation of our many ports, railways, airports, sewer/water systems, dams, highways, and bridges.”

During a time rife with possibility, it’s important for A/E/C firms to keep the big picture in mind. “The greatest opportunity for our industry is to deliver the projects being funded by the IIJA,” Wolverton says. “Our entire society will be watching to make sure these dollars truly build back our nation’s infrastructure—both in a timely manner as well as getting the most out of every dollar funded.”



Reflecting on the opportunities that lie ahead, **ACEC President and CEO Linda Bauer Darr** says the views of the new ACEC Executive Committee accurately reflect an industry-wide optimism for the future, especially considering recent times.

“We have a ton of business acumen and practice expertise on the new ExCom,” she says. “This not only positions the Council to take advantage of opportunities from the increased investments, but also in opportunities to further enhance industry best practices and the regulatory environment for our members.” ■

Bob Violino is a business and technology writer based in Massapequa Park, New York.



“A great engineering firm leader is relentless in their desire to build a great company with great

opportunities for employees and exceptional service for clients. A personality trait that also separates a great engineering firm leader from a good engineering firm leader is personal humility.”

—John Rathke, vice chair



“Great leaders can communicate a very clear message of the firm’s vision and mission

statement to their stakeholders to chart a successful path for the firm. A great leader also provides the appropriate tools, resources, and a comfortable environment for their staff so they can thrive, succeed, advance, and grow within the firm.”

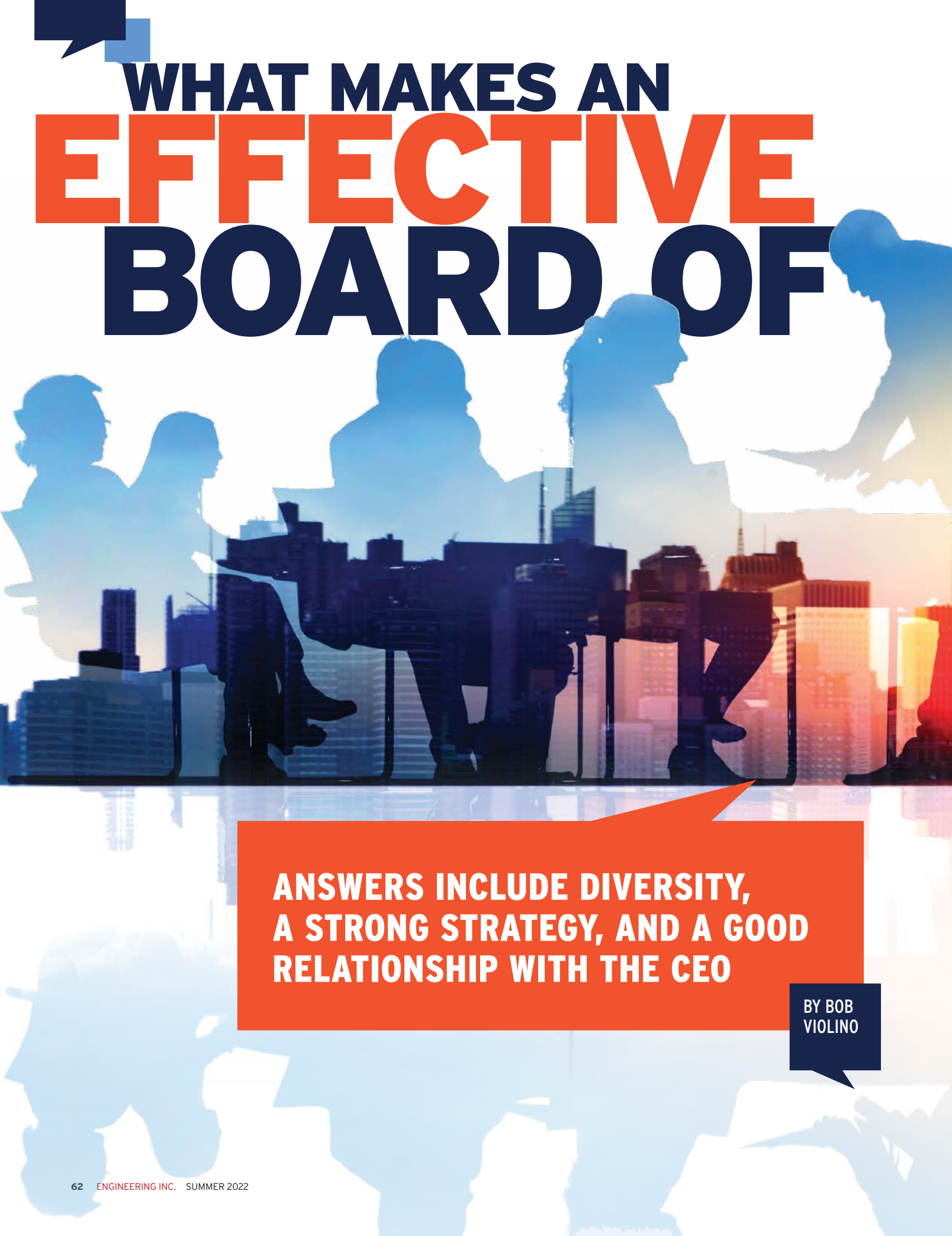
—Melvin Williams, senior vice chair



“A great leader is one who can earn ‘followership’ within their firm. They lead by example. They

are strategic, yet they openly accept and value the opinion of the team. Once the vision is set, they train and empower those around them and then get out of their way. They will celebrate successes as a part of the team, but they will take responsibility for things that didn’t pay off.”

—Jay Wolverton, chair-elect

The background of the entire page features a silhouette of five business professionals in a meeting. They are seated around a table, with one person standing and pointing at a document. The background is a city skyline at sunset or sunrise, with warm orange and yellow light. The title text is overlaid on the top half of the image.

WHAT MAKES AN **EFFECTIVE** BOARD OF

**ANSWERS INCLUDE DIVERSITY,
A STRONG STRATEGY, AND A GOOD
RELATIONSHIP WITH THE CEO**

**BY BOB
VIOLINO**

DIRECTORS?



The role of boards of directors has become increasingly complex in recent years. Investors, academics, legislators, regulators, and the general public are increasingly concerned about how effectively boards and individual directors are performing.

Whereas in the past a board was mainly evaluated on how the company performed financially, including shareholder returns, the scrutiny has broadened considerably.

“While the board represents shareholders from a governance perspective, it must also ensure that the company’s strategy, as led and executed by management, also considers the interests of

a much broader group of constituents: employees, customers, investors, and the community,” says Tierney Remick, vice chairman of board and CEO services at the consulting firm Korn Ferry.

In recent years, large institutional shareholders and legislators have begun examining public companies and their boards on nonfinancial factors, says Jason Frankl, senior managing director at FTI Consulting.

They look at organizations and their boards using metrics such as environmental impact, how they pay executives relative to typical employees, and the diversity of their workforce and the board itself, among other factors, Frankl says.

THE PANDEMIC IMPACT

The new business environment shaped by the COVID-19 pandemic, including the massive shift to a work-from-home model, increasing economic uncertainty, and a growing emphasis on digital transformation and automation, has clearly had an impact on boards of directors.

"The dramatic increase in the pace of change caused by the pandemic, economic uncertainty, and social unrest is now being increasingly understood," says Tierney Remick, vice chairman of board and CEO services at Korn Ferry.

"Now, board members have strategies for more aggressive scenario planning and different market conditions," Remick says. "One example would be reevaluating the strength of a supply chain and the supplier network to avoid shortages that were experienced in many sectors."

In addition, there is an enhanced focus on board and C-suite succession. "Coming out of the pandemic, many boards and leadership teams realized a need for new or different skills," Remick says. "The board and management learned a lot about each other's resilience, creativity, and how to lead and support a company through a crisis with incredible ambiguity."

The way boards meet and connect may move to a new model, with a hybrid of virtual and in-person meetings. "The board calendar may adjust to accommodate for more frequent meetings, depending on the needs of the organization," Remick says. "We anticipate that board commitments will increase, and scenario planning will be expanded."

The shift to virtual meetings will not likely revert anytime soon. "Such meetings can take place more frequently, on shorter notice, and with less cost than in-person meetings," says Jason Frankl, senior managing director at FTI Consulting. "Furthermore, annual shareholder meetings may allow shareholders to participate both virtually and in person, making it far easier."

The pandemic "has reinforced the forward-looking emphasis on boards," says Gerry Salontai, CEO at Hull & Associates. "Those that had little emphasis on the future are now retooling their agenda with this in mind."

The global health crisis and resulting shifts have created opportunities for the engineering industry more so than other sectors, says Salontai. "We are sailing with strong tailwinds in many sectors of the business," he says. "That said, it has caused us to look at what might be over the horizon for our clients and their companies. In particular, there also needs to be a focus on our workforce of the future and how we can continue to collaborate, maintain quality, coach, and build culture."



"More groups measuring a board on more factors makes that board's role inherently more complex."

JASON FRANKL
SENIOR MANAGING DIRECTOR
FTI CONSULTING

"More groups measuring a board on more factors makes that board's role inherently more complex," Frankl says. "This is compounded by the fact that directors whose careers have been focused on business are likely to be less well-versed in ESG, or environmental, social, and governance factors, than in traditional measures of business success."

Income and wealth inequality have increased in the U.S. in recent decades, Frankl says, and that impacts the way boards are evaluated. "The biggest companies have gotten bigger, absolutely, relative to others—in large part due to how technology lends itself to scalability," he explains. "Think about how much less capital and management oversight is required to sell additional online search ads or software versus how much is required to open an additional retail store or manufacturing plant."



"An effective board is one with an agenda that is balanced with forward-looking topics rather than just reporting on results, has a diverse set of individuals who bring different perspectives, and challenges the status quo—all in an environment of great teamwork and collaboration."

GERRY SALONTAI
CEO
HULL & ASSOCIATES

Some of the largest companies in the world, such as Apple, Google, and Amazon, are used by individuals every day, giving them tremendous visibility with the public, Frankl says.

At the same time, the notion that companies should focus more on nonfinancial metrics, including ESG metrics, has gained broader acceptance among investors and others, Frankl says. “All these items have led non-investors to look more closely at boards,” he says. “However, many non-investors care far less about how boards perform their core function—oversight of the business—than how the business performs on ESG metrics.”

FROM STRATEGY TO DIVERSITY: CREATING AN EFFECTIVE BOARD

So what constitutes an effective board of directors, given the broadening criteria for evaluating performance?

“An effective board is one with an agenda that is balanced with forward-looking topics rather than just reporting on results, has a diverse set of individuals who bring different perspectives, and challenges the status quo—all in an environment of great teamwork and collaboration,” says Gerry Salontai, CEO at Hull & Associates.

A strong board also has foresight. “The board has a responsibility to ensure that there is a vision and strategy for the company, one that supports its continuity and sustainability,” Salontai says. “It’s crucial that a company’s purpose and values align within each other and with the strategy set forth by the leadership team and the board.”

When planning and executing a corporate strategy, it’s important to distinguish the board’s responsibilities from those of the executive management team.

“We often hear that the board should be discussing and developing strategy,” says Dilip Choudhuri, president and CEO of Walter P Moore. “The vision and vivid description of a firm should be developed by the board in conjunction with the CEO and other key stakeholders. The vision informs the strategy, which should be driven by the CEO.”

Boards must create quantifiable and realistic goals for the company and its leaders—and that means rewarding successes and holding accountable those who don’t make their goals, Frankl says. “An effective board functions as a team focused on the long-term strength of the company,” he says. “It is curious and digs into the details so that it can understand what has been happening with the company, as well as future opportunities and challenges that the company may face.”

The mission, vision, and core values of an organization are fundamental pillars to its operation, and the strategic plan should be aligned with these pillars, says Kathleen Tamayo, a consultant at Spencer Stuart. “They are the north star for the board,” she says. “The board might shape them in terms of reviewing, probing, asking questions, and pressure testing. But



“We often hear that the board should be discussing and developing strategy. The vision and vivid description of a firm should be developed by the board in conjunction with the CEO and other key stakeholders. The vision informs the strategy, which should be driven by the CEO.”

DILIP CHOUDHURI
PRESIDENT AND CEO
WALTER P MOORE

ultimately it is the executive team that brings them forward. It is the board’s job to approve what is presented and oversee the execution.”

Another key consideration is the makeup of the board. “Highly effective boards have a diverse composition of members, including experienced and first-time directors and executives from inside the company’s industry as well as relevant adjacent sectors,” Remick says.

Boards are most effective with a thoughtful cross section of executives who represent different functional orientations, ages, genders, and ethnicities, Remick says. “There is solid data that shows when a board has broad representation, that is typically reflected in management and leads to higher performance and a commitment to innovation,” she says. “Highly effective boards also ensure that all voices in the boardroom are heard and optimized.”

“Stakeholders have become more explicit in demanding that boards demonstrate that they are being thoughtful about who is sitting around the table and that directors are contributing,” Tamayo says.

The focus on diversity must extend into the workplace. “Boards have been discussing the issue of diversity and inclusion for some time, but the biggest shift we’ve seen in the past year is moving from words to actions,” Remick says. “This includes making systemic structural as well as behavioral changes to support the creation and development of a sustainable, inclusive workforce.”



"There is solid data that shows when a board has broad representation, that is typically reflected in management and leads to higher performance and a commitment to innovation."

TIERNEY REMICK
VICE CHAIRMAN OF BOARD AND CEO SERVICES
KORN FERRY

Adds Tamayo: "Companies are on a journey, and most are probably not where they should be. Companies are going to need to be strategic and intentional about promotion, development, and retention. With thoughtful intention, they will see an increase in diversity in the boardroom and C-suite."

Stakeholders are also pushing boards to seek greater transparency about how they address their own performance and the suitability of individual directors, she says.

Boards should be using assessments as a catalyst for refreshing membership as new needs arise, Tamayo says. "The board must continually reinvent itself and evolve as the company's business evolves, as its strategies and risks evolve, and as the management team evolves," she says. "Boards need to have the courage to refresh and move people on and off."

Leadership can set expectations at the outset of a director's tenure that renominations are not simply assumed, Tamayo adds. "They are based on the needs of the board and require the sustained high performance of individual directors," she says. "Boards are better prepared to conduct these reviews when they are disciplined about developing a board composition matrix or similar exercise that identifies gaps or overcapacity of director skills relative to the future-looking company strategies and risks."

Salontai also warns of board member stagnation: "The board should continually be refreshed and avoid the 'director for life' concept, where there are no term limits, and fresh, diverse perspectives are introduced continually," he says.

PARTNERING WITH THE CEO

Despite the emergence of relatively newer concerns such as diversity and environmental responsibility, one of the main functions of the board continues to be maintaining a strong partnership with the CEO. The effectiveness of the board and the chief executive are interdependent.

"It has been said that a board's most important job is to pick the right leader as a CEO," Frankl says. "That is virtually

unassailable. The second most important job of a board is to help define the company's strategy and related goals."

The board and company management, led by the CEO, must work together and be willing to ask difficult questions to achieve a positive outcome, Frankl says, or "a competitor will likely outperform them in the marketplace."

Remick goes so far as to say that the most important relationship in an organization is the one between the board and the CEO. "The board is in place to support the company's strategy and management team," she says. "The board and CEO need to be able to discuss critical issues with confidence and open collaboration."

If the board and CEO have differences—whether those involve a merger and acquisition, capital investments, or succession planning—they need to be able to work through them, Remick says. "If there is unhealthy tension between a board and the CEO, it will affect the communication and trust," she explains. "This may result in topics or ideas not being discussed and/or innovative strategies not being shared or being shut down altogether."

As firms face ongoing challenges and adapt to new ways of doing business, having strong, effective boards will be a key to their success. ■

Bob Violino is a business and technology writer based in Massapequa Park, New York.



"Boards need to have the courage to refresh and move people on and off."

KATHLEEN TAMAYO
CONSULTANT
SPENCER STUART

The Lure of Long-Term Opportunity Drives Record Deal-Making in 2021; 2022 on Pace to Soar Higher

BY NICK BELITZ



In the world of investing, expectations for the future drive the movement of money in the present, with capital flowing to asset classes judged by presumably savvy investors to yield the greatest opportunity for returns. 2021 will be remembered as the year engineering firm deal-making activity in the U.S. took a step further above already elevated levels. Deal counts rose from an average of 316 per year from 2018 to 2020 to an eye-popping 420 deals in 2021. Preliminary data from 2022 indicates the industry is on track for even more activity this year. We project 450 transactions in the U.S. alone by the time the year ends. (See chart.) If engineering firms constituted an asset class by themselves, the sector would be among the hottest in the market today!

So, what expectations about the future are pushing so much capital into the industry and spurring so many transactions by ACEC deal-makers? At the macro level, we see four critical

drivers at work, all of which only seem to have accelerated in the last 24 months:

1. U.S. government largesse. While the stimulus packages enacted by Congress in response to the pandemic provided one-time shots in the arm—please forgive the pun—for the economy in general and engineering firms in particular, the Infrastructure Investment and Jobs Act of 2021 will provide billions of dollars in funding over multiple years. Buyers anticipated this over the past two years and invested ahead of the bill's passage. With the law now in place, any firm that touches infrastructure in any state or region stands to benefit, and buyers have continued to jostle for position ahead of that spending.

2. Valuations at record highs. Simply put, we've never seen as many sellers commanding premiums in the marketplace as we do right now. Owners and leaders of firms have peered into their futures, read the tea leaves of rising backlog and strong utilization coupled with robust near-term demand, and see

rising profits leading to increasing valuations via an external sale. Related to the first point, this is especially true for firms serving any market a buyer might construe as “public infrastructure.” That goes double for firms with all or most of their operations in the southern or western U.S., where positive demographic and in-migration trends drive sustained long-term demand.

3. The tax devil that we know. Buyers and sellers pursued deals in 2021 (and still are pursuing them in 2022) ahead of any potential changes in tax law and tax rates at the federal level. While some in Congress advocated for changes to the 2017 Tax Cuts and Jobs Act after the 2020 election, no overhaul passed Congress, and buyers and sellers took advantage of favorable and known tax policy to contemplate and close deals.

4. Internal ownership transition still a bugaboo. As the baby boomer generation continues to retire (or at least tries to), firms are challenged in transferring business leadership and client connections to the smaller Generation X cohort and the younger millennial group, with many professionals in the latter category unable or unwilling to buy into their employer's ownership group. This dynamic has led many executives to decide the time was right to make a deal with an external buyer.

The natural question becomes, when will all the consolidation end? Our answer: not soon! And likely not for years. As long as these factors remain in play—and none show signs of abating in 2022—buyers and sellers of engineering firms will continue to come together to make deals.

The following is a list of recent transactions with ACEC members highlighted in **bold**.

MARCH 2022

Colliers Engineering & Design (Red Bank, N.J.) acquired KFW Engineers & Surveying (San Antonio, Texas), a civil engineering, environmental, and surveying services firm.

NV5 (Hollywood, Fla.) acquired Fulton Consulting Engineers (Lake Forest, Calif.), a mechanical, electrical, plumbing design, and energy efficiency services firm.

ACES (Amman, Jordan) acquired **MC Squared** (Kennesaw, Ga.), a geotechnical engineering, environmental studies, and construction material testing firm.

Tetra Tech (Pasadena, Calif.) acquired Axiom Data Science (Anchorage, Alaska), a climate science modeling firm.

NV5 (Hollywood, Fla.) acquired River City Testing (Riverside, Calif.), a materials testing and special inspection services firm.

IMEG Corp. (Rock Island, Ill.) acquired The Harman Group (King of Prussia, Pa.), a structural engineering firm.

FEBRUARY 2022

American Engineering Testing (St. Paul, Minn.) acquired **Northern Technologies** (Eagan, Minn.), a geotechnical engineering and materials testing services firm.

RMA Group (Rancho Cucamonga, Calif.) acquired CSI Services (Santa Clarita, Calif.), a specialty coating inspection services firm.

To view the most up-to-date and “live” versions of the M&A heat maps, and to see who are the buyers and sellers in each state, go to www.morrisseygoodale.com.



Nick Belitz is a principal with Morrissey Goodale LLC, a management consulting firm that specializes in the A/E industry and provides strategic business planning, merger and acquisition, valuation, executive coaching, leadership development, and executive search services. He can be reached at nbelitz@morrisseygoodale.com.

CHA Consulting (Albany, N.Y.) acquired A&P Engineers (Doral, Fla.), a firm with expertise in civil engineering, transportation, water resources, and CEI.

TRC Companies (Windsor, Conn.) acquired United Sciences Testing (Warrendale, Pa.), a firm that provides emissions testing services to utility and industrial clients.

Orsatti Water Consultants (Wheat Ridge, Colo.), a water, wastewater, and civil infrastructure services firm, joined environmental consulting firm **Anchor QEA** (Seattle).

LJA Engineering (Houston) acquired Five Points Design Group (Jacksonville, Fla.), a firm focused on roadway, stormwater, and utility design services.

TRC Companies (Windsor, Conn.) acquired ESS Group (Waltham, Mass.), an engineering firm that offers power and renewable energy, coastal engineering, and water resource management services.

ISG (Mankato, Minn.) acquired **Martin Pevzner Engineering** (Bloomington, Minn.), an MEP systems design services firm.

Terracon (Olathe, Kan.) acquired **Wang Engineering** (Lombard, Ill.), a firm that specializes in geotechnical engineering, construction inspection, and materials testing services.

MRB Group (Rochester, N.Y.) acquired Parrone Engineering (East Rochester, N.Y.), a civil engineering, environmental, and surveying services firm.

WSP (Montreal, Canada) acquired Climate Finance Advisors (Washington, D.C.), a climate and finance consultancy.

KCI Technologies (Sparks, Md.) acquired the Harrisburg office of Sowinski Sullivan (Sparta, N.J.).

Pickett and Associates (Tampa, Fla.), and its subsidiary U.S. Imaging Flight Ops, joined multidiscipline engineering design firm **ESP Associates** (Fort Mill, S.C.).

Plummer (Fort Worth, Texas) acquired integrated water resource engineering firm **WATERMARK Engineering Group** (Sun City Center, Fla.).

Jacobs (Dallas) acquired StreetLight Data (San Francisco), a specialized mobility analytics firm.

Crafton Tull (Rogers, Ark.) acquired structural, civil engineering, and surveying firm B & F Engineering (Hot Springs, Ark.).

Otak (Portland, Ore.) acquired Tarr Whitman Group (Seattle), a specialized project controls and construction support consulting firm.

Remington & Vernick Engineers (Cherry Hill, N.J.) acquired Sud Associates (Durham, N.C.), a civil engineering firm.

Woolpert (Dayton, Ohio) acquired eTrac (San Rafael, Calif.), a vessel-based hydrographic survey and marine technology firm.

Westwood Professional Services (Minnetonka, Minn.) acquired **Pacheco Koch** (Dallas), an engineering, surveying, planning, and landscape architecture services firm.

Resource Environmental Solutions (Houston) expanded in Florida with the acquisitions of **E Sciences** (Orlando, Fla.) and Sandra Walters Consultants (Key West, Fla.).

Trilon Group (Denver), a newly formed engineering services platform of Alpine Investors (San Francisco), announced its first partnership with **Waggoner Engineering** (Jackson, Miss.).

Ardurra Group (Tampa, Fla.) acquired and merged with **Pevida Highway Designers** (Miami), a transportation civil engineering firm serving the Southeastern United States.

JANUARY 2022

HDR (Omaha, Neb.) acquired SPF Water Engineering (Boise, Idaho), a water, wastewater, and hydrogeologic consulting firm.

P2S (Long Beach, Calif.) acquired Power Engineering Services (Brea, Calif.), a power system studies, master planning, and design services firm.

The Lexis Group (Dillsburg, Pa.) acquired the equipment assets from Singer Utility Engineering (Yardley, Pa.).

Bowman Consulting Group (Reston, Va.) acquired Perry Engineering (Tucson, Ariz.), a firm that delivers civil engineering consulting and land surveying services.

PRIME AE Group (Baltimore, Md.) acquired **Prosser** (Jacksonville, Fla.), a planning and engineering firm.

RMA Group (Rancho Cucamonga, Calif.), a portfolio company of OceanSound Partners (New York, N.Y.), merged with **Western Technologies** (Phoenix, Ariz.) and Enviro-Drill (Phoenix, Ariz.).

Greenman-Pedersen (Babylon, N.Y.) acquired Holbert Apple Associates (Olney, Md.), a structural engineering firm specialized in new construction and renovations.

Baker Design Consultants (Freeport, Maine), a civil, marine, and structural engineering consulting firm, joined **GEI Consultants** (Woburn, Mass.).

AG&E (Addison, Texas) acquired **Blue Ridge Design** (Winchester, Va.), a firm with expertise in the precast/prestressed concrete industry.

Psomas (Los Angeles) acquired KPG (Seattle), a civil engineering, surveying, mapping, landscape architecture, urban design, transportation planning, and construction services firm.

HR Green (Cedar Rapids, Iowa) acquired LDC (Austin,

Texas), a land development, telecommunications, and surveying consulting firm.

GdB Geospatial (Melville, N.Y.) announced that Geomaps International (Bethpage, N.Y.) has joined its team.

Bolton & Menk (Mankato, Minn.) acquired Fortin Consulting (Hamel, Minn.), a water resources consulting firm.

TranSystems (Kansas City, Mo.) acquired **OMEGA & Associates** (Chicago), a CM/PM firm with experience on transportation projects.

WGI Ventures (West Palm Beach, Fla.), the infrastructure technology arm of **WGI** (West Palm Beach, Fla.), acquired software firm Streamline Technologies (Winter Springs, Fla.).

Electric Power Engineers (Austin, Texas) announced an investment by Lime Rock New Energy (Westport, Conn.), a growth equity investment firm specializing in the energy industry.

LaBella Associates (Rochester, N.Y.) acquired Stieglitz Snyder Architecture (Buffalo, N.Y.), an architectural firm.

Green International Affiliates (Westford, Mass.) acquired Lumen Studio (Harvard, Mass.), a lighting design firm providing architectural lighting design services.

EnSafe (Memphis, Tenn.) acquired Progressive Engineering & Construction (Tampa, Fla.), an environmental and engineering firm.

CEC Corporation (Oklahoma City, Okla.) acquired **White Engineering Associates** (Oklahoma City, Okla.), a structural and civil engineering services firm.

Pennoni (Philadelphia) acquired Snyder, Secary & Associates (Harrisburg, Pa.), a civil engineering and land development firm.

The **Geomatics practice of Weston & Sampson** (East coast, U.S.) joined **KCI** (Sparks, Md.).

Civil & Environmental Consultants (Pittsburgh) acquired Hamilton Designs (Fishers, Ind.), a land surveying, site engineering, and infrastructure services firm.

WGI (West Palm Beach, Fla.) acquired Simpson Engineers & Associates (Cary, N.C.), a transportation engineering firm.

InSite Engineering (Hoover, Ala.) acquired Nelson & Company (Birmingham, Ala.), a civil and process engineering firm.

Integral Group (Oakland, Calif.) merged with **Ross & Baruzzini** (St. Louis, Mo.), creating one of the largest building engineering consulting firms.

Multidisciplinary engineering firm **Strand Associates** (Madison, Wis.) merged with civil and environmental engineering firm **FOX Engineering** (Ames, Iowa).

Mackay Engineering & Surveying (Cleveland, Ohio), a land surveying, civil engineering, and municipal engineering firm, joined **WallacePancher Group** (Hermitage, Pa.).

IMEG Corp. (Rock Island, Ill.) acquired three new firms: **Architectural Engineers** (Boston, Mass.); C&H Engineering and Surveying (Bozeman, Mont.); and Sitton Energy Solutions (St. Louis, Mo.). ■

On the Move

Mario Azar has been named chairman and CEO of Overland Park, Kan.-based **Black & Veatch**, succeeding **Steve Edwards** who is retiring after 44 years of service. Azar, who joined the company in 2018, previously served as president of the company's energy & process industries sector.

Joey Hudnall has been named president and CEO of Jackson, Miss.-based **Neel-Schaffer**. He replaces **Hibbett Neel**, who co-founded the company in 1983 and will continue to serve as the chairman of the board of directors and direct the firm's vision and strategy. Hudnall, who joined the firm in 1995, previously served as the firm's chief operations officer since 2009.

Tamara Johnson has been named president of Greenwood Village-based **Merrick & Company**, becoming the sixth president in Merrick's history. Johnson most recently served as the firm's senior vice president of high-performance facilities. With this transition, **Christopher Sherry**, who has served as president for the past five years, chief executive officer for four years, and was most recently elected

chairman of the board, will continue as CEO and chairman, focusing on board governance, government/industry affairs, strategic growth, and mergers and acquisitions.

Amy Davis has joined Jacksonville, Fla.-based **RS&H** as its executive vice president and chief financial officer following the retirement of former CFO **Holt Graves**. Davis most recently served as chief financial officer for Michael Baker International.

New York-based **STV** announced the following appointments: **Kim Vierheilg** has joined the firm as its new president of buildings and facilities and will serve on STV's executive leadership team. Vierheilg joins STV from AECOM where she served as vice president and managing principal of the New Jersey practice. **Joe Marie** has been named the firm's Boston office manager. He recently joined the company as a senior vice president and senior program manager and has 35 years of experience in the rail and transit industry.

C.J. Chance has been promoted to chief operating officer of Georgia operations

for Savannah, Ga.-based **Hussey Gay Bell**. Chance joined the firm in 2005 and previously served as principal and IT officer.

Marlon Starr has joined Jacksonville, Fla.-based **RS&H** as chief legal officer. Starr formerly served as senior vice president and general counsel of RentPath, a digital advertising and marketing company focused on the multifamily housing industry.

David S. Kim has joined New York-based **WSP USA** as senior vice president and national transportation policy and multimodal strategy principal. Kim previously served as secretary of the California State Transportation Agency since 2019 and is based in the Washington, D.C., office.

Mahmoud Shouman has joined New York-based **Jaros, Baum & Bolles (JB&B)** as the new Division Lead of its Building Intelligence (BI) division, where he will work throughout the industry's major verticals and apply his expertise across building intelligence platforms and integrations with building systems and end-user technologies.



Mario Azar



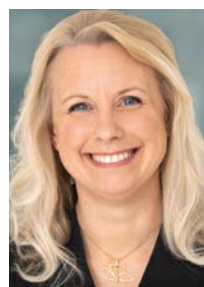
Joey Hudnall



Tamara Johnson



Amy Davis



Kim Vierheilg



Joe Marie



C.J. Chance



Marlon Starr



David S. Kim



Mahmoud Shouman

Welcome New Member Firms

ACEC Alabama

ECS Southeast, LLP
Birmingham
KPFF Consulting Engineers
Birmingham
LaBella Associates
Hoover

ACEC Alaska

proHNS, LLC
Juneau
Taku Engineering, LLC
Anchorage

ACEC Arizona

H2B, Inc.
Tempe
Paradigm Design
Scottsdale

ACEC Arkansas

Pollution Management, Inc.
Little Rock

ACEC California

Gausman & Moore—
A Division of Ayres
(Ayres Associates Inc.)
Santa Clarita

ACEC Colorado

Felker Structural
Engineering, LLC
Colorado Springs
Theorem Design Group
Denver
Wood
Denver

ACEC-FL

Alpha Envirotech
Consulting, Inc.
Jacksonville
Engineering
Professionals, Inc.
Tampa
Graef-USA
Miami
Modjeski and Masters, Inc.
Mechanicsburg, Pa.
National Stormwater
Trust, Inc.
Tallahassee
Via Planning, Inc.
Margate

ACEC Georgia

Current Edge Solutions, LLC
Savannah
IBI Group
Atlanta

ACEC Hawaii

JCK Underground
Haleiwa

ACEC of Idaho

OAC, Inc.
Boise

ACEC Illinois

R&G Engineering, LLC/
DBA Reach Grow
Exceed Engineering
Chicago

ACEC-KY

Geosyntec Consultants Inc.
Louisville
Heritage Engineering, LLC
Louisville

ACEC of Louisiana

Batture, LLC
New Orleans

ACEC/MW

Top Level Engineering, LLC
Sterling, Va.

ACEC/Michigan

PEA Group
Troy

ACEC/MS

T. Baker Smith, LLC
Jackson

ACEC/Missouri

Solutions AEC, LLC
St. Louis

ACECNJ

Brescia Engineering, LLC
Millstone Township
R3M Engineering, Inc.
Old Bridge

ACEC New Mexico

RESPEC
Albuquerque

ACEC New York

Columbia Consulting
Engineers, PLLC
New York
Garg Consulting Services, Inc.
New York

ACEC Ohio

Proudfoot Associates, Inc.
Whitehouse

ACEC Oregon

4B Engineering &
Consulting, LLC
Keizer

ACEC/PA

Atkins North America, Inc.
Philadelphia
RS&H
Philadelphia

ACEC-SC

DRMP, Inc.
Charlotte, N.C.
GeoEngineers, Inc.
North Charleston
The Wooten Company
Columbia

ACEC of South Dakota

Burns & McDonnell
Sioux Falls

ACEC Tennessee

Geosyntec Consultants, Inc.
Knoxville
Strand Associates, Inc.
Franklin

ACEC Texas

ATSER LP
Houston
CEA Group
El Paso
DCCM
Houston
Hound Engineering
Services, LLC
Fulshear
Rakowitz Engineering &
Surveying
Pleasanton

ACEC Virginia

Accompong Engineering
Group, LLC
Chesterfield
Burgess & Niple, Inc.
Glen Allen

CALENDAR OF EVENTS

AUGUST 2022

- 24** Making Sure Your Strategic Plan Won't Languish or Fail (online class)
- 30** Stone Arch Bridge Rehabilitation Reality Modeling (online class)
- 31** Now That You're a Project Manager: Responsibilities and Challenges (online class)

SEPTEMBER

- 7** Ownership Transition: Selling to the Next Generation (online class)
- 8** Cultivating Diversity in a Hybrid Workforce (online class)
- 12-13** **Finance, Information Technology, and Human Resources Forums, San Antonio, Texas**
- 14** Managing Risk Through Effective Contracts (online class)
- 20** Mastering the SF-330: A Key Step in Winning Government Business (online class)
- 22** Engineering Your Mind (online class)
- 27** Bring Clarity to Your Key Performance Indicators: Understanding Your Firm Metrics and Why They Matter (online class)
- 29** Inclusion, Culture, and Belonging (online class)

OCTOBER

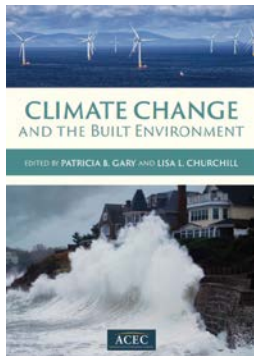
- 6** Ownership Transition: Building Teams, Not Walls (online class)
- 11** Watch Out for That Project: Project Risk Analysis (online class)
- 15-18** **Pathways to Executive Leadership, Colorado Springs, Colorado**
- 16-19** **ACEC Fall Conference, The Broadmoor, Colorado Springs, Colorado**
- 25** Shifting Priorities: Doer to Leader (online class)

Looking for Guidance on Recruiting and Retaining Staff?

Recruitment and retention of new engineering and technical staff is always a challenge for structural engineering firms, and this challenge seems to be ever-increasing. A firm's success now and in the future will be closely tied to how well it can recruit, develop, and retain younger employees. By 2025, 75 percent of the workforce will be millennials and members of Generation Z. These are generations that often place a higher value on benefits related to company culture, the work environment, flexible working hours, and work-life balance, compared to previous generations.

CASE Tool 1-4: Creating a Culture of Recruitment and Retention provides a brief background discussion related to the challenges and opportunities in recruitment and retention of employees. It includes brainstorming and planning tools and a sample employee handbook to get you started.

Coalition of American Structural Engineers (CASE) members can download this and other Coalition resources for free. To download, go to: <https://education.acec.org/diweb/catalog/item?id=8340128>.



CLIMATE CHANGE AND THE BUILT ENVIRONMENT

Climate change and its impacts are creating uncertainties and challenges. To meet these challenges, new design philosophies for climate-safe infrastructure and reliable expertise for managing the risks of climate change are needed. The book *Climate Change and the Built Environment* is intended as a resource for design professionals, owners, planners,

contractors, and other industry stakeholders. It provides practical guidance and vital industry information, including design strategies for mitigation and adaptation, new project approaches,

contracting practices, risk management, and insurance insights, and it lays out a path forward to address climate change through best practices.

Readers will also find case studies that offer illustrative examples and recommendations for making projects more resilient and for protecting infrastructure assets. Solving for climate change will require a diversity of voices and perspectives. As design professionals, we have a special role to play in reestablishing a balance between the natural and built environments. This book represents a proactive collaboration of women across the design industry and is reflective of the type of engagement which will be needed to solve this challenge.

Check out this new publication at the ACEC Bookstore: <https://education.acec.org/diweb/catalog/item?id=8387708>

Pathways to Executive Leadership

Core skills that build critical business acumen and personal influence for successful firm leadership

PATHWAYS TO EXECUTIVE LEADERSHIP

Registration is now open for Class 7 of ACEC's mid-career leadership development program, Pathways to Executive Leadership, beginning October 15-18, 2022, in Colorado Springs, Colo. Sessions prepare participants for new leadership roles by teaching them how to explore personal mastery, recognize industry trends, and build long-term client relationships.

In addition to coursework, participants have the opportunity to connect with a trusted national network of colleagues from which to draw best practices and exchange knowledge. The six-month hybrid program consists of two in-person seminars and three virtual learning sessions tailored to those transitioning to managing teams and other managers.

For more information, visit <https://programs.acec.org/pathways/> or contact Katie Goodman, director of leadership programs, at 202-682-4332 or e-mail kgoodman@acec.org. Registration is limited. ■

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ACEC's Business Resources and Education Department provides comprehensive and online-accessible business management education.

Visit ACEC's online educational events calendar at <https://www.acec.org/education/online-classes/> or call 202-347-7474, ext. 349, for further information.

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Number of Employees in Company	Average Plan Savings
10	\$9,000
25	\$17,875
50	\$28,750
100	\$46,500
200	\$85,500
500	\$187,500



The logo features the word "ACEC" in a large, bold, serif font, with a thin, dark, curved line arching over it. Below "ACEC" is the text "LIFE/HEALTH TRUST" in a smaller, bold, sans-serif font.

ACEC

LIFE/HEALTH TRUST

Fully Insured | Level Funded | Stop-Loss | Ancillary

Since 1965, the ACEC Life/Health Trust has provided high quality employee benefits and exceptional value to ACEC member firms. We have a broad network of providers, plan options, and value added services as we strive to make engineering the healthiest industry in the United States. Contact us today for more information on how your firm can join the ACEC Life/Health Trust.

www.aceclifehealthtrust.com