



City of Norman, OK

Municipal Building
Council Chambers
201 West Gray
Norman, OK 73069

Master

File Number: K-1516-118

File ID: K-1516-118

Type: Contract

Status: Consent Item

Version: 1

Reference: Item 14

In Control: City Council

Department: Public Works
Department

Cost: \$38,970.00

File Created: 02/23/2016

File Name: CNG FUELING FACILITY ENGINEERING
CONTRACT

Final Action:

Title: CONTRACT K-1516-118: A CONTRACT BY AND BETWEEN THE CITY OF NORMAN, OKLAHOMA, AND SMALL ARROW ENGINEERING, L.L.C., IN THE AMOUNT OF \$38,970 TO PREPARE PLANS AND SPECIFICATIONS FOR THE STORAGE AND CONTROLS UPGRADE AT THE COMPRESSED NATURAL GAS (CNG) FUELING FACILITY LOCATED AT 2351 GODDARD AVENUE AND BUDGET APPROPRIATION FROM THE CAPITAL FUND BALANCE.

Notes: ACTION NEEDED: Motion to approve or reject Contract K-1516-118 with Small Arrow Engineering, L.L.C., in the amount of \$38,970; and, if approved, authorize the execution thereof and appropriate \$38,970 from the Capital Fund Balance (050-000-253.20-00) to Project TR0105, CNG Compressor Storage Upgrade, Design (050-9381-431.62-01).

ACTION TAKEN: _____

Agenda Date: 03/08/2016

Agenda Number: 14

Attachments: cng station picture, Text File Small Arrow, CNG Facility Improvement Site Layout, Small Arrow Contract, Fleet ACOG Estimated Cost and Savings 2016 Fleet, PR Small Arrow

Project Manager: Mike White, Fleet Superintendent

Entered by: sharon.hamilton@normanok.gov

Effective Date:

History of Legislative File

| Ver- sion: | Acting Body: | Date: | Action: | Sent To: | Due Date: | Return Date: | Result: |
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Text of Legislative File K-1516-118

Body

BACKGROUND: On August 24, 2015, the Association of Central Oklahoma Governments (ACOG) announced a \$350,000 ACOG-administered Public Fleet Clean Air Grant Program using Congestion Mitigation and Air Quality (CMAQ) funds allocated to ACOG's FY 2016 Public Fleet Clean Air Grants program. This grant program allows public sector fleets to access CMAQ funds for conversions to clean fuel technologies to include alternative fuel vehicles and alternative fuel refueling infrastructure. This grant will be provided as reimbursement of City funds once construction is completed.

In September 2015, the Public Works Department contracted the original CNG Fueling Facility design firm, Small Arrow Engineering, LLC, Joplin, Missouri, to provide engineering services for the ACOG grant application's preliminary concept and design. Total cost for this service was \$5,300.

On October 13, 2015, Council authorized the grant application to be submitted to ACOG requesting assistance with compressed natural gas (CNG) storage and controls upgrade for the City's CNG Fueling Facility located at 2351 Goddard Avenue for \$175,000 with a local match of \$75,000 or a 70/30 split for a total of \$250,000.

On January 14, 2016, ACOG recommended the storage and controls upgrade to the Intermodal Transportation Technical Committee (ITTC) for approval. During this meeting, four (4) projects were reviewed with the City of Norman ranking second (2).

On January 28, 2016, the ITTC recommended the storage and controls upgrade to the Intermodal Transportation Policy Committee for final approval.

On February 10, 2016, ACOG sent out award notifications with a notice to proceed. While the original request was for a 70/30 split, ACOG approved a lower amount of grant assistance for the storage and controls upgrade of \$100,000 with a local match of \$150,000, or a 40/60 split of the original total of \$250,000 project.

The City of Norman was previously awarded six (6) ACOG CMAQ grants in the total amount of \$863,980 between 2009 and 2015 as well as one grant using stimulus funding from the American Recovery and Reimbursement Act (ARRA) administered by the Oklahoma Department of Commerce (ODOC) in the amount of \$1,429,365.85. The City's CNG fleet now totals 82 vehicles/equipment including refuse trucks, street sweepers, pickup trucks, sedans, generators and mowers along with a CNG Slow Fill Facility (for private use) and a CNG Fast Fill (for public/private use).

DISCUSSION: The City's CNG Fueling Facility was opened to the general public and City fleet on January 9, 2012. The City's CNG station was projected at that time to provide a cost savings to the City of \$850,000 to \$1,285,000 over five years. As of January 31, 2016, the City has experienced a cost savings of \$1,349,000, with total station throughput of 943,080 gasoline gallon equivalents (GGE) over the past four years. Out of seventy (70) Public/Private CNG fueling facilities located in the Oklahoma Natural Gas (ONG) network, the City of Norman's CNG Fueling Facility is ranked 10th in Oklahoma for total volume throughput, according to Oklahoma Natural Gas Company.

The City's CNG Fueling Facility in 2012 was projected to compress 10,000 GGE of CNG a month by 2017 in order to meet the demand. After the second year of service, the station was compressing 15,000 GGE a month; and last year (2015), the station was averaging up to 25,000 GGE a month to meet the high demand. The extra production is creating additional maintenance, reducing reliability and frustrating customers when they get less than a 3,600 PSI fill-up due to slow pressure build up in the limited storage vessels. Current storage availability is 60,000 cubic feet (CF). This project will add another 52,500 CF of storage for a total storage of 112,500 CF. The added controls will allow the fueling dispensers to pull from different areas of storage as needed and allow better management of compressor startups and more efficient compressor run cycles, with the possibility of running up to 70% on OG&E's "off-peak" power schedule.

If approved, this infrastructure improvement will add storage vessels along with a "Smart Storage" control package to provide additional volume for continuous fueling of vehicles during OG&E "SmartHour" periods (2:00 pm -7:00 pm, M-F, June 1 - Oct 31) on the OG&E electric grid. By utilizing the one natural gas driven compressor package (60gge per hour output), the two electric drive compressors (130gge per hour output each) can be paused during this time period each day. This results in reduction of demand charges by OG&E from 11 cents to 5 cents per kWh, translating into savings of \$4,000 over the 5 month period each year. With this design, the station will be able to meet the current 300 GGE demand over this time frame each day, and be able to supply a demand increasing to 500 GGE, while still providing "full fills" to public access customers and City CNG fleet vehicles. This design allows station production to increase from 25,000 GGE per month to 35,000 GGE per month without degradation of station performance characteristics. This CNG Fueling Facility already has four (4) dual hose dispensers, so vehicle access is not restricted.

The engineering design services needed to prepare the plans and specifications for this project are estimated to be \$38,970, bringing the total estimated project cost to \$272,970. Staff proposes to use the original CNG Fueling Facility design firm, Small Arrow Engineering, LLC, from Joplin, MO. If approved, Small Arrow Engineering, LLC, will provide design phase, bid phase, construction phase and ACOG Grant administration services for the installation of additional CNG storage systems, upgrade of compressor control systems, and integration of new CNG systems into the existing public access station at the Fleet Facility. The design will include detailed modeling and simulations to control electric drive compressor systems to have minimal run times allowing the system to take advantage of the OG&E SmartHours program. The station controls will include measures to implement Model Predictive Control systems to provide increased full-fills of vehicles by having real-time based data for Compressor operations. The additional storage systems will also reduce total starts per day by the compressors, to reduce long term operation and maintenance (O&M) costs. The ACOG funded infrastructure project, if approved, is estimated to have a 9-month construction schedule, estimating a timeline beginning in March 2016 with systems scheduled to be operational by November 2016.

RECOMMENDATION #1: It is recommended that City Council approve and the Mayor be authorized to sign Engineering Contract K-1516-118 with Small Arrow Engineering, LLC. This contract is proprietary to the project associated with Contract K-1516-119 accepting grant funding from ACOG for Improvements to the CNG Fueling Facility.

RECOMMENDATION #2: It is further recommended that the following budget appropriation from the FYE 2016 Capital Fund Balance (050-000-253.20-00) in the amount of \$38,970 take place for Engineering Design (account 050-9381-431.62-01; project TR0105) for Improvements to the CNG Fueling Facility.