

Design-Build



To help architects and contractors complete quality projects and meet owner expectations, the Federal Highway Administration's (FHWA) Every Day Counts (EDC) initiative is promoting accelerated project delivery methods, such as Design-Build to help reduce the time it takes to deliver highway projects to the public and reduce construction-related risks.



The U.S. Department of Transportation (USDOT) is confident these methods can help state DOTs shave years off their project schedules, thereby reducing costs, minimizing work-zone delays, and improving traffic conditions faster.

Design-Build (D-B) contracting is a method of project delivery in which the design and construction phases of a project are combined into one contract, usually awarded on either a low-bid or best-value basis. This can provide significant time savings compared with the more traditional Design-Bid-Build (D-B-B) approach in which the design and construction services must be undertaken in sequence.

The D-B project delivery approach typically has been chosen to accelerate the completion of the project; however, D-B also provides potential cost savings without sacrificing quality. The D-B contracting method allows agencies to assign certain project risks to the entity (Agency or Design-Builder) that is best able to manage the risk. This is done through a preliminary project risk assessment and the delegation of those risks through appropriate contract provisions.

BENEFITS

- ▶ **Reduced schedule delays.** In conventional highway construction projects, there are three phases in which a state DOT creates a design (in-house or with a contractor), opens a bidding process

DESIGN-BUILD BENEFITS AT-A-GLANCE

- ▶ Project cost savings
- ▶ Schedule reduction
- ▶ Reduced litigation associated with project delivery
- ▶ Risks and costs associated to design errors and omissions transferred from owner to the D-B team

and selects a contractor—usually the one offering the lowest bid—to complete the construction. The process, known as Design-Bid-Build, can lead to lengthy project delays because the process must be completed in sequential order and delays can occur from a lack of communication or sharing of expertise between the designer and contractor.

- ▶ **One single point of responsibility for the majority of project development.** Employing D-B can streamline coordination between the design and construction teams. It can reduce the owner's administrative burdens by eliminating the need to coordinate or arbitrate between separate design and construction entities. With the primary designer and the contractor working as a team, scheduling considerations can be addressed up front, often leading to more efficient implementation. Together with these efficiencies, the fact that design and construction activities can proceed concurrently also creates the potential for time savings and, ideally, will lower implementation costs.

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KEYS TO SUCCESS

- ▶ Develop clear design and construction criteria (use performance criteria/specifications if possible)
- ▶ Two-phase selection is preferred
- ▶ Allocate risks appropriately
- ▶ Consider the cost-effectiveness of operational requirements or warranties
- ▶ Plan and program for private partnerships

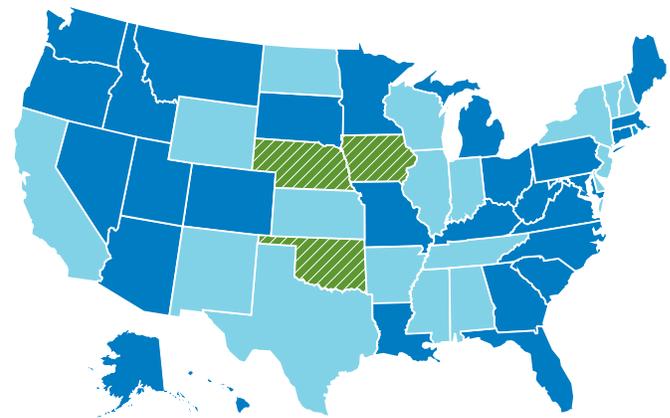
▶ **Promote innovation.** By taking advantage of the designer's and builder's separate strengths, new design and construction techniques can be developed as needed. The innovations can be included in proposals in order to gain a competitive advantage in the selection process, or as part of the project implementation phase in order to cut costs, speed implementation, or gain maximum benefit from any incentive programs. Because of these factors, D-B delivery is often chosen for complex projects or when fast track implementation is a priority. Design-Build contracts are frequently on a fixed-price basis, thus providing cost certainty at a relatively early stage of project planning. This is particularly beneficial for projects facing budget limitations and can be a key factor in obtaining project financing.

CURRENT STATE OF THE PRACTICE

State DOTs across the nation have all utilized D-B for transportation projects, 30 of which have established D-B authority.

Typical characteristics of the D-B approach include the following:

- ▶ Project-by-project basis for establishing and documenting roles
- ▶ Continuous execution of design and construction



- Design-Build authorities authorized
- Design-Build used for transportation projects
- No Design-Build projects or enabling authority

- ▶ Overlapping phases—design and build (fast track)
- ▶ Two prime players—owner, D-B entity
- ▶ Carefully crafted legal and procedural guidelines for public owners
- ▶ Some construction-related decisions after the start of the project
- ▶ Overall project planning and scheduling by the D-B entity prior to mobilization (made possible by the single point of responsibility)
- ▶ Either cost or solution as the basis for selection of the D-B entity

SUPPORT AND AVAILABLE TOOLS

For more information about D-B, visit <http://www.fhwa.dot.gov/construction/cqit/desbuild.cfm>.

For information regarding D-B implementation processes and guidance, contact your FHWA Division Office staff. They can also direct you to the appropriate project delivery experts who can answer your technical questions.

For additional information, please contact:

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Every Day Counts (EDC), a State-based initiative of FHWA's Center for Accelerating Innovation, works with State, local and private sector partners to encourage the adoption of proven technologies and innovations aimed at shortening and enhancing project delivery

