

Why Not Pick QUALITY?

Quality-based selection on public projects serves the taxpayer. Here are some examples of how QBS has worked where implemented on key projects. And, all three of these case studies have won ACEC Engineering Excellence Awards!

by DARLENE BREMER

Most engineers would agree with these facts: the services provided by design engineers are the single most important factor in determining a project's overall construction and life-cycle costs. Therefore, it is in the taxpayer's best interest that the most qualified engineering firms – and not the companies that just submit the lowest bid – are selected to design public projects.

What's more, these facts were recognized by Congress, when it passed the Brooks Act (P.L. 92-583) in 1972. That law establishes a quality-based approach to procuring design services for public projects – and also serves as the model for most states and local jurisdictions when they establish quality-based selection (QBS) processes.

What makes the three QBS success stories that follow so important is that each of these projects was recently selected by ACEC to receive one of its Engineering Excellence Awards. While the projects won note for the engineering genius behind the solutions to important problems, it's important to bring to light the fact that the brilliant designs were, at least in part, a result of the QBS selection process.

Cape Hatteras Relocation

For the Cape Hatteras Light Station (below) relocation project, the National Park Service used QBS to award the contract to the design-build team of which Law Engineering and Environmental Services, Inc., Atlanta, Ga., was a part.

"The Brooks Law requires federal government agencies to choose design professionals by QBS, but when contractors are involved, as with a design-build team such as this one, the agency does not have to use QBS," says Randy Knott,

chief engineer and vice president.

However, the Park Service, realizing how important qualifications were to this project, decided to adhere to the two-step QBS process in choosing the design-build team. The process began with the Park Service advertising the project nationwide. The advertisement included a brief description of the project's scope and the necessary qualifications needed by the team.

Based on the responses received – including an analysis of the firms' experience and of individual design professionals – a short list was developed. These teams were then invited to submit their technical and price proposals. After interviews were held, the team of Law Engineering, International Chimney Corp. (Buffalo, N.Y.), and five other engineering firms from throughout the eastern United States was chosen to relocate the Cape Hatteras Light Station 2,900 feet to the southwest.

Constructed in 1870, the lighthouse was placed about 1,600 feet from the Atlantic Ocean. After over 130 years, erosion moved the shoreline to within 120 feet of the structure. Left alone, this historic landmark would have fallen into the ocean in about a decade.

Law Engineering was responsible for providing geotechnical, structural, electrical, civil, materials, and instrumentation engineering for the project,



as well as hazardous materials and environmental services, and project management assistance and coordination.

"Using QBS in choosing the design-build team provided the agency and the public with a better-performed job, using more reliable and suitable methods, that protected the historic structure," observes Paul Cloyd, project

in support of the overall project.

"Through the QBS process, the customer first requested statements of qualifications and developed a short list of firms before requesting proposals and conducting oral interviews," explains Dan Boyd, CEO for Boyle Engineering.

Using QBS to choose design professionals for public projects has been

California state law since 1990, when the legislature mandated that agencies throughout the state select design and engineering consultants on the basis of demonstrated competence and professional qualifications, rather than price.

"QBS creates an atmosphere of creativity and open communication that allows the design engineer and



manager for the National Park Service, Denver Service Center.

The process, as outlined in federal contracting regulations, was easy for the Park Service to implement and document and allowed it to consider quality over price when making the final selection of the design-build team.

Runoff Diversion Effort

The Sweetwater Authority, located in San Diego County, is a public water utility with 165,000 customers. Boyle Engineering Corporation designed an urban runoff diversion system that intercepts and diverts poor-quality storm runoff and dry-season flows that would otherwise end up in the Sweetwater Reservoir (above).

Design- and construction-related services were provided by Boyle for channels, retention ponds, gravity pipeline, a force main, inlet and outlet structures, emergency spillways, pump stations, and a telemetry system. In addition, the company conducted water-quality and water-yield studies



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the client to work closely together to determine the project's scope of work," Boyd says. He notes that, if price is the driving factor behind developing the scope of a project (instead of qualifications), the design firm may not make necessary suggestions that – even though they increase up-front costs – significantly reduce life-cycle costs.

As a complex project, the Sweetwater effort was affected by many issues that had the potential to destroy the budget.

"For instance, we had to perform sophisticated computer modeling to simulate storms and estimate percentages of contaminant removal from water flows," Boyd says. The client benefited from the company's special expertise in these areas.

Had another consultant been chosen merely on the basis of price,



the project may have cost much more in the long run. "We appreciated the

fact that we were judged more on what we could accomplish, rather than our projected fee," says Boyd.

Phoenix WWTP Pipeline

The City of Phoenix discovered a crisis at its 91st Avenue wastewater treatment plant pipeline (left). Fifteen large-diameter reinforced-concrete pipelines carrying primary clarifier influent and effluent flow inside the plant had been corroded due to hydrogen sulfide. The compromised pipe, totaling 15,231 linear feet, was in imminent danger of failing.

In addition, a number of large holes completely penetrated the pipe wall of the 72-inch-diameter pipeline outside the plant. The pipe carried up to 86 million gallons-per-day of raw sewage. Brown and Caldwell designed a project to rehabilitate the pipelines by inserting cured-in-place pipe liners into the lines.

Efforts of the Arizona Consulting Engineers Association (ACEA), have made QBS a state law. "Phoenix has a QBS process in use for municipal projects such as this," says Sam Edmondson, vice president of Brown and Caldwell Environmental Engineering and Consulting (Walnut Creek, Calif.).

Under the Phoenix process, engineering firms submit a statement of qualifications, from which the city will either conduct interviews to narrow the field or directly choose the most qualified firm to perform the work.

According to Edmondson, QBS contributes to the partnership between design firm and owner by allowing the engineering consultant to be more involved with the project from the beginning. "QBS helps the design professional work more closely with the owner to deliver a project that satisfies the client's needs," he says.

According to Paul Kinshella, superintendent for the City of Phoenix Water Services Department, QBS means that the owner gets a qualified, competent engineer who is known to have the qualifications for a specific project. "And the taxpayer receives a quality infrastructure system that is well-designed and meets the required service life," he adds. ■

AGENCIES SNAG QBS AWARDS AT ACEC CONVENTION

Working collaboratively with the National Society of Professional Engineers (NSPE), ACEC created the QBS Awards four years ago. The idea was to encourage more use of QBS concepts by honoring those entities that effectively use and promote QBS methods when procuring the professional services of engineering firms.

Two of these QBS award winners were honored in May at ACEC's annual convention in San Antonio, Texas:

THE CITY OF CUSHING, OKLAHOMA. To solve a problem with its water supply system, Cushing used a QBS selection process.

The city began by establishing evaluation criteria for the project. It then solicited Statements of Qualifications from engineering firms. A selection committee developed a short list of three firms, which were then interviewed. The committee ranked the firms and invited the highest-ranking firm to assist in defining the scope of work, establishing the contract terms, and submitting a fee proposal.

Joe R. Manning, Jr., chairman of Cushing's Board of Commissioners, accepted the QBS award for the city.

MISSOURI DEPARTMENT OF TRANSPORTATION. The state's QBS procedure was cited by ACEC and NSPE for its "extremely professional process, not only within MoDOT headquarters, but also throughout their various Districts."

While it's an established process, the agency continuously reviews its QBS effort in order to further improve. Additionally, there is a regular, open dialog between MoDOT and the Consulting Engineers Council of Missouri.

Sam Master, assistant state design engineer for MoDOT, came to San Antonio to accept the award for the agency.

MERIT AWARD. Also recognized in this year's award program, as a QBS Merit Award winner, was the Minneapolis School District.