



Board Report

File #: 2020-0137, File Type: Contract

Agenda Number: 24.

**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE
APRIL 16, 2020****SUBJECT: BUS ENGINE COOLING SYSTEM REBUILD KITS****ACTION: AWARD CONTRACT****RECOMMENDATION**

CONSIDER:

- A. FINDING that the procurement of Metro Bus Electric Cooling Systems under Public Utilities Code (PUC) Section 130237, as an Original Equipment Manufacturer (OEM) item, constitutes a single source procurement method for the purpose of duplicating equipment already in use; and
- B. AUTHORIZING the Chief Executive Officer to award a single source, five-year, Indefinite Delivery, Indefinite Quantity Contract No. MA66578000 to Engineered Machined Products, Inc. (EMP) for 810 kits to rebuild EMP engine cooling systems currently installed on Metro buses. The Contract three-year base amount for \$2,712,857 inclusive of sales tax, with the first one-year option in the amount of \$841,668, inclusive of sales tax, and the second one-year option in the amount of \$841,668, inclusive of sales tax for a total contract amount of \$4,396,193 subject to resolution of protest(s), if any.

(REQUIRES TWO-THIRDS VOTE)

ISSUE

This procurement is for the acquisition of new engine cooling system kits scheduled to be installed as part of the Central Maintenance Shops (CMS) bus midlife/engine replacement program. The proposed cooling system kit is manufactured and sold by EMP to rebuild the EMP cooling system originally installed by the bus manufacturer, New Flyer. The original cooling system installed in the New Flyer buses is proprietary to EMP and cannot be copied and duplicated by others. This procurement is required to ensure the current bus midlife/engine replacement program can continue without delays and that revenue service is not impacted.

BACKGROUND

The New Flyer Xcelsior 3850-4199 and 5600-6149 series buses are scheduled for refurbishment through the bus midlife program. CMS production reports project approximately 145 bus midlife refurbishments and engine replacements during the current fiscal year. In the past, CMS installed complete electric fan engine cooling systems to replace hydraulic cooling systems, requiring intense

maintenance labor activities. Since the New Flyer Xcelsior buses came equipped with EMP electric fan engine cooling systems, the CMS evaluated rebuilding the existing EMP electric fan engine cooling system, rather than the costly replacement of the entire cooling system.

EMP is the original manufacturer of the cooling system installed in Metro's New Flyer Xcelsior bus fleet. The EMP cooling system was chosen by the manufacturer of Metro bus fleet, NFI Group, Inc. (New Flyer). The EMP proprietary cooling system technology meets or exceeds Metro standards.

Analysis

A study was conducted to determine the reliability of each of the components of the engine cooling system. The analysis revealed a low replacement rate for the heat exchangers installed on original EMP engine cooling systems but identified a trend of increased usage of the fans and electrical components. Based on this information, CMS staff determined that the most cost-effective option was to rebuild the existing EMP engine cooling systems with the installation of a kit that includes new fans, electrical harnesses, master controller, steel frame and shroud, door seals, and related hardware, which costs about 50 percent less than the cost of purchasing the complete engine cooling system.

Engine cooling systems are also required to maintain the manufacturer specified operating temperature for the new, near-zero Cummins L9N 280 HP engine packages installed on these buses as part of the midlife refurbishment process. Buses cannot operate without properly functioning engine cooling systems. The new engine cooling system kits will be installed by Metro mechanics at the CMS during the bus midlife program activities.

DISCUSSION

Engine cooling systems work by sending a liquid coolant through passages in the engine cylinder block, heads, and related components. As the coolant flows through the passages in the propulsion system, it transfers heat from the engine and transmission to the coolant, then the heated fluid makes its way through tubing to the radiator heat exchangers, and air flow produced by the electric fans reduce the temperature of the coolant as it passes through the heat exchangers. The engine cooling systems ensure the proper operating temperatures for the near-zero Cummins L9N engines being installed in buses as part of the midlife refurbishment program. Engine cooling systems are required for all Metro buses with internal combustion engines. In the future, different cooling systems will be required to maintain proper temperatures for electric bus energy storage, inverters, and drive systems.

The contract to be awarded is a "requirements type" agreement in which we commit to order only from the awardee, up to the specified quantity for a specific duration of time, but there is no obligation or commitment for us to order any or all of the engine cooling system kits that may be anticipated. The bid quantities are estimates only, with deliveries to be ordered and released as required. The Diversity and Economic Opportunity Department (DEOD) recommended a two percent (2%) DBE goal for this solicitation.

The EMP engine cooling system kits will be purchased, maintained in inventory, and inventory managed by Material Management. As the EMP engine cooling system kits are issued to buses being refurbished in the midlife program, the appropriate budget project numbers and accounts will

be charged.

DETERMINATION OF SAFETY IMPACT

Award of this contract will result in a positive impact on safety and ensure that CMS has an adequate inventory for bus midlife refurbishments. The installation of these EMP engine cooling system kits will ensure that the bus is refurbished and maintained in accordance with Metro maintenance standards and improve on-road performance and reliability of the bus which will have a beneficial impact on system safety.

FINANCIAL IMPACT

Funding of \$725,000 for these EMP engine cooling system kits is included in the FY20 budget under account 50441, Parts - Revenue Vehicle in the Central Maintenance cost center 3366 under project 203024 midlife refurbishment program and 203025 bus engine replacement project.

Since this is a multi-year contract, the cost center manager and Chief Operations Officer will ensure that all related costs are budgeted in future Fiscal Years.

Impact to Budget

The current source of funds for this action will come from Federal, TDA, Proposition C operating eligible sources. Using these funding sources maximizes the project funding allocations allowed by approved provisions and guidelines.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The procurement of EMP engine cooling system kits supports Strategic Goal 1: Provide high-quality mobility options that enable people to spend less time traveling. The installation of the EMP engine cooling system kits will maintain the reliability of the bus fleet and ensure that our customers are able to arrive at their destinations without interruption and in accordance with the scheduled service intervals for Metro bus operations.

ALTERNATIVES CONSIDERED

The CMS staff considered installation of a completely new engine cooling system package to replace the existing system installed by the bus manufacturer. This alternative is not recommended since rebuilding the existing EMP engine cooling systems with the installation of a kit that includes new fans, electrical harnesses, master controller, steel frame and shroud, door seals, and related hardware can be accomplished at a cost of about 50 percent less than the cost of purchasing the complete engine cooling system.

The other alternative of not awarding this contract and procuring the EMP engine cooling system kits on an as-needed basis is not recommended since it does not provide a commitment from the supplier to ensure availability and price stability.

NEXT STEPS

Metro's requirements for engine cooling system kits for the bus midlife refurbishment and near-zero Cummins L9N engine replacement program will be fulfilled under the provisions of the contract.

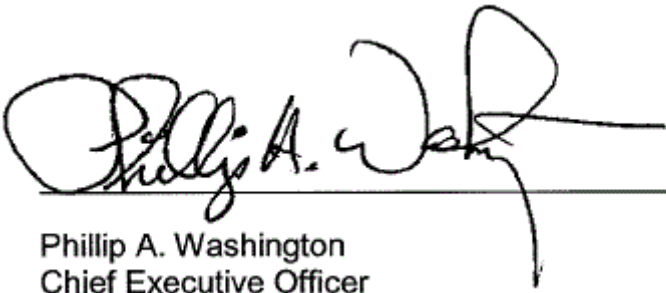
ATTACHMENTS

Attachment A - Procurement Summary

Attachment B - DEOD Summary

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