

**Final Report
Special Experimental Project No. 14 (SEP-14)
Michigan Department of Transportation
Fixed Price Variable Scope Contracting
August 19, 2015**

Project Number: 85619A Control Section: 49023
County: Mackinac
Project Scope: Bridge Abutment Rehabilitation
Route: US-2 over the Cut River

Introduction

In 2012, the Michigan Department of Transportation (MDOT) received approval to utilize Fixed Price Variable Scope (FPVS) contracting to rehabilitate a substructure on the Cut River Bridge on US-2 over the Cut River in Mackinac County. The purpose of FPVS contracting is to construct the greatest amount of work with the available project budget and gain more value for the dollar through this contracting method.

Project Overview

The project work included the removal of existing cement mortar material between the sandstone veneer panels on the bridge abutments and repointing the joints with a proprietary mortar material with similar physical properties to the existing sandstone. Also, a second proprietary mortar material was used to reconstruct the existing sandstone fascia damaged due to freeze-thaw spalling and weather erosion damage. The project's budget at the time of receiving bids was \$850,000.

Project Development

Contract documents were included to provide clear bidding instruction that modified MDOT's typical electronic bidding process by requiring a paper bid be submitted. The contract also indicated that MDOT would select a contract not based on the lowest price bid, but on the greatest amount of work that could be completed for \$850,000.

The project work was split up into 33 different areas and prioritized based on the level of distress and location. The area with the highest level of deterioration was Priority 1, and the area with the lowest was Priority 33. Consideration was also given in the assignment of priorities so the work could progress from the top of the bridge to the bottom to avoid spillage and damage to newly completed work. The bidding process required the contractors to bid on the work they could complete in order of priority to ensure the areas with the most need were rehabilitated as part of this contract.

The work is unique and MDOT did not have historical pricing to review to develop the Engineer's estimate. Based on the anticipated cost of material, labor and equipment, MDOT estimated that the winning contractor would complete 9,000 to 9,600 square feet of restoration work.

Bid Results

MDOT held a mandatory pre-bid meeting on May 20, 2014 and three contractors attended the meeting. MDOT accepted hand delivered bids on June 11, 2014, and two contractors submitted

bids. The winning bid came in at 9,225 square feet, and the second contractor bid 8,425 square feet. Based on the bid, approximately 75% of the restoration work would be completed. Based on the results of the bids and the Engineer's estimate of work, MDOT believes the bid was acceptable and using FPVS was cost effective.

Prior to the contract being completed, MDOT determined that it was in the public's best interest to add funds to the project in order to complete all of the needed work. This course of action is cost effective as the added work utilized pricing from the original bid, further deterioration was prevented by completing the work in 2016, and additional costs were avoided by not having to develop a second design package for the project. To complete all project work MDOT added \$287,638 to the contract bringing the final construction cost to \$1,137,638.

The project did encounter minor extras to the original work to anchor some loose sandstone panels that were discovered during the removal of the existing grout.

Industry Coordination and Outreach

A mandatory pre-bid meeting was held on the project to explain the bidding process. Example bids were handed out showing both correct and incorrect bids. The contractors were also given a chance to ask questions about the bidding process and the unique construction materials that were required on the project.

MDOT typically receives 3 to 4 bidders on normal bridge rehabilitation projects, but only received 2 bids on this project. The project is located in Michigan's Upper Peninsula, is unique bridge rehabilitation work, and is a relatively small dollar value. These factors are believed to be the reason for receiving only 2 bids, and not the contracting method.

Contractors did not voice any concerns about the use of FPVS during the bidding process or after the contract was awarded.

Contract Information

This contract 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 (June 11, 2014) from the "Lettings" area on the left side of the page, and then select the item number (605) from the pull down menu. The project proposal and any addenda will be available for downloading from this location.

MDOT has also developed a guide of the development of FPVS projects. This guide is incorporated as an appendix to MDOT's Innovative Construction Contracting Guide which is publicly posted on MDOT's website.