

The Missouri Department of Transportation Safe & Sound Bridge Project completed construction in November 2012, nearly two years ahead of schedule and under budget. This system-wide bridge improvement project was the first of its kind, harnessing multiple innovations to produce high-quality bridge improvements over the entire state bridge system. The single design-build contract was performed by KTU Constructors, a joint venture of Kiewit Western Company, Traylor Bros. Construction, and United Contractors, Inc.

Innovations (underlined)

- The goal of making large and rapid improvements to the state's bridge inventory was achieved by awarding one contract for the design and the construction of 554 bridge structures across the entire state of Missouri.
- The contract model dictated that the majority of bridge sites would be completely closed to the traveling public during construction. To eliminate long closure periods, major emphasis was focused on re-opening these structures more quickly than a typical bridge replacement. MoDOT was able to improve a larger percentage of the structures by eliminating temporary access costs.
- The Design-Build contract model was employed for this unique project, affording flexibility and speed. To meet AASHTO's requirements, the procurement focused on the use of Additional Applicable Standards (AAS), where the proposal teams submitted confidential technical standards. The teams were encouraged to identify and submit any design exceptions which fit their technical approach. The owner team encouraged innovation to meet the project goals, and pointed out that traditional standards and approaches would produce bridges of this nature in 90 to 110 days duration, which would not meet the construction speed objectives of this project.
- The design-build model provided flexibility during execution by including, standardized design plans and bridge components to accelerate design of the project and advance fabrication and purchase of bridge components. This model also allowed the involvement of owner/designer/builders throughout the planning and design process.
- This contract model also provided flexibility in contract assignment and management of risk, where the owner team was integrated with the design-build team, each responsible for risks they could best manage, and some items had risk limits to reward positive performance and limit the cost of unknowns.
- To enhance communication between MoDOT, KTU Constructors (the prime contractor), and the 22 main sub-contractors, a "best practices" manual was developed. As most of the 554 structures contained the same basic design elements, this manual passed along useful information to increase the speed and quality of the work being performed.

The logistical challenges to this speed and volume were overcome through organization, communications, and teamwork. The integration of owner/design-build teams at all levels of this statewide effort insured seamless communication throughout execution. The structure of the design-build team to match with existing owner regional boundaries provided a means of utilizing existing owner staff to coordinate within each region, with a central team providing guidance and oversight. This was all possible with transparency, trust, and an outstanding partnership which took on any challenge as an opportunity to improve. MoDOT's entire organization has been left with many lasting improvements which will serve them well into the future, in addition to the obvious benefit of a vastly improved bridge system.



Before and After photos of a typical Safe & Sound bridge



Adjacent Girder System was a key AAS applied to this project from another State DOT. This system features prefabricated components for speed and a thin deck/superstructure section to minimize approach work.



Statewide Teamwork equals Results. Project Completed 2 years ahead of schedule and under budget.