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Acronyms and Abbreviations

ACH	Aluminum Chlorohydrate
CIP	Capital Improvement Plan
DWSRF	Drinking Water State Revolving Fund
EPA	U.S. Environmental Protection Agency
LCRI	Lead and Copper Rule Improvements
LCRR	Lead and Copper Rule Revisions
LDH	Louisiana Department of Health
LOS	Level of Service
MGD	Million Gallons Per Day
NRW	Nonrevenue Water
Parish	Orleans Parish
SWBNO	Sewerage & Water Board of New Orleans
SCADA	Supervisory Control and Data Acquisition
WIFIA	Water Infrastructure Finance and Innovation Act
WQMP	Water Quality Master Plan (interchangeable with Water Treatment Master Plan)
WTMP	Water Treatment Master Plan (interchangeable with Water Quality Master Plan)
WTP	Water Treatment Plant





SEWERAGE & WATER BOARD OF
NEW ORLEANS

WATER QUALITY MASTER PLAN



EXECUTIVE SUMMARY

APRIL 2026



Executive Summary

Project Background

The Sewerage & Water Board of New Orleans (SWBNO) provides water, wastewater, and drainage services to approximately 400,000 residents in Orleans Parish (Parish). To meet customer demand, SWBNO operates two water treatment plants (WTPs), Carrollton and Algiers WTPs, which both draw water from the Mississippi River as their source of supply. Carrollton WTP provides an average of 144 million gallons per day (MGD) to east bank customers, while Algiers WTP provides an average of 10.4 MGD to west bank customers. While both facilities continue to deliver safe and reliable drinking water, current and upcoming regulations and aging infrastructure are placing growing demands on treatment processes and operations. Much of the equipment at both facilities has extended beyond its reliable service life.

To address these challenges, SWBNO selected CDM Smith to provide master planning technical and related engineering services to develop a water quality master plan (WQMP). The WQMP evaluates the current condition and performance of water treatment processes and operations with respect to regulatory compliance, capacity, and reliability. The plan also establishes a framework for future improvements needed to ensure efficient operations, sustained compliance, and continued public confidence in the drinking water system. The WQMP focuses primarily on the water treatment facilities themselves and considers full rehabilitation or replacement of treatment processes and infrastructure. Key planning considerations include current and emerging regulatory requirements, treatment technologies, operational efficiencies, climate change impacts, and interactions between water quality and the distribution system. While the WQMP considers the distribution system's water quality impacts, the physical condition of the distribution system is outside this plan's scope.

The WQMP was developed through a structured sequence of technical evaluations and planning activities that culminated in the preparation of the Capital Improvement Plan (CIP). This plan identifies near-term infrastructure investments needed to manage critical risks and a phased, long-term pathway to rehabilitate or replace equipment and systems that have reached or exceeded the end of their useful service life.



Major Findings and Recommendations

Over an approximately 2-year period, CDM Smith worked in close coordination with SWBNO staff to complete the WQMP and establish a clear, achievable vision for the long-term integrity and reliability of the water treatment system. This effort was grounded in comprehensive assessments of existing conditions at each WTP, collaborative workshops with operations and maintenance staff, and detailed systemwide data analysis. Together, these activities provided the technical basis for the development of the 5- and 30-year CIPs which have been combined into an overall CIP.

The costs presented in the WQMP were developed in general accordance with guidelines established by the Association for the Advancement of Cost Engineering and are considered Class 5 cost estimates, which are typically planning-level estimates with an average +65 percent (%) and -35% cost range. These are high-level costs based upon industry rules of thumb for construction costs, vendor budgetary quotes for major equipment items, and bid results from similar treatment systems in other locations. These costs provide a general order of magnitude of the anticipated project costs, including appropriate markups for undeveloped design details, general conditions, and contingencies. These are not detailed cost estimates for the improvements; therefore, actual project costs will vary. As preliminary and detailed design efforts progress, the scope of the WTP improvements will become better defined, allowing for the development of more precise cost estimates.

The WQMP identifies critical system needs and establishes a prioritized, risk-informed path forward. The major findings and recommendations reflect both the urgency of near-term actions and the strategic investments required to sustain reliable water service over the long term.



Carrollton Water Treatment Plant Phased Replacement

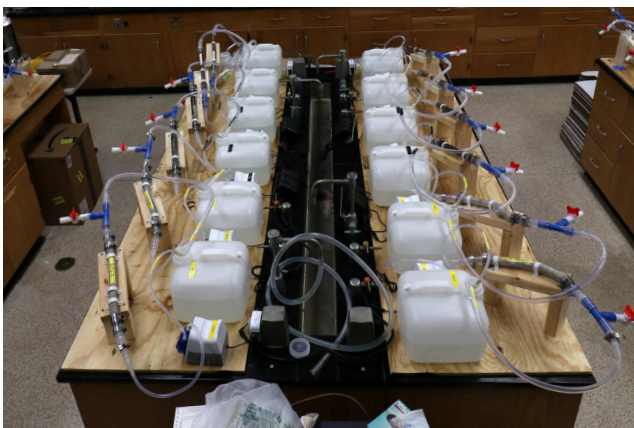
Carrollton WTP, originally constructed in the early 1900s, has not undergone significant equipment upgrades since the 1950s. As a result, several critical treatment processes are operating well beyond their intended service life and are increasingly vulnerable to failure. The deteriorated condition of these assets creates ongoing operational challenges and significantly elevates the risk of severe service interruptions. Without timely intervention, the likelihood of a consequential disruption will continue to increase. Accordingly, a complete replacement of Carrollton WTP treatment processes is identified as an urgent, high-priority investment and is recommended as a primary focus during the first half of the 30-year CIP.

Table 1: Carrollton Rehabilitation Projects

System	Project	2025 Cost Estimate	CIP Years of Construction
Carrollton WTP	Building Replacements	\$84,920,000	1-3
Carrollton WTP	New Plate Settler Pretreatment (Phase 1)	\$489,216,000	2-7
Carrollton WTP	New Filter Building and Postfilter Basins (Phase 2)	\$802,816,000	7-10
Carrollton WTP	New Postfilter Basins (Phase 3)	\$301,056,000	10-15



Settling Basin (offline for maintenance activities) at the Carrollton WTP.



Pipe-loop setup in Carrollton Lab used to study impacts of increased chloride concentrations from the Mississippi River and optimization of existing corrosion control treatment.



Pipe Gallery for the Sycamore Filter Basins at the Carrollton WTP

Risk-Based Projects at Carrollton and Algiers Water Treatment Plants

In addition to Carrollton WTP replacement, a series of high-priority projects at the Carrollton and Algiers facilities were identified through structured workshops with SWBNO staff. These workshops focused on criticality analysis, asset management strategies, and risk-informed capital planning. Projects were prioritized based on relative risk and their contribution to maintaining system resilience and reliable operations. Implementing these projects in parallel with the Carrollton WTP retrofit is essential to sustain interim operability and mitigate systemwide risk. They form the basis of the first 5 years of the CIP.

Figure 1: 5-Year Capital Improvement Plan

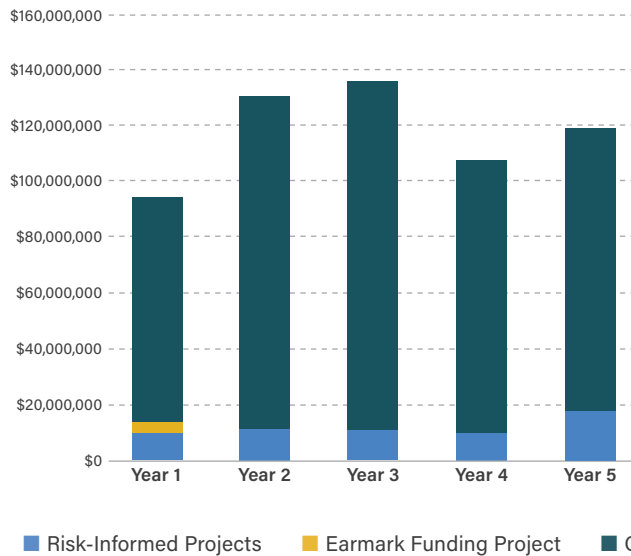
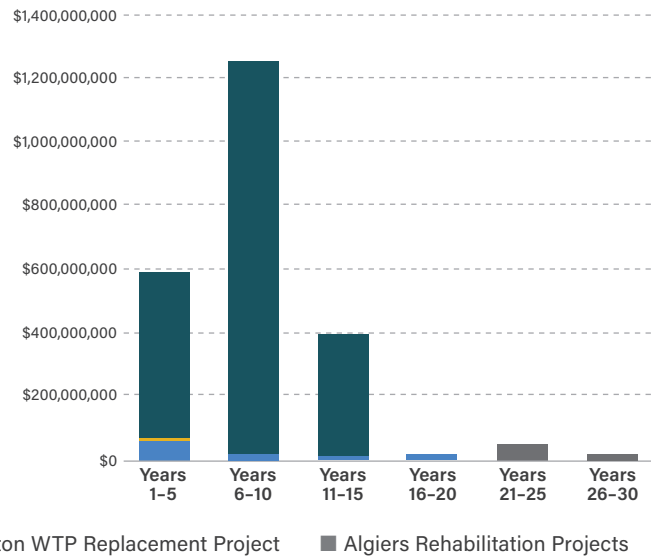


Figure 2: 30-Year Capital Improvement Plan



Corrosion Control Pilot Projects

To comply with the U.S. Environmental Protection Agency (EPA) Lead and Copper Rule Revision (LCRR) and address increased corrosion risk associated with seasonal salt wedge intrusion during low Mississippi River flow conditions, the WQMP recommends full-scale pilot projects to evaluate the addition of zinc orthophosphate to finished water at each WTP. Bench-scale testing performed as part of the WQMP scope demonstrated that zinc orthophosphate performs favorably in limiting lead release under elevated chloride conditions. The pilot projects will allow SWBNO to verify treatment performance under full-scale operating conditions before long-term systemwide implementation.

The pilot at Algiers WTP is recommended for immediate implementation, as funding is available and only minor modifications are required. In parallel, design modifications at Carrollton WTP should be initiated to enable execution of a comparable pilot at that facility soon.

Table 2: Water Quality/Treatment Performance Projects (Annual Costs)

System	Project	2025 Cost Estimate/Year
Carrollton WTP	Full-Scale Implementation of Zinc Orthophosphate–First Year	\$2,300,000
Algiers WTP	Zinc Orthophosphate Pilot–First Year	\$120,000
TOTAL		\$2,420,000



Technical Basis for Findings and Recommendations

The major findings presented above were developed through the execution of a comprehensive set of planning and analytical activities carried out in close coordination with SWBNO staff. These activities encompassed system assessments, data analysis, and collaborative workshops designed to establish project goals, evaluate existing conditions, and identify future needs.

The key tasks performed as part of this effort are listed below and summarized in the following section. Collectively, the conclusions and recommendations derived from each task informed the development of the 30-year CIP, which is presented in its entirety immediately following this executive summary.



Facility goals assessment



Water system demand and supply analysis



Water quality analysis



Operations assessment and optimization



Asset management, planning, and preparedness



Saltwater intrusion assessment



Funding analysis



Water treatment alternatives development



Development of 5-year and 30-year CIPs



Key Findings Summary



Facility Goals Assessment

WTP service goals were identified, discussed, and documented across multiple focus areas, including service reliability, water treatment performance, resiliency and sustainability, and key planning constraints.



Water System Demand and Supply Analysis

No additional treatment capacity is expected to be required to meet long-term average or peak demands at either Carrollton or Algiers WTPs.

While average temperatures and precipitation patterns are expected to increase moderately over time, historical data shows that system demand has not exhibited strong sensitivity to seasonal climate variation.

Continued implementation of leak detection, smart metering, and targeted water main replacement offer significant opportunities to reduce real water losses, easing operational demands on aging infrastructure.

Overall, the findings confirm that future investment priorities should not focus on expanding treatment capacity for future customer needs.



Water Quality Analysis

While current compliance is strong, the evaluation also identified future risk associated with increasingly stringent regulatory requirements under the LCRR and Lead and Copper Rule Improvements (LCRI).



Operations Assessment and Optimization

Pretreatment basins were found to be undersized, and contact basins at Carrollton WTP are hydraulically constrained.

The WQMP recommends piloting of aluminum chlorohydrate (ACH) as the preferred coagulant. Jar tests conducted during the master planning indicate that ACH will reduce the lime concentration and subsequent buildup of lime deposition in the contact chambers.



Asset Management, Planning, and Preparedness

The analysis identified the Old River intake station as the greatest risk to maintaining a level of service (LOS).

This approach provides a transparent, data-driven basis for prioritizing projects for capital planning of the WTPs.



Saltwater Intrusion Assessment

SWBNO is currently near the proposed new lead action level, placing the system at elevated risk.

The Master Plan recommends implementation of zinc orthophosphate to minimize impacts from increased chloride levels in the Mississippi River and to further reduce lead levels in the distribution system.



Funding Analysis

SWBNO is encouraged to pursue both Drinking Water State Revolving Fund (DWSRF) and Water Infrastructure Finance and Innovation Act (WIFIA) financing opportunities in the near term.



Water Treatment Alternatives Development

A preferred alternative to replace Carrollton WTP has been identified for further evaluation and design which includes a conventional water treatment approach with the addition of high-rate plate settler clarification.



Capital Improvement Planning

Replacement of Carrollton WTP will require a phased construction approach to allow continued water production while new facilities are constructed. Ongoing maintenance of critical assets is required for continued level of service as the phased plant replacement occurs.





Facility Goals Assessment

Clearly defining facility goals at the outset was essential to the development of the WQMP, setting a consistent basis for all subsequent analyses and recommendations to meet SWBNO’s long-term service-level expectations.

Facility goals were developed through a facilitated workshop conducted in collaboration with SWBNO staff. During this process, WTP service goals were identified, discussed, and documented across multiple focus areas, including service reliability, water treatment performance, resiliency and sustainability, and key planning constraints. Planning considerations such as site footprint limitations, phasing assumptions, and the requirement to maintain continuous operations during construction were also incorporated.

Table 3: Identified Sewerage & Water Board of New Orleans Facility Goals

Water Quality	<ul style="list-style-type: none"> ■ Provide a WTP that reliably produces finished water quality meeting all regulatory requirements. ■ Maintain low lead levels to customers to allow continued operation under reduced Lead and Copper Rule monitoring requirements.
Water Treatment	<ul style="list-style-type: none"> ■ Evaluate whether alternative coagulants could provide operational or process performance benefits. ■ Plan for replacement of Carrollton WTP, which requires a strategy to maintain reliable water production during construction. ■ Include evaluation of advanced treatment options, such as high-rate clarification and membrane treatment in the evaluation for Carrollton WTP.
Redundancy	<ul style="list-style-type: none"> ■ Provide increased WTP system redundancy relative to existing facilities.
Risk Mitigation	<ul style="list-style-type: none"> ■ Develop and evaluate strategies to mitigate impacts associated with saltwater wedge migration.
Sustainability	<ul style="list-style-type: none"> ■ Balance energy efficiency objectives with other WTP goals. ■ Reduce on-site water losses at Carrollton by addressing basin leaks.
Asset Management	<ul style="list-style-type: none"> ■ Implement an asset management system to support proactive maintenance planning and tracking assets.

These facility goals established the foundation for all subsequent planning tasks. As the WQMP progressed, the goals were frequently revisited and refined to align with emerging technical findings and to confirm that recommended solutions effectively addressed SWBNO’s operational priorities. The goals were also coordinated with SWBNO’s broader strategic vision and mission.



VISION

Be a model utility that earns and holds the trust and confidence of our customers, community, and partners through reliable and sustainable water services.

MISSION

Our team of experts serves the people of New Orleans and improves their quality of life by reliably and affordably providing safe drinking water, removing wastewater for safe return to the environment, and draining.





Water System Demand and Supply Analysis

An evaluation of current and projected water system demands confirmed that SWBNO's existing water supply and treatment capacity is sufficient to meet anticipated needs over the next 50 years. Demand projections indicate that overall water use is expected to decline over time, driven primarily by projected population decreases in the Parish and continued improvements in water use efficiency. As a result, no increase in treatment capacity is expected to be required to meet long-term average or peak demands at either Carrollton or Algiers WTPs.

A key driver of existing production levels is nonrevenue water (NRW), which represents a substantial portion of produced water, averaging 110 MGD (74%) systemwide from 2019 to 2022. While a recent water audit shows that water loss performance is consistent or improving compared to a similar analysis completed for 2008 to 2017, SWBNO's NRW levels remain high relative to peer utilities (90th percentile). Continued implementation of leak detection, smart metering, and targeted water main replacement offer significant opportunities to reduce real water losses, easing operational demands on aging infrastructure.

The assessment also considered the potential effects of climate change on future water demand. While average temperatures and precipitation patterns are expected to increase moderately over time, historical data show that system demand has not exhibited strong sensitivity to seasonal climate variation. As a result, projected climate change is not anticipated to materially increase future water demand. However, climate-related impacts may influence other aspects of system operations, including source water quality and treatment process performance, which are addressed in subsequent sections of the WQMP.

Overall, the findings confirm that future investment priorities should not focus on expanding treatment capacity for future customer needs.





Water Quality Analysis

Providing clean, safe drinking water to customers is core to SWBNO's mission and a key focus of the WQMP. A comprehensive evaluation of drinking water quality from source water through treatment and distribution confirmed that both Carrollton and Algiers WTPs consistently met all current Louisiana Department of Health (LDH) drinking water regulatory requirements during the review period. Routine monitoring and reporting practices support transparency, regulatory compliance, and demonstrated system performance.

While current compliance is strong, the evaluation also identified future risk associated with increasingly stringent regulatory requirements under the LCRR and LCRI. Maintaining compliance under these evolving regulations is expected to require enhancements to corrosion control practices within the distribution system.

The distribution system pipe scale was characterized using field sampling, water quality analyses, and geochemical modeling. This assessment showed that destabilization of existing pipe scales can contribute to lead mobilization, particularly under changing water quality conditions. Seasonal increases in chlorides associated with salt wedge intrusion were identified as an additional stressor that can exacerbate corrosion risk.

Based on these findings, phosphate-based corrosion control, specifically the addition of zinc orthophosphate to finished water, was identified as a potentially effective strategy to reduce lead mobilization from lead service lines and improve long-term control of corrosion within the distribution system. Formation of a protective zinc-based scale is expected to reduce galvanic corrosion and help mitigate the impacts of elevated chloride levels during low-flow conditions in the Mississippi River.

To confirm treatment effectiveness before full implementation, the WQMP recommends initiating a full-scale pilot corrosion control study at Carrollton and Algiers WTPs. This pilot will allow SWBNO to verify performance under real-world operating conditions and support informed decision-making for future systemwide application.

Overall, the water quality analysis confirms that SWBNO is currently meeting regulatory requirements while highlighting proactive, targeted actions needed to sustain compliance, protect public health, and address emerging water quality risks over the long term.





Operations Assessment and Optimization

The WQMP included a comprehensive evaluation of operational performance at Algiers and Carrollton WTPs to identify opportunities to improve efficiency, reliability, and long-term sustainability. The assessment focused on treatment process optimization, residuals management, and modernization of control and automation systems to support consistent operations and reduced life-cycle costs.

The operational assessment identified several critical treatment processes needing an upgrade or replacement to improve water quality control and overall system reliability. At Carrollton WTP, pretreatment basins were found to be undersized relative to their rated capacity and increasingly difficult to operate and maintain because of age-related deterioration and leaks in basin concrete. In addition, contact basins at Carrollton WTP were determined to be hydraulically constrained because of the accumulation of settled lime solids associated with existing pretreatment chemistry.

To address these limitations, bench-scale testing was conducted to evaluate an alternative pretreatment chemistry using aluminum chlorohydrate (ACH) and caustic to replace the current ferric sulfate and lime processes. The alternative chemistry is projected to improve treatment performance and reduce maintenance and operational costs associated with lime handling. Based on these results, it is recommended to advance a full-scale pilot investigation at Carrollton WTP to further evaluate the use of ACH under operating conditions. Additional operational improvements were identified to enhance disinfection reliability at Algiers WTP during cold-water conditions and improve total organic carbon removal, thereby reducing the potential formation of disinfection by-products.

An evaluation of water treatment residuals management confirmed that the current residuals disposal approach using National Pollutant Discharge Elimination System-permitted discharges remains the most cost-effective option for both WTPs. However, reliance on a single residuals discharge pipeline at Carrollton WTP was identified as a significant operational vulnerability. To mitigate this risk and improve system reliability, the WQMP recommends construction of a second residuals discharge pipeline.

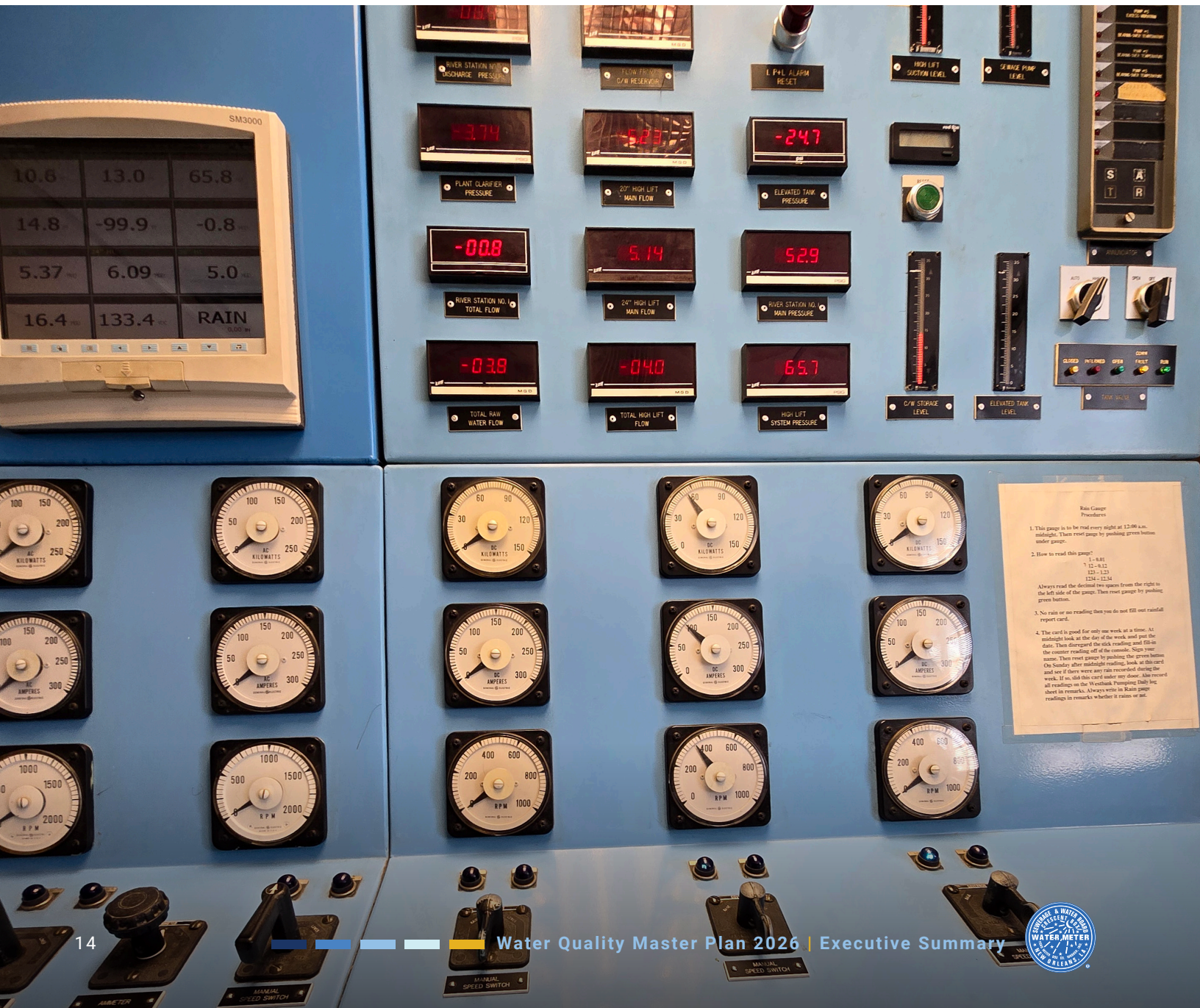




Supervisory Control and Data Acquisition and Automation Assessment

The WQMP also included a comprehensive assessment of SCADA and automation systems, resulting in the development of a SCADA master plan for both WTPs. The assessment identified inconsistencies in existing industrial control system implementations and a need for standardized, SCADA-ready control platforms capable of supporting expanded automation. Implementation of the SCADA master plan represents a significant, multimillion-dollar investment and establishes a coordinated, long-term road map for modernizing plant controls, integrating distributed systems, and improving operational efficiency.

Execution of the SCADA master plan is anticipated to occur over a 10-year period, aligned with funding availability and capital programming. The plan includes near-term infrastructure investments to support immediate operational objectives and phased improvements requiring substantial capital expenditures to replace and upgrade field equipment. Collectively, these investments are essential to enhancing operational consistency, reducing risk, and supporting the long-term reliability of SWBNO's water treatment facilities.





Asset Management, Planning, and Preparedness

The WQMP placed a strong emphasis on systematic asset management, planning, and preparedness to support development of a risk-informed CIP. This approach provided a structured framework for identifying critical risks to system performance, defining appropriate intervention strategies, and prioritizing capital investments to maintain SWBNO's desired LOS. Key components of this effort included criticality analysis, development of asset strategies, and risk-informed capital planning.

A comprehensive criticality analysis was conducted through a series of facilitated workshops with SWBNO operations, maintenance, and engineering staff. The analysis focused on functional systems rather than individual assets, allowing the full portfolio of assets at Algiers and Carrollton WTPs to be evaluated efficiently and consistently. Following development of an asset hierarchy and risk criteria in collaboration with SWBNO staff, potential system failure scenarios were evaluated to determine the consequence of failure (impact to service) and the likelihood of failure (based on condition and failure history). These factors were combined to produce a composite risk score for each system.

The analysis identified the Old River intake station, sedimentation basins (included as part of the Carrollton WTP replacement), and Claiborne filter systems as presenting the greatest risk to maintaining the LOS at Carrollton WTP. At Algiers WTP, the High Lift Station 2 and Intake Station 1 power were identified as posing the highest risk. These risks are primarily driven by the age, condition, and failure history of major system components, with many assets nearing or exceeding the end of their service life. In several cases, safe operation and maintenance are further constrained by obsolete system designs and deteriorated infrastructure.

Building on the criticality analysis, asset strategies were developed for each high-risk system. These strategies identify the capital investment and maintenance interventions necessary to restore or enhance system reliability and enable each system to continue performing its primary function in support of SWBNO's desired LOS.

The results of the criticality and asset strategy evaluations were then integrated into a risk-informed capital planning framework. This framework was used to define investment scopes for required interventions, evaluate the degree to which each investment reduces specific failure risks, and rank projects based on the relative cost to reduce a unit of risk. This approach provides a transparent, data-driven basis for prioritizing projects, particularly within the first 5 years of the CIP, while guiding longer-term capital planning and supporting justification for future investments.





Saltwater Intrusion Assessment

During the summer of 2023, prolonged low rainfall conditions in the Mississippi River watershed allowed saltwater intrusion from the Gulf, commonly referred to as the salt wedge, to migrate upriver to a point near Algiers WTP intake. Previous studies have shown that elevated chloride concentrations associated with saltwater intrusion can increase galvanic corrosion, which occurs when dissimilar metals are in contact. This process can lead to increased lead release at customer taps and increased water discoloration associated with aging cast iron and other iron-based distribution system piping.

Water quality and regulatory compliance evaluations conducted as part of the WQMP indicate that SWBNO is currently near the proposed new lead action level of 10 micrograms per liter under the LCRI, placing the system at elevated risk of exceeding the lead action level once the regulation becomes effective. While several treatment alternatives, such as reverse osmosis or blending with groundwater or upstream Mississippi River water, could reduce chloride concentrations in finished water, these options were found to have prohibitively high capital and operational costs. As a result, a more cost-effective strategy was identified, consisting of enhanced corrosion control through the addition of zinc orthophosphate to the finished water leaving the WTPs. Orthophosphate is a well-established corrosion inhibitor for lead, while zinc can serve as a sacrificial metal that helps mitigate metal release associated with galvanic corrosion during periods of elevated chloride concentrations. SWBNO is currently using pH adjustment for corrosion control.

To evaluate the effectiveness of zinc orthophosphate under saltwater intrusion conditions, a bench-scale recirculating pipe loop study was conducted. In August 2024, SWBNO constructed 24 miniature pipe loops at Carrollton WTP laboratory to assess lead, copper, and iron release from harvested lead pipe, copper pipe with newly fabricated lead solder, and harvested galvanized iron pipe. The study evaluated performance under varying chloride concentrations and compared different corrosion inhibitor treatments.

Based on the findings from this study, the recommendation is to proceed with implementation of zinc orthophosphate at full scale, beginning with a pilot application at Algiers WTP. The plan also recommends continued use of the recirculating pipe loops as a sentinel monitoring tool to track lead release before and during implementation of zinc orthophosphate. Additional lead monitoring at customer residences is recommended, which may include first- and fifth-liter sampling at compliance locations or sequential sampling at selected homes with known lead service lines to better characterize sources of lead, copper, and iron release. Finally, the WQMP recommends implementation of a comprehensive corrosion risk management plan for saltwater intrusion events, including mitigation measures and public education and communication strategies.





Funding Analysis

The WQMP included an evaluation of potential capital funding opportunities available to support implementation of the CIP. Funding sources considered as part of this review included the following:

- LDH DWSRF
- WIFIA
- Capital outlay funding
- Congressional earmarks
- Private grants and foundation opportunities
- Voluntary carbon market
- Green banks

Projects included in SWBNO's CIP are eligible for multiple funding sources. While segmenting projects into manageable scopes may allow effective use of individual funding programs, grouping similar projects to pursue low-interest financing through the DWSRF or WIFIA program could enable a greater volume of work to be completed within a shorter time frame and reduce overall financing costs through bundled issuance.

Given current federal funding trends, SWBNO is encouraged to pursue both DWSRF and WIFIA financing opportunities in the near term while these funding programs remain available. Because total funding under these programs is ultimately capped and contingent on SWBNO's borrowing capacity, the WQMP also recommends pursuing nontraditional funding sources in parallel to support long-term capital investment needs.





Carrollton Water Treatment Alternatives Development

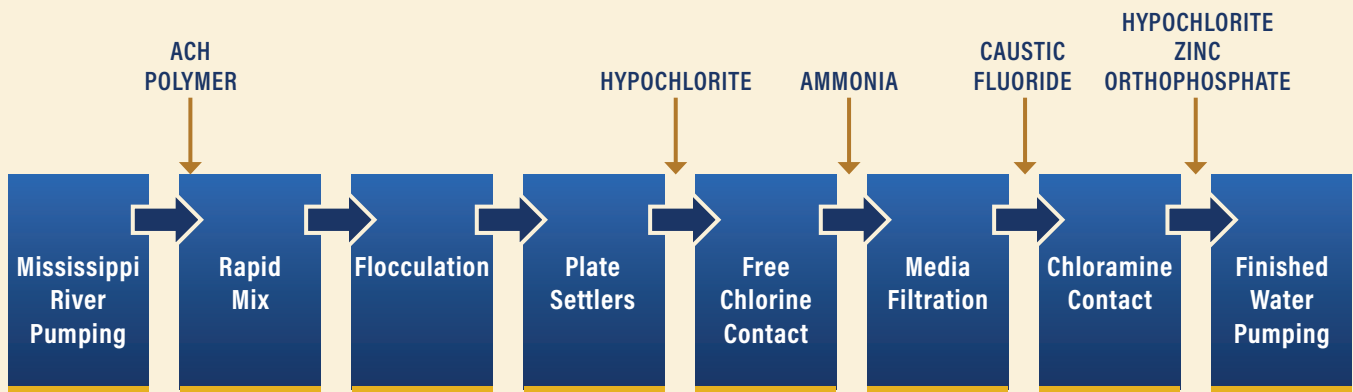
Most of the existing facilities at Carrollton WTP are aging and were identified as requiring replacement to support long-term system reliability. As part of the WQMP, a structured series of workshops was conducted to evaluate feasible treatment solutions for rehabilitation and replacement of the Carrollton facility. These workshops reviewed conventional and advanced water treatment technologies suitable for the site, developed a set of five alternative treatment process trains for further consideration, and evaluated and ranked those alternatives based on cost and benefit considerations.

The workshops also addressed the appropriate design capacity for the rehabilitated WTP. While reductions in distribution system water leaks have the potential to significantly reduce water demands, it is not anticipated that the water leaks will be substantially reduced within the time frame of the recommended Carrollton WTP improvements. Accordingly, planning and evaluation activities were conducted, assuming a Carrollton WTP capacity of 240 MGD for the rehabilitated Carrollton WTP.

SWBNO staff evaluated the advantages and disadvantages of each treatment alternative and identified a preferred alternative for further evaluation and design development. The selected alternative was determined to provide the highest level of operational reliability during construction of new facilities while delivering the greatest overall value to SWBNO. Evaluation criteria included constructability and the ability to address critical system needs, capital cost considerations, ease of operations, system reliability and maintainability, operations and maintenance costs, and long-term flexibility.

The selected treatment alternative consists of coagulation, rapid mix, flocculation, high-rate plate settler clarification, dual-media filtration, and chlorine/chloramine disinfection, as shown in Figure 2.

Figure 2: Process Flow Diagram for Rehabilitated Carrollton Water Treatment Plant



Replacement of the Carrollton WTP will require a phased construction approach to maintain the required operational capacity throughout implementation. The phased approach is intended to allow continued water production while new facilities are constructed and existing assets are taken out of service. The rehabilitation is anticipated to be completed in three major construction phases, as illustrated in Figure 3.



Construction Phase 1

The first phase will include construction of new plate settler pretreatment basins with a total capacity of 240 MGD. These basins will be located southeast of the existing G and L basins, within the area currently occupied by maintenance and storage buildings. This approach allows the new pretreatment facilities to be constructed with minimal impact on ongoing operation of the existing basins. Demolition of the existing maintenance and storage buildings will be required before construction of the new pretreatment basins.

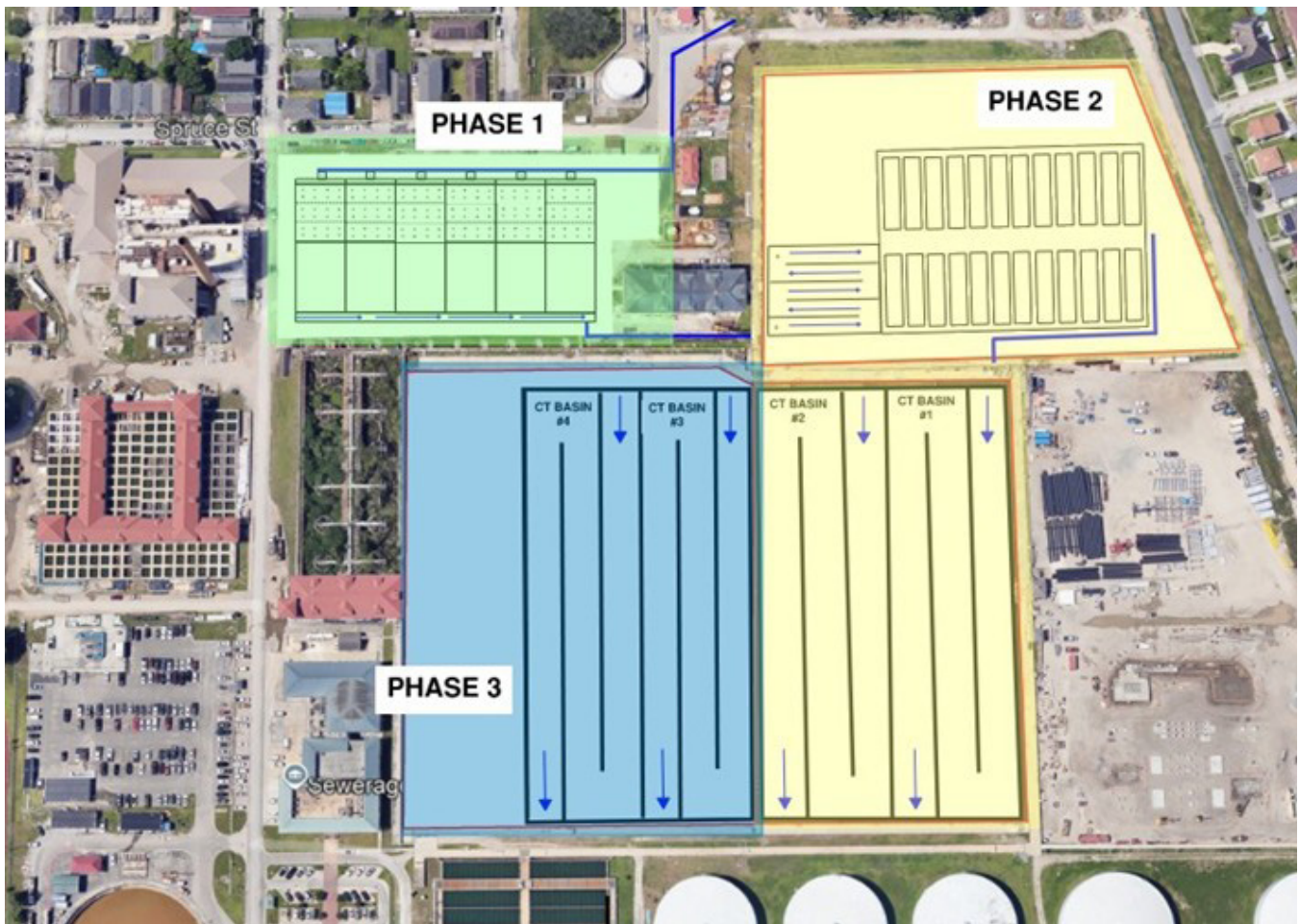
Construction Phase 2

The second phase will include demolition of Basins G3, G4, L3, and L4 and construction of a new 240 MGD filter building. This phase will also include demolition of Contact Basins C5 and C6 and construction of two new above-grade, covered, postfilter contact basins with a capacity of 11 million gallons each.

Construction Phase 3

The third phase will include demolition of Contact Basins C1 through C4 and construction of two additional covered, postfilter contact basins with a capacity of 10 million gallons each. Upon completion of this phase, the existing Claiborne and Sycamore filter process units will be decommissioned.

Figure 3: Carrollton Water Treatment Plant Phased Rehabilitation





Development of 30-Year Capital Improvement Plan

The WQMP culminated in the development of a CIP with a 30-year span. This plan was informed by the recommendations developed through prior planning, evaluation, and risk-informed capital planning tasks and are intended to guide near-term budgeting and long-term investment decisions.

The first 5 years of the CIP focus on projects addressing the most significant risks to treated water production. The assets identified as posing the greatest risk include the Old River intake and power system, followed by the Claiborne and Sycamore filter system. These high-priority projects are included in the first 5 years of the CIP and reflect the most urgent needs for maintaining reliable system performance. In addition, the three construction phases associated with the rehabilitation of Carrollton WTP are incorporated into the CIP.

The first 5 years of the CIP was developed to support SWBNO's annual budget planning efforts and is based on an assumed available capital funding level of approximately \$10 million per year. The remaining 6 to 30 years of the CIP extends this framework by addressing the next tier of priority projects that support long-term system reliability, resiliency, and sustainability. The full CIP provides a comprehensive, risk-informed road map for phased investment in SWBNO's water treatment infrastructure.

The CIP immediately follows the executive summary.



Next Steps

Based on the findings of the WQMP, near-term actions are recommended to address the most significant risks to system reliability, regulatory compliance, and long-term sustainability.

Launch Corrosion Control Pilot Projects to Address Regulatory and Water Quality Risk *(Currently in Progress by Sewerage & Water Board of New Orleans)*

- Proceed with the immediate implementation of the full-scale zinc orthophosphate pilot at Algiers WTP.
- Initiate design modifications at the Carrollton WTP to support a future pilot at that facility.
- Continue use of recirculating pipe loops as a sentinel monitoring tool, and expand customer lead monitoring efforts as outlined in the plan.

Implement High-Priority Risk-Based Projects in the Capital Improvement Plan

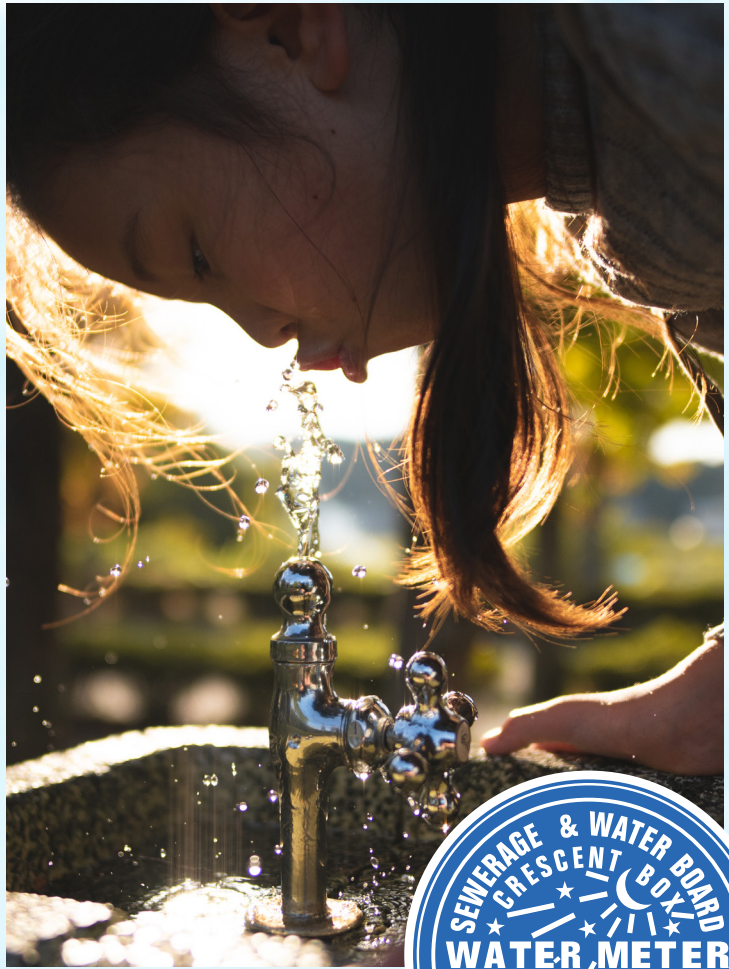
- Proceed with risk-based capital projects at both the Carrollton and Algiers WTPs that were identified through the criticality and asset management assessments.
- Focus first on systems posing the greatest risk to the LOS, including intake systems, sedimentation basins, filtration systems, power supply systems, and critical pumping infrastructure.
- Coordinate implementation of these projects in parallel with Carrollton rehabilitation to sustain interim operability.

Advance Carrollton Water Treatment Plant Rehabilitation as a Top Near-Term Priority

Initiate detailed design and early implementation activities for the phased rehabilitation of Carrollton WTP, consistent with the three-phase construction approach outlined in the WQMP. Carrollton WTP represents the single greatest operational and reliability risk to SWBNO's treated water system. Delaying action increases the likelihood of severe service disruption and escalates long-term costs.



30-YEAR CAPITAL IMPROVEMENT PLAN



SEWERAGE & WATER BOARD OF NEW ORLEANS
WATER QUALITY MASTER PLAN



Appendices

Task #	Task Name	Title of Deliverable	Appendix
1.1	Facilities Goal Assessment	Facilities Goals Assessments Meeting Minutes	A
1.2.1	Water System Demand Analysis	Water System Demand Analysis	B
1.2.2	Analysis of Distribution System Impacts on Demand	Analysis of Distribution System Impacts on Demand	C
1.2.3	Climate Change Impact Evaluation	Climate Change Impact Evaluation	D
1.3.1	Water Quality, Treatment Performance, and Regulatory Compliance Analysis	Drinking Water Compliance, Water Quality, and Treatment Assessment Report	E
1.3.2	Finished Drinking Water Compliance Monitoring Evaluation	Review of Distribution Coliform and Chlorine Sample Procedures	F
1.3.3	Corrosion Control Assessment	Drinking Water Distribution Assessment Report	G
1.4.1	SCADA and Automation Assessment	SCADA and Automation Assessment Tech Memo	H
1.4.2	Residuals Disposal Alternatives	Analysis of Water Treatment Residuals Disposal	I
1.4.3	Facilities Operational Assessment and Optimization	Short-Term Water Treatment Plant Optimization	J
1.5.1	Criticality Analysis	Criticality Analysis Appendix A–Results of Criticality Analysis 1.5.1 Appendix B–Required Interventions 1.5.1	K
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