



COLORADO
Department of Transportation
Office of the Chief Engineer

TO: SHOSHANA M. LEW, EXECUTIVE DIRECTOR
FROM: MARKO ATAMO, PE, CMA BRANCH MANAGER
CC: JOSHUA LAIPPLY, PE, CHIEF ENGINEER
DATE: 8/22/2019
SUBJECT: AWARD TO LOW RESPONSIVE BIDDER C.R.S. 43-1-113 (16)

PROJECT: NHPP 0703-435 (21223R) EISENHOWER/JOHNSON MEMORIAL TUNNEL (EJMT) 480V MOTOR CONTROL CENTER REPLACEMENT

Pursuant to C.R.S. 43-1-113(16), it has been determined that it's in the best financial and economic interest of the State to award Region 1's project NHPP 0703-435 (21223R) to the low bidder Casey Industrial, Inc. ("Casey").

Project Description: This Region 1 project is located at the EJMT on I-70 in Clear Creek and Summit Counties for the replacement of the 480V Motor Control Center. The scope of the project includes removing and replacing the existing electrical equipment, conduit, wiring, and completing other associated electrical work. The project was re-solicited for the second time under the design bid build (low bid) project delivery method where only two bids were received with Casey being the lowest responsive bidder.

Financial Impact: Casey's bid proposal totaled \$8,077,723.20 compared to the CDOT engineer's estimate of \$6,293,525.62. The project risks rejection by Statute since there were only two bidders and their proposals were 128.35% and 139.37% of the engineer's estimate. Region 1 received Transportation Commission approval for additional funding needed to award the project.

Cost Analysis: An analysis of the bid schedule revealed that four of the bid line items identified below were significantly higher than the CDOT engineer's estimate.

Bid Item Description	QTY	Unit	Unit Price		Total Cost Difference	% Over Eng. Estimate
			Low Bid	Eng. Est.		
Wiring	1	LS	\$992,695.66	\$508,188.00	\$484,507.66	195.34%
480 Volt Motor Control Center	2	EA	\$248,570.65	\$61,500.00	\$374,141.30	404.18%
Switchboard	2	EA	\$380,506.50	\$84,582.00	\$591,849.00	449.87%
Variable Frequency Drive & Enclosure (100 Horse Power)	16	EA	\$38,550.72	\$18,750.00	\$316,811.52	205.60%

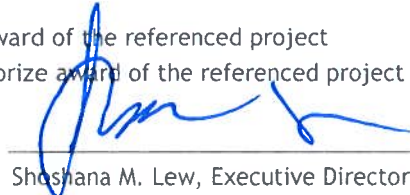
For the above bid items the engineer's estimate is based on the estimate provided by the project's design consultant. In verifying Casey's bid offer, research revealed the engineer's estimate was under the estimated cost for the overall project due to the unique nature of 45 year old electrical and mechanical equipment being retrofitted. Providing an accurate engineer's estimate proved challenging with the lack of comparable historical data being available. When the project was first bid, only one bid was received at a price much higher than the results of this current rebid. Rebid on the project for a third time is unlikely to yield a different result. Based on the cost analysis, EEMA and Region 1 consider Casey's proposed pricing to be fair and reasonable, and recommends proceeding with the award to them.

Staff Review & Recommendation: Given the overall project dynamics and Casey's bid being \$693,411.80 lower than the only other bidder, re-advertisement of the project is unlikely to result in more competition or reduced pricing. The Region 1 Project Management Team's analysis and recommendation to award the project is provided in the attached memorandum to this request. Staff recommends that the project's award be authorized.

- I recommend award
- I do not recommend award


Date 8/23/19
Markos Atamo, PE, CMA Branch Manager

- I authorize award of the referenced project
- I do not authorize award of the referenced project


Date 8/27/19
Shoshana M. Lew, Executive Director

cc: Jerad Esquibel, Director, Division of Project Support
Randy Jensen, Federal Highways Administration
RB Simmons, Engineering Contracts
Central Files



Date: August 22nd, 2019

To: Shoshana Lew, Executive Director

From: Neal Retzer PE, EJMT Resident Engineer

Subject: Request for Award of project 21223, 480 Volt Motor Control Center

The 480 Volt Motor Control Center project does a multitude of improvements for the North Tunnel (Eisenhower) ventilation system. The project will replace the old "drives" for the current motors, which operate on only 2 speeds and replace them with more modern technology that operates more like a dial with infinite speeds. The new drives also have an intelligence or logic programmed in them that the old drives do not have. This replacement of old equipment and upgrade in technology will bring the north tunnel ventilation into the current decade by improving several areas such as:

1. **Cost Savings** - Xcel energy charges EJMT for a spike in power or extra "In rush current" every time we start a 600hp motor either for testing, emergencies or routine maintenance. This can cost as much as \$20K every time a motor is turned on to "Hi". The Variable Frequency Drives (VFD's) being installed have an intelligence programmed into them to bring the fan speeds up without exceeding the in rush current spike levels. Based on historical data the cost savings for this upgrade will be between \$100K and \$200K per year in energy costs.
2. **Meeting Current Fire Code Standards**- Currently, the tunnels do not meet modern NFPA 502 standards in the timeliness of bringing our ventilation up to full power in an emergency. Only one fan can be manually brought up at a time and user error in this process can cause a complete power failure by bringing too many fans up to speed too soon. The technology takes user error out and reduces the time for fans to reach top speed from approximately 10 minutes to just under 3 minutes which meets standards.
3. **Technological Advances and Automation**- The new controls associated with VFD's allow fan speeds to vary with pollutant levels in the tunnel and removes guesswork on optimal fan speeds to remove air pollutants in the tunnels.
4. **Better Maintenance Program**- By eliminating the \$20K costs every time EJMT starts a 600 hp fan we can eliminate the stigma that testing/maintenance of these fans costs too much to do and increase our maintenance and testing program for more reliability in the future.

This is the second time this project was advertised for bid so a third time likely will not get more interest since we actually solicited industrial power contractors to bid on it instead of just hoping they would like the first time. We received two bids this time and only one the first time. Sturgeon bid on it twice. I think the discrepancy with the engineers estimate and the bids is due to several factors:

1. We are finding that contractors are just too busy to even bother. Of the five we reached out to, two said they would not even look at it.

2. We are always at a disadvantage with our location

3. This project is extremely hard for our Engineering Estimates unit to price because we rarely do this type of work in CDOT. What makes it even harder is that this is retrofitting old motors and fans so there is quite a bit of risk and variables to consider as well. Some drive suppliers do not even think our specifications are attainable.

Some other considerations for this project is that there will be little to no traffic impacts. Most of the work occurs in the portal ventilation building. It is also not seasonally dependent. This project is very unique to CDOT so combining it with another project does not make sense since its scope would be radically different from anything else CDOT is doing in the area. We do not have any other large scale power/electrical projects under design right now either.

I am asking this project be awarded considering the benefits listed above as well as the issues or non factors with not awarding it and or readvertising the project.

Thank You for your consideration,



Neal Retzer