

**REQUEST FOR QUALIFICATIONS
FOR
PROFESSIONAL ENGINEERING SERVICES**

**CITY OF HENDERSONVILLE
SANITARY SEWER ASSET INVENTORY AND ASSESSMENT PROJECT
September 2, 2016**

The City of Hendersonville, North Carolina (City) is interested in entering into an Agreement with a firm to complete a sanitary sewer asset inventory and assessment project. The City has received a letter of intent from the North Carolina Department of Environmental Quality's Division of Water Infrastructure to fund a grant for a sanitary sewer asset inventory and assessment. The proposed project will include, but not be limited to: coordinating GIS mapping and field data collection with City staff, inspecting infrastructure for deficiencies, flow monitoring, building and calibrating a hydraulic wastewater model, identifying sanitary sewer system capacity constraints, assessing conditions, establishing costs for replacement or repairs to deficient components and preparing a list of critical projects to add to the City's Capital Improvements Plan (CIP). Although a portion of the project (likely data collection) will be completed by City staff in order to meet the grant matching requirements, the selected firm will be expected to coordinate the work performed by City staff.

The City owns and maintains a 4.8 MGD wastewater treatment plant with over 177 miles of sanitary sewer mains, 31 sewer pump stations, over 9,500 service connections and approximately 5,200 manholes. Pipe materials range from vitrified clay to PVC to ductile iron.

Anticipated services include, but are not limited to:

- Coordination of field work with City personnel, including sewer manhole inspections and collection of vertical data, pump station pump downs, review of existing data, etc.
- Hydraulic modeling will be performed using Innovyze InfoSewer hydraulic modeling software. The City has a license for this software. The City will provide the selected firm with existing GIS data needed for the model creation, however, additional field data will be needed. This data gathering effort will be provided largely by City staff but will be coordinated by the consultant.
- Provide flow monitoring site selection, services, and data analysis for model calibration purposes.
- Perform a condition assessment and establish a rating system to identify assets that have are in poor condition or have met the end of their useful lives, determine the reason for the deficiency, predict when failure is likely to occur, and determine what corrective action is needed and when.
- Evaluate existing and future sewer system performance, identify portions with performance limitations, evaluate the impact of inflow and infiltration on sanitary sewer overflows (SSOs) and recommend system improvements.
- Proposed improvements will be reviewed for constructability and coordinated with paving schedules and other planning information. Descriptions of CIP projects will include demand triggers and links to other projects where appropriate. A risk-based prioritization will be included that examines the likelihood and consequence of infrastructure component failure. Cost estimates will include construction, land acquisition, contingencies, engineering, legal and administrative costs.

- At the conclusion of the project, a report will be prepared that documents existing deficiencies and summarizes the findings. Proposed projects will be explained and justified.

Firms interested in performing these services must exhibit relevant experience with this type of work, as outlined below and should emphasize both the experience and capability of the particular personnel who will actually perform the work. The successful engineering firm shall meet the following requirements:

- The firm shall have comprehensive experience and have the ability to respond to requests in a timely manner. Communication is critical to any successful project, and the selected firm will be expected to communicate regularly with City staff and DWI as needed.
- The consultant shall be responsible for providing the necessary personnel, equipment and expertise for project management, hydraulic model building using Innovyze products, wastewater flow monitoring and model calibration, developing CIP projects.
- Have sufficient familiarity and project experience with asset inventory and assessment, hydraulic modeling and master planning projects.
- Have sufficient support staff, technicians, clerks, etc., to effectively process and deliver the work product.
- Be accountable for all quality control associated with work done for the City of Hendersonville under the terms of the Agreement.
- Keep current all required insurance coverage sufficient to cover the projected liability of all projects assigned to the consultant. As part of the Agreement, the firm will be required to provide evidence of coverage of professional liability insurance, and that it will indemnify and hold harmless the City from any and all claims and/or liability, which may arise as a result of the engineering firm's negligence, errors, and/or omissions.

At a minimum, all interested firms are required to submit a statement of qualifications and experience containing the following information:

- Summary - A summary should provide a brief but thorough overview of how your company can provide these design services to the City. Include an introductory statement and a summary of your company's experience with the work described above. Provide firm name, address, telephone number, email address, and contact person(s). Provide the year in which firm was established and any former names under which the firm operated.
- Capacity to Perform Required Services and Qualifications - Provide a complete description of project staff in the form of a graphic organizational chart and a staffing summary that addresses individual roles and responsibilities. Provide a resume for each of the staff members that will be involved in this project. Identify the specific Project Manager and key staff proposed for this project. The Project Manager should have extensive experience in related work to this project, both in scope and extent. A resume of each member of the team is necessary and should detail relevant experience, length of service with the firm and job duties during his/her tenure, educational background and professional background.

- Experience - Provide documentation of relevant experience from projects of similar size and scope completed by the firm within the past five (5) years. This shall list the following as a minimum:
 - Owner's name and contact information (mailing address, email addresses and phone numbers)
 - Name, location and detailed description of the project
 - Project start and completion dates
 - Project staff and their role
- References - Provide at least three (3) references that the City may contact to verify your qualifications, experience and involvement in the stated activities and projects. Job title, telephone numbers, e-mail address and a physical address for each reference listed should be included in your statement of qualifications.

The attached evaluation will be used in the selection process. A clear, well-defined scope of services will be established with the selected engineering firm; a proposal including costs will be developed and submitted by the engineer; and the work will proceed immediately upon written authorization by the City. Please note that a preliminary project scope and schedule has been provided to DWI and is attached to this RFQ for reference.

Submissions must be sent in PDF format and emailed to bdetwiler@hvlnc.gov by 2:00 p.m. local time on **Friday, September 23, 2016**. PDF files must contain the signatures of company representatives who are authorized to execute documents on behalf of the firm. **The total length of the qualification statement, excluding any cover letter or appendices, shall be no more than thirty (30) pages.** Qualification statements received after the deadline will not be considered. Any questions regarding this request should be directed to Brent Detwiler, PE, City Engineer, City of Hendersonville, NC at (828) 697-3060 or bdetwiler@hvlnc.gov.

The selected firm will be notified by September 30, 2016 and will be expected to enter into an agreement with the City as soon as possible after such notification.

The City of Hendersonville accepts no responsibility for any expense related to preparation or delivery of qualification statements. The City of Hendersonville reserves the right to: reject any and all qualification statements, select the firm most qualified for the referenced work, waive technical errors and informalities, and to accept the qualification statement, which, in its sole judgment, best serves the public interest.

It is the policy of the City of Hendersonville that all original documents, reports, studies and other data produced as a direct result of the services performed under the contract shall become the property of the City of Hendersonville and Hendersonville Water and Sewer. Any copyrighting of material produced as a result of the services performed shall be in the City of Hendersonville's name. Where licensed material is incorporated as an integral component of the services provided the firm shall register the City as a licensed user and shall provide the City with one complete copy of the licensed material.

City of Hendersonville
RFQ for Professional Engineering Services
Sanitary Sewer Asset Inventory and Assessment Project
September 2, 2016
Page 4 of 6

It is the practice of the City to provide minorities an equal opportunity to participate in all aspects of its contracting and procurement programs and to prohibit any and all discrimination against persons or businesses in pursuit of these opportunities. The City of Hendersonville is an Equal Employment Opportunity Employer.

QUALIFICATION STATEMENT EVALUATION

Name of Firm: _____
Location of Firm: _____
Contact Person _____
Name of Reviewer: _____

Minimum Content Checklist:

Summary:

- Introductory statement
- Summary of work
- Full contact information (name, address, phone numbers, email, contact person)
- Year firm established & any former names
- Proof of licensure

Capacity to Perform Required Services and Qualifications:

- Roles & responsibilities of each
- Resumes included

Experience:

- Relevant projects in last 5 years
- Owner's name and contact information
- Name of project
- Location of project
- Detailed description
- Start & completion dates
- Project staff and roles

References:

- At least 3 references provided
- Job title
- Phone number
- Email address
- Physical address

Evaluation Criteria	Possible Points	Points Given
Understanding of the City's required tasks and needs as demonstrated in the qualifications statement	25	
Experience with similar projects comparable in type, size, and complexity	25	
Qualifications of the staff assigned to perform the work with this project	25	
Demonstrated ability of the Consultant to perform high quality work, to control costs, and meet project schedules	25	
POINT TOTAL	100	

ATTACHMENTS:

August 1, 2016 Letter of Intent to Fund Sanitary Sewer System Asset Inventory and Assessment from DWI

August 31, 2016 Letter from City to DWI Describing Preliminary Scope and Schedule



Water Infrastructure
ENVIRONMENTAL QUALITY

PAT MCCRORY

Governor

DONALD R. VAN DER VAART

Secretary

KIM H. COLSON

Director

August 1, 2016

Mr. John F. Connet, City Manager
City of Hendersonville
145 5th Avenue East
Hendersonville, NC 28792

SUBJECT: Asset Inventory and Assessment Grant
Letter of Intent to Fund
Sanitary Sewer System Asset
Inventory and Assessment
April 2016 Application Cycle
Project No. E-AIA-W-16-0038

Dear Mr. Connet:

The Division of Water Infrastructure has reviewed your application to the Asset Inventory and Assessment grant program, and the State Water Infrastructure Authority has approved your project as eligible to receive a grant. The total grant amount will be \$150,000 with a required match of 15%. A grant fee of 1.5% will be invoiced with the grant offer.

The first milestone is the submittal of a preliminary project scope and schedule by August 31, 2016. Once we receive this information, we will contact you to arrange a meeting to define the eligible project scope, determine the milestones for project deliverables and establish an estimated schedule for grant disbursements.

Please note that work conducted prior to the scoping meeting may later be determined to be ineligible, so please contact us if you desire to proceed before the meeting. Some items included in the application may not be eligible for funding.

We look forward to working with you on this project. If you have questions, please contact Amy Simes, PE, Senior Program Manager at 919-707-9192.

Sincerely,



Kim H. Colson, P.E.

CC: Mr. Brent Detwiler, PE, City of Hendersonville
Amy Simes, PE
Mark Hubbard, PE, AIA File

 Nothing ComparesSM

State of North Carolina | Environmental Quality | Water Infrastructure

1633 Mail Service Center, Raleigh, North Carolina 27699 | Location 512 N. Salisbury Street, Raleigh, North Carolina 27604

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CITY COUNCIL:
BARBARA G. VOLK
Mayor
STEVE CARAKER
Mayor Pro Tem
RON STEPHENS
JERRY A. SMITH, JR.
JEFF MILLER

CITY OF HENDERSONVILLE

The City of Four Seasons

ENGINEERING DEPARTMENT
Brent G. Detwiler, PE
City Engineer

OFFICERS:
JOHN F. CONNET
City Manager
SAMUEL H. FRITSCHNER
City Attorney
TAMMIE K. DRAKE
City Clerk

August 31, 2016

Ms. Amy Simes, PE
Senior Program Manager
North Carolina Department of Environmental Quality
Division of Water Infrastructure
512 N. Salisbury St
Raleigh, NC 27604

Re: Sanitary Sewer System Asset Inventory and Assessment Project - Hendersonville, NC
Preliminary Scope and Schedule

Dear Ms. Simes,

The City of Hendersonville is excited to work with you and the Division of Water Infrastructure (DWI) staff on the Sanitary Sewer System Asset Inventory and Assessment project. The proposed project will include mapping and obtaining vertical data of existing sewer infrastructure, inspecting infrastructure for deficiencies, assessing conditions using field-gathered data as well as a model of the system, establishing costs for replacement or repairs to deficient components and preparing a list of critical projects to add to the Capital Improvements Plan (CIP). This letter serves as a preliminary scope and schedule for the project. We anticipate the scope of the project will consist of several phases, some of which may be completed simultaneously. Note that an approximate schedule is provided as part of each phase description.

- **Perform Qualifications Based Selection (QBS) of Consultant (September to October 2016)**
The City will develop a Request for Qualifications (RFQ) package for an engineering consultant to complete the Sanitary Sewer System Asset Inventory and Assessment in conjunction with City staff. Staff will review and rate submitted qualifications, establish the most qualified firm for the project, finalize the project scope and enter into a contract to perform the work (with DWI staff input and approval).
- **Asset Data Inventory (November 2016 to August 2017)**
The City owns and maintains a 4.8 MGD wastewater treatment plant with over 177 miles of sanitary sewer mains, 31 sewer pump stations and over 9,500 service connections. Pipe materials range from vitrified clay to PVC to ductile iron. Of the approximate 5,200 sanitary sewer manholes in the existing collection system that are horizontally mapped in GIS, over

4,100 are lacking corresponding vertical data. The City's sewer system network is dominated by gravity pipes that are 10 inches in diameter or smaller. The first step will be to focus on the interceptor system (12-inch diameter and larger) with pump stations and associated force mains for modeling purposes. This phase of the project will involve the majority of the City's in-kind grant match, as it is anticipated that City staff will obtain vertical information and perform manhole inspections to fill in the lacking data. Closed circuit televising (CCTV) of gravity sewers may be utilized to determine the material and condition of critical lines. Gravity sewer, force main and manhole data will be updated from field observations, as-builts or other means to include the age, size and materials of the pipes and manholes.

As part of the process a condition assessment will be performed and a rating system established to identify assets that have are in poor condition or have met the end of their useful lives, determine the reason for the deficiency, predict when failure is likely to occur, and determine what corrective action is needed and when.

- **Pump Station Testing (November 2016 to June 2017)**

This phase can happen concurrently with the Asset Data Inventory. Pump station draw down tests will be performed to determine actual pumping capacities for each of the City's pump stations. As-built information, pump condition, age, power and telemetry reliability, and pump curves will be gathered and inventoried to better validate pump down results and document potential deficiencies.

- **Flow Monitoring and Data Collection (December 2016 to June 2017)**

We will determine tributary areas and potential flow meter points in the system in order to establish baseline dry weather flows and find the portions of the collection system that experience significant inflow and infiltration. It is estimated that approximately 10 flow meters may be needed. We will determine whether to utilize permanent or portable flow meters (or a combination of each) for this phase. The number of flow meters can be adjusted with further review and discussion with the consultant.

- **Model Building and Calibration (February to July 2017)**

Hydraulic modeling of sewer collection systems is the most viable and efficient means of evaluating system performance, identifying deficiencies and testing improvement strategies. The City proposes to build a wastewater hydraulic model using the City's existing InnoVize InfoSewer software. The model will be built based on the City's existing GIS database of the sewer system including the location for all manholes and pipes, pump stations, force mains and the wastewater treatment plant. The information regarding the elevations of manhole rims and inverts and pipes will be populated using GIS data, as-built drawings and data acquired from the Asset Data Inventory (detailed above). The model will then be calibrated using both dry weather and wet weather events collected from the flow monitoring data. After the model is fully calibrated, it can be used to perform capacity analysis using different design

storm criteria. Therefore, the wet weather flows from each tributary area can then be properly quantified and the adequacy of each system component accurately assessed.

- **Evaluate Pump/System Capacities, Identify Deficiencies (July to September 2017)**

The City has a relatively high amount of inflow and infiltration in its sewer collection system as is evidenced by the data below:

- 2015: 38% (annual rainfall measures of 54.75 inches)
- 2014: 39% (annual rainfall measures of 44.26 inches)
- 2013: 55% (annual rainfall measures of 71.56 inches)

The calibrated model will be used to evaluate the impact of inflow and infiltration on sanitary sewer overflows (SSOs) and identify system deficiencies or bottlenecks. Information gathered during the earlier inventory phase will also be compiled to help identify deficiencies.

Since 2010, the City has been using Cityworks, which is an asset and work order management application that resides on top of the GIS database. Through the use of this program, the City is able to track asset related problems and the costs for associated repair and replacement of infrastructure in the sewer collection. This historical data will be also used to assist in identifying and prioritizing replacement projects.

- **Test Improvements to Eliminate Deficiencies (September to October 2017)**

Modeling is useful in examining effects before and after rehabilitation. The model will be applied to “before” and “after” scenarios to estimate the effects of repairs. The results will be used to further prioritize capital projects in order to gain the greatest reductions of inflow and infiltration and SSOs as cost effectively as possible.

- **Develop CIP (October to December 2017)**

The city’s existing CIP will be reviewed and adjusted based on the inventory and modeling results. Proposed improvements will be reviewed for constructability and coordinated with paving schedules and other planning information. Descriptions of CIP projects will include demand triggers and links to other projects where appropriate. A risk-based prioritization will be included that examines the likelihood and consequence of infrastructure component failure. A color-coded map will summarize each phase of the proposed program of construction. The updated CIP will include detailed project sheets for the first phase of improvements (over the next 5 years) and planning level cost estimates for long range improvements (through Year 20). Cost estimates will include construction, land acquisition, contingencies, engineering, legal and administrative costs.

Ms. Amy Simes, PE
Division of Water Infrastructure
August 31, 2016
Page 4 of 4

- **Prepare Final Report (December 2017)**

At the conclusion of the project, a report will be prepared that documents existing deficiencies and summarizes the findings. Proposed projects will be explained and justified.

We welcome your comments and questions and look forward to commencing this important project. We have no doubt that the City of Hendersonville's Sanitary Sewer System Asset Inventory and Assessment will be a successful project, and that the DWI could use it as an exemplary example for future grant recipients. Thank you for your help, and please feel free to contact me if you have any questions.

Sincerely,

CITY OF HENDERSONVILLE



Brent G. Detwiler, PE
City Engineer

Cc: Mr. John Connet, City Manager
Mr. Lee Smith, Utilities Director
Mr. Alvin Fuller, PE, Utilities Engineer
Ms. Lisa White, Finance Director
Mr. Brian Pahle, Assistant to the City Manager
Ms. Amy Knight, Paralegal
Mr. Travis Penland, GIS Administrator