

# SPECIAL EXPERIMENTAL PROJECT (SEP-14)

Alternate Technical Concepts on Design-Build Projects

Prepared by:

Chris Youngs, P.E.  
Quality and Innovative Design Engineer  
Michigan Department of Transportation

April 30, 2013

## **Introduction**

Alternate Technical Concepts (ATCs) are intended to allow for additional innovation and flexibility on a project to ultimately obtain the best value for the motoring public. 23 CFR 636.209 (b) states “alternative technical concept proposals may supplement, but not substitute for base proposals that respond to RFP requirements.” The Michigan Department of Transportation (MDOT) requested, and was granted, a waiver to this section so Design-Builders are only required to submit a single price based on the base proposal plus any ATC’s approved during the project’s advertising period.

## **MDOT’s ATC Process**

ATC’s are submitted in accordance with the “Instruction to Proposers” (ITP) section of the Request for Proposals (RFP). An ATC must include a description of the ATC, where and how the ATC will be used, what the ATC changes from the base proposal, a justification on why the ATC should be approved, the impacts from the ATC, a history of where the ATC has been previously used, the risks associated with the ATC and any additional testing and inspection requirements needed due to the ATC.

The MDOT project manager receives the ATC and selects a team of MDOT staff that will review each individual ATC. The team includes technical personal with expertise relevant to the proposed ATC concept. The confidential nature of the ATC is stressed to each reviewer. MDOT or the Design-Builder can also request a confidential meeting to discuss the ATC. Once the review is complete, MDOT will respond to the ATC submittal with one of the following responses:

- a. The ATC is approved.
- b. The ATC is not approved.
- c. The ATC is not approved in its present form, but may be approved upon satisfaction, in MDOT’s sole judgment, of certain identified conditions that shall be met or certain clarifications or modifications that shall be made.
- d. The submittal does not qualify as an ATC but may be included in the Proposal without an ATC.
- e. The submittal does not qualify as an ATC and may not be included in the Proposal.

Only approved ATC’s can be included in the design-builder’s final technical and price proposals. The technical proposal must clearly indicate what approved ATC’s are included, and ATC’s become contractual if they are included in the technical proposal. A single price proposal is received that reflects only the cost to design and construct the project based on the base proposal plus the approved ATC’s.

### **Evaluation of MDOT's ATC Process**

MDOT's current ATC process avoids unnecessary costs and lost time to all potential design-build teams by not requiring a price proposal for the base proposal and a second price proposal based on the base proposal plus any approved ATC's. Requiring only one price proposal allows teams to advance only the design that they intend to use, which results in a better design at the time of bidding and reduces unnecessary costs to the industry.

MDOT awarded over 30 design build projects in the 1990's, however; these projects did not have an ATC process. ATC's have been submitted on the majority of MDOT's design-build projects let since 2008. Exhibit A contains a summary of the number of ATC's submitted and approved on MDOT's recent projects as well as the number of ATC's submitted and approved by the selected design builder. The widespread use of ATC's on recent projects indicates that Michigan's design and construction industries believe there is value to the current ATC process that improves their chance of winning the project. Furthermore, on most projects, the winning design builder had a significant amount of approved ATC's.

MDOT has had several meetings with Michigan design and construction industry to review its design-build process. The feedback on the ATC process received at these meetings is positive. Firms have indicated that the ATC process allows a design-builder to propose options to complete the work that build off their company's strengths, making the design and construction more efficient and cost effective.

MDOT believes that the current ATC process adds value to a project. The process allows for new innovations and value-added deviations from the base proposal while providing MDOT with a mechanism to adequately review the unique risks associated with each submittal as well as the opportunity to reject concepts that MDOT believes do not add value to the project.

### Exhibit A: ATC Summary by Project

| MDOT Job Number | Work Type                       | Project Information   |                      | Winning Design-Builder Information |                      |
|-----------------|---------------------------------|-----------------------|----------------------|------------------------------------|----------------------|
|                 |                                 | No of ATC's Submitted | No of ATC's Accepted | No of ATC's Submitted              | No of ATC's Accepted |
| 81690           | Bridge Replacement              | 12                    | 11                   | 4                                  | 4                    |
| 74766           | Freeway Reconstruction          | 5                     | 2                    | 2                                  | 1                    |
| 45639           | Freeway Recon & Bridge Widening | 6                     | 4                    | 0                                  | 0                    |
| 105785          | Freeway Reconstruction          | 8                     | 3                    | 4                                  | 2                    |
| 105836          | Bike Path Construction          | 6                     | 2                    | 5                                  | 1                    |
| 44785           | Freeway Reconstruction          | 7                     | 5                    | 3                                  | 3                    |
| 34342           | Bridge Replacement              | 6                     | 4                    | 0                                  | 0                    |
| 105798          | Installation of Fiber Optics    | 0                     | 0                    | 0                                  | 0                    |
| 105799          | ITS Infrastructure              | 1                     | 1                    | 1                                  | 1                    |
| 105846          | ITS Infrastructure              | 4                     | 0                    | 4                                  | 0                    |
| 107677          | Bridge Replacement              | 8                     | 7                    | 3                                  | 3                    |
| 73737           | Bridge Replacement              | 10                    | 6                    | 3                                  | 3                    |
| 116071          | Road and Bridge Construction    | 0                     | 0                    | 0                                  | 0                    |
|                 | <b>Total</b>                    | <b>73</b>             | <b>45</b>            | <b>29</b>                          | <b>18</b>            |

**Exhibit B: Design-Build Projects since 2008 with an ATC Process.**

**Project: M-21 Bridge Replacement**

Brief Description: Design-Build-Finance project to replace the M-21 Bridge over I-75 near the City of Flint, Genesee County  
Letting: 8/28/08, Item: 701  
Job Number: 81690A  
Engineers Estimate: \$7,072,074.00  
Awarded Price: \$7,285,000.00  
2 Step, Best Value Procurement (Design-Build-Finance)  
Status: Completed

**Project: I-69 Freeway Reconstruction Project**

Brief Description: Design-Build-Finance project to reconstruct of 6 miles of freeway in St Clair and Lapeer Counties  
Letting: 8/8/08, Item: 601  
Job Number: 74766A  
Engineers Estimate: \$43,880,551.00  
Awarded Price: \$35,941,016.00  
1 Step, Low Bid Procurement (Design-Build-Finance)  
Status: Completed

**Project: I-96/M-43 Reconstruction Project**

Brief Description: Design-Build project to reconstruct portions of I-96 and M-43 near the I-96/M-43 interchange in Eaton County  
Letting: 8/27/09, Item: 801  
Job Number: 45639A  
Engineers Estimate: \$44,924,708.09  
Awarded Price: \$40,477,777.00  
1 Step, Low Bid Procurement  
Status: Completed

**Project: I-94 Reconstruction Project**

Brief Description: Design-Build project to reconstruct approx. 9 miles of I-94 in Jackson County.  
Letting: 1/15/10, Item: 701  
Job Number: 105785A  
Engineers Estimate: \$52,103,662.07  
Awarded Price: \$43,892,297.00  
1 Step, Low Bid Procurement  
Status: Completed

**Project: I-275 Bikepath Construction**

Brief Description: Design-Build project to construct a new bikepath along I-275 in Wayne County

Letting: 9/10/09, Item: 801

Job Number: 105836A

Engineers Estimate: \$3,229,000.00

Awarded Price: \$4,050,000.00

1 Step, Low Bid Procurement

Status: Completed

**Project: I-475 Reconstruction Project**

Brief Description: Design-Build project to reconstruct portions of the freeway and rehabilitation of bridges on I-475 in Genesee County.

Letting: 11/19/09, Item: 701

Job Number: 44785A

Engineers Estimate: \$21,019,500.00

Awarded Price: \$17,423,830.00

1 Step, Low Bid Procurement

Status: Completed

**Project: M-59/Crooks Rd. Bridge Replacement**

Brief Description: Design-Build project to reconstruct the Crook Rd. Bridge over M-59

Letting: 11/18/2010, Item: 801

Job Number: 34242A

Engineers Estimate: \$9,300,000.00

Awarded Price: \$9,164,500.00

2 Step, Max Price-Variable Scope Procurement

Status: Completed

**Project: Grand Region Fiber Optic Project**

Brief Description: Design Build project to install new fiber optic cable in the Grand Rapids area.

Letting: 8/13/09, Item: 701

Job Number: 105798A

Engineers Estimate: \$1,072,000.00

Awarded Price: \$747,871.07

1 Step, Low Bid Procurement

Status: Completed

**Project: Grand Region Dynamic Message Sign Project**

Brief Description: Design Build project to Install DMS's in the Grand Rapids area.

Letting: 04/15/10

Job Number: 105799A

Engineers Estimate: \$2,470,000.00

Awarded Price: \$2,327,000.00

1 Step, Low Bid Procurement

Status: Completed

**Project: ITS Project in North and Superior Regions**

Brief Description: Design build project to construct ITS infrastructure in the North and Superior Regions.

Letting: 8/27/09, Item: 802

Job Number: 105847A & 105846A

Engineers Estimate: \$3,793,735.00

Awarded Price: \$3,577,700

2 Step, Best Value Procurement

Status: Completed

**Project: 9 Mile at I-75 Bridge Project**

Brief Description: Design Build project to replace the 9 Mile Rd. bridge over I-75 and portions of I-75 that were damaged as destroyed by a tanker fire.

Letting: 9/30/09, Item: 801

Job Number: 107677A

Engineers Estimate: \$11,165,200.00

Awarded Price: \$11,801,450.00

2 Step, Low Bid with Lane Rentals

Status: Completed

**Project: M-20 at Schrader Creek**

Brief Description: Design Build project to build 2 bridges on M-20 over Schrader Creek and the South Branch of Schrader Creek.

Letting: 11/2/11, Item: 701

Job Number: 73737A

Engineers Estimate: \$ 7,111,308.00

Awarded Price: \$ \$7,090,000.00

2 Step, Low Bid with Lane Rentals

Status: Completed

**Project: Gateway Completion Project (No ATC's Submitted)**

Brief Description: Design Build project to complete work in the Ambassador Bridge Plaza

Letting: 04/09/12, Item: 701

Job Number: 116071A

Contract ID: 82194-116071

Engineers Estimate: \$ 12,496,860.00

Awarded Price: \$ \$9,386,860.00

2 Step, Low Bid Procurement

Status: Completed