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Adopting design-build

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Forty-seven states and Puerto Rico have adopted design-build as a way to deliver large, complex projects faster and within extremely constrained budgets. This white paper explains the innovative delivery method, its benefits and best practices for securing legislative approval.

Single-contract approach streamlines delivery

Design-build streamlines project delivery through a single contract between the owner and the design-build team. According to the Design-Build Institute of America, this simple but fundamental difference transforms the sometimes adversarial relationship between designers and contractors to that of an alliance, fostering innovation, collaboration and teamwork.

Combining the talents of designers and contractors at a project's onset can work to the owner's advantage, achieving speed and economies and allowing the design to be tailored to the contractor's specific construction methods. Further, design-build allows state departments of transportation to get projects under contract faster, allowing them to qualify for federal monies that must be spent within a specified timeframe. According to the DBIA, many DOTs used design-build to help their projects qualify for funding under the 2009 American Recovery and Reinvestment Act.

State authorization of design-build nearly quadruples

In an environment where highway projects are getting larger and resources are getting tighter, states increasingly are turning to design-build project delivery, making it one of the most significant trends in U.S. design and construction today.

Since 1999, adoption of the alternative delivery method has nearly quadrupled, going from 12 states to 47 states and Puerto Rico in 2011. Only three states do not have authority to use design-build, while another 19 states have limited authority.¹

In the past 10 years, design-build has delivered successfully some of the nation's largest, most complicated surface transportation projects in Missouri, Utah, Washington and many other states. New York is one of the latest to approve design-build. The bill was rolled into a broader piece of tax legislation and signed by Gov. Andrew Cuomo on Dec. 9, 2011.

Many anticipate one of the first projects to benefit from the new legislation will be the Tappan Zee Bridge. It was identified by President Obama on Oct. 11, 2011, as one of 14 infrastructure projects nationwide that will be expedited through permitting and environmental review processes, an important next step in the administration's efforts to improve the efficiency of federal reviews needed to help job-creating infrastructure projects move as quickly as possible from the drawing board to completion.

The three-mile span over the Hudson River is in poor condition and is seismically vulnerable. Speeding delivery of a replacement is critical as the bridge is on a major interstate and carries more than 150,000 vehicles a day. The state believes design-build is the fastest way to award and complete the \$5.2-billion project. If design-build is applied, the project could be designed in one year and constructed in four.

Design-build yields numerous benefits

States that have embraced design-build are reporting impressive results:

- **Faster delivery.** Major transportation projects, such as a highway interchange, can take up to 13 years to complete, according to the Federal Highway Administration. According to the DBIA, design-build can accelerate schedules by 30 percent. American Association of State Highway and Transportation Officials are confident that with accelerated project delivery methods, such as design-build, state DOTs can cut schedules by as much as 50 percent.²
- **Alternative financing opportunities.** Design-build can include private financing when public financing is lacking.
- **Cost savings.** Typically, the cost of a design-build project is 6 percent lower than a traditionally delivered project.³
- **Stabilized costs.** Owners receive the price of the project up front. Thus, any costs associated with post-contract changes become the design-build team's responsibility.
- **Better quality.** Procurement documents can be written so that design-builders are required to meet performance standards, often resulting in innovations that deliver a better project than initially envisioned.
- **Single-point responsibility.** One entity is held accountable for cost, schedule and performance, which streamlines communication and execution.
- **Decreased administrative burden.** Owners focus on contract compliance rather than day-to-day management of the project and its disparate contracts.
- **Reduced risk.** In design-build, risk is allocated to the party best suited to address it. This often removes, either partially or fully, the burden of risk from the owner.
- **Innovations.** The alternative technical concept process fosters innovation among design-build team members, often yielding a higher performing asset at a lower cost.

- **Fewer change orders and litigation claims.** Ideally, design-build involves fewer change orders and claims because the designer and contractor work together as a team. Changes typically are addressed before they reach the owner's office.

Successful legislation has six key attributes

Design-build differs from traditional public contracting laws, which generally require public agencies to use a qualifications-based selection process to award a design contract and a separate low-bid selection process to award a construction contract. New legislation often is required, but securing it is not always a fast process.

It is difficult to offer universal counsel on this subject because the path to securing legislation will be different for each state. However, from our extensive experience in helping state DOTs secure proper legislative approval, HNTB has identified the following key attributes of successful authorizations:

1. The DOT leads the charge. If the formal request isn't generated from within the organization, the legislation may never be drafted.
2. An experienced technical adviser often is helpful in navigating the legislative process.
3. The DOT appoints an internal champion, someone who speaks on the agency's behalf and can communicate to the governor's office the need for and merits of design-build from the taxpayers' perspective.
4. A staff member from the governor's office takes on the role of external champion. This person agrees that design-build makes sense, and he or she champions the cause with the governor.
5. The legislation includes a provision for selecting a design-build team based on best value (technical merits plus price). Initial cost always will be a driver, but innovations that reduce project, operations and maintenance costs and increase safety also should be major decision points. Technical competency must be a weighting factor.
6. Engaging the industry in shaping and advocating for the legislation can smooth its passage.

Awards are based on 'best value,' not just lowest price

Many DOTs determine best value by qualifying design-build candidate teams based on their experiences, capacity, technical expertise and project management skills. Based on the evaluation, the DOT develops a short list and requests technical and price proposals.

The DOT then completes the technical proposal evaluation before it opens the price proposals. Once the bids are revealed, the agency then combines the quality and cost evaluations for a total score that will help determine the best team possible. Thus, design-build allows the sponsoring agency to choose the right bid to ensure the preferred project is advanced, and the right bid is not always the lowest bid.

Best suited for large, complicated projects

Going into any project, owners should assess the appropriateness of design-build and other potential delivery methods. The preferred delivery method should be selected based on the project's goals, complexity, funding, design intent, as well as responsibility and risk allocation. After reviewing these goals, agencies often determine design-build is best suited for large, complex projects because its integrated approach provides a built-in mechanism for problem-solving.

HNTB supports nationwide adoption of design-build because the highly collaborative business model promotes innovation. The design-build team has a vested interest in reducing risk and meeting deadlines, which may include incentives and disincentives. Hence, the more complicated the project, the more opportunity there is for the designer and contractor to pool their resources and talent to find the optimal solutions.

In traditional design-bid-build, the functions of the designer and contractor are to execute or "rip and read." In true design-build, the designer and contractor work hand-in-hand to find the best solutions. And, if it truly is the best solution, it often is the least expensive, too. As DOTs search for alternative ways to deliver large, complex projects with limited budgets, they are discovering that combination is hard to beat.

Additional resources

For more information about design-build project delivery, consult the following:

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American Association of State Highway Transportation Officials

Joint Technical Committee on Design-Build
<http://www.transportation.org/Default.aspx?SiteID=63>

Design-Build Institute of America

<http://dbia.org>

The Federal Highway Administration's website on public-private partnerships

http://www.fhwa.dot.gov/ipd/p3/defined/design_build.htm
<http://www.fhwa.dot.gov/construction/cqit/desbuild.cfm>
<http://www.fhwa.dot.gov/everydaycounts/>

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1. Figures are based on information taken from the Federal Highway Administration's Every Day Counts website and reflect New York's recent adoption. <http://www.fhwa.dot.gov/everydaycounts/projects/methods/intro.cfm>.
2. FHWA Every Day Counts website
3. Design-Build Institute of America

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