



SEWERAGE & WATER BOARD OF NEW ORLEANS

Sewer System Evaluation and Rehabilitation Program (SSERP)

WIFIA LOI | Executive Summary | July 2019

SEWER SYSTEM EVALUATION & REHABILITATION **PROGRAM**

EXECUTIVE SUMMARY

BACKGROUND

The City of New Orleans, which celebrated its tricentennial in 2018. is known worldwide for its unique architecture, food, music, and dynamic cross-cultural heritage. At the turn of the 20th century, New Orleans reinvented itself by modernizing transportation, ports, and developing a manufacturing sector. During this time, the Sewerage and Water Board of New Orleans (SWBNO) emerged as a global model in governance reform and innovation, combining water, sewer, and drainage under an independent public agency.

New Orleans' strategic location along the Mississippi River and its unique culture continue to be its strongest assets. The Port of New Orleans is the **4th largest port** in the United States. The Citv's tourism industry sees nearly **18 million visitors annually.** The City continues to be a regional hub for the energy industry. And the success of each of these economic drivers can only be supported with high performing water, sewer, and drainage infrastructure.

Yet. New Orleans faces a number of water-related challenges. particularly with subsidence and stormwater management, which has a significant impact on SWBNO's capacity to plan for and fund improvements to its water and wastewater systems.

SOLUTION

Under an EPA-driven Consent Decree, SWBNO's Sewer System Evaluation & Rehabilitation Program (SSERP) was developed to address rehabilitation and repair needs of the City's sewer collection system. SSERP was originally initiated in 1998. In August of 2005, SSERP was interrupted by Hurricane Katrina: which rayaged the city taking 1,500 lives and displacing almost the entire population. New Orleans has recovered, but the lost population and associated tax base is still below pre-Katrina levels. This loss of revenue has created challenges in maintaining water, sewer and drainage services because maintenance and operations costs did not decline proportionally. In spite of the many challenges after Katrina, SWBNO has made great strides to comply with the Modified Consent Decree, systematically improving collection system infrastructure. The hurricane recovery repairs to the sewer collection system, also known as the Emergency Sewer System Assessment (ESSA) projects are delivered as part of SSERP. Work is organized by Basin, delivered through a program management office, and coordinated with other City recovery and capital improvement projects. Work has been completed in six of the nine Basins. The three remaining SSERP Basins, South Shore, Mid-City and Carrollton are highlighted in the map. WIFIA funding allows SWBNO to meet its obligations and protect the environment in order to better serve the people of New Orleans.



2,000+ sewer line segment repairs to complete



5.000+ manhole rehabilitations to complete



SSERP projects have been completed in 6 of the 9 Basins



Basins

S E W E R A G E 8 WATER BOARD OF NEW ORLEANS SEWER COLLECTION SYSTEM BASINS MAP





SSERP projects need to be constructed in 3 remaining

Innovative water management

AN IMPORTANT STEP TOWARDS A HEALTHY **AND PROSPEROUS FUTURE FOR THE CITY OF NEW ORLEANS.**

SSERP PROJECT COSTS

The SSERP rehabilitations included in the WIFIA LOI are projected to cost a total of \$206,070,331.



The City of New Orleans is striving to build resilient and modern infrastructure that meets the needs of residents, visitors and businesses. The compounding effects of storms, aging infrastructure, and topography have created a unique challenge for the sewer system. SWBNO is ready and able to align its sewer system infrastructure and urban environment with the realities of being below sea level and the historic settlement due to subsidence and highly compressive deltaic soils.

SWBNO is shifting towards a **culture of proactive**

replacement and rehabilitation, repairing issues before they become emergencies. SSERP projects are designed and ready for construction but have been delayed due lack of funding and other emergency expenditures. By accelerating SSERP, funding from a WIFIA loan will have a tangible positive effect on:

- Community's health
- The delicate coastal environment
- Job creation
- Replacement of aging infrastructure

With this 35-year loan, and SWBNO revenues pledged for **repayment**, an injection of capital would move SSERP forward immediately. As the City looks to a bright and resilient future, WIFIA funding allows for a more efficient path.





Unique Topography - New Orleans is surrounded by water and is below sea-level. New Orleans' unique topography has created a 'bowl' that is over 12 feet below sea level. Rainwater must be pumped up and over the levees that protect the City. The City's pumping facilities are some of the largest in the world, but are still overwhelmed by large storm events. This strains the sanitary sewer system and contributes to one of New Orleans' biggest threats and most unique water resource challenges. Breaks and leaks in sewer and drain lines act as "French drains" which constantly infiltrate the groundwater, reducing the water table and causing the city's organic and clay soils to consolidate, oxidize, and subside. When water levels rise, a greater strain is placed on the City's sewer infrastructure due to infiltration and inflow (I&I). SSERP protects the City's foundation and reduces soil subsidence by eliminating I&I into the system.









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Extreme Weather Events - Located on the Gulf Coast, New Orleans experiences frequent high intensity rain and tropical weather events. The resulting flooding has a tremendous negative effect on the City's sewer infrastructure and creates overflows and environmental damage. Weather events stress and further damage the aging sanitary sewers and put public health in danger. **Completing SSERP will give** the City a more resilient sewer collection system to better weather the storms-protecting our environment, our citizens, and our ability to invest before chronic infrastructure failures **become emergencies.** New Orleans is developing a long-term plan for a sustainable utility that protects its residents from natural disasters.

Aging Infrastructure – As a historic city, much of New Orleans' sewer infrastructure is over 100 years old and has not been upgraded. Deferred maintenance, corrosion, and subsidence cause pipes to develop leaks, resulting in localized settlement, which in turn, causes the pipes to develop additional leaks in the system where contaminated water can inflow and infiltrate the system, making the problem even worse. The comprehensive SSERP rehabilitation, utilizing a informationbased system for execution, can break the cycle of degradation, damage, and defensive infrastructure investment. This innovative approach to managing New Orleans' collection system sets up the Citv for success.

Impact – SWBNO serves over **135,000** customers including **391,000** residents, an estimated **18 million** visitors, and over **225** conventions annually. Industry and tourism thrive in the City, but the ecosystem and the inhabitants feel the stress. The SSERP Basins of South Shore, Mid-City, and Carrollton have significantly more minority residents, people below the poverty level, and lower incomes compared to the rest of the state. These populations are highly susceptible to health threats and more likely to be impacted by infrastructure failures. Bacteria and viruses represent a major source of pollution in regional water bodies that limits recreation. SSERP rehabilitates the SWBNO sewer system infrastructure to minimize sanitary system overflows. This vital rehabilitation reduces the frequency and volume of polluted discharges into lakes and waterways and improves environmental quality.

HELP US PROTECT OUR ENVIRONMENT

Project Readiness – Planning

and design have been completed for the remaining projects. This work includes sewer rehabilitation in the South Shore, Mid-City, and Carrollton Basins. These projects are delivered in conjunction with the Hurricane Katrina-related ESSA projects. Upon receiving WIFIA funding, the remaining repairs can begin immediately and the Program Management team can move forward with procurement in days. **Efficiency** – WIFIA funding will allow sewer repairs to be completed in tandem with FEMA-funded road repairs and water line replacements. Combining the scopes of each effort will dramatically reduce the impact of construction on the community and reduce the overall budget for the sewer rehabilitations. Completing this work in tandem is contingent upon receiving funding soon to allow for FEMA-funded roadway repairs and water line replacement schedules to align. As part of the Consent Decree, SWBNO has also invested \$2.5 million in innovative green infrastructure projects that enhance the City's "Living with Water" Resilience Program.

MANA

Innovation – A system-wide hydraulic model identified stress points in the collection system, confirming the viability of possible solutions. Collection system evaluation studies (CSES) were conducted in all Basins and an Emergency Sewer System Assessment (ESSA) was completed to identify additional hurricanerelated damages to the sewer collection system. The data from the CSES and ESSA evaluations was integrated into a customized decision tool developed for SSERP that converts the collection system data into a prioritized and cost effective program. The program has utilized innovative technologies like trenchless technologies (CIPP for mainline and service lateral), CCTV inspections, and green infrastructure for water management.

Schedule – Utilizing WIFIA funding for these projects would not only allow them to proceed earlier, but it would free up existing revenue that can be redirected toward other needs and allow the utility to be more flexible in project planning. The proposed schedule below accounts for WIFIA funding as well as SWBNO and City delivery capacity. Without WIFIA funds, these projects would be further delayed. Construction could be pushed back years, putting SWBNO at greater risk of sanitary system overflows and other infrastructure failures.

Cumulative

e Spend

CONSTRUCTION SCHEDULE + SPENDING CURVE



*The curve is illustrative of future cost expectations. Total cumulative spend includes costs incurred in previous 5 years.

WIFIA Funding – Water is our most valuable resource; the most critical element to health, industry, and the environment. WIFIA funding will allow us to complete a comprehensive program directed at managing this resource effectively to protect the health and safety of our citizens and promote the growth of industry in New Orleans. A positive, lasting ripple effect will be seen throughout the City's underserved communities, tourism industry, oil and gas investment, and environmental sustainability making New Orleans a benchmark for successful sewer water management.

BENEFITS OF WIFIA

- Advances more than 60 construction contracts
- Reduces financing costs
- Frees up capital
- Supports workforce development
- Opportunities for disadvantaged businesses
- · Improves environmental quality
- Improves quality of life
- Promotes a sustainable and resilient utility

Preliminary estimates suggest SWBNO would save \$54,441,837 in financing costs over the life of the loan by securing WIFIA funding.

Funding today will save money and mitigate further environmental degradation and costly damages in the future.



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