

# Clean Water State Revolving Fund Green Project Reserve Business Case

## City of Scranton Sewer Authority Wastewater Treatment Plant Improvements PennVest ID No. 35102021008-CS

### **Summary**

The Sewer Authority of the City of Scranton (SSA) is proposing to modify and upgrade its existing wastewater treatment facility to meet Chesapeake Bay nutrient requirements. The existing facilities cannot meet these requirements. SSA has chosen the Pre-Anoxic Step Feed (“PASF”) treatment process for biologic nutrient removal implementation. Proposed modifications to the treatment facility include:

- Addition of a fifth primary settling tank and associated primary sludge pumping facilities
- Modification of existing bioreactors to create true two-pass anoxic/aerobic treatment trains
- Addition of a similarly configured fifth bioreactor
- Addition of a fifth and sixth final settling tanks
- Addition of a new return sludge pump station to accommodate the fifth and sixth final settling tanks
- Upgrade of various pieces of process equipment
- Addition of a supplemental carbon storage and feed system
- Addition of a chemical feed system for chemical phosphorus precipitation
- Modification and upgrade of scum collection, concentration and handling equipment
- Modification and upgrade of the SCADA system to allow monitoring and control of the treatment process

The project is identified and described in PennVest Request for Funding - 35102021008-CS.

### **Background and Problem**

SSA, in its 2007 Capital Improvement Plan, identified improvements needed to achieve compliance with regulatory mandates including DEP’s Chesapeake Bay nutrient reduction requirements. This project was identified in that Plan as the wastewater treatment facility project needed to achieve compliance with regulatory mandates.

### **Green Project Reserve Components**

As discussed above, the PennVest Request for Funding includes major improvements to the wastewater treatment facility. Components of the project that should be considered for Green Project Reserve include:

- Variable speed primary scum pumps, primary sludge pumps, secondary scum pumps, return sludge pumps.
- Flow paced supplemental carbon feed pumps with an accuracy of +/- 1 percent.
- High efficiency motors.

Each of these components is discussed individually below.

#### Variable speed pumps

This portion of the project is eligible under the energy efficiency category of the CWSFR GPR Specific Guidance because it provides energy efficient pump operation. The primary scum pumps, primary sludge pumps, secondary scum pumps, and return sludge pumps will operate at variable speed to maintain the desired set points for the individual processes. The variable speed drives will allow the pumps to operate more efficiently using less power.

#### Flow paced supplemental carbon feed pumps

This portion of the project is eligible under the energy efficiency category of the CWSFR GPR Specific Guidance because it provides energy efficient pump operation. The pumps will operate based on the carbon demand of the treatment process and will operate with an accuracy of +/- 1 percent. This will result in more efficient operation using less power.

#### High efficiency motors

This portion of the project is eligible under the energy efficiency category of the CWSFR GPR Specific Guidance because it provides energy efficient motors. Where ever possible, high efficiency motors will be provided. The use of high efficiency motors will result in less power usage.

### **Results and Benefits**

SSA's wastewater treatment facilities will be upgraded to meet Chesapeake Bay nutrient reduction requirements. This upgrade will incorporate energy efficient pumps and motors as discussed in this report.