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 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 pipelines, 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 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
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 percent-
ages 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-dia-
meter reinforced-concrete pipelines car-
rying primary clarifier influent and effluent
flow inside the plant had been corroded
due to hydrogen sulfide. The compro-
mised 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 projec-
tests such as this,” says Sam Edmndon-
son, vice president of Brown and Cald-
well Environmental Engineering and
Consulting (Walnut Creek, Cali.).

Under the Phoenix process, engi-
neering firms submit a statement of
qualifications, from which the city will
either conduct interviews to narrow the
field or directly choose the most quali-
ﬁed 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 in-
volved with the project from the begin-
ning. “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, super-
intendent for the City of Phoenix Water
Services Department, QBS means that
the owner gets a qualiﬁed, competent
engineer who is known to have the qual-
ifications for a speciﬁc project. “And the
taxpayer receives a quality infrastructure
system that is well-designed and meets
the required service life,” he adds.