



Innovative approaches to delivering Federal-aid road safety projects.

Source: Getty Images

Design-Build Contracting

Across the Nation, State agencies are regularly challenged to find innovative mechanisms to install life-saving safety improvements faster, preventing crashes now instead of in 3 or 5 years, which is often the anticipated timeline when agencies use traditional contracting methods on such projects. Florida and Missouri are examples of States that are putting a unique twist on the Design-Build (DB) contracting method to overcome this challenge.

Still Saving Lives in Florida with Design-Build Push Button Contract Model

More than a decade after it was first used, Florida Department of Transportation's (FDOT) award-winning Design-Build Push Button (DBPB) contract method is still delivering life-saving safety projects.¹ In FDOT's District 7 (D7), staff worked both with their internal leadership and the FHWA Florida Division to develop its "push button" framework as a means of reducing the cost and time it took to complete certain low-cost safety improvements when using traditional contracting methods. This framework, which is now used statewide, uses Federal Highway Safety Improvement Program (HSIP) funds to finance specific low-cost safety improvements on local roads, including high-visibility crosswalks, mid-block crossings, and rectangular rapid-flashing beacons, among others.

When D7 identifies a need for a safety improvement, the team first conducts a rigorous feasibility study to determine a project's suitability for inclusion in the DBPB contract. The team then coordinates closely to generate the scope, design, and a cost estimate for the project using contract pay items and corresponding unit prices defined in the DBPB contract. These data, along with National Environmental Policy Act (NEPA) documentation, generally in the form of a categorical

What is Design-Build Push Button?

In a traditional Design-Build contract, there is one project per contract, with the contractor coordinating both design and construction activities. Florida's DBPB approach bundles multiple projects—issued via work order on an as-needed basis—under one contract vehicle, with each project having a \$2 million ceiling. Once the overall contract has been awarded, FDOT then selects the projects to be let on a rolling basis.

exclusion certification, are submitted to FHWA's Florida Division Office for approval. Should the FHWA Division Office approve and fund the project, D7 issues a notice to proceed. Per the DBPB contract requirements, each project must be completed within 12 months.

Significant Safety Improvements

Overall, this contracting method has reduced the time to install safety projects from 3–5 years to 4–12 months. For 11 projects completed under the first DBPB contract in 2010, FDOT estimates 138 crashes have been prevented annually, representing an economic savings of \$18 million per year.² A 2019 evaluation of the DBPB contracts included a case study evaluation of seven projects implemented in 2016.

¹ In 2010, FDOT received the John W. Barr Transportation Achievement Award from the ITE Florida section.

² Telephone interview with Peter Hsu, FDOT District Safety Programs Engineer, 9/23/2022.

The evaluation determined that crashes decreased between 28 and 100 percent at these locations.³

While the safety improvements and time savings in installing projects under a DBPB contract are significant, the DBPB contracting approach entails significant labor on the part of agency staff, FDOT District Safety Programs Engineer Peter Hsu noted. “You have to have a passion for safety, the support of agency leadership and FHWA, and enough staff to develop project packages and manage [the contract]. It takes a lot of manpower. But we do it because safety cannot wait.”

Missouri’s Data-Driven Approach to Design-Build Project Bundling Targets Fatal and Injury Crash Reduction

Missouri DOT (MoDOT) took a distinctive approach to creating a design-build contract vehicle that bundled safety projects: the agency required contractors to use a data-driven approach based on *Highway Safety Manual* (HSM) calculations to identify the solutions that would prevent the most fatal and injury crashes at a set of 34 locations.

“The faster we can get these projects implemented, the faster lives can be saved.”

—Dave Simmons, Missouri DOT Design-Build Coordinator

For a St. Louis District Safety Design-Build project, the agency began planning for the contract by reviewing historical crash data, focusing on the number and types of crashes in two counties. As part of the letting, MoDOT issued a list of 34 locations with known fatal and injury crashes problems. Bidders were given a dollar value and instructed to develop an approach that resulted in the greatest reduction in fatal and injury crashes for that amount or less. The team whose solution offered the greatest safety improvement would score highest for that evaluation factor. The bids were rated based on the proposed technical solutions and qualifications of the bidding teams. In addition to crash reductions, which accounted for 60 percent of the evaluation, the solution’s longevity, or how long the solution would last without needing replacement, was also a factor. The

final component for evaluation was schedule. In the end, the winning contractor submitted a schedule that would have all projects completed 12 months earlier than MoDOT projected.

Advice and Lessons Learned

One lesson from using a data-driven approach is that the evaluation process was complex. “There were thousands of spreadsheets,” stated MoDOT Design-Build Coordinator Dave Simmons, who noted that MoDOT is currently working out its approach to a follow-on design-build contract for projects focused on safety improvements in St. Louis County. “We’re looking for a way to get the data that is more user friendly to the contractor and the MoDOT evaluation team.”

The \$24 million St. Louis District Safety Design-Build project installed 20 different safety improvements at 31 locations in two counties, saving more than 70 people from death or serious injury over a 10-year period.⁴

When asked what advice the MoDOT design-build team would give other States interested in trying this approach, the MoDOT design-build team said that the number one factor is the need for supportive leadership within the State DOT and the FHWA Division Office. Other keys to success include good relationships with industry consulting partners and being open to innovative solutions. “We have to understand that other agencies are doing good things with safety, and we have to look for ways to get better, to use different tools,” Simmons said. “Ultimately, at the end of the day, we just want to save lives. Our goal is to put these HSIP dollars to use quickly and efficiently and focus on saving lives.”

Additional Resources:

Florida Design-Build Push Button Contract:

<http://tampabaytrafficsafety.com/2021/07/19/design-build-pushbutton-contract/>

The St. Louis District Safety Design Build project:

<https://www.modot.org/st-louis-safety-design-build-project>

For more information on this practice, please contact your State’s FHWA Division Office.

³ FDOT. n.d. *Design Build Push Button 3 Contract Evaluation*. Available at <http://tampabaytrafficsafety.com/2021/07/19/design-build-pushbutton-contract/>, accessed March 8, 2023.

⁴ MoDOT. n.d. “St. Louis District Safety Design-Build Project Fact Sheet.” Available at, https://www.modot.org/sites/default/files/documents/FactSheet_000.pdf, accessed March 8, 2023.

