

STAFF REPORT

SUBJECT: Design of the Rutan Maintenance Bay Hydrogen Retrofit

FROM: Nathan Barreras, Capital Projects Manager

DATE: May 1, 2023

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**Action Requested**

The Finance and Administration Committee recommends the Board of Directors approve Contract Task Order 1 with Gannett Fleming for the design of the Rutan Maintenance Bay Hydrogen Retrofit.

**Background**

LAVTA staff are preparing for the implementation of the Agency’s Innovative Clean Transit (ICT) plan, which charts the course for a 100% zero-emissions fleet by 2034. The plan calls for the purchase of hydrogen/fuel cell electric buses (FCEB) beginning in 2025. With FCEB’s on the horizon, LAVTA will need to ready its facility and workforce for this new technology.

In order to operate FCEB buses, LAVTA needs the infrastructure to both safely fuel and maintain this type of technology. To that end, LAVTA is moving forward with designing and constructing the Atlantis hydrogen fueling station, which received grant funding in 2022. LAVTA is actively seeking additional grant funding to construct the Atlantis Maintenance Facility, which has been designed with the features necessary to maintain a hydrogen fleet. However, because future grant funding is uncertain, it is necessary to retrofit two maintenance bays at the existing Rutan facility, which will allow for continuity of operations as the fleet transition to FCEB technology occurs.

**Discussion**

Gannett Fleming, one of the LAVTA’s on-call engineering firms and the highest-ranking firm in the space planning/design category, was requested to bring a proposal to LAVTA for the design of two maintenance bays to be retrofitted to support a hydrogen fleet. The design will provide new hydrogen fuel detection and mechanical ventilation for the hydrogen system in two current maintenance bays at the Rutan facility. These bays will be able to bridge the gap between the procurement of our FCEB fleet beginning in 2025 and the construction of the new maintenance facility at Atlantis pending successful grant application. With the new retrofit bays, as well as the construction of the hydrogen fueling station, LAVTA can begin its transition to the FCEB fleet.

**Fiscal Impact**

The total cost for the design of the Rutan Maintenance Bay Hydrogen Retrofit is \$162,250; this amount includes 10% or \$14,700 for contingency. The funding for this project is included in LAVTA’s FY23 approved capital budget.

**Recommendation**

The Finance and Administration Committee recommends the Board approve a Contract Task Order with Gannett Fleming for design services for the Rutan Maintenance Bays Hydrogen Retrofit project, for a not-to-exceed amount of \$147,500 with a contingency amount of \$14,700 to be used at the discretion of the Executive Director.

Attachments:

1. Gannett Fleming Task Order 1

*Approved:* \_\_\_\_\_



# **Gannett Fleming**

*Excellence Delivered **As Promised***

April 5<sup>th</sup>, 2023

Nathan Barreras  
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## **Project: LAVTA- Hydrogen Fuel Detection System**

Dear Nathan:

Thank you for the opportunity to submit the following fee proposal to provide Hydrogen fuel detection system design to the LAVTA. As we understand it, per our site visit on 3/24, we learned that the existing facility do not operates with hydrogen fueling system. The design will provide new hydrogen fuel detection and mechanical ventilation for the hydrogen system. We appreciate the opportunity to be a part of your team, and we are pleased to submit this proposal for the hydrogen fueling detection system for your consideration. Our understanding of scope is outlined below:

### **Architecture:**

- **Scope of work**

1. Prepare CAD backgrounds
2. Review of as built
3. Prepare roof drawing for new penetrations
4. Prepare roof drawing for new equipment curb or flashing
5. Prepare roof drawing for Repair existing roofing at required locations of one roof
6. Prepare roof drawing for Repair or replace damaged batt insulation at underside of existing roof
7. Provide a 30% Engineering Design submission, with Drawings and Specifications
8. Address Owner Review Comments and Provide Responses
9. Provide a 90% Engineering Design submission, with Drawings and Specifications
10. Coordinate with all disciplines and submit the 90% drawings to plan check
11. Coordinate plan check resolution, comments responses and support plan check resubmittal.

- **Assumptions**

1. Does not include making roof penetrations larger than existing roof joist spacing

### **Hydrogen:**

- **Scope of work**

1. Perform one (1) site visit to field survey existing conditions
2. Coordinate with NFPA and local Fire Marshal and AHJ requirements
3. Provide calculations to size the hydrogen exhaust air fan airflows
4. Provide HVAC Drawings for the hydrogen exhaust air fan locations and ductwork
5. Provide HVAC Details and Schedules
6. Provide Hydrogen Detection Sequence of Operations
7. Provide Hydrogen Exhaust Air Fan Sequence of Operations
8. Provide HVAC Technical Specifications
9. Provide a 30% Engineering Design submission, with Drawings and Specifications
10. Address Owner Review Comments and Provide Responses
11. Provide a 90% Engineering Design submission, with Drawings and Specifications

12. Address Owner Review Comments and Provide Responses
13. Submit Permit Applications
14. Provide a Plan Check Engineering Design submission, with Drawings and Specifications
15. Address Plan Check Review Comments and Provide Responses
16. Provide Construction Administration Services, including review of submittals and responses to requests for information
17. Attend one (1) construction site visit

- **Assumptions**

1. The hydrogen facility will conduct maintenance and defueling operations only (no onsite hydrogen fueling or storage)
2. The new hydrogen detection system will integrate to a Building Automation System and the Fire Alarm System
3. Each new hydrogen exhaust air fan discharge can terminate at a point not less than 50 feet from existing air handling unit intakes
4. The existing fire suppression system for the hydrogen facility is designed in accordance with NFPA 13; Extra Hazard Group I density (0.30 GPM/SF over 2,500 SF area; with 500 GPM hose stream demand)
5. The new hydrogen exhaust air fans will be integrated to a backup power source
6. Attend ten (10) virtual design and construction meetings

#### **Mechanical:**

- **Scope of work**

1. Perform one (1) site visit to field survey existing conditions
2. Review of as built
3. Code analysis and concept design
4. Provide a 30% Engineering Design submission, with Drawings and Specifications
5. Address Owner Review Comments and Provide Responses
6. Provide a 90% Engineering Design submission, with Drawings and Specifications
7. Address Owner Review Comments and Provide Responses
8. Submit Permit Applications

#### **Electrical:**

- **Scope of work**

1. Perform one (1) site visit to field survey existing conditions
2. Review of as built
3. Code analysis and concept design
4. Provide emergency power system requirements for new hydrogen exhaust fan through a dedicated panel. From the site visit discussion, the site is backed up by a standby emergency generator
5. Provide electrical exhaust fan schedule
6. Provide voltage drop and short circuit calculations
7. Provide feeders, conduits, breaker, disconnect switches to serve hydrogen exhaust fan
8. Provide a 30% Engineering Design submission, with Drawings and Specifications
9. Address Owner Review Comments and Provide Responses
10. Provide a 90% Engineering Design submission, with Drawings and Specifications
11. Address Owner Review Comments and Provide Responses
12. Submit Permit Application

- **Assumptions**

1. Existing electrical distribution system is adequate to accommodate proposed upgrades. Utility coordination is excluded
2. Existing fire alarm system and lighting to remain in place

### **Structure:**

- **Scope of work**

1. Perform one (1) site visit to field survey existing conditions
2. Coordinate with local requirements and CBC
3. Attend design meetings with team (3 assumed)
4. Review existing structural capacity for new units
5. Review new mechanical equipment submittal for design of structural support systems
6. Provide structural calculations for the equipment curbing, framing, and/or supports.
7. Provide structural plan drawings for the equipment curbing, framing and/or supports
8. Perform QA in accordance with the GF quality standards

- **Assumptions**

1. Arch is to give the rough opening location and dimensions
2. Complete mechanical submittal will be given with cut sheets and operating weights
3. As built information will be provided on existing structure
4. Modeling of existing structure (except in specific local areas) is not included
5. No estimating or scheduling is included
6. 1 site visit included
7. Assume 3 exhaust areas and 3 disconnects at timber structure – all 3 will be the same unit and will share the same details
8. No book specifications are included in this work
9. A single complete product submittal will be given for the products including uses and locations
10. Assume structural plans will go to 90% and 100%. No additional submittals or separate packages for permitting are included

### **Deliverables:**

1. Deliverables at 30%, 90% (Plan Check), 100% (Issue for Bid)
2. Cost Estimates at 90% and 100%
3. Bidding support and Construction administration is excluded

### **Compensation**

1. The total lump sum fee for this project is **\$147,500**
2. Our fee will be billed monthly based on percentage of completion.

Thank you for the opportunity to submit this proposal. We look forward to working with you.  
Please call if you have any questions.

Yours sincerely,



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Project Manager, Facilities West  
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**Gannett Fleming, Inc.**