Business Funding Plan

Proposal with Window AC (Updated 10/7/2021)

	Summer 2022	Summer 2023	Summer 2024	Summer 2025	Summer 2026	Summer 2027-2031	Summer 2031-2041	Totals
Funding Source								
ESSER	$1,347,500.00	$522,500.00	$665,500.00					$2,535,500.00
Sales Tax	$350,000.00	$350,000.00	$350,000.00	$350,000.00	$350,000.00	$1,750,000.00	$3,500,000.00	$7,000,000.00
Local Money	$250,000.00	$250,000.00	$250,000.00	$250,000.00	$250,000.00	$1,250,000.00	$2,500,000.00	$5,000,000.00
Fund Balance-Sales Tax	$150,000.00		$100,000.00		$100,000.00			$350,000.00
Fund Balance-Debt		$100,000.00		$100,000.00				$200,000.00
Total Estimated Revenue	$2,097,500.00	$1,222,500.00	$1,365,500.00	$700,000.00	$700,000.00	$3,000,000.00	$6,000,000.00	$15,085,500.00

	Summer 2022	Summer 2023	Summer 2024	Summer 2025	Summer 2026	Summer 2027-2031	Summer 2031-2041	Totals
Projects								
HVAC (AC)	$1,224,000.00	$475,000.00	$605,000.00			$940,000.00	$850,000.00	
Contigency/Escalation	$125,500.00	$47,500.00	$60,500.00			$94,000.00	$85,000.00	
Capron Parking Lot	$750,000.00							
District O & M Projects		$700,000.00	$700,000.00	$700,000.00	$700,000.00			
Middle School Parking Lot						$600,000.00		
Totals Cost of Projects	$2,099,500.00	$1,222,500.00	$1,365,500.00	$700,000.00	$700,000.00	$1,634,000.00	$935,000.00	

	Beginning Balances	Estimated Balance Summer 2026
ESSER	$2,747,651.20	$212,151.20
Fund Balance-Sales	$1,287,253.00	$937,253.00
Fund Balance-Debt	$800,000.00	$600,000.00

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North Boone CUSD 200
Report and Evaluation of HVAC Piping

General System Descriptions

Capron School
The entire original building is heated by a steam boiler plant located in a lower level mechanical room. Steam piping extends up from the mechanical room to an attic space above the classroom areas. It then feeds down to steam tunnels located at the perimeter of the building. Condensate return piping is entirely located in the tunnel space. All piping is original to this section of the building and appears to be in good condition.

The north 1966 addition is heated by a hot water boiler plant located in a mechanical room at the east side of the building. Piping extends above the ceilings to feed all heating equipment. This piping was installed when the addition was converted from electric heating approximately 25 years ago and is in good condition.

Manchester School
The entire building is heated by a steam boiler plant located in a lower level mechanical room. In the original building, steam piping is installed at the lower level ceiling elevation to feed all equipment. Steam piping in the 1960 addition is located in tunnels at the perimeter of the building Condensate return piping in the original building is installed exposed in the lower level. Condensate return piping in the addition is located in the tunnel space. All piping is original to these areas and appears to be in good condition.

Middle School
The entire building is heated by a steam boiler plant located in a mechanical room at the north end of the building. Steam piping is installed in tunnels at the perimeter of the building. Condensate return piping is also located in the tunnel space. All piping has been replaced in the last 10 years and is in good condition.

Poplar Grove School
The entire original building, gymnasium and the addition just east of the original building is heated by a steam boiler plant located in a lower level mechanical room. Steam piping in the original building is installed at the lower level ceiling elevation to feed all equipment. Steam piping in the addition is located in tunnels below the classrooms. Condensate return piping in the original building is installed exposed in the lower level. Condensate return piping in the addition is located in the tunnel space All piping is original to each area of the building and appears to be in good condition.

Heating for the 2008 addition is provided by a hot water boiler plant located in a mechanical room on the east side of the building. Piping is generally located above the first floor ceilings. All piping was installed when the addition was built and is in good condition.

Replacement Considerations

Piping in tunnels

Piping located in tunnels is difficult and expensive to replace in kind. Access is limited and requires more labor than piping installed above ceilings. Additional access doors are generally required to allow for the installation of required lengths of piping. Temporary ventilation is also required while the piping installation is in progress.

Steam piping systems vs. hot water piping systems

Steam piping systems are generally more costly to install than hot water systems. Steam traps are required in the main piping to manage condensate at changes of elevation and at the ends of each main. Steam boilers are currently being phased out since the boilers are not as efficient as hot water boilers.

Conversion from steam to hot water

Steam piping systems and boilers cannot be readily converted to hot water. Steam piping sizes are generally not sufficient to support service in hot water systems. Steam boilers cannot be converted for hot water service unless they were manufactured with future conversion in mind. Replacement of all steam terminal equipment (unit vents, air handlers, baseboard radiation) is also required for proper operation in hot water systems.

Recommendations

All steam boilers in the District should be capable of providing 20-25 years of service with normal maintenance. Based on observations and reports from District personnel, the piping systems should last until the boilers are replaced. Conversion to hot water and replacement of these piping systems should be considered at this time.

Direct replacement of the steam piping systems is not recommended at this time since conversion to hot water is anticipated when the steam boilers require replacement. Steam boilers are inherently less efficient than hot water boilers and may not conform to Energy Code requirements in the future. Full replacement of all equipment and piping will be required for this conversion.

North Boone CUSD 200

HVAC Project Definitions

Boilers: Equipment used to produce either steam or hot water. The steam or hot water produced by the boiler is then delivered to heating equipment located throughout the building. This equipment in turn provides heat in each space.

Unit heater: Equipment generally consists of a hot water or steam coil and a fan. Usually used in unfinished spaces such as mechanical rooms, storage rooms, etc.

Classroom unit vents: A device that can provide heating, cooling and ventilation to a single space. These are generally equipped with a fan, heating and or cooling coil, filters and an outside/return air damper to provide ventilation air in the required amount.

Fan coils: A simpler and smaller version of a unit vent. Outside air ventilation is generally more limited with this equipment.

Controls (existing units): Most of the existing equipment in the District is equipped with pneumatic controls. These systems utilize compressed air to operate valves and dampers and to start and stop fans. These systems are reliable but not flexible. Newer systems generally utilize DDC (direct digital control) systems which are more flexible and less costly.

Electrical: This line item in the reports is for miscellaneous work to support new mechanical equipment. For example, each unit vent has an electrical connection that will need to be modified or replaced to support the new equipment. This scope will be further defined as we determine the specific requirements for each item.

Relief systems: A ventilation system designed to remove stale air from each space. Typically, each room with a unit vent currently has an outside air intake to bring in fresh air during occupied hours. These systems will remove the stale air to allow the intake to function properly.

Building management: system This is the computer system that communicates with the DDC controls for each piece of HVAC equipment. This allows for remote monitoring and scheduling of all connected equipment.

Rooftop units: An HVAC unit which generally provides heating through a gas burner, cooling through an air cooled condensing unit and ventilation through a unit mounted outside air intake. Similar in function to a residential furnace and air conditioning system with all components in one housing.

VRF Systems VRF (variable refrigerant flow:) systems utilize a single air cooled condensing unit to supply refrigerant for cooling to multiple fan coils. These systems allow for zoning in areas with smaller rooms such as individual offices.

CUV condenser units: Similar to residential style air conditioning units. These would be connected to the unit ventilators to provide cooling in lieu of window units.