

Utilizing Alternative Technical Concepts for Design-Bid-Build Construction Projects (SEP-14) FY 2023 Program Update

Purpose and Scope

The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) have entered into a programmatic work plan agreement to approve the use of Alternative Technical Concepts (ATC) on any federally-eligible Design-Bid-Build construction projects when deemed appropriate and beneficial according to the guidelines set forth in MoDOT's [Engineering Policy Guide \(EPG\), Article 147.1](#). With this agreement, MoDOT and FHWA agree to programmatically approve the use of ATCs, a form of "innovative contracting" identified under the FHWA's SEP-14 program, without requiring a specific work plan and approval for each individual project.

Introduction

An ATC is a proposed change to agency-supplied base design configurations, project scope, design criteria or construction criteria. This change provides a solution that is equal or better to the requirement in the contract. In the broadest sense, ATCs are similar to value engineering, but they are made as a part of the bid proposal before contract award. ATCs provide flexibility to the bidders in order to enhance innovation and achieve efficiency. MoDOT has successfully used ATCs on a handful of projects since 2010. To assist in determining whether or not to pursue ATCs, MoDOT has published [Guidelines and Procedures](#) in the EPG. Additional resources include a [white paper](#) on the standard ATC contracting process and a list of [frequently asked questions \(FAQs\)](#).

MoDOT routinely performs a Project Delivery Determination process which includes a high-level risk assessment on projects that provide opportunity for significant value as a result of contractor input. The Project Delivery Determination includes evaluation of opportunities and obstacles attributed to both Design-Build and Design-Bid-Build. This information is used for decision making on choosing the appropriate delivery method for projects.

Following the decision to utilize Design-Bid-Build based on the outcome of the Project Delivery Determination on a project the owner should consider utilizing the Design-Bid-Build ATC process if the following conditions are present:

- a) Risks identified in the Project Delivery Determination are appropriate for this approach.
- b) The owner desires to achieve significant value from contractor input.
- c) Industry is acceptable to the approach.
- d) Owner resources are available.

Federal Fiscal Year 2023 Reporting

No Projects were delivered in FY 2023 using Design Bid-Build with ATC's.

Performance Measures and Reporting

Tracker Measure 3f – Innovative Contracting Methods and Value Engineering is MoDOT's performance measure that captures use of Design-Build, A+B Contracting, and Design-Bid-Build ATC at MoDOT. The target is 10% of MoDOT's total program be used on innovative contracting. MoDOT's Tracker can be found at <https://www.modot.org/innovative-contracting-and-value-engineering-3f>. Measure 3f is located in the Deliver Transportation Solutions of Great Value section.

No Design-Bid-Build ATC Projects were delivered in FY 23. MoDOT used innovative contracting to deliver 6 of 457 projects in FY 23 accounting for approximately 16% of the \$1.8 Billion Program. The 2 projects per year and 10% of program value targets were achieved.

Industry Reaction

N/A.

Alternate Technical Concepts Proposed

N/A

Cost and Time Savings

This period, no cost or time savings were realized.

Lessons Learned (To Date):

I-49 Project:

- Although this project worked out well from a cost savings standpoint, this project may have been a great candidate for a CMGC process or Progressive Design-Build. Additional value may have been realized during the procurement with one of these procurement methods.
- We would suggest a detailed risk assessment be performed on ATCs to identify and assign risk to the appropriate party (MoDOT or Contractor). If this is done early, there could be more interest in the ATC process.
- Contractors need to know the risks they are assuming for using an approved ATC. Make it clear that the contractor can rely on MoDOT's estimated quantities for areas of the project or bid items that are not touched by the ATC. A contractor will price risk for quantities their engineer and the contractor's staff did not develop in relation to the ATC. Make this clear in the Guidelines and Procedures Document.
- The program budget was very dated and not even close to Contractors base plan estimate. This led to a concern whether the project would be awarded if more than 10% over the budget, even with ATC savings.
- Hiring a design firm to assist is costly. If the low bid is not awarded that is a sunk cost that is hard to recoup.
- Starting the process with a complete set of plans requiring no additional edits and a well thought out Guidelines and Procedures document would allow for streamlining of the process.
- If updates to the base plan set are needed, have those completed before the ATC process starts. Limit changes late in the process, particularly with any plan quantities.

- Limiting ATCs to three means one of two things will happen. 1) MoDOT will not realize all the potential financial benefits of the ATC process or 2) Smaller ATCs are bundled which can be confusing as it relates to the projected savings and bid submittal.
- Using the ATC process is not a direct replacement for using Design-Build to get Contractor input in a project. The ATC process is much more limited in comparison. Owners should carefully weigh.

Missouri 86 Taney County Long Creek Bridge Project

- The impetus to use the ATC Process on a project like this may have been to avoid using Design-Build by the District.
- It would have been more favorable if more than one bidder participated in the ATC process. Innovation comes when many people can have valid ideas and since only a handful of contractors in the US could do this type of work (deep water foundations) ultimately led to a limited response. Perhaps this project was too large in scale or difficult, to foster the inspiration/innovation of smaller companies.
- The delayed letting may have changed the availability of Contractors since it was observed that they combined with another company to form a joint venture for the second bid. This resulted in a higher bid the second time.
- There was good participation at the ATC initial meeting by the industry. MoDOT received a lot of questions from engineering firms but not much from Contractors.
- MoDOT could have been clearer on what bridge design models should be used to evaluate the ATC's. A lot of time was spent discussing the merits of individual deflections of specific items verses the whole system approach and how the individual changes work together.