SOUTH DAKOTA
WATERTOWN

Proposed Wastewater Facility Investments

PLANNING FOR THE NEXT 20 YEARS

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- Collection System Improvements

Master Planning Process

Rigorous Regulatory Reviews Were Completed

Facility Plan developed by electrical, mechanical, and operations expertise in the industry in Fall 2021

Capital Improvement Drivers



Reliability

Process Equipment
Structural and Architectural
Electrical
Health and Safety
Age &
Condition of Facilities
Operational Improvement

Growth

Flow and Loads

Regulatory

Improvements needed to meet current rules that have increased treatment requirements above how the plant was designed

Looking ahead to new treatment requirements on the horizon



Capital Improvement Drivers

Treatment capacity is a combination of:

- Hydraulic capacity (volume of water)
- Capacity of each treatment process used to meet discharge limits

As service population increases, so does wastewater loadings received at the facility.

As wastewater flow increases, time to treat wastewater in the facility decreases.

Treatment processes will be improved to meet future capacity needs

Growth of the City

+13,300

people from 1920-2020

2020 Population: 22,700

Projected Growth

+6,600

people from 2020-2040

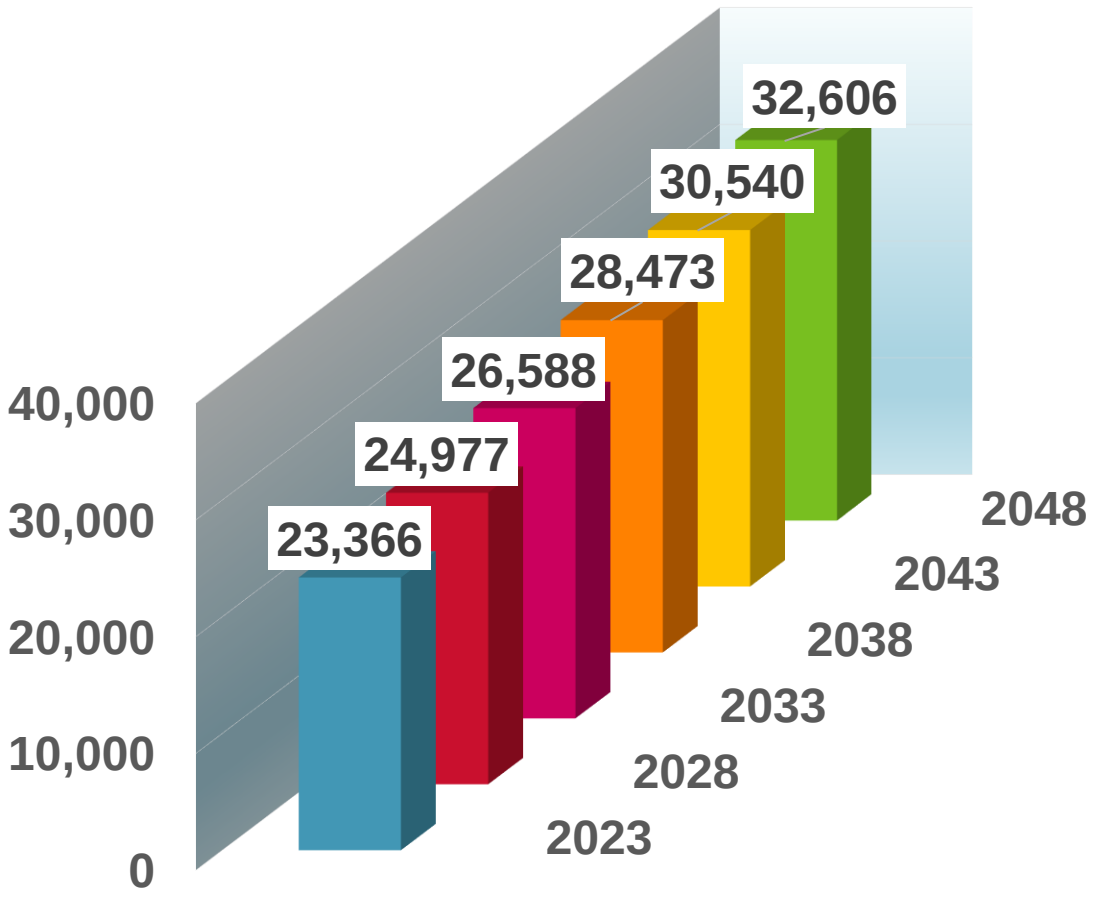
2040 Population: 29,300

Master Plan Drivers:

Capacity for Growth

Add 6,000+ in population in next 20 years

Projected 25-Year Service Population



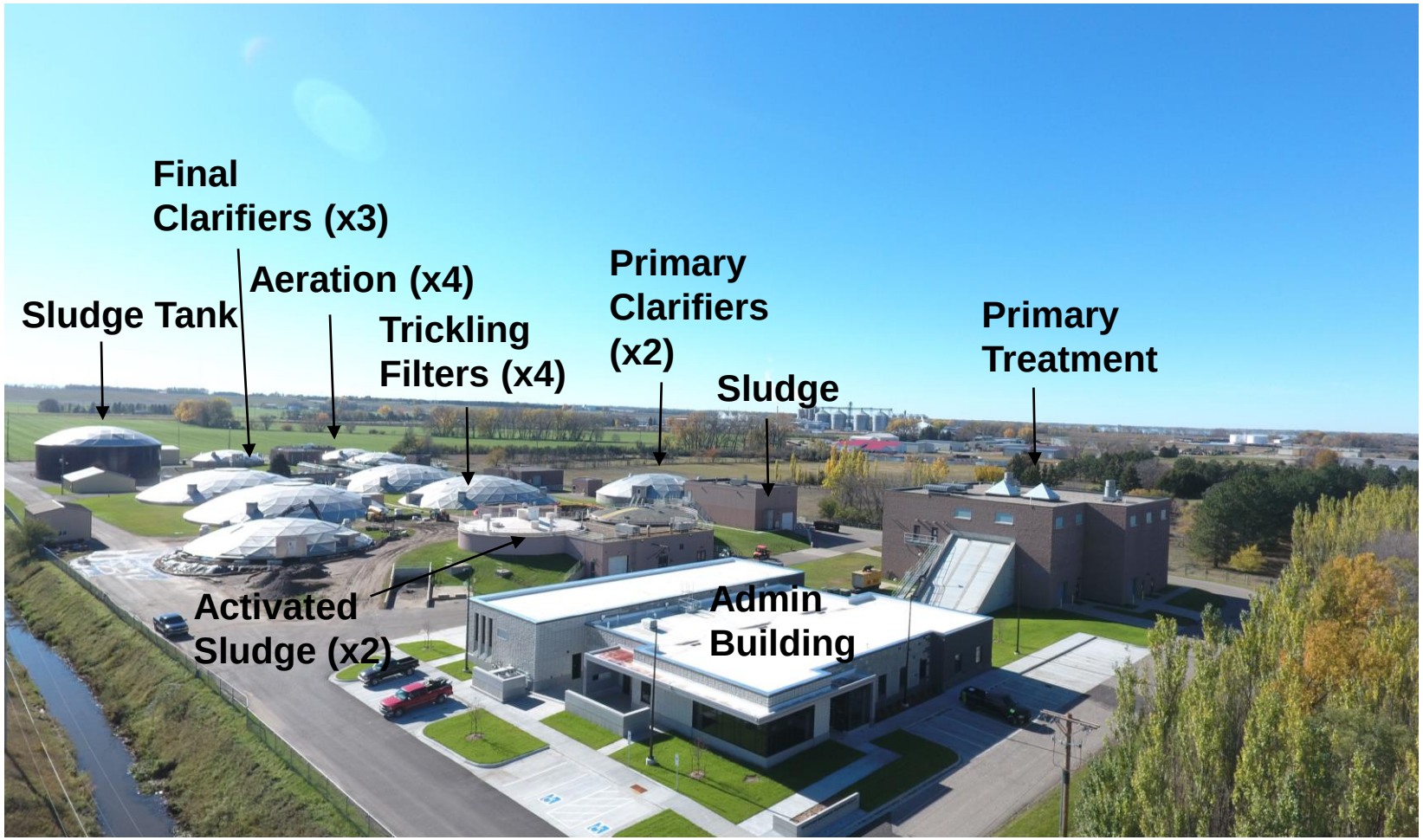
Watertown WWTP - Continuing to Grow as a Provider

SOUTH DAKOTA WATERTOWN

About the Collection System

Collection System	sewer pipe 135 miles	manholes	48 City-owned lift stations

About the WWTP Facility

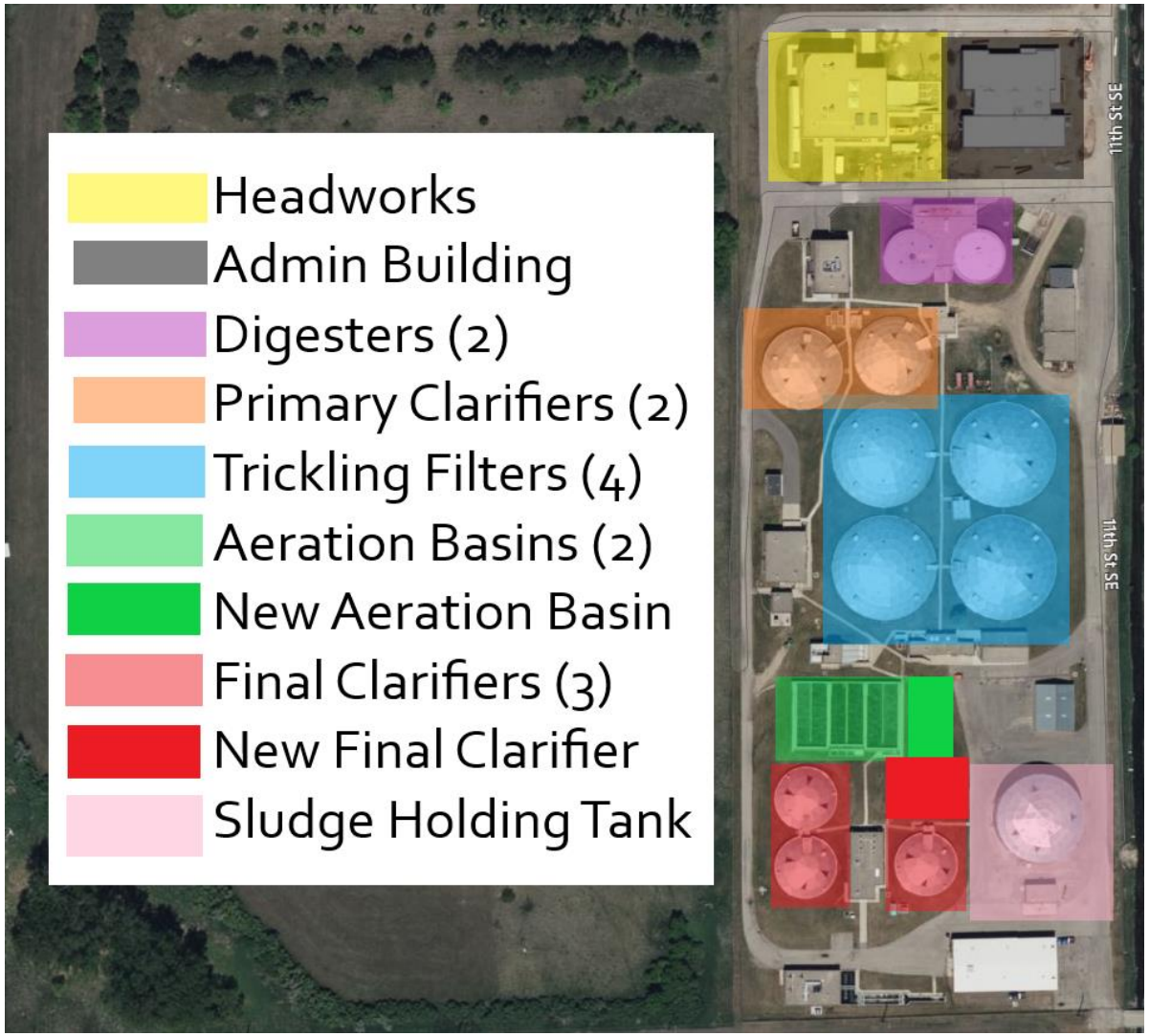


4.0 MGD **Average Design Capacity**

(MGD = Million Gallons per Day)

SOUTH DAKOTA WATERTOWN

WWTP Unit Process Summary



Project Background

- Facility Plan and Condition Assessment completed in 2021.
- Original facility constructed in 1930s
- Additional parts of facility constructed in the 1960s
- Major expansions in late 1990s, 2010s

Financial Summary (44% Grant Funding)

Total Project costs: $35.7 Million

Wastewater Treatment Plant Improvements: $28.2 million

Collection System Improvements: $7.5 million

Revenue

City ARPA Funds: $3.7 million

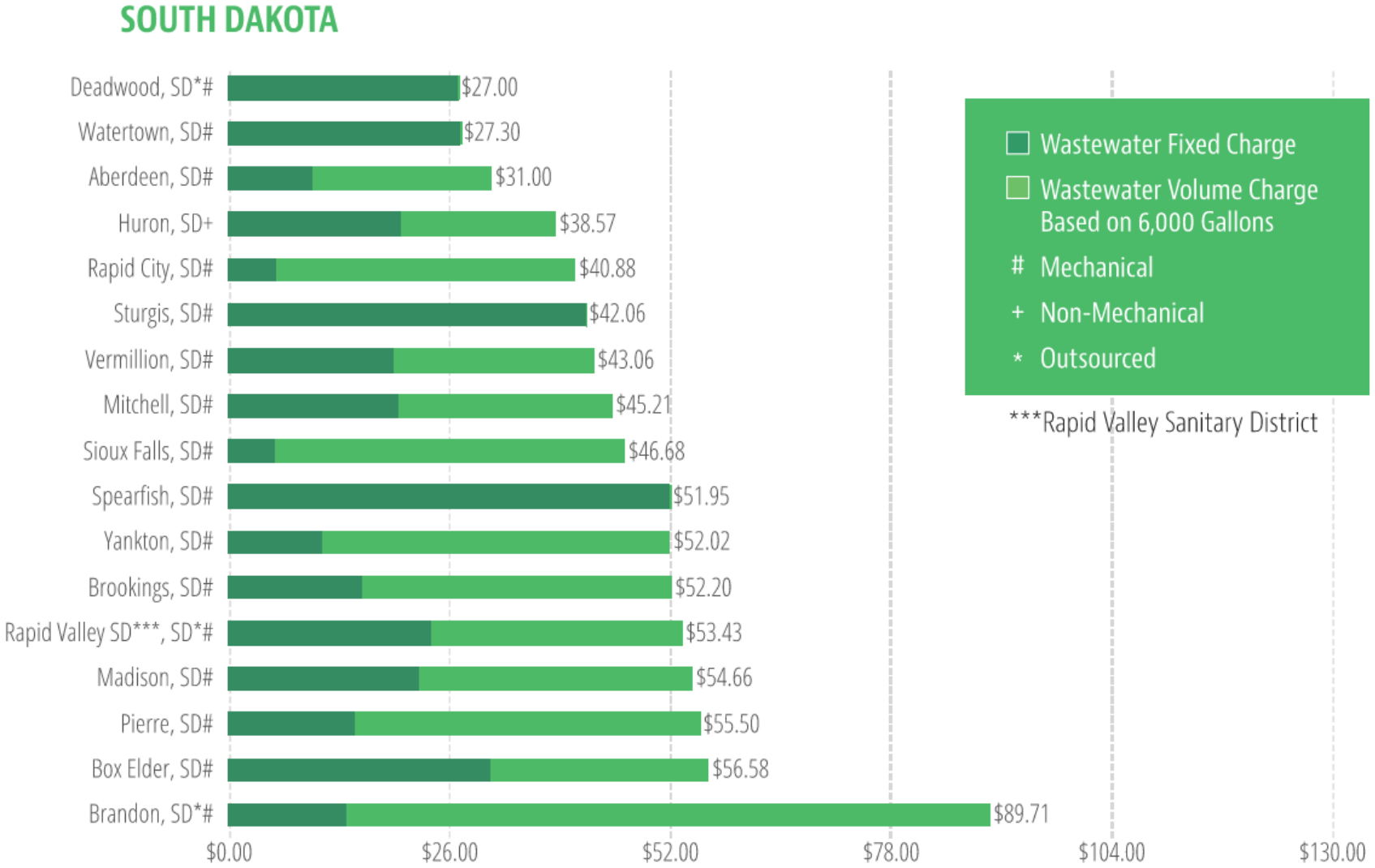
Matching State ARPA Funds: $3.7 million

Grant (30%): $8,494,200

SRF Loan: $19,819,800

- $4.025/mo increase per account (11,514 accounts)

User Fee Comparison



Engineering Contract - HDR

Engineering - $3,774,342

- Preliminary Design - $265,760
- Final Design - $3,409,382
- Bidding - $99,200
- Construction Administration - Future Contract

DRIVING FORCE FOR IMPROVEMENT

	Growth	Regulatory	Reliability	Priority
Preliminary Treatment			✓	High
Primary Clarifier & Sludge Pumping			✓	High
Trickling Filters & Pumping			✓	High
Activated Sludge Aeration Tanks	✓	✓	✓	High
Final Clarification	✓	✓	✓	High
Sludge Handling			✓	High
Digesters & Sludge Storage			✓	High
Biosolids Dewatering	✓		✓	High
Effluent Pumping			✓	High
Miscellaneous Plant Improvements	✓		✓	High
Lift Station Improvements	✓		✓	High
Sanitary Sewer Improvements	✓		✓	High

Wastewater Treatment Plant Improvements

Preliminary Treatment OPCC: $562,000

- Description
  - Equipment rehab and coatings
  - New starters on grit units
- Reason for Improvement
  - Failure of existing coating systems
  - Equipment is nearing the end of its useful life
- Recommended Timeframe
  - Immediate
- Importance
  - High – Reliability Driven

Wastewater Treatment Plant Improvements

Primary Treatment OPCC: $4,867,000

- Description
  - Sludge Pump Building Improvements
  - New Sludge Recirculation Pumps
  - New Sludge Conveyance Pumps
  - Primary Clarifier Scraper Mechanism Rehab
  - Miscellaneous Improvements
  - Primary Scum Box Improvements
  - VFD Replacement

- Reason for Improvement
  - Failure of existing coating systems
  - Pumping equipment nearing end of useful life
  - Sludge pump building nearing end of useful life

- Recommended Timeframe
  - Immediate

- Importance
  - High – Reliability Driven

Wastewater Treatment Plant Improvements

Trickling Filters and Pumping OPCC: $392,000

- Description
  - Trickling Filter Pumping Equipment Rehab and Coatings
  - Trickling Filter Door and Fan Control Wiring Replacement
- Reason for Improvement
  - Failure of existing coating systems
  - Equipment is nearing the end of its useful life
- Recommended Timeframe
  - Immediate
- Importance
  - High – Reliability Driven

Wastewater Treatment Plant Improvements

Activated Sludge OPCC : $3,446,000

- Description
  - New Activated Sludge Tankage
  - Replace Activated Sludge Air Diffusers
  - Upgrade Aeration Controls
  - Blower and VFD Replacement
  - Aeration Basin Cleaning and Inspection

- Reason for Improvement
  - Accommodate future flows and loads
    - New discharge permit limits
  - Failure of existing coating systems
  - Equipment is nearing the end of its useful life

- Recommended Timeframe
  - Immediate

- Importance
  - High – Growth, Regulatory, and Reliability Driven

Wastewater Treatment Plant Improvements

Final Clarifiers OPCC : $6,519,000

- Description
  - New Final Clarifier and Splitter Structure
  - Rehab and Recoat Scraper Drives and Mechanisms
  - Drain Valve Replacement
  - Instrumentation Upgrades

- Reason for Improvement
  - Accommodate future flows and loads
    - New discharge permit limits
  - Failure of existing coating systems
  - Equipment is nearing the end of its useful life

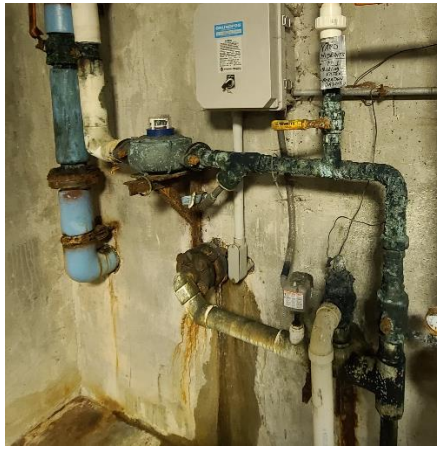
- Recommended Timeframe
  - Immediate

- Importance
  - High – Growth, Regulatory, and Reliability Driven

Wastewater Treatment Plant Improvements

Solids Handling OPCC : $1,089,000

- Description
  - Upgrade Pumps, Thickening, and Polymer Equipment
  - Plumbing Improvements
  - Overhead Door Replacement
- Reason for Improvement
  - Equipment is nearing the end of useful life
  - Piping and equipment corrosion
- Recommended Timeframe
  - Immediate
- Importance
  - High – Reliability Driven



Wastewater Treatment Plant Improvements

Digesters and Sludge Storage OPCC : $492,000

- Description
  - Replace Recirculation Pumps
  - New Feed Line to Boiler #2
  - Miscellaneous Plumbing and Rehabilitation
  - Reinstall Pipe to Waste Gas Burner to Remove Low Spot
  - Replace Both Waste Gas Burners
- Reason for Improvement
  - Equipment is nearing the end of useful life
  - Piping and equipment corrosion
- Recommended Timeframe
  - Immediate
- Importance
  - High – Reliability Driven

Wastewater Treatment Plant Improvements

Biosolids Dewatering OPCC : $4,393,000

- Description
  - Replace Heating Boilers (x2)
  - Increase Water Feed Pipe Size for Greater Water Availability
  - Add Second Biosolids Dewatering Screw Press Unit
  - Eliminate Sludge Holding Tank
  - Repurpose Sludge Mixing Building
  - Replace or Rehabilitate Screw Press Conveyor
- Reason for Improvement
  - Equipment is nearing the end of its useful life
  - Piping and equipment corrosion
- Recommended Timeframe
  - Immediate
- Importance
  - High – Growth and Reliability Driven

Wastewater Treatment Plant Improvements

Effluent Pumping OPCC : $303,000

- Description
  - Replace Pump Motor Drives (VFDs)
  - Upgrade Electronics
- Reason for Improvement
  - Equipment is nearing the end of its useful life
- Recommended Timeframe
  - Immediate
- Importance
  - High – Reliability Driven

Wastewater Treatment Plant Improvements

Site and Plant-Wide Improvements OPCC : $6,117,000

- Description
  - HVAC Improvements
  - Electrical Improvements
  - Roadway Improvements
  - Fencing Improvements
  - Drainage Improvements
  - New Storage Building

- Reason for Improvement
  - Equipment is nearing the end of its useful life
  - Improved site access
- Recommended Timeframe
  - Immediate
- Importance
  - High

Wastewater Treatment Plant Improvements

Lift Station Improvements OPCC : $1,224,000

- Description
  - Capacity Improvements:
    - Lift Stations Nos. 3, 4, 5, 6, 21 and 23
  - Structural Improvements (Traffic Door):
    - Lift Station Nos. 9, 10, 11, 15 and 22
- Reason for Improvement
  - Increased sanitary sewer flows due to new development
  - Doors are in poor condition
- Recommended Timeframe
  - Immediate
- Importance
  - High – Growth and Reliability Driven

Wastewater Treatment Plant Improvements

Sanitary Sewer Replacement and Rehabilitation OPCC : $6,309,000

- Description
  - 8-inch Sewer Replacement: 4,100 Feet
  - 21-inch Sewer Replacement: 1,000 Feet
  - 8-inch through 15-inch CIPP Liner: 9,700 Feet
  - Manhole Replacement: 5
  - Manhole Rehabilitation: 11
- Reason for Improvement
  - Sanitary Sewer piping and manholes are in poor condition
- Recommended Timeframe
  - Immediate
- Importance
  - High – Growth and Reliability Driven

SOUTH DAKOTA WATERTOWN

Project Schedule

Collection System Improvements

- SRF Funding Obtained: April 2022
- Proceed with Design: August 2022
- Final Construction Documents: March 2023
- Advertise for Bids/Bid Opening: April/May 2023
- Contract Award/Notice to Proceed: June 2023
- Construction Complete: June 2025

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Project Schedule

WWTP Improvements

- SRF Funding Obtained: April 2022
- Proceed with Design: August 2022
- Final Construction Documents: Sept 2023
- Advertise for Bids/Bid Opening: Oct/Nov 2023
- Contract Award/Notice to Proceed: Dec 2023
- Construction Complete: Dec 2026