Oak Park Elementary School District 97

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TO: Dr. Carol Kelley, Superintendent of Schools
Board of Education

FROM: Jeanne Keane, Senior Director of Buildings and Grounds
Paul Starck-King, Assistant Superintendent of Finance and Operations

SUBJECT: Mann Boiler Project

DATE: August 14, 2018

Summary

The existing two boilers located at Mann Elementary were installed in 2002. Each are cast iron manufactured by Weil-McLain. A lifespan of 30 years is typical for a boiler, which can be extended to 50 years with proper maintenance. The boilers should be replaced as soon as possible in order to reduce the potential for an emergency situation where heat is not available to the facility and the school is shut down (with potential loss of instruction). The cost of replacement is anticipated to be approximately $400,000.

Current Conditions

- These boilers are made up of several sections. There have been multiple leaks at the sealing rings between sections causing corrosion between these sections and allowing water loss.
- The burner head refractory is cracked and damaged.
- All 32 cleanouts are corroded and loaded with scale.
- Sediment is coming out of the boiler at the 4" drain line.
- An over accumulation of soot is sitting in the bottom on the fire side of the boiler.
- All piping is corroded and now full of sediment which does not allow the water to flow and this causes over heating of the boiler due to incorrect water levels.
- Controls are defective due to the pressure relief valves being plugged with scale and/or corroded. If the boiler exceeded its pressure level these valves would not be able to open to release the extra pressure.
- Excessive scale has accumulated on the lower portions of the boiler interfering with circulation and causing overheating.

Reason for Current Conditions

- It has been determined there has been minimal maintenance and no repairs scheduled since installation.
- The water in the system has never been treated with chemicals to avoid corrosion and scale build- up.
- There has been excessive burner cycling.

- The previous maintenance contractor (over the past 15 years), has acknowledged that their service was visual inspection of the outside of the boilers only and that boilers have not been opened to check for actual conditions and for internal maintenance since installation.

Operational Impact

Given the physical condition of the boilers themselves, as well as the boiler feed piping and controls, the boilers when placed into operation could pose an unsafe condition. The boilers should be replaced as soon as possible in order to reduce the potential for an emergency situation where heat is not available to the facility and the school shut down.

Two fire tube boilers are recommended as a replacements. If the tubes fail, they can be replaced on an individual basis. New boiler feed piping, controls, and various other repairs are required in order to provide a functioning system for heating. Additionally, it will be necessary to create an opening in the parking/play lot above the basement of the school in order to get the boilers into the basement boiler room. Openings within the basement will also need to be made larger for installation.

A maintenance service agreement with vendor, Stanton Mechanical, was negotiated earlier this year to service all boilers in the district. This will include treating other existing conditions similar to Mann but not as detrimental, as well as providing normal routine maintenance. A chemical service agreement is currently being negotiated with Earthwise to remove hardness impurities that lead to scale buildup.

Pricing

Research is being done to determine if boilers are available for purchase through a Consortium or Joint Purchasing agreement in order to reduce the lead time as much as possible. Meanwhile, specifications and documents will be prepared for public bidding to describe the structural, architectural, mechanical and electrical modifications required to accommodate the new boiler.

The anticipated construction cost is in the range of $350,000 - $400,000.