



## THE CITY OF KEY WEST

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### EXECUTIVE SUMMARY

**Date:** May 18, 2021

**To:** Patti McLaughlin, Interim City Manager

**CC:** John Paul Castro, Utilities Director

**From:** Ian McDowell, Assistant Engineer

**Subject:** Approving purchase order of three Inovair centrifugal blowers for the aeration system at Richard A. Heyman Environmental Protection Facility from Accessible Technologies, Inc.

#### **Action Statement**

This resolution would approve the purchase of three Inovair single-stage turbo blowers, including instrumentation, plumbing, and controls, pursuant to code of ordinances 2-797(1) sole source procurement, from Accessible Technologies, Inc. in the amount of \$546,000.00.

#### **Background**

The City of Key West has decided to improve their existing aeration system at the Richard A. Heyman Environmental Protection Facility (RAHEPF). The existing aeration system is comprised of two multistage centrifugal blowers with associated mechanical piping, electrical, instrumentation, and controls components. The City desires to increase air control, energy efficiency, and redundancy at the facility with the addition of an additional blower. The existing layout was designed with space and piping connections for the addition of a third blower unit in the future. Based on daily log data, only one blower is required to meet the plant's needs approximately 88% of the time. For the evaluation, it was determined that the new blower would be used as the primary system, with the remaining blowers available during periods of increased demand, or to serve as redundancies.

#### **Purpose and Justification**

In 2018, Black & Veatch was contracted as a consultant to provide an evaluation for the selection of a blower technology that would provide the most economical solution for the City, assessing both capital and maintenance costs. The evaluation includes a review of the existing process control and provides recommendations targeted to continue to comply with the required treated effluent limits, while incorporating energy savings and increasing reliability. It is anticipated that

energy savings can be obtained by optimizing process control and by utilizing newer blower technology which is inherently more efficient. City staff have reviewed and approved the recommendations (blower type selection and process control strategy) from the initial evaluation phase, and the blower technology and improved process control upgrades have been incorporated into the detailed design phase.

The evaluation considered five blower technologies. All technologies were compared from the financial standpoint of life cycle costs. All five blower alternatives were evaluated assuming the blowers operate 100% of the year over a 20-year evaluation period with a set power cost. All alternatives were compared using data modeled to provide realistic statistical prediction in total cost, capital expenditure, and operating expenses. The results of the analysis determined that the Inovair centrifugal blowers present the lowest total present worth (capital cost + operating cost). A 23% (\$41,319) reduction in annual operating expenses is expected. Total savings over a 20-year period is expected to be approximately \$571,665. Inovair, owned by Accessible Technologies, Inc., is currently the only supplier of integrally geared centrifugal turbos that utilized adjustable frequency drives, as evaluated in the report.

Based on system demand, equipment constraints, and packaging options, three smaller blowers are required, as opposed to one larger unit. An option for a fourth blower to be added in the future for additional energy savings and redundancy was implemented in the final design. The blowers and their ancillaries are being purchased directly from the manufacturer and are to be provided to the general contractor awarded the installation work, which amounts to approximately \$54,600 in savings, assuming a 10% markup. Ordering this equipment ahead of the award of the construction contract addresses the 16-week lead time in production of the equipment that could otherwise cause delays in construction.

### **Financial**

Funding will come from Sewer/Treatment Plant/CIP account 401-3804-535-6500. \$709,113.00 has been budgeted for the construction cost of this project. Staff have reviewed the evaluation report provided by Black & Veatch and believe this purchase presents the lowest overall cost to the city.

### **Recommendation**

Staff recommends approving the purchase from Accessible Technologies, Inc. for three centrifugal turbo blowers, instrumentation, plumbing, and controls in the amount of \$546,000.00 and authorizing the City Manager to execute this agreement and any necessary budget transfer/amendments.