ACEC INSIGHTS

American Council of Engineering Companies of Massachusetts

December 2009

Greetings from the President

By David F. Young, PE, Vice President, CDM

First, I want to take this opportunity to wish everyone a very happy holiday season. It seems like we just started 2009 and here it is almost over. This past year was a challenge on many fronts with the economy probably at the top of most people's lists. It is often difficult to find that extra time in a day to adequately meet these challenges head-on. However, during this holiday season let's not forget what is truly of most importance to us and that is to spend time with family and friends and be thankful for all the wonderful things we each have. So enjoy, celebrate and be safe.

Second, I hope you take the time to read all of the wonderful articles in this edition of *Insights*. ACEC/MA has so much going on right now. This past fall we held several successful and informative dinner/breakfast meetings; we sold out a brand new training program for middle level staff in our firms; we received updated work plans from all of our major committees, who are actively engaged in topics of interest to that committee, and they are using those plans to guide their mission through the year; we have many of the committees helping us track legislation, addressing sustainability programs, responding to agency requests or partnering with a key state agency; and of course we are all working diligently on our normal slate of events for 2010. I would encourage all ACEC/MA Firm Representatives to review their firm's participation level and make sure they have several staff engaged in these activities so that you are staying current on industry issues, helping us provide valuable input to public and private sector agencies and providing timely feedback to questions raised by our membership. Being active is how you best maximize your value in ACEC/MA.

Please contact me if you have questions about what we are doing, how you can become more involved or if you would like to suggest something new for us to address.

David Young is a Vice President at CDM. He currently serves as President of ACEC/MA for the 2009-2010 term. David can be reached at youngdf@cdm.com.

Are You Looking to Enter the Federal Marketplace?

By the ACEC/MA Insights *Board of Editors*

Many engineering firms that have traditionally focused on state and local government clients are now exploring opportunities within the federal market as a way to expand their customer base.

Clearly, there are many opportunities within the federal market. According to the Small Business Administration, the federal government is the world's largest buyer of goods and services, with purchases totaling more than $425 billion per year. However, as with any diversification strategy, it is critical to understand the market, the procurement process and barriers to entry.

The federal government is the world's largest buyer of goods and services, with purchases totaling more than $425 billion per year.

Over the next year, *Insights* will be presenting a series of articles on the federal market. This article is a first in the series and represents a very general overview of information to help you enter the federal market.

Federal Market for A&E Services

There are many government agencies that buy Architectural and Engineering (A&E) services, but the largest buyers, in terms of total dollars, include the Federal Emergency Management Agency (FEMA), National Aeronautics and Space Administration (NASA), Naval Facilities Engineering Command (NAVFAC), Department of Veterans Affairs (VA), US Air Force (USAF) and US Army Corps of Engineers (USACE). Purchasing decisions may be made centrally or regionally. For example, USACE has more than 40 districts, and each has its own procurement division; the New England District is based in Concord, Massachusetts. The main A&E services that these agencies buy relate to facility design, water resources, environmental consulting and surveying and mapping.

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Megaprojects Issues and Challenges

By David J. Hatem, Esq., Donovan Hatem LLP

At the September 30, 2009 ACEC/MA dinner program, David J. Hatem, of the law firm Donovan Hatem LLP, made a presentation to the group entitled "Megaprojects: Lessons Learned for Future Work." The presentation highlighted information from the Megaprojects Book, which will soon be published by ACEC.

A megaproject is typically a public project with construction cost of one billion dollars or more or a project of lesser value that is of significant public interest or impact. Few engineers, owners, grantors or lawyers will have the opportunity to participate in more than one megaproject during their professional careers. In many respects, megaprojects genuinely are a once in a lifetime opportunity and experience.

So, how does the knowledge and experience gained in participating in a megaproject get captured and translated from one megaproject to the next? The answer is by examining and analyzing a recently completed megaproject and identifying the challenges and pressures that are unique to megaprojects. The Central Artery/Tunnel (CA/T) Project offers an excellent example from which engineers and the public can learn.

> Optimism is now appropriately tempered by realism, and program plans, budgets, schedules and aspirations are challenged and constrained by independent validation.

Change in Rules of Engagement

The CA/T Project unfolded during the most significant period in megaproject development history. Some believe that because of the CA/T Project, megaproject delivery (planning, funding, design and construction) will change forever in the future. Whatever way you may view it, the "rules" as to megaproject funding, planning, transparency and accountability (at all levels) have fundamentally changed for the good.

For years, megaprojects had been plagued by several serious problems:

- Artificially low and strategic underestimation of project cost
- Exaggerated benefit
- Unrealistic project performance expectations
- Underestimation of risk
- Optimism bias to promote project approval and funding
- Lack of clear accountability of project participants
- Lack of transparency and reporting to the public
- Asymmetric information and strategic information disclosure, non-disclosure or misinformation

Optimism, not realism, was the rule and the guiding principle. Risk registers, independent cost and schedule validation—transparency with respect to project cost/schedule reporting and accountability in project participant performance—were not universally embraced.

Today, one need only visit FTA and FHWA major project websites, publications and guidance documents or inquire of present megaproject owners and their consulting engineers to see the fundamental changes in these areas.

Optimism is now appropriately tempered by realism, and program plans, budgets, schedules and aspirations are challenged and constrained by independent validation.

Project Participant Accountability

To engineers, project participant accountability is sometimes known as "cost recovery." Few professionals take issue with the principle that public projects—especially megaprojects involving significant public interest and dollars—require and justify processes for timely evaluation of and accountability in the performance of project participants, including consulting engineers.

Megaprojects, because of their sheer size, public dollars, impact upon and interest of the public, prominence, visibility and propensity to attract the attention of both the public and politicians, have a significant potential to result in a search for "scapegoats" when something goes wrong or expectations are disappointed. This may occur regardless of whether the consulting engineer had anything to do with the disappointed expectations at issue. Megaprojects both intensify the attention and the stakes.

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A SEAT AT THE TABLE

"A Seat at the Table" is designed to provide our ACEC/MA membership with direct insight into the wide range of endeavors, accomplishments and special activities undertaken by the many committees and task forces of ACEC/MA on its behalf. Remember, ACEC focuses on advocating laws, policies and regulations that improve the business environment and on helping member firms improve their business acumen, and can only be successful in this regard through an active membership. So come take "A Seat at the Table!"

Risk Management Forum

By Mike Herlihy, Executive Vice President and Partner, Ames & Gough, Inc.

The Risk Management Forum supports ACEC/MA member firms by providing information to help engineers control risks. The forum comments on member firms' contracts and risk management questions, advises other ACEC/MA committees and advocates with public agencies on behalf of ACEC/MA.

The forum also monitors the effect of new legislation and delivery options on the practice of engineering. The forum recently reviewed the effect of integrated project delivery and sustainable design on risk management. We are currently monitoring the proposed amendment to the lien law that would allow design professionals to place liens on property for payment.

Also being monitored is the Accelerated Bridge Program (ABP), which may potentially impose greater responsibility on the engineer with regard to cost estimating and other engineering duties. The forum is working with the Program Committee to develop an information session on the ABP. We hope to have representatives from Mass DOT, as well as the owner's representatives working for MassDOT, participate in a discussion of the ABP and its impact on engineering companies.

The new legislation designed to protect personal information has also been an important topic over the past year. With the growing concern over data theft, states are enacting legislation designed to protect personal information stored both electronically and in hard copy. With the passage of 201 CMR 17.00, Massachusetts has enacted some of the most stringent standards in the nation for protection of personal information.

As defined by 201 CMR 17.00, personal information is considered to be a Massachusetts resident's first name, last name or first initial and last name in combination with one or more of the following:

- Driver's license number
- Social Security number
- State-issued identification card
- Financial account number, credit card or debit card number

Any person or business in possession of personal information must take steps to protect this information. Since just about every business in the Commonwealth has access to personal information, whether from interaction with clients and customers or information about the business' own employees, this legislation will affect businesses of all sizes.

The effective date of the legislation was pushed back from January 1, 2010 to March 1, 2010 to allow sufficient time for businesses to become compliant. Businesses are required to have a written plan in place to comply with the requirements of the regulation. The written plan must be applicable to all records containing personal information about a Massachusetts resident. All paper, electronic and other records as well as computing systems and storage media that might contain personal information, including laptops, blackberries and other portable devices, must be inventoried.

One or more employee(s) must be designated and charged with protecting the personal information and maintaining the information security program. The designated personnel assess foreseeable internal and external threats to the stored records. They must then put appropriate safeguards in place to protect the information from theft. The regulation requires ongoing training of personnel as well as monitoring employee compliance with the written information security plan. The written plan must specify disciplinary measures for violators.

Businesses are also required to verify that all third party service providers who may receive personal information from them have the capacity to protect that information. Information sent electronically must be encrypted so that only the party to whom it is sent can open it.

201 CMR 17.00 contains additional requirements with regard to computer system security. Control of user IDs, secure methods of assigning passwords, restricting access to files, blocking access, data encryption, reasonably up-to-date firewall and virus protection and immediate termination of access when an employee is no longer working at the firm must all be in place. Businesses must review their plans annually and update them as necessary.

In December, the Information Systems Forum, Human Resources Forum and the Risk Management Forum will meet to discuss ways in which firms are working to get into compliance with the new regulation. The discussion is an open forum for sharing ideas about creating and implementing a written information security program. We hope to have information available about law firms, IT service providers and others who can assist firms in developing and implementing a personal information security policy. If you are unable to attend, but would like a copy of the minutes from the December meeting, contact Mike Herlihy.

The Risk Management Forum meets the first Thursday of each month from September through June, and is open to all ACEC member firms. If you have topics you would like us to consider or want to join the forum, please contact Mike Herlihy.

Mike Herlihy is Executive Vice President and Partner with Ames & Gough, Inc. Ames &Gough specializes in providing risk management and insurance solutions to architectural and engineering firms, environmental consulting companies, design-builders and contractors. He is Co-Chair of the ACEC/MA Risk Management Forum and a member of the ACEC National Federal Agency Procurement Committee. Mike can be reached at 617/328-6555 or mherlihy@amesgough.com.

2009 Membership Survey Results

By Brett Gough, Ames & Gough, Inc. and Dean Groves, PE, Fay, Spofford & Thorndike, Inc.

During this past summer, the Membership Committee developed and implemented a Membership Survey to reach out to current ACEC/MA members. The purpose of this survey was to determine the issues that are important to member firms' practices and ways in which ACEC/MA can shape future programs and services to meet the needs of all of its member firms.

Eight questions were asked, including one question soliciting additional comments. There were 38 respondents and their responses are summarized below.

Question 1—Do ACEC/MA's advocacy and legislative efforts benefit your business?
The response to this question was very positive; 84% of the respondents believe that ACEC/MA's advocacy and legislative efforts benefit their business. The consensus was that engineering firms do not have the resources to follow legislative issues and advocate for their business interests themselves. Rathter they rely on the resources available within ACEC/MA. However, a small percent of respondents believe this benefits the larger firms.

Question 2—Is Quality Based Selection (QBS) important to your business?
90% of respondents believe that the QBS process is important to their business practice since it helps keep our industry from becoming a commodity and focuses more on qualifications and capabilities within our firms. A small percent (5%) of respondents, particularly those who typically work only with privatized clients, did not view QBS as important to their business.

Question 3—Do you or your employees presently serve on any of the committees or forums of ACEC/MA?
Of the respondents, 78% responded that they serve have individuals within their organization who participate on various committees and/or forums; 22% of the survey respondents hope to do more in the future or are discussing ways to increase their involvement. The Government Affairs and Transportation Agencies Liaison Committees (TALC) continue to be the most popular committees.

Question 4—Has anyone from your organization graduated from the Emerging Leaders Program?
Just over half (54%) of the respondents have had individuals within their firm graduate from the Emerging Leaders Program. Some consider the program too expensive, plan on looking at the next offering or have had a reduction in staff and find it difficult to spend the necessary time and money. One respondent was not aware of the program and would be interested in learning the requirements and benefits. Member firms who have participated in the program have found this to be an extraordinary tool to teach their employees the business side of the profession.

Question 5—The Program Committee strives to develop informative business programs that are relevant and of interest to the membership. Do you or your staff attend programs regularly?
76% of the respondents regularly attend programs, whereas 24% do not. Some firms require at least two participants for each program, but participation in the programs mostly depends on the topics of interest and staff availability. Respondents have recommended these programs to certain staff as a way of encouraging relationship building and social interaction outside the work environment.

Question 6—Are ACEC/MA's programs applicable and relevant to your business?
89% of the respondents find the programs relevant to their business. The smaller firms find it difficult to make their way through the myriad of agency rules and regulations, as well as running day-to-day operations. One respondent wondered if the organization would consider creating a small business committee. Another challenge is for ACEC/MA to provide programs that do not overlap with those of other organizations and professional societies.

Question 7—ACEC National entitles you to business-related benefits (discounts on liability, health and other insurance, on-line continuing education, peer reviews, trend surveys and contract documents). Does your firm utilize any of these additional benefits?
Only 53% of the respondents utilize these additional benefits. *Insights*, President's Update and Legislative Updates are the most popular benefits. National publications such as *ACEC Last Word* and *Engineering, Inc.* also received positive responses, but it is the local information provided through ACEC/MA that respondents find to have the most value.

Question 8—Please share any other comments about ACEC/MA's or ACEC National's programs and services.
While overall feedback from this survey was very positive, we wanted to share some additional thoughts and comments:

- "The engineering community in general has been disappointed by the very small positive impact the federal economic stimulus package has had on their business."
- "The engineering community is also missing a golden opportunity to do some valuable and creative strategic thinking and advocacy for long-term public infrastructure planning. Dedicating some time to hosting workshops with specific targets in mind, reaching out beyond the engineering community to involve other stakeholders, and doing the hard work behind the scenes to assemble the facts and visions that support our ideas."
- "While ACEC/MA is primarily focused on public/government markets, there is a feeling that member firms outside this realm do not get sufficient benefits to justify the dues structure."
- "There is a cost of membership that needs to be balanced against the benefits, so maintaining relevance and continuing to support initiatives to benefit the private consulting engineering professionals is vital."
- "ACEC/MA needs to continue developing creative ideas to make it easier for members to learn of and take advantage of these available benefits."
- "There needs to be a continued effort of getting more people involved from all member firms."

The Membership Committee wants to thank everyone who took the time to participate in this survey. Listening to the needs of our member firms will allow us to enhance the services and benefits offered through ACEC/MA. The success of ACEC/MA is dependent upon your continued involvement and your volunteerism is vital to our organization.

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3D Laser Scanning: A Value Proposition for the A/E/C Industry

By Michael A. Clifford, PLS, Principal-in-Charge, DGT Survey Group

On November 4th, ACEC/MA joined with MALSCE to host a panel presentation by local 3D laser scanning industry experts. More than 40 people attended the program, held at the Westin Waltham Hotel, and learned more about the various aspects of 3D laser scanning and the diverse uses and capabilities of this technology in design and construction projects.

Gene V. Roe of Spar Point Research (www.sparllc.com) kicked off the session with an introduction to 3D scanning technology and a state-of-the-industry report on how it is being implemented around the country. Interestingly, laser scanning is more widely used outside of New England. It has become an accepted practice in certain sectors, such as in power and processing plant construction and in manufacturing facilities improvements. Gene also discussed the US General Services Administration's embrace of 3D laser scanning to document existing buildings, as part of its mandated Building Information Modeling (BIM) program.

Next, Mike Clifford, Principal-in-Charge of DGT Survey Group (www.3d-laser-scanning-boston.com) presented examples of his firm's use of laser scanning to complement traditional survey operations for various projects. Among the scanning projects presented were accident scene surveying, building façade mapping and construction as-builts and verification. Mike discussed how construction managers, in particular, have recognized the value of this technology to mitigate the effects of conflicting site conditions on the construction schedule and resolve disputes over workmanship.

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Greg Lawes, Principal and Vice President of Laser Scanning Services of Meridian Associates (www.meridianassoc.com) presented examples of his firm's work in the areas of industrial plant operations, transportation projects, dynamic scanning and BIM production. Greg discussed the added value that his clients see in using scanning of existing facilities as an aid in pre-project planning and for controlling budgets and project timelines.

Laura E. Handler, Virtual Construction Manager of Tocci Building Companies (www.tocci.com) and Director of Operations of Q5, LLC (www.q5thecompany.com), spoke from the perspective of a construction end-user of 3D scanning. She described the connection between laser scanning and the built environment, in particular the value drawn from using point cloud data to support Virtual Design & Construction (VDC) and Integrated Project Delivery (IPD) methods in building construction. Laura discussed the challenges in integrating point cloud data into popular BIM platforms for manipulation and modeling, as well as the successes of capturing accurate and robust 3D as-builts of existing structures for building retrofit projects.

Special thanks go to our event sponsor, MICRODESK, INC. (www.microdesk.com), for their generosity and support. Thanks also to Scott Cameron, President of R.E. Cameron & Associates and current MALSCE President, for serving as program moderator.

Mike Clifford is a founder of DGT Survey Group and has worked as a survey professional on urban development and infrastructure projects in the Greater Boston area for over 25 years. He serves as a Director to the board of the Eastern Massachusetts Chapter of MALSCE, is a past Director and officer of TEC and Trustee of TECET. He can be reached at 617/275-0541 or mclifford@dgtsurvey.com.

New Digital Signature Policy Adopted

On Thursday, October 29, 2009, the Massachusetts Board of Registration of Professional Engineers and Professional Land Surveyors ("the Board") voted to adopt new policy guidelines on digital signatures. This policy guideline is intended as a recommended protocol for the profession to follow. The guideline does not have the full force and effect of law, as would a Massachusetts General Law or a board rule or regulation. However, the board uses policy guidelines as an internal management tool in formulating decisions that relate to issues in the practice of engineering and land surveying.

The purpose of this policy statement is to offer guidance and provide some clarification to licensees regarding the use of electronic signatures on drawings and/or documents produced by the licensee personally and/or under the licensee's direct personal supervision.

CLICK HERE FOR DETAILED INFORMATION

ACEC/MA Ambassador's Program

The Membership Committee is soliciting input from ACEC/MA member firms through a revamped Ambassador's Program. The Membership Committee recently met with two member firms to discuss how ACEC/MA can improve the benefits offered to member firms. We plan to conduct meetings with other member firms in 2010. If you are interested in meeting with the Membership Committee, contact one of the co-chairs: Brett Gough at bgough@amesgough.com or Dean Groves at dgroves@fstinc.com. In the meantime, watch ACEC *Insights* for updates about the program and information learned from these meetings.

Putting Teachers to Work: The LIFT^2 Program

By Thomas Mahanna, PE, Senior Associate, Stantec

Most engineering companies have used the help and services of a student intern and, at this point, probably have a good idea of how to provide a meaningful learning experience for a budding engineer.

But what do you do when your intern is a middle or high school teacher?

That's the challenge facing companies that participate in the LIFT^2, or Leadership Initiatives for Teaching and Technology, program. LIFT^2 connects middle and high school math, science, and technology teachers with local companies to spend five to eight weeks of their summer earning graduate credits while gaining a better understanding of the real-world applications of their subject matter. The goal is, ultimately, to bring that experience back to the classroom.

Three years ago, our company volunteered to be a corporate sponsor and we were matched that summer with a high school technology teacher. While we were excited to have a new face in the office, we really weren't sure what to do with him. We tried to expose him to as much of our work as possible, and as he was a CAD instructor, he helped with CAD work and similar tasks that related to his students and his courses.

While we definitely enjoyed the experience and are pretty sure he did too, we've now had two more teachers spend their summers with us and have learned how to make more of the experience. If your firm is involved in a program such as LIFT^2 or is considering participating, the following tips may help you make sure the experience is valuable for everyone involved.

Assign a "project manager." Make one person in the office responsible for finding suitable activities. While you want to be sure your teachers stay busy, don't feel like they need a full 40 hours a week of activities. These teachers are also working on presentations and reports about their experiences, so providing some time for that and for simply observing the daily routine of the office is useful too.

Prepare in advance. In your initial meetings with the teachers, ask what their expectations are so you can try to tailor activities to those objectives. Then a month or so before they join the office, ask staff to identify which of their projects would be suitable for the teacher to observe or help with. It also helps to set up a company email account for the teachers, and include them in office distribution lists so they feel like part of the team when they arrive.

Find a variety of tasks. Try to find as many different experiences as possible to give your teacher a balanced view of the day-to-day life of an engineer. While, of course, the teachers can't design a new culvert, they can serve as a rod man on a field survey visit, shadow a construction inspector, help write an operation and maintenance manual or tag along on a client meeting. These tasks demonstrate the many different skills engineers must have and provide more stories for the teachers to relate back to their students. Be sure, however, that the teacher complies with all safety requirements and standards, just as you would with a regular employee.

Involve your clients. Engaging clients in the teacher's experiences is a great way to foster your relationship with them. For meetings, call your client ahead of time to explain the situation and ask if your teacher can come along (making it clear that he or she is not charging to the project). Arrange visits to interesting projects, letting the client give the tour if they'd like to. For many clients, it's a nice way to show off a project they're proud of. One of our teachers, in fact, arranged to bring his classes on a field trip that fall to a water treatment plant he visited with us.

Promote the program. Publicizing your company's involvement in a program like LIFT^2 benefits everyone involved. Two of our teachers were featured in local newspapers during their internships, which promoted not only our company but also the teachers and their school systems, the LIFT^2 program and, by extension, the efforts of the larger education and engineering communities.

Now that we've figured out some strategies for making good use of this summer experience, we're really seeing the benefits of participating. It's nice to know we're helping expose students to the engineering profession at an impressionable age and, hopefully, getting them interested in pursuing it as a career. But perhaps more importantly, we've seen the morale booster the program can be for our staff. We all can get complacent in our jobs, and this program gives our employees the opportunity to talk about what they do and show off their work. Hearing the teachers' presentations at the end of their experience reminds us of the value of our work, the pride we have in what we do and the importance of sharing that information with the rest of the world.

Tom Mahanna is a Senior Associate in the Environmental Infrastructure division at Stantec and leader of the company's Westford office. He can be reached at tom.mahanna@stantec.com or 978/577-1411.

Get Involved!

A new initiative in Massachusetts puts engineers in the classroom to raise students' interest in science, technology, engineering, and math (STEM) subjects.

The Engineering Center (TEC) has partnered with other Massachusetts trade associations to launch the **"DIGITS"** program, which places STEM ambassadors from local companies in sixth-grade classrooms across the state.

TEC is asking ACEC/MA member firms to identify 5 to 10 employees interested in serving as DIGITS ambassadors. These volunteers should be:

- About 5 to 10 years out of college
- Enthusiastic about their work
- Skilled public speakers
- Able to relate to kids

DIGITS organizers will then work with these ambassadors to arrange visits to a school of their choice to make presentations to at least two sixth-grade math and science classes.

For more information, contact Susie Moulton at 781/721-2002 or Susan D'Olimpio at 617/227-5551 or visit www.digits.us.com.

Are You Looking to Enter the Federal Marketplace?

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Get to Know Your Potential Clients

As with other client sectors, relationship building, networking and developing personal contacts are key to success in the federal market. Be sure to understand what makes your company unique and the value you can bring to a client. Establish a target client and get to know the agency and how your services may be used. Learn about past awards, costs and competitors. Make yourself known to the people in the agency who are potential consumers of your services. Set up a face-to-face meeting with agency personnel. Participate in agency industry days and become active in professional organizations such as ACEC, Society for American Military Engineers (SAME), Association of State Floodplain Managers (ASFPM) and National Defense Industrial Association (NDIA). It is important to get out there and meet agency representatives as well as other contractors. The more you know, the better prepared you will be when a suitable opportunity comes along.

Federal Procurement

The federal acquisition process is governed by the Federal Acquisition Regulation (FAR). Procurement of A&E services (which do not include design-build) is further governed by the Brooks Act of 1972. The Brooks Act specifies that all A&E service providers will be selected based on technical qualifications; only after the most qualified firm is selected may price be negotiated.

All federal opportunities are posted on the electronic posting service FedBizOpps.gov/fbo.gov. The site is searchable by federal agency, Classification Code (architect and engineering services is code "C"), location, etc. Search agents can be set up to identify opportunities that meet a specific set of criteria. Updates can be emailed to you at user-specified intervals.

The federal process for A&E contracts typically encompasses these steps:

1. An A&E contract solicitation is advertised by synopsis in FedBizOpps.gov, an internet resource that in 2002 replaced the publication *Commerce Business Daily.*
2. Competitors submit their qualifications to the procuring agency using Standard Form (SF) 330, which in 2004 replaced SF 254 and SF 255. The SF 330 response is usually due 30 days after the solicitation is announced in FedBizOpps.
3. The agency identifies at least three highly qualified firms (the "shortlist") and further evaluates the shortlisted competitors by various methods, such as telephonic or in-person interviews.
4. After determining the most highly qualified firm, the agency makes a formal selection.
5. The agency begins negotiations to contract with the selected firm. Only at this time does price become a factor in the procurement. Typically the agency issues a request for proposal (RFP) to the selected firm, which responds with a proposal that may include a lump sum price, rates for specified labor categories, and other costs. If a contract cannot be negotiated, the agency will cancel the award and may enter in negotiations with the next-most highly qualified competitor.

Usually, federal A&E opportunities are very competitive; it is not unusual for dozens of firms to compete for an advertised contract. The SF 330 responses must adhere strictly to the instructions and must directly address the selection criteria described in the FedBizOpps synopsis. For many federal A&E procurements, effective responses are very time consuming and resource-intensive. Responding to multiple, simultaneous procurements requires a full-time, standalone proposal production resource.

Federal agencies or facilities with large A&E service needs frequently procure indefinite delivery/indefinite quantity (IDIQ) type contracts. IDIQ contracting vehicles enable the procuring agency to make multiple orders from the selected contractor during a fixed period of time, up to an established maximum dollar value. An agency may select a single IDIQ contractor who then may be their sole source for the specified services during the contract period. Alternatively, the agency may choose to award multiple IDIQ contracts and then require the contractors to compete for delivery orders.

Some services the government typically procures via A&E contracts may also be procured via non-Brooks Act contracting. Price-based selection methods have been allowed for some non-design professional services that are offered by A&E contractors. A prominent vehicle for such price-based procurements is the Federal Supply Schedule of the General Services Administration (GSA). Prequalified A&E firms may be invited to bid under GSA schedule procurements for environmental services, business consulting, logistics services and professional engineering services that are not covered under the Brooks Act.

Government Socioeconomic Goals

Not all federal A&E opportunities are open to all contractors. The government seeks to promote the success of small businesses by a combination of contracting procedures. One such procedure is to "set aside" specific contracts for award to small businesses only. Another procedure is to set goals for small business participation in the specific agency's overall purchasing program, which will include requirements and incentives for large businesses to subcontract work to small businesses. The Small Business Administration's definition of what kind of organization constitutes a small business is based on the North American Industry Classification System (NAICS) code that applies to a specific procurement. Depending on the NAICS code, a small business may be defined by annual revenues or by number of employees. Most A&E services are procured under the 5413 "family" of NAICS codes. For engineering services (NAICS code 541330), a small business is defined as having a three-year average annual revenue under $4.5 million.

Government socioeconomic goals may also be very tightly targeted toward specific kinds of small businesses. As examples, the Small Business Administration defines certain kinds of organizations as small disadvantaged businesses, woman-owned small businesses and veteran-owned small businesses. For these and other business classifications, federal agencies may establish specific goals as subsets of their overall small business goals and may set aside certain contracts for specific business classifications.

What's Next?

Winning your first federal contract requires a commitment of time and resources. The learning curve can be steep and you will be competing against incumbents and known suppliers. You must be prepared to learn and follow the FAR rules. Each opportunity will also require research and a committed effort to prepare and present offers. The cost of bidding can be substantial and purchasing decisions have a long timeline. However, once awarded a federal contract, the benefits are very real in terms of financial value, revenue stream and future opportunities.

Megaprojects Issues and Challenges

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The subject of accountability applies to both the public owner *and* the consulting engineer. Megaprojects are—and should be—delivered in a fishbowl.

On the CA/T Project, public owner approaches to transparency did instigate and lead to increased assertion of professional liability/cost recovery claims against consulting engineers. With new project accountability rules, sensibilities and project owner cultures, all of that has significantly changed and will continue to do so in the years ahead. This is a very positive and healthy development. Ultimately, it should also serve to reduce professional liability risk for consulting engineers.

Especially in megaprojects, when risk is unfairly allocated between project owner and constructor (or design-builder), there is a significant increase in the risk of professional liability claims against the consulting engineer by project participants.

Integrated Project Organization

The CA/T Project owner decided to implement an integrated project organization (IPO) approach under which both the project owner and independent private sector management consultant organizations would be integrated. This was the first time that such an IPO had been implemented on a construction project of this magnitude, especially one involving a combination of public sector and private consultant involvement.

In retrospect, while the IPO functioned extremely efficiently and effectively as a management resource mechanism, legitimate questions were raised about the perception that the IPO created too close of a relationship between public and private sectors and that the public sector, by virtue of the IPO, lost or was seriously compromised in the ability to effectively manage the private sector consultant. Many project owners, in the quest to save consultant fees and other project costs, gravitate toward an IPO model. It is recommended that such initiatives be carefully considered and evaluated as to whether such an IPO in a megaproject context can appropriately withstand external stakeholder and public oversight and scrutiny.

Project Delivery Method Options and Decisions

The CA/T Project was delivered utilizing the conventional design-bid-build delivery method. Other megaprojects have considered and implemented other delivery approaches, such as design-build and public-private partnerships. Typically, consulting engineers serve a critically important advisory role to project owners in selecting project delivery methods. In this role, especially in the megaproject context, the emphasis should be on enabling the project owner to make the right decision for the right reason. Some project owners are driven to alternative project delivery methods, such as design-build and public-private partnerships, primarily to avoid or circumvent accountability, or as a vehicle to transfer disproportionate risk to the private sector participants. Especially in megaprojects, when risk is unfairly allocated between project owner and constructor (or design-builder), there is a significant increase in the risk of professional liability claims against the consulting engineer by project participants.

Conclusions

Engineers who participated in the CA/T Project have an immense amount to be proud about. Going through the "tail end" of the project—the cost recovery regime—was neither pleasant nor the proudest time for the engineering profession. However, in the end and longer term, the consulting engineer community will be both respected and appreciated for its "mega" contribution to civil engineering—engineering for the people.

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UPCOMING EVENTS—SAVE THE DATE

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"Public Service and Ethics: How to Follow the New Ethics Reform/Lobbing Law"
The Westin, Waltham, MA
Wednesday, January 13, 2010
Click Here To Register Online

ACEC/MA Dinner Program
"Water Infrastructure"
The Westin, Waltham, MA
February 24, 2010

ACEC/MA Breakfast Program
Details to be announced
March 2010

ACEC/MA 2010 Program for Emerging Leaders
Icebreaker Session
The Engineering Center, Boston, MA
March 2, 2010
Click Here For Information and Registration Form

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Kendall Square Marriott-Cambridge, MA
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Details to be announced
April 2010

ACEC/MA Program
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Details to be announced
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Details to be announced
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