


*Qualifications*

# ENGINEERING SERVICES FOR VARIOUS PROJECTS AND ON CALL SERVICES

October 2022

Prepared For: MASC Municipal Association of South Carolina℠

Prepared By: Kimley»Horn

October 17, 2022

Mr. Jake Broom, Chief Operating Officer
Municipal Association of South Carolina
P.O. Box 12109
Columbia, SC 29211
jbroom@masc.sc

**Kimley-Horn**
802 Gervais Street
Suite 201
Columbia, SC 29201

**RE:** Request for Qualifications (RFQ) – Engineering Services for Various Projects and On Call Services

Dear Mr. Broom and Members of the Selection Committee:

Kimley-Horn is excited to work with local governments throughout the state of South Carolina on their water and wastewater projects funded through the American Rescue Plan Act (ARPA). With our specialized experience working with communities of all sizes throughout the country, we understand that each has its own water and wastewater challenges, goals, and objectives. Our team looks forward to sharing our combined experience in planning, designing, and implementing water distribution and storage, wastewater collection and rehabilitation, and wastewater pumping and treatment projects to serve each local governments' constituents.

As you review our qualifications, please consider the following benefits **Kimley-Horn** offers:

- **Record of Success and Reliability.** The team you select must be reliable—one that repeatedly delivers quality, timely service to its clients. That team is Kimley-Horn. Throughout the years, our clients continue to return to us because of our commitment to exceptional client service. You can count on us to provide quality service, meet schedules and deadlines, and work efficiently and effectively with local governments and regulatory agencies. ***Your benefit: Trusted service and quality infrastructure that is cost-effective, long-lasting, and—most of all—reliable.***
- **One-Stop Shop.** With Kimley-Horn, you can count on a wealth of experience from a firm well versed in municipal engineering. Our water/wastewater staff's experience includes the design of hundreds of miles of water and sewer lines ranging in size from 6 to 120 inches and the evaluation and design of hundreds of pump stations and treatment facilities. ***Your benefit: Technically sound, cost-effective solutions based on extensive related experience and our ability to provide efficient project coordination.***
- **Extensive Grant and Loan Experience.** Kimley-Horn maintains a national grant database with hundreds of successful projects. Within that database are the federally funded projects this team has completed throughout the region. The firm also has established an ARPA Task Force that can help guide local governments in best implementing their currently allocated funds. ***Your benefit: Our familiarity with federal requirements supports your goal of capturing the opportunities afforded by these funding mechanisms.***

Thank you for considering our qualifications. We look forward to the prospect of serving local governments throughout South Carolina. Please contact me at gene.pierce@kimley-horn.com or 803 528 1023 if you have any questions.

Sincerely,
**Kimley-Horn**

Gene Pierce, P.E.
Project Manager

# 1. Technical Approach/Understanding

## Project Understanding

At the beginning of each project, the Kimley-Horn team will listen, learn, and discuss key project objectives with the owner to help ensure complete understanding of the project's goals and identify potential issues to make sure expectations will be met and client ideas are incorporated. Whether the scope involves sanitary sewer collection system extensions/rehabilitations, pump station evaluations/rehabilitations/replacements, water distribution system improvements, or wastewater treatment plant rehabilitation/upgrades, understanding the step-by-step procedures and components is critical to keeping the project on schedule and under budget. Our team understands this framework and will approach projects in the following phases.

## Project Approach

### Scoping and Kickoff

#### Kickoff Meeting

#### Responsibility: Project Manager

- Discuss, plan, and coordinate key project logistics with stakeholders to successfully complete project
- Establish schedule, priorities, key contacts, owner goals and preferences, and other criteria important to the project's success

#### Existing Data Review

#### Responsibility: Project Support Staff

- Discuss known background information from owner's staff, including available geographic information system (GIS) information, record drawings, studies, operation and maintenance records, and reports
- Evaluate where additional data is necessary to assist with preliminary engineering (i.e., survey, CCTV, geotechnical investigation, etc.)

### Preliminary Engineering

#### Responsibility: Project Manager and Support Staff

- Complete condition assessments, specialized engineering evaluations, calculations, modeling, engineering studies, analysis, energy audits, and evaluations
- Collect and review all available data related to the project, and identify additional information that may be required to complete the engineering design – such as survey, geotechnical engineering, subsurface utility engineering (SUE), CCTV, manhole inspections, pump station testing, etc.
- Develop feasible alternatives, innovative options, project timelines, and construction budgets
- Consider the value add of trenchless installation methods, when applicable
- Evaluate regulatory/permitting requirements
- Summarize findings in preliminary design memo or report to serve as a basis for the design of the improvements
- Develop preliminary schedule and construction budgets

## Design

### Responsibility: Project Manager and Support Staff

The scope of design services varies for each project and each task listed below may not be required; however, for projects assigned under this contract, the following are common tasks that Kimley-Horn would perform.

- Collect and review available data—such as survey, geotechnical engineering, subsurface utility engineering (SUE) , sanitary sewer inspections (CCTV, manhole inspections, smoke testing, dye testing)
- Coordinate with subdisciplines and specialty engineering teams, such as electrical, geotechnical, and structural engineers
- Perform hydraulic modeling with programs, such as WaterCAD™ and SewerCAD™, Innovyze InfoWater™, and Innovyze InfoSurge™, as applicable
- Perform pump station evaluations and testing using our exclusive pump station hardware and software system—the XAK-PACK®, as applicable
- Develop detailed plans and specifications (project complexity will dictate submittal milestones, but at a minimum will include 90% and 100% submittals)
- Continually coordinate with South Carolina Department of Transportation (SCDOT) for right-of-way plan review, confirm restoration requirements, and identify any work hour restrictions
- Prepare detailed traffic control/detour plans
- Administer/assist with public meetings—tailoring outreach to the residents and business owners who will be impacted by the project
- Prepare updated construction cost estimates
- Provide a detailed tabulation of quantities of bid items associated with each area of the project with descriptions of each pay item for inclusion in the unit and lump sum prices section of the project manual
- Provide project specifications, develop a bid date, apply for permits, and establish a project manual

## Permitting

### Responsibility: Project Support Staff

#### Environmental Considerations

- Complete field reviews of potential utility alignments to identify jurisdictional streams and wetlands
- Prepare plan to address the project's environmental impacts and associated concerns
- Coordinate environmental permitting efforts with Kimley-Horn's in-house environmental team, as requested
- Tailor permittable concepts based on project type and scope

#### Permit Preparation and Submittals

- Prepare and submit permit packages to owner, South Carolina Department of Health and Environmental Control (SCDHEC), City, County, United States Army Corps of Engineers (USACE), etc.
- Submit SCDOT Encroachment Agreement and Railroad Occupancy Agreements, as required

## Stakeholder Engagement

### Responsibility: Project Manager and Project Support Staff

- Engage operations staff, SCDHEC, SCDOT, critical property owners, manufacturers, grant agencies, general public outreach, and other important stakeholders early in the process

## Public Outreach

### Responsibility: Project Manager and Project Support Staff

Public outreach may be required throughout all phases of the project. Kimley-Horn specializes in partnering with owners to provide thoughtful outreach during all phases of difficult projects.

- During preliminary and design phases, provide certified mailing and door hangers to be distributed to notify property owners of project, as required
- Develop project information brochures and maps for public meetings and/or project website
- Host public meetings, including Spanish translation
- Provide schedule updates to critical stakeholders throughout the life of the project

## Bidding

### Responsibility: Project Manager

- Assist in advertising and bid package distribution
- Answer questions and issue addenda, as required
- Assist in the opening and award activities/meetings

## Construction Administration

### Responsibility: Project Manager and Support Staff

During the construction period, Kimley-Horn can provide full- or part-time construction phase services that may include:

- Assisting owner with construction matters
- Conducting regular progress meetings
- Providing submittal reviews, progress monitoring, and project documentation assistance as requested
- Preparing record drawings
- Providing punch list and warranty walkthroughs

# Quality Control/Quality Assurance (QC/QA) Review

Our team consists of staff with extensive experience preparing plans and specifications for these types of water and wastewater projects. In addition, our team will employ extensive QC/QA review procedures through senior project managers and technical advisors who are specialists in their field. Our quality assurance program begins with our response to your RFQ and will encompass every phase of the project. Our QC/QA reviews are performed before providing any deliverables to the client.

# Nationwide Resources

In addition to the dedication and experience of our local team, Kimley-Horn offers the services of expert utility professionals from across the country. As specific projects arise, we can draw upon our collective technical capabilities.

# Why Kimley-Horn?

At Kimley-Horn, serving clients is all we do. We are consistently selected and then reselected for these types of projects because our clients see us as an invaluable extension of their own staff. Our approach to these projects has been tested and sharpened for decades, which results in an efficient and high-quality project that keeps your dollars working for your customers.

# 2. Work Management Plan/Experience of Proposed Personnel

## Project Management Plan

Kimley-Horn has developed a project management system that benefits you and our company. We know how much efficient project management means to our clients, so our project managers attend special ongoing training sessions to improve their project management skills and to look for ways to more efficiently serve our clients. Our internal Management Information System (MIS) allows our project managers to monitor the progress of projects on a biweekly basis so that "mid-course corrections" can be made as the needs of the project change. Our philosophy and approach to sound project recommendations is best shown by highlighting our proven methods during the following elements of a typical water project.

At the beginning of the project, Kimley-Horn will provide an appropriate scope of work, based upon project scope. Straightforward projects such as pipeline extensions or replacements may not require multiple milestone design submittals, but instead just preliminary and final submittals. This reduces unnecessary design costs and time commitment for the client. Projects such as evaluating a well site or booster station site involve more complex technical issues, such as design for booster pumps, instrumentation and controls, system pressure issues, and often will require additional project schedule milestone design submittals and reviews. Kimley-Horn will expedite development of the scope of work and design fee proposals. We typically turn around our professional service fee proposals within a few days, depending on project size and complexity.

Our approach to project management includes:

- Providing alternatives with recommendations for the client to review, evaluate, and decide upon, for the many decisions that the client's staff are required to make during a project. This has been a most appreciated approach by our municipal clients, who benefit from having the needed information to make good project decisions. By providing regular communications to the client's staff that include exhibits, costs, schedule impacts, and recommendations, we minimize the client's time commitment to address technical, operational and maintenance, safety, or even political issues.
- Being well prepared for meetings with detailed agendas and facilitating an effective use of the client's time, which we feel has been successfully delivered by our team on recent projects.
- Providing a quick response to emails and phone calls, which is especially important on short-fused projects. The client's staff can count on Kimley-Horn to address sudden requests on a moment's notice. We understand that client staff may get short notice requests from management or Council, often requiring immediate attention. We provide fast response times and the necessary resources to respond to these often unanticipated projects.

Kimley-Horn has a proven record of performing on time and within budget. The key to our success is managing the right resources at the right time. To monitor our staff workload, we employ an intensive forecasting technique known as our "cast-ahead" process. This effort involves assessing our project milestones and staff loading on a weekly, monthly, and six-month basis, drilling down to the project team level. Individual staff member loading is assessed to the person level in the one-week and one-month time frames and the operating unit level in the six-month time frame. A database is used to track all project commitments/milestones and staff commitments firmwide. Using this intensive process, we can identify overloads and shortfalls many months in advance and develop strategies to overcome them. By having a clear picture of staff workload at all times, Kimley-Horn will be optimally positioned to meet the Municipal Association of South Carolina's expectations on this project.

## Staffing Configurations

The organization chart below shows our team structure and defines relationships among disciplines and tasks. Resumes for our key team members begin on the following page.


*While not required, Kimley-Horn contacted trusted, local subconsultants who can fulfill requirements to supplement our in-house team for any water project that may arise. Firm overviews are provided at the end of the next section.*

# Brief Resumes of Key Individuals

## Gene Pierce, P.E.

Project Manager; Wastewater Rehabilitation/SSES; Water Distribution Systems; Construction Administration and Observation

Gene brings more than 17 years of experience as a water resources engineer in South Carolina, specializing in serving municipalities and utility providers with water transmission and distribution, wastewater collection and pumping, sanitary SSES, stormwater collection and treatment, and utility relocation design. He has managed projects from the conceptual phase through design, bidding, and construction. Gene prides himself on proactive, efficient communication and leans on his experience to allow him to bring cost-effective and innovative solutions that fit the specific needs of his clients.

**PROFESSIONAL CREDENTIALS**

B.S., Civil Engineering, Clemson University

Professional Engineer in SC, AR, GA, LA, NC, and OK

PACP/MACP/LACP NASSCO Certification

**PRIMARY OFFICE LOCATION**

Columbia, SC

### Relevant Experience

- SS7362 Smith Branch 01 SSES, Columbia, SC*
- SS7218 West Columbia 02 SSES, Columbia, SC*
- Old Charleston Water Main Extension, Pelion, SC*
- Renewable Water Resources (ReWa) Bridge Fork Creek Sewer Evaluation, Mauldin, SC*

**Completed prior to joining Kimley-Horn*

## Nolan Raney, P.E.

Wastewater Collection Systems

Nolan offers 16 years of experience serving as a project manager and engineer on diverse water resources projects. He specializes in small- and large-diameter pipeline and infrastructure design, routing studies, and construction administration for municipal utility projects within dense urban environments. Nolan has managed numerous utility relocation and rehabilitation projects ranging from 2- to 60-inch pipes across North Carolina. His experience encompasses preliminary engineering, collection and distribution system design/rehabilitation, and complex regulatory permitting.

**PROFESSIONAL CREDENTIALS**

B.S., Civil Engineering, Iowa State University

Professional Engineer in NC

**PRIMARY OFFICE LOCATION**

Durham, NC

### Relevant Experience

- Western Regional Sewer System Improvements, Jacksonville, NC
- Lakewood Avenue Sewer and NC-54 Waterline Replacements, Durham, NC
- Upper Walnut Creek 60-inch Interceptor, Raleigh, NC
- American Tobacco Phases 1-2 Waterline Replacements, Durham, NC
- East Durham Water, Sewer, and Stormwater Improvement, Durham, NC
- Wildcat Branch 30-inch Sanitary Sewer Improvement, Raleigh, NC

## Chip Smith, P.E.

Wastewater Rehabilitation/SSES; Wastewater Collection Systems

Chip offers more than 39 years of operations, management, and technical leadership in the planning, design, and construction administration of storm drainage, sanitary sewer, and water supply/distributions projects. This work includes sewer condition assessments, infiltration and inflow studies, hydrology and hydraulic modeling, rehabilitation, and operation/maintenance projects and programs for numerous clients. His project experience includes large, multidisciplinary efforts for projects with time-constrained schedules, often requiring extensive coordination between multiple stakeholders. Chip is well versed in various delivery methods, including progressive design-build.

**PROFESSIONAL CREDENTIALS**

B.S., Civil Engineering, Old Dominion University
Professional Engineer in SC, NC, and VA

**PRIMARY OFFICE LOCATION**

Charlotte, NC

### Relevant Experience

- Wastewater Future Demand Projections, Waxhaw, NC
- Spartanburg Sanitary Sewer District, South Tyger River Interceptor, Spartanburg, SC*
- Wade Hampton Fire and Sewer District SSES/GIS Project, Greenville, SC*
- North Rocky River Flow Monitoring Study, Concord, NC*

**Completed prior to joining Kimley-Horn*

## Zak Purvis, P.E.

Wastewater Pumping and Force Mains; Water Treatment

Zak brings 21 years of experience in water and wastewater utility design to this project. He has managed large, complex utility projects ranging from utility relocations to multi-million dollar pumping facilities. Zak also has designed water booster and wastewater pumping stations, chemical storage and feed facilities, and water storage tanks. His past experience as a mechanical contractor provides a specialized construction, operation, and maintenance perspective. He has extensive nationwide experience designing and testing pumping systems and serves as one of our firm's experts for pump testing. Zak also has performed surge monitoring and surge modeling on large diameter water mains and force mains. His passion for pump station projects led him to develop the XAK-PACK®, a specialized tool for testing the performance of pump stations.

**PROFESSIONAL CREDENTIALS**

B.S., Mechanical Engineering, North Carolina State University
Professional Engineer in SC, NC, and VA

**PRIMARY OFFICE LOCATION**

Durham, NC

### Relevant Experience

- Western Regional Sewer System Improvements, Jacksonville, NC
- Upper Walnut Creek Interceptor, Raleigh, NC
- Broad River Water Authority, Water Treatment Plant Expansion, Rutherfordton, NC
- Pump Station Evaluations and Inventory, Raleigh, NC
- American Tobacco Waterline Replacement, Durham, NC

## Matt Dunagin, P.E.

Wastewater Treatment; Wastewater Rehabilitation/SSES

Matt is an established and trusted consultant who brings 15 years of diverse municipal experience to the Kimley-Horn team—ranging from infrastructure design, utility relocation, and rehabilitation to civil site development and transportation-related projects. His experience includes design, drafting, specification preparation, public bidding, construction management, grant administration and inspection for various aspects of water and wastewater systems, natural gas systems, and transportation and pedestrian facilities. Matt's project experience has encompassed potable water distribution systems, sanitary sewer collection systems and pump stations, sanitary sewer rehabilitation, natural gas distribution mains, stormwater collection systems, comprehensive land development, hydraulic studies, and federal/state/local permitting.

**PROFESSIONAL CREDENTIALS**

B.S., Civil Engineering, Clemson University

Professional Engineer in SC and GA

**PRIMARY OFFICE LOCATION**

Peachtree Corners, GA

### Relevant Experience

- Annual Water and Sewer Contract Program Management, Buford, GA
- Adairsville Sanitary Sewer Rehabilitation Project (ARPA), Adairsville, GA
- Southside WPCP Tertiary Filter Replacement, Buford, GA
- Northwest Trunk Sewer Rehabilitation (CDBG), Cordele, GA

## Matt Shoesmith, P.E.

Water Distribution Systems/Water Treatment

Matt has 26 years of experience in the water and wastewater industry and has been with Kimley-Horn for 9 years. He manages utility projects by understanding the particular challenges of each project, identifying potential solutions, and working to implement these solutions to deliver the best product to each client. Matt's utility experience includes large diameter water and sanitary sewer lines, elevated storage tanks, booster pump stations, distribution system modeling, sanitary sewer pump stations, and equalization basins.

**PROFESSIONAL CREDENTIALS**

M.S., Environmental Engineering

B.S., Civil Engineering, University of Tennessee

Professional Engineer in SC, GA, NC, and TN

**PRIMARY OFFICE LOCATION**

Charlotte, NC

### Relevant Experience

- Western Regional Sewer System Improvements, Jacksonville, NC
- Broad River Water Authority, Water Treatment Plant Expansion, Rutherfordton, NC
- Water Treatment Plant Upgrade, North Wilkesboro, NC
- Farmville Road Loop Waterline, Shelby, NC
- Durham East Main Street Waterline, Durham, NC

## Tara Allden, M.S., J.D.

Environmental Services/Permitting

Tara is an ecologist and environmental attorney, specializing in developing and implementing compensatory mitigation projects and experienced in wetland delineation and permitting and National Environmental Policy Act (NEPA) documentation. Prior to rejoining Kimley-Horn in 2014, she spent 11 years working as a mitigation banker, assisting in the development of entrepreneurial wetland, stream, and nutrient mitigation banks across the nation. Tara is the former president of the South Carolina Mitigation Association.

### Relevant Experience

- Palmetto Umbrella Mitigation Bank, Statewide, SC
- Shaw Creek Bridge Replacement, Columbia, SC
- West Tennessee River Basin Authority, Humboldt, TN
- Charleston Green Infrastructure Parks, Charleston, SC
- Emergency Bridge Package 2, Columbia, SC

**PROFESSIONAL CREDENTIALS**

J.D., Law, University of South Carolina
M.S., Ecology, North Carolina State University
B.S., Advertising, University of Florida
Licensed Attorney in SC

**PRIMARY OFFICE LOCATION**

Columbia, SC

## Laura Wittenbauer

Funding and Grant Services

Laura has nearly two decades of grant writing and administration experience, serving both private and public sector clients. Prior to joining Kimley-Horn, she worked as a senior process analyst for the City of Sarasota where she identified relevant grant opportunities and completed grant applications. She ensured that grant accounting and financial reporting was consistent with governmental accounting standards and kept within the terms and conditions of the grant. Her experience with Sarasota was preceded by her tenure in the private sector, where she served as a grant consultant. In this role she supported municipal clients, providing grant-related services from application through award.

### Relevant Experience

- Highlands County Facility Study CTPAG, Highlands, FL
- Hollywood CRA Grant Services, Hollywood, FL
- The Bay Phase 1, Florida Department of Environmental Protection (FDEP) Grant — Water Quality, Sarasota, FL*
- Southwest Florida Water Management District Grant, Sarasota, FL*
- ARPA Grant, Sarasota, FL*

**Completed prior to joining Kimley-Horn*

**PROFESSIONAL CREDENTIALS**

M.S., Business Administration, University of Phoenix
B.S., Social Work, Florida State University
Associates, Business Administration, Pensacola State College

**PRIMARY OFFICE LOCATION**

Sarasota, FL

## Subconsultant Firm Overviews

Hydrostructures is a civil engineering firm in Columbia, SC specializing in providing comprehensive services for water distribution, wastewater and stormwater collection and conveyance, and water treatment systems. The firm serves local governments, industry, and commercial clients with trusted inspection, utility mapping, flow monitoring, cleaning, troubleshooting, and rehabilitation design to help the region repair and modernize water, wastewater, and stormwater infrastructure. Hydrostructures' staff brings decades of combined experience in the industry to each project and is dedicated to delivering quality work.

Local to Columbia, SC, SAM offers a complete suite of geospatial services including professional land surveying, Construction Engineering and Inspection (CEI), airborne/mobile/terrestrial LiDAR, GIS, SUE/utility coordination, aerial mapping, photogrammetry, and hydrographic surveying. As one of the largest full-service surveying and mapping companies in the United States, SAM has the capacity to field more than 200 crews. SAM mobilizes quickly, performs tasks reliably, and consistently provides quality deliverables.

CECS is a Columbia-based DBE/WBE firm providing a full range of engineering services including SUE, utility coordination, and inspection. Regardless of the size or schedule of the assigned tasks, CECS is dedicated to completing quality projects on time and within budget and is available to meet with clients on short notice.

Terracon is a multidisciplinary engineering consulting firm specializing in on-time and real-time data driven insights. From site selection, to the design and construction, to maintaining the life of the structure, Terracon focuses on achieving success through engineering and scientific expertise, a passion for problem-solving, and a drive to explore. As one of the nation's leading providers of geotechnical services, their clients have access to one of the nation's largest owned and operated fleet of geotechnical exploration equipment, a network of more than 140 laboratories, including the largest network of accredited laboratories, and more than 175 locations serving all 50 states.

# 3. Experience of the Firm

The following projects currently are ongoing or have been completed within the past three years.

## Western Regional Sewer System Improvements | Jacksonville, NC

Kimley-Horn is assisting with a large-scale regional sewer system improvement project. Kimley-Horn conducted hydraulic modeling of the 42-inch trunk sewer, 22.7 million gallons per day (MGD) pump station, and 36-inch force main as well as surge analysis. The pump station included a hybrid biological/carbon odor control system, comminutor, dual wet wells, and variable frequency drives (VFDs) for all six pumps.

- **Western Regional Pump Station (WRPS)**—Dual wet well submersible pump station design.
- **Western Regional Force Main (WRFM)**—36-inch WRFM extends from the WRPS to the existing City of Jacksonville Land Treatment Site (LTS), totaling approximately 6.4 miles.
- **Western Regional Trunk Sewer (WRTS)**—Completed a Preliminary Engineering Report (PER), environmental assessment, and design/permitting for multiple construction contracts.
- **Carolina Forest Pump Station Upgrade and Force Main (CFPS)**—The existing CFPS, with an existing capacity of 3.05 MGD, is being upgraded to convey 4.05 MGD with future expansion capabilities to a maximum of 6.19 MGD.
- **Western Boulevard Pump Station and Force Main (WBPS)**—WBPS is a proposed facility that has a 3.18 MGD capacity with expansion capabilities of 8.71 MGD.

### Relevant Project Types

- ✔ Wastewater lift/pump station and/or force main repairs/ replacement/new facilities

### Reference

Randa Soules
City of Jacksonville
910 938 5330
rsoules@jacksonvillenc.gov

## Water Treatment Plant Upgrade | North Wilkesboro, NC

Kimley-Horn determined that a mechanical pretreatment system located before the existing treatment train would reduce the turbidity loading on the original process and allow for the additional Cryptosporidium treatment through improved filter performance. Funding this project was the primary obstacle for this small municipality, and Kimley-Horn prepared and submitted the successful State Revolving Fund (SRF) loan application.

Kimley-Horn is revolving the sludge basin to allow for additional detention time, adding baffles, a weir to a recycle pump station, and overflow valves to the sedimentation basin to allow for easier clean out. These improvements provide maximum operator flexibility to retain or waste process sludge as conditions dictate. In addition to turbidity control systems, upgrades to the facility include a new 20-inch ductile iron raw water line to supplement the existing tuberculated 20-inch cast iron, alum and liquid polymer tankage and peristaltic pump skids, and motor replacement of the existing high service pumps.

### Relevant Project Types

- ✔ Water Treatment Facility Improvements

### Reference

David Webb
Town of North Wilkesboro
336 667 7129 ext. 3023
dwebb@north-wilkesboro.com

## Lakewood Avenue Sewer and NC-54 Waterline Replacements | Durham, NC

Kimley-Horn is upsizing approximately 2,020 linear feet (LF) of existing 12-inch sanitary sewer along Lakewood Avenue to 24-inch sanitary sewer. The existing sanitary sewer will be replaced in place and/or abandoned. Additionally, approximately 6,500 LF of existing 8-inch and 12-inch waterline along NC-54 is being replaced with 16-inch waterline. Kimley-Horn completed preliminary engineering studies and routing analysis for both project areas. Based on the selected corridors, Kimley-Horn is providing environmental permitting services, USACE coordination, limited stream restoration, valve and hydrant assessments, sidewalk ramp reviews, maintenance of traffic plans, City permitting, bid phase services, and construction administration/observation services.

### Relevant Project Types

- ✔ Water line replacement
- ✔ Sewer line replacement

### Reference

Lisa Mitchell
City of Durham
919 560 4381
lisa.mitchell@durhamnc.gov

## Pump Station Evaluations and Inventory | Raleigh, NC

Kimley-Horn is conducting assessments of the City of Raleigh's pump stations, including building a GIS schema for their pump station appurtenances, collecting GIS inventory data, conduct a criticality assessment, and developing capital improvement plans (CIP) prioritization. The City's system has more than 110 wastewater pump stations. Kimley-Horn conducted meetings with staff from engineering, asset management, GIS, and operations to determine the best approach for the project. Kimley-Horn worked with the City to develop a GIS schema to store detailed information about all pertinent pump station appurtenances. All existing City GIS data was converted into the new schema prior to verification and field data collection. Our team used the innovative XAK-PACK® to measure and analyze the performance of pumps and motors. The XAK-PACK® is able to collect thousands of data points per second on up to 16 channels, including an array of attached sensors and existing instrument outputs. Kimley-Horn also assisted the City with developing a protocol for assigning identification numbers to key equipment for the purposes of asset management. Our team reviewed existing information systems to determine what information is lacking and how to collect it.

### Relevant Project Types

- ✔ System Evaluation

### Reference

Breanne Long
Raleigh Water
919 996 3732
breanne.long@raleighnc.gov

## Water Treatment Plant Expansion | Rutherfordton, NC

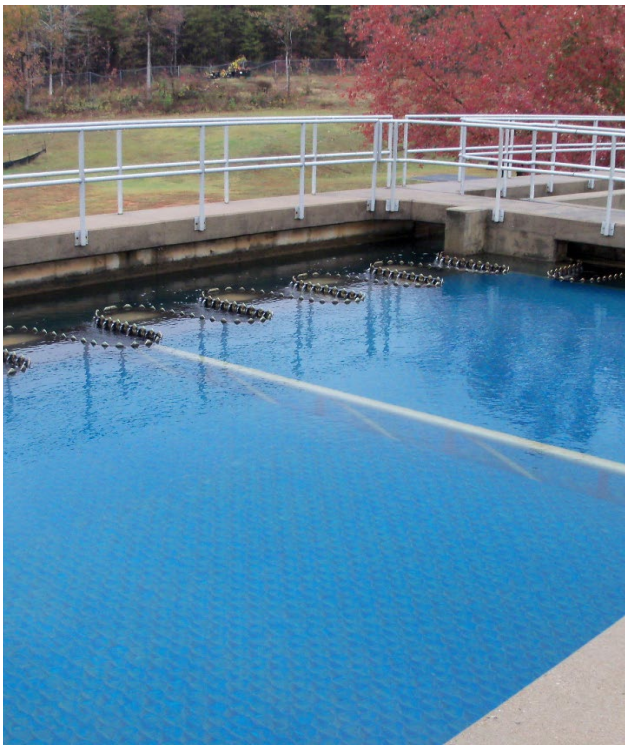
Kimley-Horn designed, permitted, bidded, and provided construction administration/inspection services to upgrade the capacity of the existing Broad River Water Authority (BRWA) water treatment plant (WTP) from 8 MGD to 12 MGD. The WTP received significant upgrades in 2011, including upgrading many processes to hydraulically handle 12 MGD. However, previous communication with North Carolina Department of Environmental Quality (NCDEQ) limited the plant to 8 MGD, citing Rule 15A NCAC 18C. 0601 (a) that required a presettling reservoir after the river intake.

### Relevant Project Types

- ✔ Water treatment facility improvements

### Reference

Maria Hunnicutt
Broad River Water Authority
828 286 0640
maria@ncbrwa.com



## Apex Gateway Offsite Utility Extensions | Apex, NC

Kimley-Horn is providing design, permitting, bid, and construction phase services for a 350 GPM public sewer lift station, 3,550 LF of 6-inch force main, and 2,600 LF of 12-inch water main to extend service to serve the proposed Apex Gateway development, which will be home to the new Durham Coca-Cola Bottling Company headquarters.

### Relevant Project Types

- ✔ System evaluation

### Reference

Maggie Houston
Beacon Partners
704 926 1403
maggie@beacondevelopment.com

## Upper Walnut Creek Interceptor | Raleigh, NC

Kimley-Horn provided a preliminary engineering report, design, permitting, survey, bidding, and construction administration services. Services included designing and permitting of approximately 19,500 LF of 60-inch fiber-reinforced plastic (FRP) and concrete sanitary sewer interceptor pipe as well as approximately 1,350 LF of high-density polyethylene (HDPE) and concrete storm drainage ranging from 15- to 36-inch.

### Relevant Project Types

- ✔ Sewer line replacement

### Reference

Ed Stempien
City of Raleigh
919 996 3490
edward.stempien@raleighnc.gov

## American Tobacco Waterline Replacement | Durham, NC

Kimley-Horn provided utility assessment, field evaluation, design and permitting, bid and award phase, construction administration/ observation, and public involvement services for replacement of approximately 4,500 LF of 6- to 12-inch waterline and rehabilitation of 9,000 LF of 8-inch and 10-inch gravity sewer. This project included multiple waterline connections to waterlines in the West End area. Additionally, approximately 9,000 LF of sanitary sewer was lined extending into the West End district.

### Relevant Project Types

- ✔ Water line replacement/ sewer line rehab

### Reference

Lisa Mitchell
City of Durham
919 560 4381
lisa.mitchell@durhamnc.gov

## Farmville Road Loop Waterline | Shelby, NC

This Westside Water Improvements project is comprised of approximately 29,800 LF of 16- through 24-inch water main, 2,000 LF of 8-inch sewer force main, a 4.75 MGD booster pump station (BPS), and a 181-foot, 750,000-gallon spheroidal elevated water storage tank (EST). The project included five 36-inch jack and bores, two 24-inch horizontal directional drill (HDD) bores, and one 2,000 LF 8-inch HDD for a sewer force main relocation. These improvements were necessary because the City of Shelby signed a contract to supply water for a $330 million paper mill expansion by February 13, 2019.

### Relevant Project Types

- ✔ Water line extension

### Reference

David Hux
City of Shelby
704 484 6840
david.hux@cityofshelby.com

# 4. Familiarity with Federal Funding Requirements

Kimley-Horn has completed the planning and design for a wide variety of state- and federally funded projects across the Carolinas. We are specialists at complying with the requirements that come with federally funded projects, and have extensive experience working directly with SCDOT, the Federal Highway Administration (FHWA), and SCDHEC. We routinely work with agencies to help shepherd their projects through SCDOT's Local Public Agency (LPA) process. The federal-aid process can be cumbersome to navigate for those not familiar with all of the requirements and procedures.

Our team often works with the complex regulations tied to the local use of state and federal funds, which can be as important as the technical requirements of our projects. We understand that with public funding also comes administrative requirements. The Kimley-Horn team already has processes in place for maintaining project documents, accounting records, and other data required by law.

Because our firm routinely partners with clients to complete federally funded projects, it is not feasible to provide a comprehensive list in this submittal. A sampling of relevant projects is included below.

## Farmville Road Waterline, Shelby, NC

This project is comprised of approximately 29,800 LF of 16- through 24-inch water main, 2,000 LF of 8-inch sewer force main, a 4.75 MGD booster pump station, and a 181-foot, 750,000-gallon spheroidal EST.

The project included five 36-inch jack and bores, two 24-inch HDD bores, and one 2,000 LF 8-inch HDD for a sewer force main relocation. These improvements were necessary because the City of Shelby signed a contract to supply water for a $330 million paper mill expansion by February 13, 2019.

The scope of services included design, permitting, grant coordination, bidding, and construction administration/inspection. Kimley-Horn received notice to proceed design on February 14, 2017, less than two years before the required substantial completion date. The infrastructure was designed in-house using the Innovyze InfoWater™ modeling software for ArcGIS. The project was partially funded by a federal Economic Development Administration (EDA) grant and a Golden LEAF Foundation grant. Conditions of the EDA grant included no property condemnations, a 30-day review period of the contract documents by EDA after all permits and properties were acquired, and extensive construction phase documentation.

Kimley-Horn successfully navigated complex permitting requirements for this project. Notably, we 1) received special approval from NCDOT headquarters to install 3,800 LF of water main under pavement, 2) acquired a Norfolk Southern Railroad Utility Occupancy License in only 6 weeks, and 3) split the project into four NCDEQ Authorizations to Construct and two Erosion and Sediment Control permits to facilitate bidding. We also extensively coordinated with operations staff throughout the project, most notably for a tie-in to Shelby's water treatment plant discharge. Ultimately, the improvements were completed on schedule and $200,000 under budget.

## Water Treatment Plant Upgrade, North Wilkesboro, NC

Kimley-Horn determined that a mechanical pretreatment system located before the existing treatment train would reduce the turbidity loading on the original process and allow for the additional Cryptosporidium treatment through improved filter performance. Funding this project was the primary obstacle for this small municipality, and Kimley-Horn prepared and submitted the successful SRF loan application.

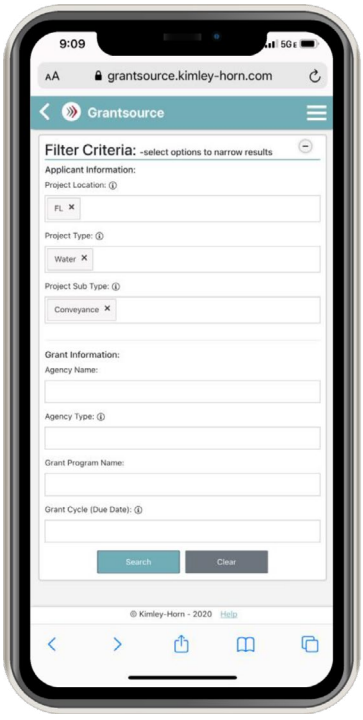
Kimley-Horn is revolving the sludge basin to allow for additional detention time, adding baffles, a weir to a recycle pump station, and overflow valves to the sedimentation basin to allow for easier clean out. These improvements provide maximum operator flexibility to retain or waste process sludge as conditions dictate. In addition to turbidity control systems, upgrades to the facility include a new 20-inch ductile iron raw water line to supplement the existing tuberculated 20-inch cast iron, alum and liquid polymer tankage and peristaltic pump skids, and motor replacement of the existing high service pumps.

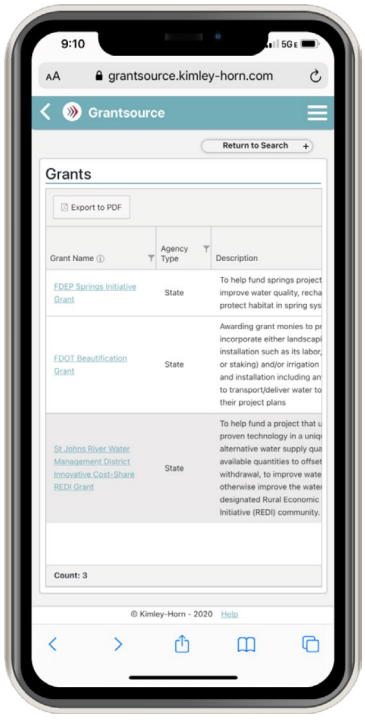
**Kimley-Horn prepared and submitted the loan application that secured $6.7 million in total funding, which included the largest single project principle forgiveness sum awarded that year ($1.6 million).**

# Grant Project Experience

As a result of our funding experience and success for our clients, we have developed a resource library of information on state and federal funding sources to assist you in making the most of available resources. Grantsource is an internal analysis tool containing more than 300 grant programs to assist our clients in identifying potential funding sources based on the specific project parameters. This tool, combined with our team's hands-on funding expertise, positions our clients for complete success.

Available on desktop and mobile devices, Kimley-Horn staff can search for grants by project location, project type, or sub-type, or filter sources by grant agency, agency type, program name, or approximate deadline.



A sampling of our grant project experience is included below.

## Lineberger Connector BUILD Grant, Gastonia, NC

Working in conjunction with the City of Gastonia, the City of Lowell, Gaston County, and the Gaston County Economic Development, Kimley-Horn developed a BUILD—now called RAISE—grant submission to FHWA for the construction of the extension of Lineberger Road over I-85. The proposed project will construct a new multilane bridge of I-85 and extend Lineberger Road north to NC 7 (West 1st Street) in Lowell, NC. The typical section will be a four-lane divided boulevard including a shared use path on the west side of the roadway. Kimley-Horn developed a plan and profile roadway design for the corridor from its current terminus to NC 7. In addition to the engineering design, Kimley-Horn prepared the benefit-cost analysis, preliminary development plan, and the complete submission package for the BUILD grant response.

## Columbia Riverfront Gateway Project, Columbia, SC

The Columbia Riverfront Gateway project is a transformative project focused on creating critical mobility connections through 70 undeveloped acres along the western edge of the City of Columbia which is the Congaree River. The overall project will improve safety for all users removing barriers for mobility across all modes—especially the most vulnerable of users who depend on pedal or feet power to move within Columbia. Beyond creating equitable access and enhanced safety, the project will also reduce congestion through the implementation of adaptive signals, which in turn improves the quality of life for adjacent residents and facility users, as well as reducing emissions though reduced congestion and further reliance of single occupancy vehicles. Further benefits to overall watershed sustainability and enhancement to the Congaree River will also be realized with this project.