The Innovative Highly Treated Wastewater Pilot Program

REPORT TO THE GENERAL ASSEMBLY

December 1st, 2024

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EXECUTIVE SUMMARY

Legislative Charge

In 2021, the NC General Assembly allocated $20,000,000 from the American Rescue Plan Act (ARPA) through the State Fiscal Recovery Fund to the UNC Board of Governors to establish the Innovative Highly Treated Wastewater Pilot Program, which the NC Collaboratory is implementing.

Since work began on the program in July 2022, the Collaboratory and its project partners have been tasked with:

1. *Evaluating wastewater systems across North Carolina;*
2. *Identifying five recipient communities for the Program;*
3. *Assisting them in submitting Authorization to Construct (ATC) permit applications to the Department of Environmental Quality (DEQ),*
4. *Managing complex financial reporting requirements; and*
5. *Conducting research to monitor the efficacy of the newly installed wastewater systems.*

The Collaboratory aims to improve public health and water quality within participant communities, while empowering them to take greater control in monitoring and enhancing the quality of their natural resources. To ensure the successful completion of the Program, the Collaboratory has partnered with the UNC School of Government's Environmental Finance Center (EFC), the DEQ, particularly the Division of Water Infrastructure (DWI), and North Carolina State University (NCSU).

EXECUTIVE SUMMARY

Advisory Board

Within the first year of the Program, an Advisory Board was established to support the creation, implementation and review of critical components of the Program. The Advisory Board is made up of a diverse cohort of experts including representatives from:

- NCSU;
- NC Rural Water Association;
- NC DEQ's Division of Water Resources and Division of Water Infrastructure;
- UNC's School of Government;
- NC Department of Health and Human Services;
- HDR Inc.;
- NC League of Municipalities; and
- NC Rural Center.

Throughout the Program, especially in the first half of 2022, the Board has been heavily involved in setting goals for the project, recommending and reviewing communities for participation in the program, brainstorming resources to support selected candidates, and advising on specific, policy relevant and measurable outcomes to pursue public and financial health of the participating communities.

EXECUTIVE SUMMARY

Towns Selected

The EFC developed evaluation criteria for selecting participant communities, incorporating input from the Board and aligning with legislative guidelines. Under Senate Bill 105, established criteria for eligible communities included: systems serving fewer than 10,000 customers, distressed systems, and entities unable to connect to existing wastewater infrastructure.

After further analysis, the EFC identified "shovel readiness," along with willingness and capacity to participate in the program, as other critical factors to consider. With these considerations in mind, the EFC and the Collaboratory invited several towns to apply, and five jurisdictions that completed applications were reviewed and approved for participation in the program:

- Boonville;
- Lansing;
- Ansonville;
- Hot Springs; and
- Maysville

EXECUTIVE SUMMARY

Progress to Date

As of November 2024, Boonville has submitted its ATC permit applications. Lansing and Ansonville plan to submit theirs in November, while Maysville is targeting late December or early January 2025. Most of the participants have submitted invoices for work accomplished during the first year of funding. Two of the participating towns, Lansing and Hot Springs, are facing additional challenges to the construction process given the impacts of Hurricane Helene.

The Environmental Finance Center

Background

According to the EPA, North Carolina's drinking water and wastewater infrastructure requires an estimated $22.1 billion in upgrades. Many communities across the state, especially in rural areas, are in urgent need of funding to modernize outdated and failing wastewater systems that pose risks to public health and well-being.

In an article published by the Citizen Times, Mayor of Hot Springs - one of the participating communities - Abby Norton highlighted one of the town's greatest needs: improvements to its overburdened wastewater treatment system, an issue she has been committed to addressing since her election in 2019.

The Highly Treated Wastewater Pilot Program (Program) seeks to address these demands while fostering the development of innovative and effective wastewater treatment solutions. NC Representative Mark Brody notes how one of the many benefits of the Program includes establishing "a commercially viable wastewater system that is affordable at the municipal level and exceeds the goals of the Clean Water Act."

To ensure the Program's success, the Collaboratory has partnered with the UNC Environmental Finance Center (EFC), the Department of Environmental Quality (DEQ), and North Carolina State University (NCSU). The Collaboratory allocated funds to the EFC to manage and administer the Program.

In its first year, an Advisory Board was established to oversee the Program's development, implementation, and review. The EFC has been instrumental in initiating project efforts, coordinating the Advisory Board, identifying wastewater systems for evaluation, serving as a point of contact for communities and engineering firms to help them navigate pre-construction and construction activities, and engaging with participating communities to reassess their need. Additional details on the EFC's role can be found in the Project Management section of this report.

Legislative Charge

In Session Law 2021-180 the NC General Assembly appropriated $20,000,000 in funding through the State Fiscal Recovery Fund to the UNC Board of Governors to establish the Innovative Highly Treated Wastewater Pilot Program (the full legislative text can be found in Appendix I).

Although the funds were allocated through the state budget process, these funds were from the federal American Rescue Plan Act (ARPA) and have substantial reporting and compliance requirements. In addition, the funding comes with specific deadlines mandated by ARPA.

The legislation directs that the Collaboratory is allowed to allocate $1,000,000 of the funds for research and administrative costs related to the Program, which it has utilized to support the work of the EFC at the UNC School of Government for its project management and research role. The legislative language charged the Collaboratory with specific duties, including:

1. *Reviewing wastewater systems across North Carolina*
2. *Selecting five recipient communities for participation*
3. *Assisting participants in obtaining DEQ approval for ATC permits*
4. *Overseeing system construction*
5. *Monitoring efficacy of installed systems*

Legislative guidelines prioritize distressed communities, those with populations under 10,000, and areas where existing wastewater systems cannot serve residential or commercial developments.

The legislation directed that by December 1st, 2024, the Collaboratory must submit a report to the Environmental Management Commission and the Environmental Review Commission. The submittal of this report is intended to satisfy that legislative requirement.

Project Management

Advisory Board

One of the first actions taken by the EFC in its management of the Program was to establish an Advisory Board to assist with the Program guidelines and selection of the participants. The Board played a critical role in shaping the Program from the outset. The Advisory Board is made up of a diverse cohort of experts including:

- *NCSU;*
- *NC Rural Water Association;*
- *NC DEQ's Division of Water Resources and Division of Water Infrastructure;*
- *UNC's School of Government;*
- *NC Department of Health and Human Services;*
- *HDR Inc.;*
- *NC League of Municipalities; and*
- *NC Rural Center.*

Throughout the Program, particularly in early 2022, the Board actively set project goals, recommended communities for participation, identified resources to support selected candidates, and advised on measurable, policy-relevant outcomes to enhance public health, financial stability, and water quality in these communities. The Board met a total of six times during the first two years, beginning with an initial meeting on September 6, 2022, followed by meetings on November 22, 2022; February 17, 2023; May 3, 2023; and July 23, 2024. In 2023, they began transitioning to quarterly or as-needed meetings to support project outcomes and assess progress. It played a crucial role in reviewing and approving the five communities proposed by the EFC for participation in the Program, working closely with the DEQ and EFC to address the specific needs of these communities.

Project Management

EFC Managerial Role

The EFC's primary responsibilities include Program administration and engagement with the Program's five participants. It also coordinates and leads meetings with the Advisory Board, participating communities, the DEQ, and other stakeholders. Furthermore, The EFC conducted initial data analysis to identify eligible communities, selecting towns that met key legislative criteria and assessments as suggested by the advisory board.

Following the finalization of community selection, the EFC supported these communities through the pre-construction phase by assessing the technical, managerial, and financial health of existing systems, and identifying barriers and success factors for securing and implementing grant funds. The EFC also assisted in preparing communities for the approval of their ATC applications.

In September 2024, EFC organized and hosted a participant summit to provide technical assistance and resources to communities, while continuing to support their efforts in implementing sound financial management for their utilities. During the summit, the EFC shared best practices for utility wastewater management and initial findings from the first two years of the Program. Following the summit, the EFC received positive feedback from participants who found the information and assistance provided during the event valuable in advancing their project efforts.

The EFC's role, particularly in providing technical assistance to local governments participating in the program, has been invaluable.

Selection Process

The evaluation criteria for selecting participant communities were guided by both the mandates outlined in Senate Bill 105 and practical considerations identified by the Advisory Board. The EFC also incorporated additional pertinent factors during their analysis. Senate Bill 105 set specific eligibility requirements focusing on systems serving fewer than 10,000 customers, distressed systems , and residential or commercial developments lacking access to existing wastewater services.

With the advice given by the Advisory Board, the EFC introduced the criterion of "shovel readiness," meaning that the entity must have a clear plan for implementing necessary improvements at their treatment plants to comply with legislative requirements, as well as demonstrate community willingness or capacity to participate in the Program. The EFC ultimately received recommendations from the advisory board on which towns met these criteria and were well-positioned to pursue the projects under the Program.

The EFC initiated outreach to potential communities, outlining the program's objectives, funding opportunities, and application process. After receiving completed applications and consulting with the Local Government Commission (LGC) to ensure the towns selected had minimal problems as identified by LGC staff, the EFC and Collaboratory reviewed and selected five participants: Boonville, Lansing, Ansonville, Hot Springs, and Maysville.

Town Updates

Ansonville

Introduction

Ansonville is located in Anson County, North Carolina, with a population of 617 according to the 2022 American Community Survey 5-Year Estimates. The wastewater system currently has 243 customers, one of them being a large industrial user, Premiere Fibers. The Town is located approximately one hour away from Charlotte, North Carolina, just west of the Pee Dee River. The town has experienced some growth over the past several years including several new houses within the town limits.

Current Plan and Proposed Upgrades

Ansonville (0.120 MGD) utilizes a facility with several aeration chambers and bottom clarifiers which perform the primary treatment for the plant. The facility also uses a chlorine disinfection system, which is a conversion from their previous UV system. The plant utilizes a manual bar screen for headworks, an aerated equalization basin for high flows, and an aerated sludge holding chamber.

Ansonville will replace their wastewater treatment unit with a new packaged system. This includes installing a tertiary disc filter for additional treatment quality, rehabilitation of the chlorine contact chamber, rehabilitation of the blowers, and a new lab and chemical storage building. The project will also install a new standby emergency generator and automatic transfer switch, as well as an equalization basin and a dual manual bar screen to improve treatment efficiency. The design of the new plant is complete. Engineers are providing the Town with the drawings for review, after which the town will begin assembly of the ATC application. The application is anticipated to be submitted in November 2024.

Town Updates

Ansonville Cont.

Specific Technical Assistance

Ansonville is currently up to date on their audits. Data pulled from the audits shows that the Town's revenue is currently not meeting its expenses while accounting for depreciation. The Town has expressed an interest in following up with their auditor to gain clarity on their depreciation value as they believe it is higher than what they expected, which affects their operating ratio. Additionally, the Town's unrestricted cash dipped in FY21, but they have steadily built it back up over the past 2 fiscal years to nearly the same level it was before. Ansonville also has significant existing debt, which has impacted their debt service ratio. The EFC's financial modeling has shown that the Town has a downward trend in several benchmarks, which could indicate previous rates were not sufficiently meeting needs.

Ansonville implemented a rate increase in July 2024 by reducing consumption allowance by 1,000 gallons per month. The EFC's modeling has predicted additional revenue collected as a result of the increase would not be enough to meet existing expenses. A 3% yearly increase would be sufficient to meet current needs and build up reserves while accounting for inflation. The consumption data provided by the town did not show customer-level consumption, which has made the analysis less conclusive. Going forward, the EFC is working with the Town to gather customer-level consumption data on a monthly basis to increase the value of the tool.

Ansonville WWTP

Town Updates

Boonville

Introduction

Boonville is located in Yadkin County, North Carolina, with a population of 1,364 according to the 2022 American Community Survey 5-Year Estimates. The wastewater system currently has 557 customers. Boonville has experienced issues with infiltration and inflow, causing their plant to exceed flow limits and experience limited treatment during heavy rain events. Boonville is addressing this issue in their collection system, as well as other projects for their utility infrastructure via other funding sources.

Current Plan and Proposed Upgrades

Boonville (0.200 MGD) owns and operates an extended aeration wastewater facility which utilizes three package plants, consisting of aeration tank, clarifier, and digestor. The Town also utilizes an automatic bar screen as its headworks. The plant utilizes UV-disinfection near the end of the treatment process. Sludge is processed by utilizing drying beds and hauling.

Boonville has submitted the ATC permit for review as of September 2024 and is currently waiting for a response from DEQ. The scope of work includes relocation and modifications to the existing UV disinfection system, EQ basin, tertiary filters, digester, a metal building, and several associated pump stations and blowers. The design currently includes replacing the magnetic flow meter and auto-sampler as well. Due to a severe flood, they lost both of those items and needed to replace them immediately. Boonville is investigating other methods that could protect the plant during heavy rain events.

Town Updates

Boonville Cont.

Specific Technical Assistance

Boonville is currently up to date on their audits. Data pulled from the audits shows the Town currently brings in enough revenue to meet their expenses and account for depreciation, and they have had an upward trend on this metric for the past five years. Similarly, the Town has had an upward trend on their debt service ratio over the past five years, but they are just meeting the benchmark of 1.2. The Town also has a significant amount of unrestricted cash, but the amount available has dropped every year since FY19.

Boonville implemented a rate increase in July 2022. Using customer-level consumption data, the EFC's modeling predicted that current rates will not bring in enough revenue to cover expenses currently or in the future. The Town would have to consider a yearly increase of at least 5% to keep pace with inflation and close the gap between revenues and expenses. However, the Town has expressed that the data used in this analysis is not reflective of the actual consumption due to errors in billing. The EFC will continue to work with Boonville to refine the model as reliable consumption data becomes available.

Boonville WWTP

Town Updates

Hot Springs

Introduction

Hot Springs is located in Madison County, North Carolina, with a population of 519 according to the 2022 American Community Survey 5-Year Estimates. The wastewater system currently has 173 users. The Town is situated between the French Broad River and Spring Creek. Because of its unique geography and history, the town welcomes a large number of tourists each year, often on the weekends. Higher usage as a result of tourism has put additional strain on the Town's wastewater system. Additionally, the Town experiences recurring issues with stormwater control and inflow and infiltration. Hot Springs was severely damaged in Hurricane Helene.

Current Plan and Proposed Upgrades

The existing wastewater treatment plant in Hot Springs was built in the late 1960s and is permitted for 80KGD of flow. Due to issues with inflow and infiltration as well as the weekend spikes in population, Hot Springs has exceeded their permitted flow numerous times. Additionally, their current plant and the originally proposed site for a new plant are within the floodway of the French Broad River. The originally proposed site was not understood to have this complication when Hot Springs was originally accepted into the Highly Treated Wastwater Pilot program. Not only does this introduce additional requirements with permitting, but Hot Springs experienced severe flooding from the French Broad and Spring Creek during Hurricane Helene, and is not interested in making an investment that could be similarly threatened by a future storm.

However, geographic constraints present a challenge in moving forward with alternative sites. Hot Springs and their engineering firm have explored multiple alternative sites and been met with unwillingness to sell, or exorbitant prices for land parcels within residential zones. As of November 2024, Hot Springs has identified a potentially successful site that is out of the floodway and floodplain, with a willingness to sell, and at a reasonable price, from a local manufacturing plant that is relocating operations. Until the sale is finalized, Hot Springs cannot move forward with an ATC permit submission and subsequent steps towards construction. The Collaboratory and the UNC EFC are working with Hot Springs to move forward with this most viable option.

Town Updates

Hot Springs Cont.

Specific Technical Assistance

Hot Springs is currently up to date on their audits. Data pulled from the audits shows that the Town currently has financial flexibility to cover existing debt service, pay for necessary infrastructure, and potentially build up reserve funds. The EFC's financial modeling has shown that the Town does not have a consistent trend with several benchmarks, which could indicate significant variations in collections, budgets, and emergencies year-to-year.

Hot Springs implemented a rate increase in August 2023. The EFC used customer-level consumption data to model how additional rate increases would affect system finances into the future. The EFC was not able to extrapolate exact values for consumption under the allotted allowance for every billing cycle, so some totals estimate usage. The EFC is actively working with the Town to collect more comprehensive, up-to-date data to continue to update into the analysis.

The EFC's modeling has predicted additional revenue collected as a result of the increase would significantly raise revenues and raise the utility's operating ratio. The increase was enough for revenues to fully cover expenses over the next five years, accounting for inflation. This would give the Town more flexibility to put some additional revenue into a reserve fund. However, given the damage Hot Springs sustained from Hurricane Helene, the Town may need to use extra funds to make emergency repairs to the utility system. The EFC plans to travel to Hot Springs and present more comprehensive information to town staff once the Town has restored normal operations.

Hot Springs WWTP

Town Updates

Lansing

Introduction

Lansing is located in Ashe County, North Carolina, with a population of 236 according to the 2022 American Community Survey 5-Year Estimates. The wastewater system currently has 65 customers. Lansing is the smallest town participating in the program. The Town is situated in a rural part of the county, making it a popular tourist spot due to its proximity to various hiking and biking trails. In the past decade, the town has welcomed several businesses to attract tourism, including a cidery that has had an impact on the wastewater system.

Current Plan and Proposed Upgrades

Lansing owns and operates an extended aeration activated sludge treatment plant. The new treatment train will include several improvements over the original plant, such as the addition of a pre-anoxic zone, addition of flow equalization, deeper clarifiers that do not depend on tube settlers, ability to waste concentrated sludge from the clarifiers, a drum filter upstream of the disinfection process, and ultraviolet disinfection (UV) in lieu of chlorine, which reduces toxicity in the receiving stream. In addition, the purchase specifications will require plant manufacturer to meet the more stringent effluent concentrations as cited in the legislation. The manufacturers who bid on the project will thus be encouraged to use innovative technology.

Town Updates

Lansing Cont.

Specific Technical Assistance

Lansing is currently up to date with their audits. Data pulled from the audits shows that the town is currently not bringing in enough revenue to cover their expenses, which has trended slightly downward over the past five fiscal years. In addition, the Town's unrestricted cash has steadily declined during that period, indicating the town may be using that to cover any expenses that fall short of revenues.

Lansing implemented a rate increase in July 2023. The EFC's modeling has predicted that the Town will need to consider implementing a yearly increase to keep pace with inflation and close the gap between revenues and expenses. The EFC has modeled a 5% yearly increase, which has been estimated to sufficiently to recapture revenue in addition to projected growth.

Lansing was impacted heavily by Hurricane Helene and will likely need additional support to safely restore their wastewater system. Additionally, the EFC plans to travel to Lansing and present more comprehensive information to town staff once the Town has restored normal operations.

Lansing WTTP

Town Updates

Maysville

Introduction

Maysville is located in Jones County, North Carolina, with a population of 893 according to the 2022 American Community Survey 5-Year Estimates. The wastewater system currently has 435 customers. Maysville's wastewater treatment plant is decades old, and previous attempts to make improvements were complicated by incorrect installation of equipment. Maysville has struggled with infiltration and inflow issues, and has had significant utility staff turnover. However, ARPA funding, a relationship with a new engineering firm, and other efforts by the town manager, including hiring of a talented operator, have put Maysville on an upwards trajectory.

Current Plan and Proposed Upgrades

Maysville (0.180 MGD) utilizes several components for its wastewater treatment facility, including a manual bar screen, grit chamber, an equalization basin at the head of the plant, and two treatment trains that include several chambers for aeration and clarification respectively. The Town is currently upgrading its plant to add additional clarifiers under a separately funded project. The Town also utilizes a chlorine disinfection system that it intends to replace with UV. The Town also has some anoxic chambers/units and a sludge holding basin that allow the Town to manage its sludge.

Maysville is still working on finalization of the design. Phase 1 plant construction has recently been bid on and awarded, so final designs have been a lower priority for the Town. The Town anticipates submitting an ATC application prior to December. The project will include new Tertiary filters, automation for the equalization basin, grit removal piping realignment, modification of the existing sand filter into additional digestor storage, new pump station, and significant electrical modifications.

Town Updates

Maysville

Specific Technical Assistance

Maysville is not currently up to date with their audits and is working on completing FY23 and FY24. The UNC EFC is working on investigating potential supportive measures for Maysville in this effort. Data pulled from the FY22 and prior audits shows that the town is just recovering their expenses, but that has been a challenge historically. However, the town's unrestricted cash has been steadily increasing, giving Maysville better coverage in the case of an emergency. Other key financial performance indicators, such as quick ratio and debt service coverage ratio, have also increased.

Maysville implemented a rate increase in July 2023. The EFC's modeling has predicted that the Town will need to consider implementing a yearly increase to keep pace with inflation and reach other utility goals. The EFC has modeled a 5% yearly increase, which has been estimated to sufficiently to recapture revenue; however, capital needs are not currently included in the analysis. The UNC EFC and Maysville anticipate revisiting the rates analysis later in 2025 as updated information becomes available.

Maysville has worked diligently to implement best practices for their utility system, and now is better positioned to make proactive decisions. The UNC EFC plans to attend Maysville's board retreat in February 2025 and provide materials and advisement on financial management practices.

Maysville WTTP

Research Progress

North Carolina State University

At NCSU, Dr. Michael Burchell from the Biological and Agricultural Engineering Department has been instrumental in leading data-driven water quality and environmental assessments for this program. Dr. Burchell and his team of graduate students are evaluating system performance prior to upgrades and collecting preliminary data on pollutant concentrations.

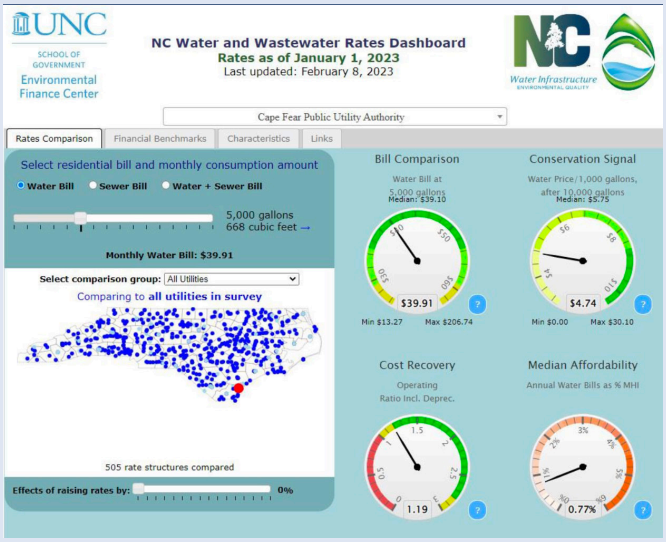
Through monthly field studies, they assess the effectiveness of removal technologies utilizing EPA-standard testing methodologies. Once pre- and post-upgrade data is collected, Dr. Burchell's team will develop statistical models to analyze the impact of the new wastewater systems on treatment efficacy.

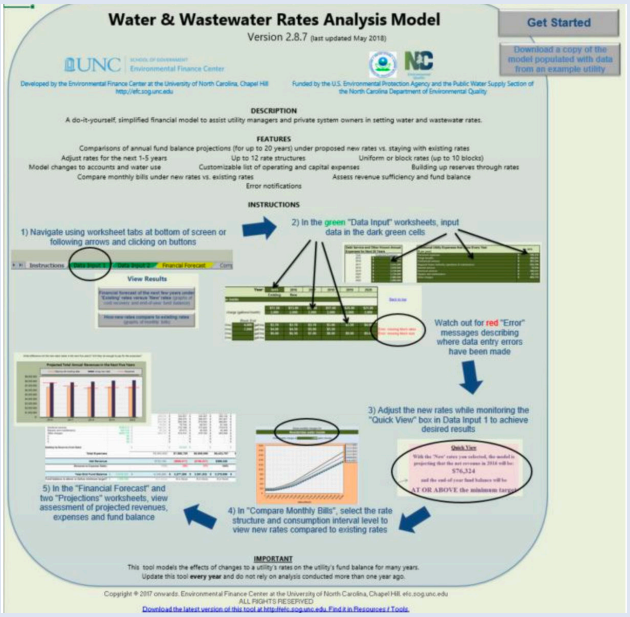
Dr. Burchell's research also includes a sixth comparison site, Walnut Cove, a rural wastewater system using natural treatment methods such as duckweed and constructed wetlands, which has successfully operated for over 20 years with minimal maintenance. This site will be evaluated as a potential low-cost treatment option for participant communities and future wastewater operations.

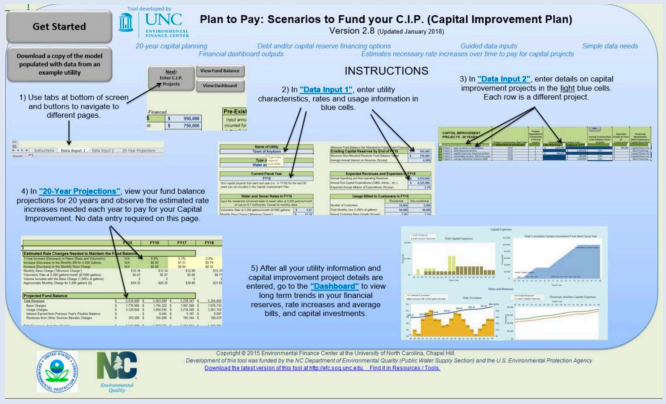
Research Progress

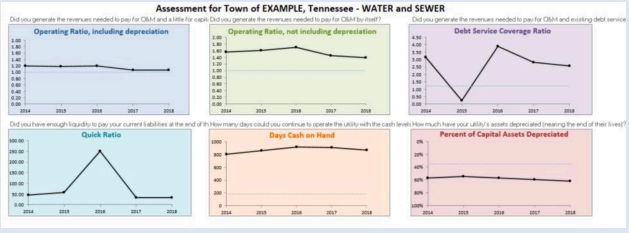
Environmental Finance Center

In addition to its project management and technical assistance roles, the EFC is actively contributing research to the Program. As part of this effort, the EFC has conducted semi-structured interviews and surveys with program participants to build an understanding of the challenges that exist for utility management and grants management. The UNC EFC is also developing and improving various analytic tools and resources to enhance the management of utility systems. These tools empower utilities to perform long-term self-assessments of their technical and financial health, which is essential for accurate rate setting and informed financial decision-making.









Value of the Program

As mentioned, upgrading wastewater systems has become a priority for many communities throughout North Carolina. Well-functioning wastewater infrastructure not only enhances public health and safety but also simulates local economies by attracting industries, reducing medical costs, and improving standards of living. This program aims to support the needs of North Carolina's communities by fostering long-term partnerships between local communities, municipalities, and research institutions, translating academic research into practical solutions, and developing strategies for long-term resilience.

The effective treatment of wastewater is critical to both environmental and public health. The addition of treatment options such as UV light or chlorine can effectively mitigate the risk of waterborne diseases by eliminating or reducing bacteria, viruses, and other microorganisms. Advanced treatment technologies that involve biological, physicochemical, or a combination of both processes have higher removal rates of contaminants such as nitrogen and phosphorus than traditional and outdated wastewater treatment options.

Testimonies from several of the participating towns highlight the value they see in the program.

In Hot Springs, the overburdened wastewater system, which has a capacity of just 80,000 gallons, will be replaced with program funding to construct a new facility with a capacity of 200,000 gallons - more than double the original performance. In an article published by the Citizens Times, Hot Springs Mayor Norton expressed gratitude, stating, "We, as a governing board, are thankful for this opportunity to provide improved service to our citizens in the future and look forward to working with the Collaboratory to make this proposed project a reality."

Value of the Program

Cont.

The Collaboratory has worked with the town to devise a comprehensive solution and will actively monitor the progress and efficacy of the new treatment facilities.

In a letter of appreciation to the Collaboratory, Mayor Mack Powers of the Town of Lansing described the funding as a "generational opportunity" to address the community's needs, particularly by helping to upgrade their aging wastewater infrastructure.

All Summit participants expressed the value they saw in the training and technical assistance provided by the EFC. The EFC received positive feedback from the Summit, and many participants have plans to implement new knowledge and strategies in their towns, from reviewing audits to implementing informed rate increases.

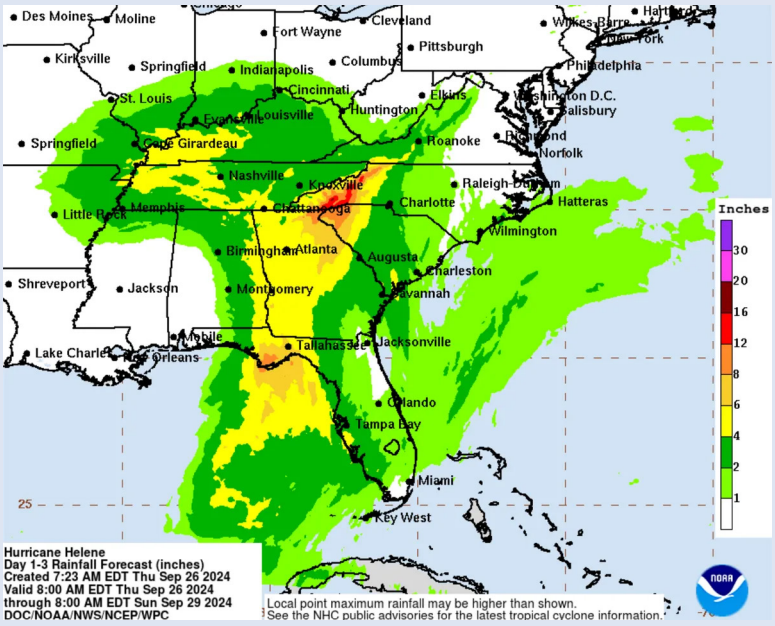
One mayor expressed that learning more about the financial side of their wastewater treatment system helped her better understand the "financial implications" of decisions that directly affect the system, and that information she learned would help the town find a "better way to create our budget." A town manager at the Summit indicated that he wanted to use a rate study to make informed decisions about wastewater rates, which he believes will have a "positive and impactful" effect on the system's finances. Many participants expressed an interest in holding additional trainings of the same style with different topic focuses. The UNC EFC has also offered to travel and present a tailored version of this training to other staff members and elected officials of participating towns.

Hurricane Helene

Due to the devastating impact of Hurricane Helene on Western Carolina, several sites, including Hot Springs, the Town of Lansing, and Boonville, have seen their operations and planning severely disrupted.

The Collaboratory and the EFC are working with these communities, particularly Hot Springs and Lansing, to ensure their needs are met and that they have access to the essential resources for establishing advanced wastewater treatment systems - now more critical than ever - to safeguard the health and well-being of their citizens. The NC Pandemic Recovery Office has provided guidance that the funds for the Program may be utilized to get existing systems back into operation.

Further delays may arise due to supply chain disruptions, complicating efforts to retain necessary contractors and equipment, disrupting planning, and limiting other critical resources needed for project completion. Given the communities' priority to restore disrupted wastewater systems for the welfare of residents, the Collaboratory acknowledges these challenges and promotes open dialogue and flexibility in advancing Program efforts.



Source: Asheville Citizen Times, "Hurricane Helene forecast for Western NC: 'Catastrophic, life-threatening' flooding possible"

ARPA Reporting

As noted above, one of the challenges of this program arises from its funding source, ARPA. As a result, the Program is subject to stringent reporting requirements and specific deadlines.

In May 2022, the federal award was granted to the Collaboratory, which subsequently signed a Memorandum of Understanding (MOU) with the North Carolina Pandemic Recovery Office (NC PRO) to fulfill the outlined terms. By August 2022, the Collaboratory began submitting monthly expenditure reports, followed by the initiation of annual performance reporting in September 2022. In December 2023, the first annual performance reports from local governments were requested.

In summary, all State agencies that received SFRF appropriations are classified as Administering Agencies and must provide expenditure, programmatic, and performance information to NC PRO. This includes necessary reporting on subrecipients, contractors, and beneficiaries. The Collaboratory complies with these reporting requirements and is working closely with NC PRO and the participating towns to ensure that all obligations are met and that project spending is thoroughly documented.

Given the tight deadlines associated with ARPA funding and the uncertain progress of construction projects, the Collaboratory is diligently working to advance these projects as expeditiously as possible. However, if the ARPA deadline of 2026 is not extended, there is a possibility that some projects may require additional state funds to ensure their completion.

Looking Forward

The expectation is that significant progress will be made throughout 2025, including the submission of Authorization to Construct permit applications to the DEQ and the commencement of the construction phase for all five participants. Additionally, research efforts will continue to ensure that baseline data is collected to allow for comparing the performance of these new treatment facilities. Finally, ongoing monitoring and reporting of spending activities will remain a top priority for the Program.

In 2025, the project management team and researchers will collaborate closely with town staff and engineers to make progress toward obtaining ATC permit approval and constructing upgraded wastewater treatment plants. Dr. Burchell's research team will continue monthly sampling and data analysis to develop innovative and effective treatment solutions. Additionally, based on the positive feedback from the EFC's first summit, the EFC plans to host another briefing to address emerging needs and share any new research findings.

Appendices

Legislative Text

Session Law 2021-180

SECTION 8.26.(b) Funds allocated from the State Fiscal Recovery Fund to the Board of Governors of The University of North Carolina for the Innovative Highly Treated Wastewater Pilot Program (Program) shall be provided to the North Carolina Policy Collaboratory at the University of North Carolina at Chapel Hill (Collaboratory) to establish the Program as described in this subsection. The Collaboratory may use up to one million dollars ($1,000,000) of the funds allocated by this subsection for research and administrative costs related to the Program, of which up to two hundred thousand dollars ($200,000) may be used to reimburse the Department of Environmental Quality for its administrative costs. Project funding from the funds allocated by this section is limited to the lesser of forty percent (40%) of the total project cost or four million dollars ($4,000,000). In implementing the Program, the Collaboratory shall do the following:

(1) Review and evaluate wastewater systems producing highly treated wastewater, either as a single unit or as a combination of treatment devices for suitability as a wastewater treatment option for local governments, sanitary districts, or public authorities considered distressed, as defined by G.S. 159G-20, that (i) have no more than 10,000 customers or (ii) include residential or commercial developments or subdivisions that are unable to be served by existing wastewater systems.

(2) Identify no less than five local governments, sanitary districts, or public authorities meeting the criteria set forth in subdivision (1) of this subsection as participants in the Program.

(3) Work with Program participants to submit permit applications to the Department of Environmental Quality and, upon permit approval, to construct the wastewater systems.

(4) Conduct research and monitoring to quantify the efficacy of the wastewater systems funded and built as part of the Program. The Collaboratory shall share results of this research with Program participants and the Department.

Appendices

Legislative Text Cont.

SECTION 8.26.(c) The Department of Environmental Quality shall do the following with respect to entities receiving wastewater systems producing highly treated wastewater under subsection (b) of this section to the extent not inconsistent with its National Pollutant Discharge Elimination System permitting authority delegated from the United States Environmental Protection Agency:

(1) Review and qualify wastewater systems producing highly treated wastewater, either as a single unit or as a combination of treatment devices. The Department shall require the manufacturer of the wastewater system within five days of the qualification under this subdivision to file with the Department a performance bond or other surety with a minimum term of five years to be executed in favor of the permittee in the amount sufficient to cover system replacement. Operation, maintenance, abuse, or change in hydraulic flows or wastewater characteristics shall not be attached to the performance bond or surety.

(2) Work with the entities identified under subsection (b) of this section to permit the wastewater systems meeting the standards for highly treated wastewater set forth in subsection (a) of this section. The system must be consistent with the action plan developed by the entities as set forth in G.S. 159G-45(b)(3).

SECTION 8.26.(d) No later than December 1, 2024, the Collaboratory, with the assistance of the Department of Environmental Quality, shall provide a report to the Environmental Management Commission and the Environmental Review Commission evaluating the systems permitted under the pilot program established in this section. The report shall assess the effectiveness of these systems compared to the systems previously operated by the local government, sanitary district, or public authority, along with suggestions for further legislation and rulemaking necessary to support the adoption of highly treated wastewater systems.

Appendices

Acknowledgements

The North Carolina Collaboratory is a research funding entity, headquartered at the University of North Carolina at Chapel Hill, that partners with academic institutions, state agencies, community organizations, and industry partners to transform research into practical information for use by state and local government. Since its authorization in 2016 by the North Carolina General Assembly (see 31A N.C.G.S. §116-255), the Collaboratory has stewarded nearly $225 million in appropriations from the legislature, investing in over 500 research projects across all 17 University of North Carolina system campuses and numerous NC-based private colleges and universities. The Collaboratory is committed to efficiently developing innovative, evidence-based solutions that serve the state and its constituents. To learn more about the Collaboratory visit: https://collaboratory.unc.edu/

The Innovative Highly Treated Wastewater Pilot Program is a true partnership effort between local and state governments and academic institutions. The Collaboratory staff would like to acknowledge some of those individuals and organizations who have contributed to the program.

- *The North Carolina General Assembly is responsible for the funding of the program.*
- *The elected officials and staff from each of the five towns participating in the program provide critical support on a weekly basis.*
- *Members of the Advisory Board have provided expertise and knowledge to assist in identifying participants for the program.*
- *The UNC Environmental Finance Center staff, Hope Thomson, Alicea Easthope-Frazier and their colleagues, are responsible for the management and leadership of the program.*
- *Dr. Mike Burchell, NC State University, and his graduate students are supporting the program with water sampling efforts and provided critical connection withthe plant operators of each of the towns.*
- *Staff at the Department of Environmental Quality have been instrumental in sharing their recommendations and have provided support to program decision-making.*
- *Collaboratory intern, Victoria Farella, made significant contributions to the drafting of this legislative report.*

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