

**Final Report and Recommendations
Special Experimental Project No. 14 (SEP-14)
Michigan Department of Transportation
Construction Manager / General Contractor
January 2, 2015**

Jon Numbers: 105714, 109661, and 112754
Control Section: 41063
County: Kent
Location: M-11 (28th Street) between Breton Avenue and I-96
Negotiated Contract Cost: \$8,752,995.75
Final Contract Cost: \$8,860,388.49

Introduction

In June of 2012, the Michigan Department of Transportation (MDOT) was authorized to use a Construction Manager/General Contractor (CMGC) procurement to reconstruct M-11, in Kent County. The project includes the rehabilitation and reconstruction of M-11 between Breton Avenue and I-96.

The project is separated into two distinct sections of work. The portion of the project between Breton Avenue east to 450' west of Patterson Avenue was be rehabilitated by cold milling and two course HMA resurfacing. The reconstruction portion of the project starts approximately 450' west of Patterson Avenue and continues easterly to the I-96 ramps. This portion of the project consists of a full roadway reconstruction in concrete, including curb and gutter, drainage, ADA ramps, signal and safety upgrades and local participation to add sidewalk, and lighting.

M-11 is a heavily travelled route with an approximate AADT of 36,000 (2.5% Commercial). This traffic can be attributed to the businesses in the area and the proximity to the I-96/M-11 Interchange. The adjacent property is mostly zoned commercial consisting of many restaurants and commercial business (small and big box). Patterson Avenue, which is in the project limits, is also one of the main direct routes to the Gerald R. Ford International Airport.

MDOT's primary goals for utilizing a CMGC process was to benefit the public and project by providing an expedited construction schedule, mitigating the complex staging required to maintain access to local businesses, improve utility coordination, and improve the owner/contractor interaction and outreach to the public during the project's development.

Project Schedule

The project had the following key milestone dates.

Milestone Dates

SEP-14 Approval
Post CMGC RFQ

June 5, 2012
June 6, 2012

Procurement of Independent Cost Estimator (ICE)	Sept 15 – Nov 8, 2012
SOQ's Due	June 27, 2012
Award of Pre-Construction Phase	October 4, 2012
Development of Plans and Specifications	Through Feb, 2014
Completed Price Negotiations	Feb. 27, 2013
Award Construction Phase	March 14, 2013
Start of Con. Work to Substantial Completion	March 18, 2013 – Sept 12, 2013
Final Completion Date*	Nov. 7, 2015

* The final completion dates includes a 2 year period for watering and cultivating trees and various turf restoration items.

CMGC Selection Process

MDOT solicited potential CMGC teams through a Request for Qualifications (RFQ). The final RFQ can be found at the following link: http://www.michigan.gov/documents/mdot/M-11_Request_for_Qualifications_-_Addendum_1_390146_7.pdf. The CMGC was selected through a quality based selection process. Three teams submitted Statements of Qualifications (SOQ).

The project had two distinct phases for the CMGC. The first phase is the preconstruction phase. During this phase the CMGC was required to assist MDOT in developing the plans, staging operations, maintenance of traffic schemes, review the constructability of the project, and to seek ways to reduce costs. Near the end of this phase, MDOT, with the assistance of an Independent Cost Estimator (ICE), conducted negotiations to determine the final price and structure of the final price. The final price included items that were paid by an established unit price and the actual quantity constructed in the field, and items of work included in a Guaranteed Maximum Price. The CMGC completed the construction phase of the project based on the plans and specifications developed in during the preconstruction phase. This phase was completed in a manner similar to traditional design-bid-build projects.

Evaluation Measures

In 2012, MDOT had utilized CMGC on a limited number of projects. MDOT committed to report on various measures in order to assess the effectiveness of this CMGC Project. The measures listed in the approved SEP-14 Work Plan and MDOT's observations from this project are listed below.

Measure #1: Assess the effectiveness of the CMGC and qualification based selection process

Item 1-1: The number of SOQ's received (was industry willing and able to successfully respond to this type of contract?).

MDOT Response: MDOT received 3 SOQs from highly qualified contractors. MDOT anticipates that 3 or 4 bids would have been received if this project had used a traditional

procurement. Michigan's contracting industry demonstrated their willingness to compete for non-traditional procurements.

Item 1-2: Evaluate the quality of the SOQ's received, including the number of innovative ideas proposed by all responders to the RFQ, and the number of statements including criteria that exceeded the qualifications in the RFQ.

MDOT Response: The number of innovative ideas proposed in the SOQ's was limited. The construction work on this project is typical road construction items. The staging, maintaining traffic and public outreach components of the project were the most complicated items. MDOT believes it received value from the CMGC based on commitments made in the SOQ related to the complicated areas of the project. MDOT believes that all 3 teams would have proposed teams and processes through the RFQ process that would have resulted in the successful completion of the project, and were satisfied with the overall quality of the SOQ's. It was apparent that some teams had developed SOQ's on previous projects as their submittal was very thorough, organized and detailed.

Item 1-3: Analysis of the overall selection process, including identifying any issues in executing the selection process, and a comparison of final negotiated price (Guaranteed Maximum Price + Contingencies) to Engineer's Estimate and ICE.

MDOT Response: The selection process was successful. MDOT's process includes posting of the RFQ on MDOT's Innovative Contracting website, and separate notices were provide to the Michigan Infrastructure and Transportation Associates (Michigan's contractor association) and the American Council of Engineering Companies-Michigan, and an announcement was placed on MDOT's bid letting website.

Price negotiations on CMGC projects are difficult. MDOT developed an Engineer's Estimate which is based on historical unit prices and bidding history of similar projects in the M-11 corridor. Project in the M-11 corridor have historically been 10-15% over statewide average unit prices because of the traffic congestion and urban environment of the corridor. MDOT also hired an ICE to develop a second independent estimate. MDOT recommends that the ICE develop their estimate based on estimated production rates, material and labor costs, and equipment costs. The time required to complete the price negotiations took longer than originally anticipated, and MDOT recommends using a 4-7 week period to complete negotiations on future projects.

Measure #2: Assess the effectiveness of the CMGC contracting process.

Item 2-1: CMGC engagement during design phase, and achievement of constructible, high quality plans and specifications.

MDOT Response: The CMGC provided very valuable input during the preconstruction phase, specifically on how the project would be built and staged while maintaining access

to businesses in the corridor. Examples of this include changing the approach MDOT initially proposed for staging so the drainage work would be completed with minimal impact to traffic. They also reduced the amount of temporary pavement needed based on their staging approach and their use of stringless paving operations. Coordination with the public was also improved by having the CMGC involved since they could directly hear the public's concerns during design, and MDOT and the CMGC could make commitments to the public based on a plan developed jointly by the 2 parties.

Item 2-2: Evaluation of schedule, staging and maintaining traffic benefits from the CMGC process.

MDOT Response: Construction was planned around an aggressive schedule. Even with the initial schedule, the CMGC completed the project three weeks ahead of schedule. The construction staging was implemented as planned with very few and minor modifications, which increases MDOT credibility with the public.

Item 2-3: Administration of CMGC contract during construction phase, and overall ability of CMGC to effectively perform contract work according to specifications, and within project timeframe.

MDOT Response: The administration of the construction project was relatively issue free. The contractor's team performed the work according the plans and specifications.

Payment for the GMP items is a change from typical procedures, and was problematic for a period of time since payments are not solely based on the quantity of the work constructed. MDOT recommends that this item should be discussed with the CMGC and the construction field staff during the preconstruction phase so a schedule of values can be quickly developed for the GMP items of work, and all parties fully understand how the GMP is paid.

The following items are additional comments and lessons learned on this project.

1. **Identification of Scope Change Items:** Items in the GMP can increase or decrease without a change to the price of the GMP. However, during construction there can be issues that occur, or changes to the project's scope, that increase the cost of the project. Discussions on this topic should be held during the preconstruction phase so all parties understand what is and what is not eligible for an increase or decrease to the contract price. This discussion may lead to items being included or excluded from the GMP.
2. **Key staff involvement in all phases:** Some of the key staff from MDOT and the CMGC's team were actively involved during all phases of the project. However, some key staff became actively involved after the construction

contract was awarded. MDOT recommends that key staff be actively involved in all phases of the project in order to increase the understanding of this unique contracting method. Effective communication between all key staff is a significant factor in the success of this contracting method.

3. Documentation of CMGC Preconstruction Suggestions: Most the CMGC's suggestions were provided at meetings. MDOT recommends requiring the CMGC to provide written reports to document their suggestions during the pre-construction phase.
4. Establishing the Project Goals: The RFQ should base the selection criteria on the unique needs of the project. Avoid including general selection criteria that will not differentiate teams. Early in the preconstruction phase the owner should expand on the key elements they want the CMGC to focus on so their efforts can be concentrated on the difficult parts of the project.
5. Project Schedule: CMGC can increase the time required to design a process due to the evaluation of suggestions from the CMGC. Other items including price negotiations can add time to the schedule and owners should consider this when establishing the initial schedule.
6. Cost Considerations: CMGC procurements are not used on easy run of the mill projects. Owners should not only consider average unit prices while developing the Engineer's Estimate. Also, value added commitments from the CMGC can improve the project, but they can also add cost. The owner should understand this can be a part of the CMGC process and give this consideration when developing the estimates.

Project Information

This project and all contract documents can be found on MDOT's e-Proposal website (<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 "new user registration" is on the left side of this page. Select "February 8, 2013" from the "Lettings" area on the left side of the page. The project's plans and proposal and additional Reference Information Documents are be available for downloading from this location.