

# CAPACITY LIMITS

## Growing demand for services could put firms in a bind

BY MARTIN DAKS

A new push to rebuild the nation's infrastructure will likely boost the already high demand for engineering services — but a shortage of STEM-trained job candidates could crimp firms' ability to handle the new projects. There's a bright side, though: to fill the gap, companies are increasing their outreach to historically underrepresented groups.

Multiple studies have highlighted the STEM -- science, technology, engineering, mathematics -- skills challenge, including a 2020 announcement warning that in the U.S. alone, some 2.4 million STEM jobs went unfilled. In response, companies are stretching their efforts to attract and retain talented people.

When Matrix New World Engineering President and Co-founder Jayne Warne considers the civil and environmental engineering field, she finds there's no shortage of engineering students in college, but "there seems to be so much more opportunity in technology fields, that many students are more inclined to become IT engineers rather than traditional infrastructure engineers. The lack of engineers available to work on infrastructure in this country is a real concern. And considering our infrastructure is literally falling apart, this is even more of a concern."

The company's recent projects include an "integral" role in "New Jersey's Rebuild by Design" resiliency projects, which are designed to protect critical infrastructure and neighborhoods from climate change and

sea level rise in Hudson, Essex and Bergen counties," Warne noted. "The project has a budget of several hundred million dollars and includes seawalls, resilient open space and stormwater improvements."

Matrix is also supporting development of an anaerobic digestion renewable energy plant and marine port in Linden. "We provide permitting, environmental consulting, marine and civil engineering and surveying support for this ambitious redevelopment project designed to transform a formally industrial waterfront property into a modern energy facility," she said.

posts "on job boards and platforms like LinkedIn, and we occasionally engage recruiters," she said. "However, our best resource for finding new qualified employees is our own staff. Our staff knows professionals in the industry that they work with, went to school with, or met at a meeting. Our staff are our best recruiters to let talented candidates know about Matrix and how it is working here. And we offer recruiting incentives for any referred candidates that get hired."

Warne said she's also "long been an advocate of encouraging young girls to consider fields in STEM. As a business owner,

### SWEETENING THE POT

Other engineering firms are also taking steps to find and retain new talent. "At T&M Associates, we work hard to position ourselves as an attractive place to work," said John Cimino, chief strategy officer at the national engineering and technical services consulting firm. The effort includes college-level engineering internships. "When we see top talent, we may extend an employment offer to them even before they graduate."

The firm also takes steps to retain employees. "Everyone wants to get their hands on good SMEs [subject matter experts]," he noted. "So we take care to offer career progression, education and other opportunities. We also benchmark ourselves against the industry, and we're doing a good job of attracting and retaining talented people."

And it's not just about the salary. "We have an environment that encourages collaboration, so it's enjoyable to work at T&M," said Cimino. "In addition to helping employees chart out their career path, we offer a work-life balance that's been enhanced during the current remote-work approach."

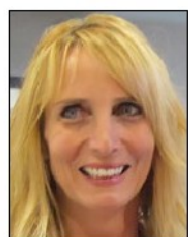
The firm also reaches out to women and minorities who have traditionally been under-represented in engineering. "About two years ago, we established a Diversity and Inclusion committee that focuses on how we can continue to attract women and minority talent," Cimino said. The effort is yielding results, as T&M Senior VP and Chief People Officer Lynn Spence noted in a recent edition of NJBIZ.

"Developing leadership opportunities requires a work environment that is inclusive and embraces diverse ideas and perspectives," according to Spence. "For this reason it's vital we continue to promote accomplished, capable, experienced women who bring their own unique set of perspectives, abilities, problem-solving skills and leadership qualities to an organization. This year we're excited to announce the hiring of Kendra Lelie as regional planning practice leader and the promotion of M. Elaine Dasti to mechanical, electrical, and plumbing practice leader."

Besides tapping an important talent pool, a diverse workforce "helps us to forge closer relationships with our changing clients," Cimino added. It looks like successful companies realize that engineering isn't just about the numbers — it's also about connecting with clients on cultural and other levels.



Cimino



Warne

"The lack of engineers available to work on infrastructure in this country is a real concern. And considering our infrastructure is literally falling apart, this is even more of a concern."

- Jayne Warne

President Biden's national infrastructure plan may lead to more interest in infrastructure engineering, she added, but "future engineers will not be available to contribute for many years. The Biden plan will exacerbate the current shortage of engineers available to implement his plan, and the shortage of engineers will put pressure on engineering firms to compete for talent and complete projects."

It's not just the need for "traditional" jobs in civil engineering, Warne noted, "but also the need for experienced multidisciplinary engineers working in resiliency and renewable technology."

To fill open positions, Matrix actively

wife and mother, I see the vast amount of rewarding and fulfilling opportunities these fields offer to everyone, including women, minorities, and differently abled."

Besides reaching out to women and minorities through channels like job boards, word of mouth, and media opportunities, "[o]ur staff members are also very active in numerous professional societies dedicated to women in the industry," she noted. "We also promote female internships, which provides women the opportunity to try engineering. Currently about 25% of our technical staff is made up of women, primarily scientists with a few engineers. It is very rare to see a woman in the surveying field."

### You've come a long way...but there are still challenges

Matrix New World Engineering President and Co-founder Jayne Warne graduated from Rutgers University in 1986 with a degree in Civil Engineering. In addition to graduate studies at Rutgers, she received a professional engineering license in 1993.

"I always loved watching construction and things being built," recalled Warne. "I wanted to be an architect but was not accepted into architecture school, so I went into engineering. It was a different environment back 35 years ago when I entered the engineering field. Gender harassment was very common and may have been one reason that women withdrew from the engineering field. I also believe that there was other gender stereotyping in the workplace that is not as common now."

Warne believes that colleges and universities

are doing a "great" job attracting women, "so I do feel that women are majoring in engineering. However, women don't seem to stay in the engineering field. I recently read that 40% of women who earn an engineering degree either quit or never enter the profession."

Why? "It may be the culture of engineering," she speculated. "It is still a male dominated industry with perceived gender discrimination. In addition, women who leave the industry to raise families typically find re-entry into the business a challenge. I am not sure why."

In some cases, it may be structural, according to Greg Lavee, business manager of the International Union of Operating Engineers Local 825. "We've recently established a Women's Committee, and we're revising apprenticeship requirements to reach more women and

minorities," he said. "But when it comes to operating engineers, who's the typical person who wants to be in our profession? Often, it's kids who grew up in Sussex or Salem counties, where they lived on a farm and were always near heavy machines, operating them and fixing them. But if you grew up in a city, outside people would come in to fix your home or apartment, so there's a blind spot."

His local is working to reach those underrepresented segments of the population. "We're working with faith-based and other organizations to have these conversations with more people," said Lavee. "Union contracts are a great equalizer. They're colorblind and gender neutral. They only ask what kind of job a person can perform, and then they set wages. The only thing we care about is if you can perform the task at hand."