

The Impacts of Design-Build on the Public Workforce

April 2007

SUMMARY

Design-Build is a method for obtaining construction services where a single organization is retained to provide architecture/engineering and construction services under one contract. This contrasts with the more traditional Design-Bid-Build approach where an architect or engineer prepares drawings and specifications and the owner separately engages a contractor through a competitive bidding or negotiated process. At the present time, over half the states have some form of legislated design-build authority for publicly-funded construction, although some states use the practice extensively and some not at all. California makes limited use of design-build and concerns have been raised that the design-build method of procuring infrastructure projects could result in major staff cutbacks within public agencies in California. In order to evaluate this serious concern, the USC Keston Institute for Public Finance and Infrastructure Policy commissioned a study to assess the workforce implications of design-build in those states that utilize it on a regular basis. In *The Impacts of Design-Build on the Public Workforce*, Douglas D. Gransberg of the University of Oklahoma and Keith R. Molenaar of the University of Colorado address the question: “What is the impact on the state department of transportation professional workforce when the state authorizes it to deliver infrastructure projects utilizing design-build project delivery?” Based on the experience of forty-one of fifty states plus the District of Columbia and the U.S. Virgin Islands, this report finds that no states have reduced their professional engineering workforce as a result of implementing design-build.

WORKFORCE IMPACTS OF DESIGN-BUILD

Among the principal finding of this report are the following:

Implementing design-build contracting does not shift public professional engineering jobs from state agencies to the private sector.

Of the states with design-build experience, all indicated that they did not reduce their professional engineering workforce as a result of implementing design-build. Eighty-six percent of the respondents reported that their professional workforce either remained the same or increased in size.

Utilizing design-build contracting does not significantly reduce the use of the traditional design-bid-build method.

Ninety-three percent of the respondents indicated that design-build projects make up less than ten percent of their total number of construction projects of which eighty-nine percent indicated that design-build projects make up less than five percent. Thus, the traditional professional engineering workforce is required to deliver the remaining ninety percent of the projects using traditional contracting methods.

Implementing design-build requires a more competent and experienced workforce.

Several states indicated that they purposely assign their most experienced engineers to administer design-build projects. State departments of transportation will need to maintain a robust traditional design-bid-build project delivery program to balance the workload between entry-level design and construction engineers

and more experienced staff. Entry-level personnel will need to gain the experience and develop the professional judgment necessary to allow them to become qualified to oversee design-build projects.

Implementing design-build does not compromise the time, cost, and quality standards that define success in infrastructure project delivery.

A recent report to Congress by the Federal Highway Administration, which detailed the performance of nearly all (over three hundred) of the design-build projects that had been completed through 2004, summed the performance of design-build projects as follows:

On average, the managers of design-build projects surveyed in the study estimated that design-build project delivery reduced the overall duration of their projects by 14 percent, reduced the total cost of the projects by 3 percent, and maintained the same level of quality as compared to design-bid-build project delivery.

This study's summary conclusion is that

Implementing design-build contracting by a department of transportation that is new to the delivery method will not have a negative effect on its public engineering workforce.

Implementing design-build will give the department one more tool to accelerate the delivery of critically needed transportation infrastructure projects and provide valuable professional development opportunities to agency staff. When applied to the appropriate projects, design-build has the potential to be more efficient than the traditional design-bid-build method without negatively impacting the public workforce.

Design-build is a mature and proven tool throughout the U.S. to deliver highways and other infrastructure projects. The benefits of faster project delivery and increased cost certainty have been validated time and time again. The FHWA no longer considers design-build to be experimental and has provided a framework to ensure quality in federally-funded construction projects. Florida has been using design-build for almost 20 years and well over half the states now utilize design-build to some degree. Design-build is an option for project delivery that can help California meet its urgent infrastructure project delivery needs.

ADDITIONAL RESOURCES

Douglas Gransberg is a professor of Construction Science at the University of Oklahoma where he conducts research on improved contracting and project delivery methods. He may be reached at dgransberg@ou.edu or (405) 325-6092. Keith Molenaar is an Associate Professor in the Construction Engineering Management Program at the University of Colorado, Boulder where he conducts research on alternative project deliver methods for infrastructure and the built environment and best-value selection methods for highway procurement. He may be reached at keith.molenaar@colorado.edu or (303) 735-4276. The complete research paper may be found at <http://www.usc.edu/schools/sppd/keston/research/index.html>.

THE USC KESTON INSTITUTE FOR PUBLIC FINANCE AND INFRASTRUCTURE POLICY

The USC Keston Institute for Public Finance and Infrastructure Policy is a nonpartisan research organization established at the University of Southern California to help California and the nation address critical infrastructure issues. The Keston Institute supports the formulation of infrastructure polices and practices that will improve the livability of California communities, ensure the economic well-being of its citizens, and promote environmental sustainability.

For more information about the Keston Institute for Public Finance and Infrastructure Policy, please contact Richard G. Little, Director, at (213) 740-4120 or via e-mail at rgliddle@usc.edu.