

**Final Report  
Special Experimental Project No. 14 (SEP-14)  
Michigan Department of Transportation  
Alternate Technical Concepts for Staging and Maintaining Traffic  
June 1, 2016**

MDOT Job Number: 110397A  
Control Section: 09035  
Location: I-75 from Pinconning Road to the Bay/Arenac County Line  
Length of Project: 3.3 Miles

**Introduction**

In 2013, the Michigan Department of Transportation (MDOT) received approval to utilize Alternate Technical Concepts (ATC) on the above referenced project to allow contractors the ability to propose and receive approval for staging and maintaining traffic plans, in order to bring their innovations and construction techniques into the project during the bidding process.

**Contract Information**

This contract, including unique contract provisions related to the ATC process that were included can be found on MDOT's e-proposal website by clicking on the following link: <http://mdotcf.state.mi.us/public/eprop/login/index.cfm>. Once registered, enter the e-proposal website by typing in the user's email address and password. Instructions for registering new users are on the left side of this page. Select the letting date (January 10, 2014) from the "Lettings" area on the left side of the page, and then select the item number (001) from the pull down menu. The project proposal, plans, reference information documents, contractor inquiries and responses, and any addenda will be available for downloading from this location.

MDOT has also developed guidelines for the use of ATC's on Design-Bid-Build projects. This guide is available for MDOT staff and is available in Projectwise.

**Project Overview**

The project work included mainline rehabilitation, drainage improvements, signing, guardrail, and safety improvements on Northbound and Southbound I-75 from north of Pinconning Road northerly to north of the Bay/Arenac County Line. I-75 is a freeway with an ADT of 21,400 with 7% commercial. This project was an Alternate Pavement Bidding (APB) project and contractors were allowed to submit a bid on one of the alternates in the bidding documents. Alternate 1 was a concrete overlay with pavement repairs and Alternate 2 was rubblize existing concrete pavement and hot mix asphalt surfacing.

The project contained an ATC process for staging and maintaining traffic in order to allow all potential construction methods to be considered pre-bid in order to maximize competition, incorporate innovative approaches and equipment that would add value to the project while maintaining a safe construction work zone. This project allowed contractors the opportunity to include two final ATC's (provided both were from approved conceptual ATC's) into their bid

proposal. The ATC's were to allow for innovation, potential project schedule reduction, costs savings, and to obtain the best value for the project that meets or exceeds the project goals.

### **Project Development**

Construction plans and specifications were developed that included a lump sum item for staging and traffic control (which included all costs to maintain traffic during construction), and provisions that defined goals, requirements, and guidelines of the ATC process. This was the first time MDOT provided only restrictions and requirements for staging and maintaining traffic and not any detailed base plans for maintaining traffic.

The contract contained all the proposed work for the project to be bid, except staging and traffic control items of work. The bidder had to propose and develop an ATC to perform the staging and traffic control work and use their traffic control design to bid on the lump sum maintaining traffic item. The contract included the following minimum requirements relating to the ATC process:

- The Contractor will assume the risk of preliminary and final design costs for ATC's.
- All ATC's must be signed and stamped by a licensed engineer from a firm prequalified in Maintaining Traffic Plans and Provisions. The licensed engineer is considered the engineer of record for the maintaining traffic part of the project for the ATC used by the contractor.
- The ATC must show what biddable quantities are included in the lump sum maintaining traffic pay item.
- The Special Provision for Maintaining Traffic included minimum criteria that shall be met.
- The ATC will include any roadway design plans if necessary.
- All submittals and inquiries regarding ATC's for this project were directed via email to the project manager.

### **ATC Process**

The submittal and evaluation of ATC's was a three step process.

#### **Step 1: Mandatory Pre-Bid Meeting**

MDOT held a mandatory pre-bid meeting on November 13, 2013 and thirteen contractors and one engineering consulting firm attended the meeting. The contractors that attended were a combination of potential prime contractors and subs for providing traffic control devices.

#### **Step 2: Submittal of Conceptual Alternate Technical Concepts**

Contractors were required to submit Conceptual Alternate Technical Concepts (CATC) for MDOT's review and approval. CATC's required minimum engineering and allowed contractors to present their ideas to the ATC review team in a confidential meeting prior to investing time and resources into detailed engineering of their concept. Contractors were limited to two CATC submittals to ensure reasonable concepts were submitted. MDOT reviewed submitted CATC's and responded back to the Contractor with approval, rejection, or provided questions and comments to be addressed. The contract included minimum requirements for the CATC submittal and minimum basis of acceptance for a CATC. MDOT provided written approval of all CATC's, and CATC's that were disallowed included a reason why it was not allowed.

### Step 3: ATC Final Approval Process

Once a CATC was approved, the Contractor could choose to pursue the ATC in more detail and submit for final approval and inclusion in the bidding documents. The contract specified the required information to be included in all final ATC submittals. ATC's were evaluated based on compliance to the requirements in the contract, and were given a pass or fail decision in writing. Any rejected ATC response included a list providing reasons why the ATC was not approved for use. Contractors were allowed to address the cause for rejection and resubmit the ATC prior to the ATC submittal deadline. Proposed ATC's that received a pass decision were considered pre-approved and were eligible to be submitted by the Contractor along with bids for the other items of work contained in the contract.

All CATC and ATC submittals were considered confidential and were not shared with other bidders during the bidding process.

The contract included general design specifications and minimum requirements and deliverables required for implementation of the final ATC.

A revised Special Provision for Maintaining Traffic that included a list of pay items for traffic control devices damaged outside of the Contractor's control during construction was distributed at the pre-construction meeting. It included the unit prices of the items listed which were determined from the average unit prices from previous bid history.

### Bid Requirements and Results

The Contractor was required to submit one bid for the project with a pre-approved ATC, and enter a bid price for the Lump Sum item for Maintenance of Traffic based on quantities they developed for the ATC.

The winning bid came in at \$12,746,432.02, which was 8.76% over the Engineer's estimate of \$11,719,541.70. MDOT found this bid to be acceptable. The project did not encounter any major extras to the original work. The low bidder's unit price for Maintenance of Traffic was \$3,095,500, which was 3.18% over the Engineer's estimate of \$3,000,000.

Through the ATC process contractors submitted proposals/concepts for maintaining traffic to MDOT for approval. Seven ATC's were proposed by four contractors, and six ATC's were approved by MDOT. Three contractors submitted bids on the project (which is in the normal range of bidders expected on a project of this scope and size) and each included an ATC in their bid. The results of the ATC process were successful, the accepted low bid was within an acceptable percentage of the Engineer's estimate and the maintaining traffic/staging plan was accepted.

The project was constructed in one construction season, which was expected, and there was not a significant time savings for completing the project by utilizing the ATC process.

### Industry Coordination and Outreach

A mandatory pre-bid meeting was held on the project to explain the ATC process, and all prospective bidders had to attend in order to be considered eligible to bid on the project.

There were no comments/concerns or possible improvements to the ATC process voiced by the contracting industry as a result of this project.

### **Lessons Learned**

Based on the lessons learned from this project, MDOT recommends that future projects develop base plans and contract provisions that could be modified by ATC the process. This allows the Contractor's something to base their bid upon if they determine ATC's to not be feasible.

### **Key to Success**

Good project management is a key component for the ATC process to be successful. If the project manager does not have good communication skills the ATC process can break down, and this can cause the contractors to doubt that all information related to ATC's is being kept confidential. When ATC's are being reviewed it is important to review and provide responses to contractors in a timely manner, and when this does not happen it can cause frustration by the contractors. In the end, good communication and confidentiality assurance are two key factors behind a positive ATC process.