



## Agenda Item Summary

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**File #:** RES 22-216, **Version:** 1

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### **Submitted By**

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### **Reviewed By**

A.M. Zayyad

### **Agenda Item Title**

**A Resolution Approving an Independent Contractor Agreement with Comprehensive Construction Solutions, LLC to Replace the Boiler System at the North Fire Station in an Amount Not to Exceed \$40,293.75 and Authorizing its Execution**

### **Overview**

The existing boiler system at the North Fire Station is over 75 years old and needs replacement. This item was identified for replacement in the Fiscal Year 2022 Capital Improvement Budget. Staff has been asked to provide options for electrification of the HVAC system in lieu of the proposed replacement with a gas-fired boiler. Staff are presenting two alternative options in addition to the original option proposed at the July 18<sup>th</sup> Village Board meeting.

### **Recommendation**

If the Board desires to prioritize a transition to electric HVAC systems in alignment with the Village Climate Ready Oak Park Plan, staff recommend the Board vote down the item and provide staff direction on its preferred path for electrification.

### **Fiscal Impact**

If the Board moves forward with the replacement of the gas-fired boiler as previously proposed, the total cost to replace the existing boiler system with a new gas-fired boiler at the North Fire Station would not exceed \$40,293.75 (\$38,375.00 bid price plus \$1,918.75 for 5% contingency). The Fiscal Year 2022 Capital Improvement Plan, Building Improvement Fund Budget account no. 3012-43790-101-540673 includes \$57,500.00 for boiler system replacement at the North Fire Station. Design fee costs totaled \$15,730.00 for a total project cost of \$56,023.75.

If the Board provided direction to move forward with one of the two electrification options, Staff would utilize the funds proposed for the construction of the 2022 project to begin engineering services on the preferred option. The 2023 Fiscal Year Building Improvement Plan would present the proposed budget costs associated with construction and staff would move forward with installation in 2023. The existing boiler would remain in place for the upcoming winter season. If the system was to fail, staff would attempt repairs to maintain the existing system for the season. If the failure was catastrophic, staff would look for a temporary alternative measure to provide heat for the winter.

## **Background**

The existing boiler system at the North Fire Station has far exceeded its intended life cycle. Supply lines have historically had frequent leaks and the gas supply line to the boiler creates excessive flames/flare-ups when the boiler turns on creating potentially unsafe conditions.

The proposed replacement of the boiler has been deferred for several years most recently because of budgetary constraints associated with COVID-19. Replacement of the boiler was presented and budgeted for as part of the Fiscal Year 2022 Capital Budget. Proposed budget amounts were based on an in-kind replacement with options for geothermal expansion to be proposed as part of a future Capital Improvement Project. Design and bidding for the installation of the new boiler system proceeded with that understanding.

The Village Board chose to table the resolution proposed on July 18, 2022, to approve a contract for the purchase and installation of the gas fire boiler with the request for staff to present options on the feasibility and cost of transitioning to electric heat in alignment with the Village Climate Ready Oak Park Plan Goal: EN03 - Set a goal to transition natural gas units in all existing buildings across the Village to electric units. Include language in all projects with Village involvement or funds addressing building energy use.

In response to the Board's request, staff took a number of steps to collect information to assist the Village Board in making an informed decision on the proposed HVAC system improvement at Fire Station II. Following the meeting, staff immediately re-engaged the Mechanical Engineering firm that designed the original replacement, Clark Dietz, Inc., and amended their contract to provide consulting services for alternatives including full electric heat and geothermal options.

Staff also provided access to the facility and spoke with Citizen Experts in the field. One resident and Engineer, Mark Nussbaum, provided a report and recommendations related to the potential for geothermal after a site visit with staff. Staff also attempted to engage ComEd, the electricity provider for the building to determine the feasibility and cost of a service upgrade for the facility. At this time that process is still ongoing.

After review of the reports, conversations with our consultants, and input from staff and citizen experts, staff can provide the following options:

### 1) Proceed with a Natural Gas Fire Boiler

The least costly approach to providing heating for Fire Station II is to replace the existing gas-fired hydronic boiler in-kind with a new boiler. If the Board desires to move forward with that option, there still exists an opportunity to install the system prior to the 2022-2023 heating seasons, although this cannot be guaranteed. Based on conversations with our Mechanical Engineer and Citizen Expert Mark Nussbaum, the system could be downsized to a smaller unit as the unit specified was based on future ventilation requirements in the apparatus bay that could be addressed through different heating measures in the future. This would result in better efficiency and further savings now. This system would be an energy star rated high efficiency (95%) boiler. If so directed by the Board, the system could be connected to a geothermal heat pump system in the future to minimize the environmental impact of the system. Through the Village's franchise agreement with NICOR, the Village does not pay for natural gas. Replacement with an in-kind natural gas boiler would mean the Village would continue to not pay for the heating cost of the facility during the life-cycle of this system.

2) Transition to Electric Heat

If the Board desires to replace the gas-fired boiler at Fire Station II with a non-combustion system, there are two general paths forward. The general costs presented are estimates but provide two separate price points with different expenses and benefits associated. The two general options are: All Electric HVAC and Geothermal System. The costs presented below exceed the costs presented in the reports as the reports did not capture all potential possible costs associated with the different transition paths. These items include, but are not limited to:

- Required Electric Service Upgrade to the Facility
- Required Back-up Generator Upgrade for the Facility
- Required Facility and HVAC system upgrade per code.

A. All Electric System (\$150k - \$200k)

One option is the replacement of the current HVAC system with a new all electricity-based system. This system replaces the existing systems used at the Fire Station and would be designed around the use of air source heat pumps for the living quarters and electric heating units to service the apparatus bay. Of the two electric options, this system has the lower up-front cost but will result in higher electricity costs over time.

B. Geothermal System (\$350k - \$400k)

The second option is the installation of a geothermal well and loop system behind the facility in the parking lot. This system would be connected to a water source heat pump system and would service the sleeping and living quarters of the fire station. Electric heating units would be installed to service the apparatus bay. This project presents a much higher up-front cost but would reduce electricity use over time and therefore present the most climate-friendly option. If the project was in place long enough, the system could pay for itself in time.

### **Alternatives**

The Board can delay action to gain additional information.

### **Previous Board Action**

The Board tabled this item at the July 18th and August 1st, 2022 Board meetings for further discussion at the September 6th, 2022, Board meeting.

### **Citizen Advisory Commission Action**

N/A.

### **Anticipated Future Actions/Commitments**

If approved, Staff will work closely with the contractor, the mechanical design team, and Fire Department staff to ensure the project is completed in a safe and timely manner.

If voted down, Staff will begin drafting an RFP for the design of the proposed electric options and would plan to return to the board later in 2022 for approval of an agreement with a mechanical engineering firm to design the proposed system with installation to follow in 2023.

### **Intergovernmental Cooperation Opportunities**

N/A.

