Design-Build at MoDOT

What is Design-Build?

Design-Build (DB) is a project delivery method in which the design and construction services are contracted by a single entity known as the design-build contractor. It has been used in vertical construction for many years, but is relatively new to transportation projects. Design-Build provides a single point of responsibility in the contract in an attempt to reduce risks and overall costs to the state. The selection of the design-build contractor is based on qualifications of the design engineer and contractor and the overall best value of the proposal based on the established end-result goals of the project.

How does it compare to Design-Bid-Build?

Missouri's traditional approach for construction projects involves either MoDOT staff or an engineering consultant to develop the design plans. Then, the plans are made available to the contracting industry to submit bids for construction and the lowest responsive bid wins the contract. The DB approach enables the designer and contractor to work together in development of the best buildable plans for construction. Construction work begins as the pieces of the design are ready. This overlapping of design and construction reduces the overall delivery schedule to achieve the end product faster.

When is it the right time to do Design-Build?

Not every project is a good candidate for Design-Build. The traditional approach to designing and then bidding a project is still a very viable process to build construction projects, especially on projects that are fairly routine or constrained in some manner that reduces the opportunity for innovation. However, the DB advantages of speed and flexibility in design and construction innovation can provide better results on certain complex projects. It is a good option to choose DB procurement for projects that have multiple solutions providing an opportunity for innovation, have high impact to the public especially with traffic control, other unique or unusual conditions or when specialty skills are needed for the project's design and construction.

Design-Build History

MoDOT was granted authority to use the Design-Build process on three pilot projects by the Missouri General Assembly in 2004. One was to be in St. Louis; one in Kansas City and one could be elsewhere in the state. MoDOT embarked on its first DB procurement in 2005 with the $535 million reconstruction of Interstate 64 in St. Louis. In 2007, the second Design-Build procurement began for the $245 million I-29/I-35 kcICON Christopher S. Bond Bridge over the Missouri River. The third Design-Build procurement was launched for the Safe & Sound Bridge Improvement Program in 2008, replacing 554 bridges across the state for $487 million. All three projects received national acclaim and were completed on time or ahead of schedule and on or under budget.

Following that success, the Legislature granted further DB authority to MoDOT by allowing up to two percent of its annual number of projects to be delivered via the DB delivery model. MoDOT has since procured three more DB projects – the I-64 Daniel Boone Missouri River Bridge and final phase of the Page Ave./Route 364 extension in the St. Louis area and the I-70 Manchester Bridges in Kansas City. All three projects are under construction with completion expected in 2014 and 2015.

Design-Build Philosophy

MoDOT has developed a DB philosophy and process that focuses on the desired end result for the project with the maximum flexibility and innovation for designing and building within the available project budget. Most other DOTs have very prescriptive requirements for DB contractors to follow, which limits the creativity of the private sector and ultimately limits how much scope you can get for the money. MoDOT allows the Design-Build contractors the option of submitting other state DOT design and construction specifications that have been approved by the Federal Highway Administration. They are not required to use only MoDOT standards. They can propose utilizing a best practice from another state DOT and MoDOT can approve that idea for use on its project. This practice has enabled MoDOT to successfully get more scope for the money on the three projects completed and three projects under contract.

Design-Build Goals

Establishment of project goals is critical to the success of MoDOT's DB philosophy. Since MoDOT focuses on end results, the goals serve as the ultimate basis for decision making. For example, MoDOT does not prescribe the exact bridge type, instead, MoDOT requires the contractor to build a new bridge designed to last 100 years with minimal maintenance. The evaluation criteria on which the proposals are judged is directly derived from the project goals. Goals are developed by the project team with review and approval by senior management. Goals are listed in priority order. In the event goals are conflicting, the order will help determine the design decision.

Design-Build Confidentiality

The Design-Build process requires strict confidentiality. Since MoDOT allows for such a flexible process encouraging contractor innovation, the DB teams share ideas and discuss options with MoDOT staff. These discussions must be kept in confidence. The DB team's ideas could be the edge that helps them win the contract. All MoDOT employees involved in the DB process are required to sign confidentiality agreements, and are not to enter into discussions about the project with any other MoDOT employee or any individual who has not signed the confidentiality agreement. The DB teams must have faith in this confidence. They could be spending millions of dollars in developing their proposal for submittal.

Design-Build Schedule

The Design-Build procurement schedule generally lasts six-eight months compared to the 18-24 months it takes to award a construction contract for traditional design-bid-build. In design-bid-build, the design is completed and then the plans are provided to contractors to bid on the established design. The lowest responsive bidder wins the construction contract. With DB, the contractor team designs and constructs the project concurrently. The bid proposal includes their 30 percent design ideas and their construction schedule. Using established evaluation criteria, the DB proposals are evaluated on the best value proposal within the available budget to award the DB contract.

Disadvantaged Business Enterprises (DBEs) and Workforce Diversity on Design-Build Projects

The goal of the DBE program on Design-Build projects is no different than on traditional projects – provide opportunities to small businesses owned and operated by disadvantaged individuals to participate in the economic benefits of highway construction. MoDOT has a supportive services program to assist in developing the capability and capacity of underutilized DBE firms. Also as in traditional projects, DBE and Workforce Diversity programs include contract compliance, on-the-job training and Title VI non-discrimination and commercially useful function reviews. MoDOT's Design-Build projects also incorporate community outreach, partnering with local contractors and community groups, pre-apprenticeship training, on-the-job trainee programs and safety training.

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