

Town of Boiling Springs

NCDEQ Asset Inventory and Assessment –
Wastewater System





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PREPARED FOR

Mr. Justin Longino
Town Manager
Town of Boiling Springs
114 East College Avenue
Boiling Springs, NC 28152

PREPARED BY

McGill Associates, PA
1240 19th Street Lane NW
Hickory, NC 28601
828.328.2024
mcgillassociates.com

September 23, 2022

Mr. Justin Longino, Town Manager
Town of Boiling Springs
114 East College Avenue
Boiling Springs, NC 28152

RE: Statement of Qualifications
NCDEQ Asset Inventory and Assessment – Wastewater System

Dear Mr. Longino:

The North Carolina Department of Environmental Quality's (NCDEQ) Asset Inventory and Assessment (AIA) grants were created to encourage utilities to become more viable and proactive in the management and financing of their systems. McGill has worked with utilities throughout North Carolina to provide reliable, practical, and comprehensive inventories and assessments of their water and wastewater systems. Our team is prepared to assist the Town of Boiling Springs with the development of its wastewater system AIA. With our history and involvement in planning this project and submitting the funding application package, McGill has an intimate knowledge of the needs of the community. We are confident in our capabilities to perform responsive, high-quality professional services to accomplish the project scope and objectives for this project. Please consider the following relevant points demonstrated within our SOQ:

-  **Experience:** For more than 38 years, McGill has successfully completed AIAs for similar-sized communities. Since the AIA program was created by NCDEQ in 2015, we have been involved with 15 water AIA projects and another 12 wastewater AIA projects. As such, we are familiar with NCDEQ water and wastewater AIA grant program requirements.
-  **Familiarity:** We have worked with the Town of Boiling Springs for the past six years, primarily on land planning and recreation projects, including obtaining grant funding for and providing design, bidding, and construction administration services for Town Park. Most recently, our team has assisted with streetscape and greenway projects involving utilities.
-  **Practical Approach:** We are highly invested in this AIA project, as we have been involved in the earliest project stage with acquisition of funding. McGill will create practical deliverables and a system that works specifically for Boiling Springs — one that is tailor-made for the Town, not a one-size-fits-all solution.

We are truly excited about working with you and Town staff on this essential project. We would be pleased to have the opportunity to discuss our team's qualifications with you further. If you have any questions, please contact me at doug.chapman@mcgillassociates.com or 828.328.2024.

Sincerely,
MCGILL ASSOCIATES, PA

A handwritten signature in blue ink, appearing to read "Doug Chapman".

DOUG CHAPMAN, PE
Principal / Vice President / Regional Manager

01 | Firm Information

Contact



Doug Chapman, PE
Principal / Vice President /
Regional Manager
doug.chapman@mcgillassociates.com

How We're Different

McGill serves public and private clients throughout the Southeast. The range and depth of McGill's expertise includes a wide spectrum of engineering services, land planning and recreation, as well as consulting services.

Our foundation is built on creating comprehensive solutions in a personal way. Collaboration is the key to our success and clients are an integral part of every project at McGill. By building lasting relationships with communities, we understand our clients' visions and project goals. Our dedicated project team focuses on delivering a customized solution for each unique community.

We help our clients identify challenges, formulate responsive solutions, and manage successful project completion. Through partnership, we shape the best results for each client and community.

At a Glance

Legal Name: McGill Associates, PA
Incorporated / Year: 1984
Business Type: Corporation
Number of Offices: 8
Number of Employees: 144

Office Locations



Local Office:

1240 19th Street Lane NW, Hickory, NC 28601
828.328.2024

What We Do



Water and Wastewater



Civil Engineering



Water Resources



Solid Waste



Electrical Engineering



Mechanical, Electrical, and Plumbing



Construction Administration



Land Planning and Recreation



Environmental



Consulting Services



Subconsultant



Contact

Jeff Greene, PE
President / Owner
jeff@krgutility.com

Office Location

Post Office Box 2000
Lenoir, NC 28645
828.757.0006
krgutility.com

Specializations

- Sewer video inspections
- Installing and removing flow meters in manholes

KRG Utility, Inc.

Services for this Project: Pipe video inspections

KRG Utility, Inc. (KRG Utility) which has been family-owned and operated since 1978, is one of the leading sewer and water rehabilitation service companies in North Carolina, South Carolina, and Virginia. Headquartered in Lenoir, KRG Utility uses the most advanced industry technology and techniques, including pipe bursting, slip lining, and pipe video inspections. Regardless of the size, scope, or complexity of the project, KRG Utility's full-service offerings, state-of-the-art expertise, and unparalleled service make the firm well-suited for large or small projects.

KRG Utility has cleaned and provided CCTV footage for numerous types of reasons, including:

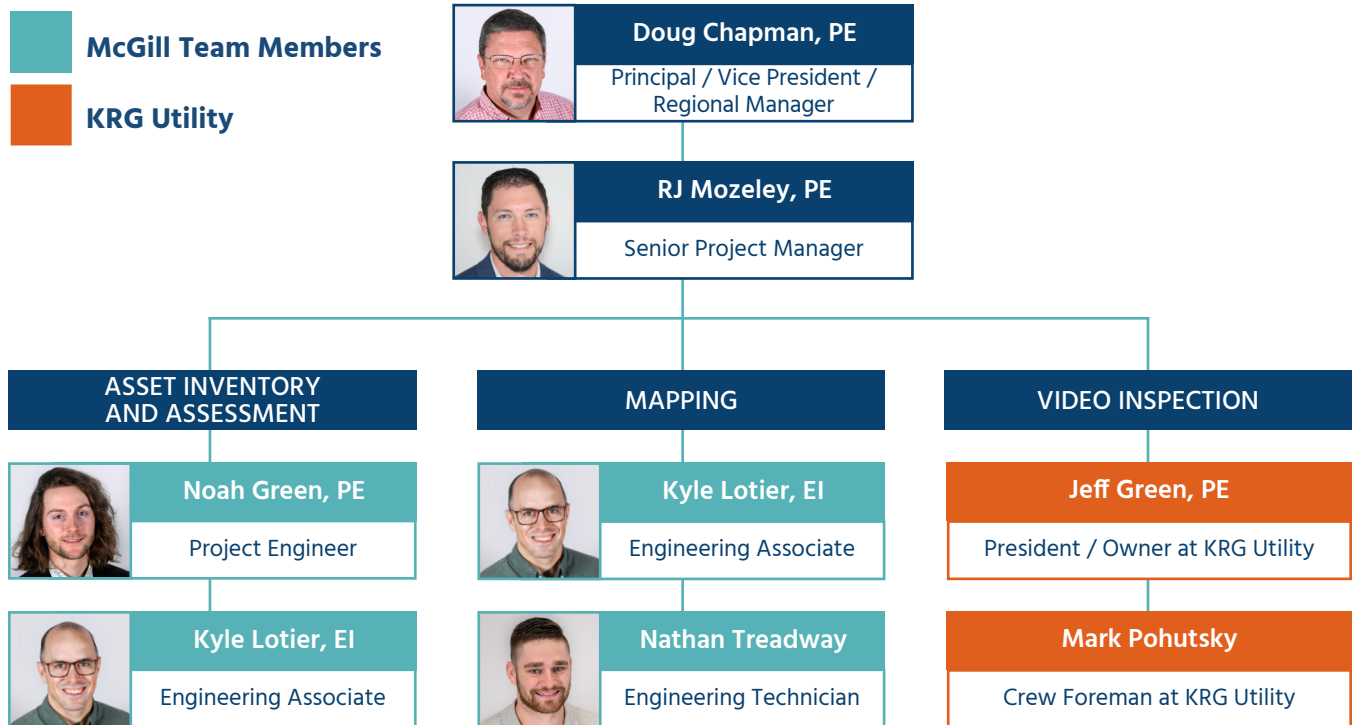
- Evaluating older sewer systems for issues, roots, infiltration and obstructions cured-in-place pipe (CIPP) lining and rehabilitation projects
- Locating and mapping sewer systems for communities that did not have existing plans of their sewer system
- Cleaning and videoing new construction projects for municipal acceptance

KRG has captured CCTV footage of millions of feet of sewer pipe throughout the years with an annual range of 0.7 to 1 million feet.

02 | Team Qualifications

Team Overview

Our goal in assembling the proposed team outlined below is matching the individual and team qualifications with the expertise and experience appropriate for this project. Our comprehensive project team approach is particularly appropriate for projects where coordination, scheduling, and efficiency are important considerations.





Doug Chapman, PE

Principal / Vice President / Regional Manager

Doug Chapman has practiced engineering in North Carolina for more than 31 years. His experience includes a wide range of public projects, such as streets and stormwater systems, water and wastewater systems, parks and recreation, and community facilities and planning. Doug has worked in a variety of professional environments, including both public and private sector positions, which have contributed positively toward developing his capacity to solve complex problems and understand the needs of public clients. He is an innovator and a leader in infrastructure and facility planning and design. Doug has worked on numerous projects and is well versed in public bidding requirements and project funding opportunities. He also understands the need to actively manage projects from inception through construction.

Education

BS, Mechanical Engineering, North Carolina State University (NCSU)

Professional Licensure

PE NC #020622

Professional Associations

- American Water Works Association (AWWA)
- Water Environment Federation (WEF)

Years of Experience

31

Years with McGill

22

Specializations

- Water engineering
- Wastewater engineering
- Project administration

Related Experience

- **Water and Sewer AIA and Asset Management Plan (AMP), City of Oxford:** As Principal, Doug managed staff assisting the City in preparing AIAs for the community's water and sewer system.
- **Water and Sewer AIA, Town of Sparta:** As Principal, Doug oversaw the preparation of AIAs for the Town's water and sewer system.
- **Water and Sewer AIA, Salisbury-Rowan Utilities:** Doug worked with Salisbury-Rowan Utilities to obtain AIA grant funding from the NCDEQ Division of Water Infrastructure (DWI) and implement an asset management software package, including inventory, assessment, and data collection of all vertical assets within the system.
- **Water and Sewer System AMP, Town of Pilot Mountain:** As Principal, Doug oversaw the preparation of an AMP for the Town's water and sewer systems sufficient to gain funding points with DWI.
- **Capital Improvement Plan (CIP) and AMP, Town of Stanley:** As Principal, Doug managed staff preparing a CIP and AMP for the Town of Stanley's water and sewer systems to be used for the submission of a Community Development Block Grant – Infrastructure (CDBG-I) funding application.



RJ Mozeley, PE

Senior Project Manager

RJ Mozeley is a dedicated and talented designer who has demonstrated his acute skills on a wide range of projects, including utility coordination, as well as water and wastewater treatment, system design, and modeling. RJ’s experience has led him to develop valuable knowledge of the intricate details of water and sewer systems, and how they can be rehabilitated or replaced to improve the well-being of local communities. He is a valued team member, not only for his technical and strategic expertise, but also for his knowledge and attention to detail in designing and preparing construction documents. RJ possesses a vital ability to communicate effectively in conveying technical information to clients.

Education

BS, Civil Engineering,
NCSU

Professional Associations

- AWWA
- WEF

Specializations

- Water engineering
- Funding assistance

Professional Licensure

PE: NC #037937

Related Experience

- South Main Street Improvements, Town of Boiling Springs
- Water and Sewer AIA, City of Lenoir
- Water and Sewer AIA, City of Oxford
- Water AIA, Town of Mount Olive



Noah Green, PE

Project Engineer

Noah Green has extensive experience with preliminary evaluations, such as studies, preliminary engineering reports, cost estimates, utility routing, and pipe and pump calculations. He is very familiar with state regulations and the permitting process associated with water and sewer projects. Noah has also worked on detailed designs — in particular — laying out equipment, structures, and large diameter piping for treatment plant projects. He is familiar with AutoCAD, Civil 3D, Revit, PondPack, Water GEMS and WaterCAD, and SewerCAD. Several of Noah’s projects have involved NCDEQ-DWI funding; therefore, he is familiar with its policies and procedures.

Education

BS, Civil and
Environmental
Engineering, University of
North Carolina – Charlotte

Professional Associations

- Engineers Without
Borders
- NC One Water

Professional Licensure

PE: NC #053056

Related Experience

- Water and Sewer AIA, City of Lenoir
- Water and Sewer AIA, City of Oxford
- Water and Sewer AIA, Salisbury-Rowan Utilities
- Water AIA, Town of Sparta





Kyle Lotier, EI

Engineering Associate

Kyle Lotier has been working in the water and wastewater field since 2006, when he began his service with the Peace Corps. He has over 10 years of project management experience and is passionate about improving the quality of life for communities through projects that provide safe water and improved sanitation. At McGill, Kyle has worked on projects involving water mains, drinking water pump stations, water models, gravity sewers, sewer pump stations, and force mains. His experience working internationally has given him a unique perspective — having experienced firsthand what life is like in the absence of safe and abundant water and adequate sanitation.

Education

MS, Civil and Environmental Engineering, Marquette University
BS, Civil Engineering, Virginia Polytechnic Institute and State University

Professional Licensure

EI: NC #A-30369, VA #056437

Related Experience

- Sewer and Water AIA, Sparta
- Sewer AIA, Town of Valdese
- 2022 Water and Sewer CIP and Financial Updates, Town of Valdese
- 2022 Water and Sewer CIP and Financial Updates, City of Lenoir



Nathan Treadway

Engineering Technician

Nathan Treadway is a reliable team player, who is committed to building high-performing teams. Since starting at McGill as an intern last year, and joining McGill as an engineering technician, Nathan has worked on water and wastewater, civil, and land planning projects. He has spent a significant portion of his career at McGill assisting with water and sewer AIAs.

Related Experience

- Sewer and Water AIA, Sparta
- Sewer AIA, Town of Valdese
- Water Distribution System Modeling, University of North Carolina – Charlotte
- 2021 Capital Planning, Town of Blowing Rock
- Water Resource and Recovery Facility (WRRF) Expansion, City of Mebane
- Main Street Water and Sewer Line Replacements, Town of Blowing Rock
- Vantine Pump Station and Sewer Replacements, City of Bessemer City

Education

BS, Physics, Emory & Henry College

Specializations

- Asset inventory and assessment
- Water distribution
- Wastewater collection

Education

MCE, Water Resources,
NCSU

BS, Civil Engineering,
NCSU

Professional Associations

- NASSCO
- IPBA
- NCUCA

Specializations

- Pipe video inspections
- Sanitary pipe-bursting
- Sliplining

Jeff Greene, PE

President / Owner at KRG Utility

Jeff Green has been the president and owner of KRG Utility, Inc, a sewer and water rehabilitation company based in Lenoir, North Carolina since 1992. He specializes in sanitary pipe-bursting, slip lining, cleaning sanitary and storm sewer lines, and video inspection of sanitary and storm sewer pipe for municipalities in and around North Carolina. His prior experience included preparation of watershed master plan studies and the preparation of construction drawings for storm water related work.

Professional Licensure and Certification

PE: NC #017618; PACP Certificate: U-1105-2593

Related Experience with McGill

- Geitner Branch Sewer Evaluation and Replacement, City of Hickory
- Hardin Street Sewer Rehabilitation, Town of Boone
- Adams Street CDBG Sewer Project, Town of Andrews
- Casino Off-site Water and Sewer, Town of Murphy
- Central Business District Sewer Rehabilitation, Town of Forest City

Training

- OSHA Confined Space Training
- OSHA Competent Person Training

Specializations

- Pipe video inspections
- Sanitary pipe-bursting
- Sliplining

Mark Pohutsky

Crew Foreman at KRG Utility

As Crew Foreman, Mark Pohutsky oversees cleaning / video inspection crews for the firm. He is in charge of multiple cleaning / video inspection projects throughout North Carolina, South Carolina, and Georgia. Throughout his career, Mark has cleaned and inspected lines ranging in size from 6 inches to 60 inches. He specializes in cleaning sewer lines for cured-in-place pipe (CIPP) contractors where roots, tuberculation, and concrement need to be removed from pipe.

Professional Certification

PACP Certificate: U-415-06024119

Related Experience

- Sanitary Sewer and Water Contract 2012-95 (200,000 LF of 8 to 12-inch pipe), City of Greensboro
- Annual Cleaning Contract (100,000 LF per year), City of Winston-Salem
- 2018–2019 Rehabilitation (40,000 LF of 6 to 21-inch pipe), Yadkin Valley Sewer Authority

03 | AIA Familiarity and Approach

Experience with NCDEQ Wastewater AIA Grant Program

In addition to implementing decades of water and sewer infrastructure projects throughout North Carolina, McGill has worked on many successful water and sewer AIA projects. McGill is extremely familiar with the requirements of the **wastewater AIA grant program** administered by NCDEQ-DWI. We have been working on AIAs and coordinating with DEQ staff since the program began in 2016, and we have extensive knowledge and expertise with this scope of work for small- to medium-sized communities. Below is a sample of AIA projects completed by McGill.

| Client / Location | Water System | Sewer System |
|--|--------------|--------------|
| Town of Andrews (North Carolina Rural Water Association) | | Sewer AIA |
| Town of Bryson City | Water AIA | Sewer AIA |
| Town of Canton | Water AIA | |
| Cleveland County Water | Water AIA | |
| Town of Clyde | Water AIA | |
| Town of Hot Springs | Water AIA | |
| City of Lenoir | Water AIA | Sewer AIA |
| Maggie Valley Sanitary District, Maggie Valley | Water AIA | |
| Town of Maxton | Water AIA | Sewer AIA |
| Town of Mount Olive | Water AIA | Sewer AIA |
| Town of Murphy (North Carolina Rural Water Association) | Water AIA | |
| City of Oxford | Water AIA | Sewer AIA |
| Town of Parkton | | Sewer AIA |
| Town of Robbinsville | Water AIA | |
| Town of Roseboro | | Sewer AIA |
| Salisbury-Rowan Utilities, Salisbury | Water AIA | Sewer AIA |
| Town of Shallotte | Water AIA | Sewer AIA |
| Town of Siler City | | Sewer AIA |
| Town of St. Pauls | | Sewer AIA |
| Tuckaseegee Water and Sewer Authority, Sylva | Water AIA | Sewer AIA |



Our Approach

McGill has successfully completed many AIA projects and will add immediate and unique value upon execution of this effort. We will initiate a project kickoff meeting upon contract award to review the scope and schedule priorities and milestones. McGill proposes to work alongside Town staff to develop beneficial system mapping, analyze wastewater inflow and infiltration (I/I), and develop a CIP and AMP for the system. The deliverable for this effort will be a document that will serve as a roadmap for the future of the utility, from capital improvements to management policies and procedures, all poised to position Boiling Springs for the next 10 years or more. McGill’s approach to assessing the Town of Boiling Springs’ sewer infrastructure is similar to other comparable projects. Existing studies and prior data will be collected and assimilated and McGill will conduct fieldwork to evaluate the collection system I/I and evaluate all wastewater treatment facility equipment and structures for needed improvements. This information will then be used in identifying elements for repair or replacement, preparing opinions of probable costs, and developing a comprehensive CIP to address these needs. Once a CIP is completed, the McGill team will prepare a financial analysis of the Town’s enterprise fund to determine the revenue requirements needed to support the system operations, maintenance, and capital costs.

Finally, an asset management plan will be developed to provide Town staff with a guidance document in proactive maintenance activities and a standard operating procedure (SOP) in addition to the benefits of a prioritized CIP.

To accomplish this scope of work, McGill will follow a methodical set of tasks to meet the Town’s needs and expectations. Those tasks are outlined as follows:

- Review previous reports and studies pertinent to the system
- Visit the facilities and interview operations staff and related management staff to determine past and current issues with operations, processes, and equipment
- Discuss anticipated rules and regulations, as well as how they may affect the system
- Review inventory of pump stations’ and sewer lines’ horizontal and vertical components
- Review collection system mapping, considering pipe sizing, materials, age, condition, and importance
- Prepare targeted locations for collection system flow monitoring to assist in isolation of I/I
 - Perform flow monitoring during wet and dry weather conditions to best identify the areas of highest I/I
- Complete a selected series of video inspections of sewer segments — once I/I areas have been

- prioritized — to identify specific, needed repairs
- Assess each identified infrastructure asset to determine a proposed condition, critical nature to the overall system operations, and need for replacement
- Evaluate the criticality of infrastructure using a scoring matrix that incorporates a predetermined factoring system to determine the need and schedule for implementation
- Prepare replacement cost estimates for identified improvements
- Review costs with staff, along with priority scoring
- Incorporate planned projects and replacements into a ten-year CIP
- Analyze past three years of enterprise fund audits and establish a historical pattern for revenues and expenditures, along with the current budget year
- Prepare a financial model, building on the historical data, to predict changes in the existing customer revenue and growth in existing operations and maintenance costs (this model will then utilize the planned capital improvements and assumed debt versus cash funding of improvements to predict needed rate adjustments to maintain a positive cash flow and fund balance)
- Assemble the full asset inventory and asset assessment into a complete AMP document with the CIP and revenue analysis and O&M plan
- Provide a report summary of findings and recommendations



Technical Expertise

Our talented design professionals possess the technical skills to tackle your project challenges.



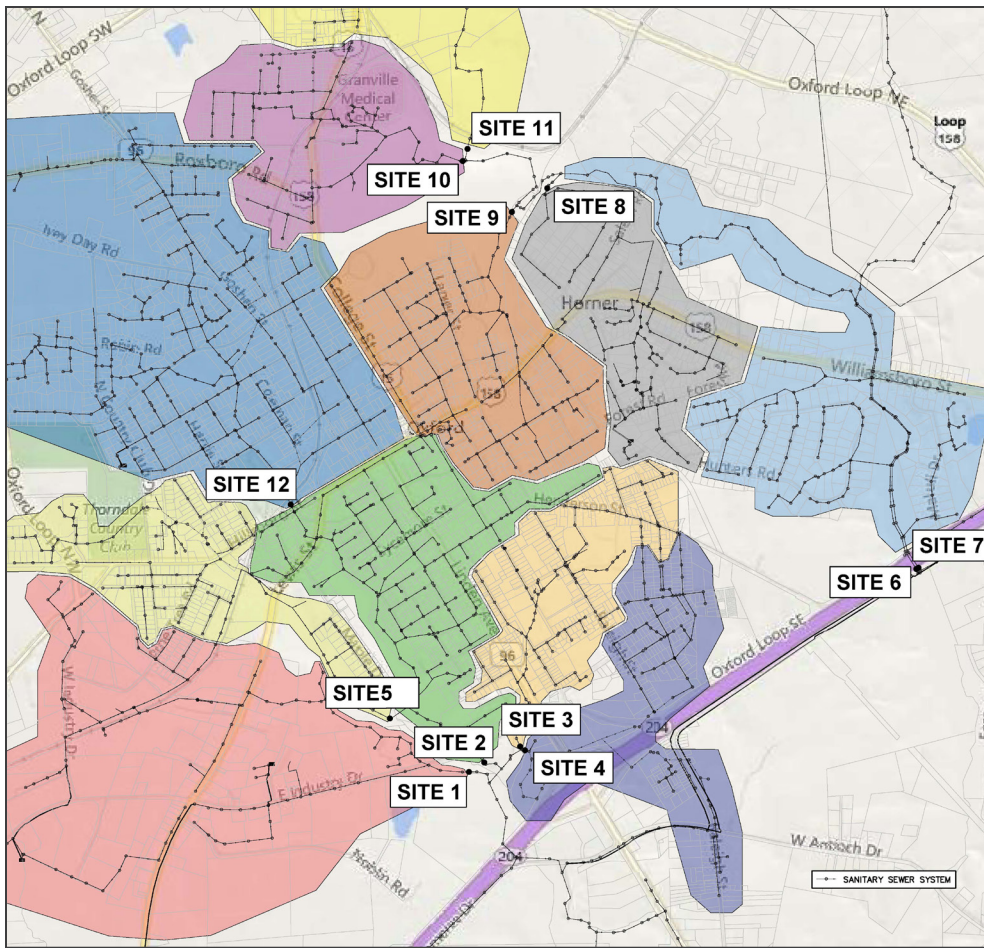
Project Management Skills

Our highly trained managers use Deltek Vision software and a spreadsheet-driven procedure to track progress relative to scope and schedule.



Open Communication

Regular and consistent communication between the consultant, client, and stakeholders is critical for project success. We are committed to listening to you.

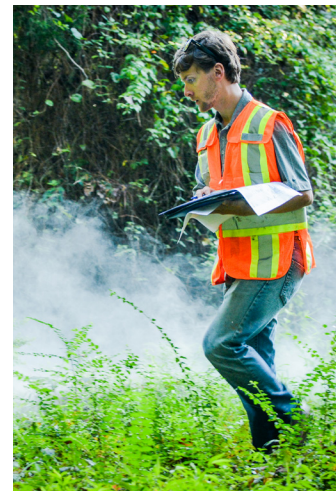


Client Reference

Amy Ratliff, PE
 City Engineer
 919.603.1113

Project Highlights

- Inspections
- Water modeling
- Smoke testing



Water and Sewer AIAs

City of Oxford

McGill performed AIAs of the City of Oxford’s wastewater collection and water distribution systems.

Water AIA: As a part of the study, McGill updated the water system hydraulic model (along with field testing and calibration) to reflect existing conditions, in addition to modeling proposed system improvements that are being recommended as a part of the study. The study also developed a unidirectional flushing program for system maintenance. An AWWA-format water audit was prepared to evaluate water loss in the system. Our team identified water system improvements and incorporated them into the water system CIP.

Sewer AIA: The project included evaluating Oxford’s existing sewer system, including flow monitoring, smoke testing, video evaluations, assessment of suspect manholes and pump stations, and prioritization of needed system improvements. We incorporated opinions of probable costs for identified improvements into the sewer system CIP. This project was funded by a grant administered through NCDEQ-DWI.

Client Reference

Charles Brown
Town Manager
919.658.9539

Project Highlights

- Winning over \$250,000 in AIA grants
- Grant application assistance
- CIP development
- AMP development
- Smoke testing
- Mapping
- Water modeling



Water and Sewer AIAs

Town of Mount Olive

McGill assisted the Town of Mount Olive with grant applications, resulting in the award of \$254,000 in AIA grants to the Town. McGill was subsequently retained to perform the assessments, which included:

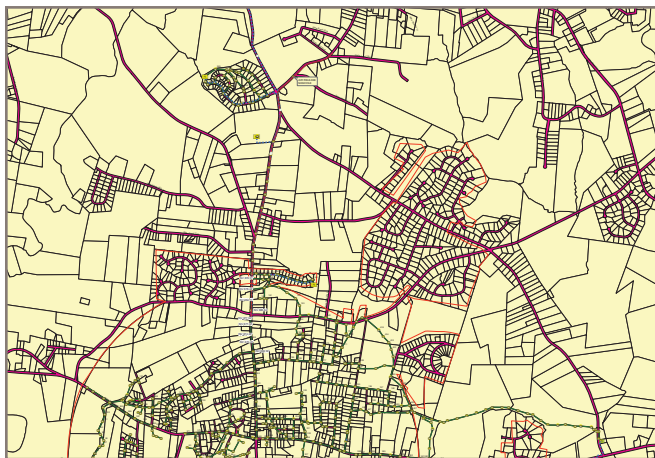
- Selecting and purchasing asset management software
- Developing base mapping for the Town's water and sewer systems
- Populating the mapping with attributes, based on field inventories of the existing assets
- Installing temporary flow meters within select drainage basins that have the highest levels of I/I
- Performing a condition assessment of the sewer system using video inspections, smoke testing, manhole assessments, and lift station inspections
- Performing hydrant testing with Town staff to quantify existing flows and low-pressure areas
- Generating a hydraulic model of the system using WaterCAD software
- Performing a risk analysis to determine which components of the system were close to failure
- Utilizing the information to update the Town's CIP and develop an AMP

These projects are critical to the Town's ability to provide safe and reliable water and sewer service to its customers for the future.

05 | Past Work with the Town

Wastewater System Familiarity

McGill has a full understanding of the scope of this project as the preparers of the Town’s NCDEQ grant applications. Based on our review of the Town’s mapping system, mapping improvements can be achieved for both its water and sewer systems. Our team will build upon the current mapping information to increase system knowledge and also enhance infrastructure attribute information to a GIS dataset to make the information more readily available to Town staff. The Town struggles with cataloging the existing condition assessment of the system. Outside of known problem areas or replacement projects identified in the CIP, the general condition of the sewer system is not cataloged. The AIA project will improve documented knowledge of the sewer system. Finally, the Town is not achieving the full benefit of its investment in asset management software (Asset Essentials by Brightly). McGill has worked on similar projects using this software system.



Boiling Springs Sewer System Map

Past Work with the Town

McGill has a history of obtaining grant funding for the Town and following through to completion of the proposed projects. McGill’s land planning and recreation team has worked with the Town since 2016, including developing a site-specific master plan; preparing a PARTF grant application; and providing design engineering, bidding phase services, and construction administration for improvements to Community Park.

Currently, the land planning team and recreation team — along with McGill’s water and wastewater team — is working on streetscape improvements for South Main Street from College Avenue to Branch Avenue. This project includes the redesign of the street to create 11-foot drive aisles, parallel parking on the East side, a 12-foot multiuse path, and water and sanitary sewer pipe replacement. McGill is providing surveying, design engineering, and bidding phase services for this project.



Community Park Site Plan, Town of Boiling Springs



McGill Associates, PA

1240 19th Street Lane NW, Hickory, NC 28601

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