

VILLAGE OF EAGLE  
BOARD OF TRUSTEES AGENDA  
DECEMBER 7, 2021  
EAGLE FIRE & RESCUE DEPARTMENT – 705 S 1<sup>st</sup> Street  
7:00 P.M.

**--A COPY OF THE OPEN MEETINGS ACT IS AVAILABLE FOR PUBLIC INSPECTION--**

**--THE BOARD OF TRUSTEES RESERVES THE RIGHT TO GO INTO EXECUTIVE SESSION PER NRS 84-1410--**

**--PLEDGE OF ALLEGIANCE**

1. Report from Law Enforcement.
2. Report from Building & Zoning Administrator.
3. Open Forum.
4. Discuss/possible action: Consider options for Village of Eagle Water & Sewer System Studies.
5. Discuss/possible action: Consider proposals from Northwest Electric to rebuild or replace the oxidation ditch gearbox at the WWTP.
6. Discuss/possible action: Resolution 2021-11 – Signing of the Year-End Certification of City Street Superintendent 2021.
7. Discuss/possible action: First reading of Ordinance 2021-14 – Amending the salary range for Municipal Employees.
8. Discuss/possible action: Approve or deny minutes as typed for the previous meetings.
9. Discuss/possible action: Approve claims.
10. Discuss/possible action: Employee Christmas bonuses.
11. Election of Chairperson and Chairperson Pro Tempore.
12. Approval of Appointments, Standing Committees, Retainer Agreements and Contracts where applicable.
13. Designate and approve method of reasonable advanced publication notice.
14. Allow emergency vehicles to leave the corporate limits.
15. Report from Attorney.
16. Report from Clerk/Treasurer.
17. Discuss/possible action: Approve Nick Nystrom attending the 2022 Nebraska Municipal Clerk's Academy in Grand Island from March 15<sup>th</sup>-18<sup>th</sup>, 2022 at a cost of \$501.85.
18. Discuss/possible action: Annual employee evaluation for Nick Nystrom.

**The Agenda is readily available for inspection at the Village Clerk's Office located at 747 S. 2<sup>nd</sup> Street, Eagle, Nebraska during regular business hours.**



November 24, 2021

Village of Eagle  
747 S. 2nd Street  
Eagle, NE 68347

RE: Village of Eagle Water and Sewer System Studies

Dear Board of Trustees:

Snyder & Associates, Inc. is extremely interested in providing engineering services to the Village of Eagle to study the water and sewer systems and we thank you for inviting us to the Board's special session on Monday evening. At the meeting, we presented a two-phase scope to study both the water and sewer systems in Eagle, which we believe align with the need and desire for a full plan to accommodate significant growth of your community. For both studies, Phase 1 includes a limited evaluation of the systems and review of existing data to identify immediate needs. Phase 2 includes a more detailed evaluation of the systems in their entirety. The comprehensive evaluation in this Phase will allow the Village to plan for future demand and a full build-out of proposed development areas. Additionally, the scopes include a final engineering report and a brief analysis of proposed improvement costs and future funding planning.

This amended proposal includes a few revisions, based on what we learned at the Board meeting Monday evening. To better represent the Village's needs, the hydrant testing and flow monitoring tasks have been eliminated from the scopes. Also, with the assumption that a single firm will be selected to do both studies, our fees have been reduced slightly, as we are able to eliminate some redundancies in the scopes. Finally, the schedules to complete the work have been modified, as we understand the results of these studies, and the water system study in particular, are an urgent need.

As the timelines of these developments come into focus, it is important for the Village to consider both short-term and long-term goals for these systems and we want to help support those goals. In addition to water and wastewater engineering, Snyder & Associates, Inc. offers a range of services that may be valuable as the Village continues to grow, including transportation planning and design, structural engineering, land planning and site development, funding assistance, and municipal engineering. To see a full list of the services we offer, visit [Snyder-associates.com/services/](https://snyder-associates.com/services/).

Our team focuses on building long-term client relationships through responsive, personal service, and right-sized solutions. Ultimately, we are interested in a building a lasting relationship with the Village of Eagle, beyond these two studies. We are here to support any needs that arise in making your vision for the future of your community a reality.

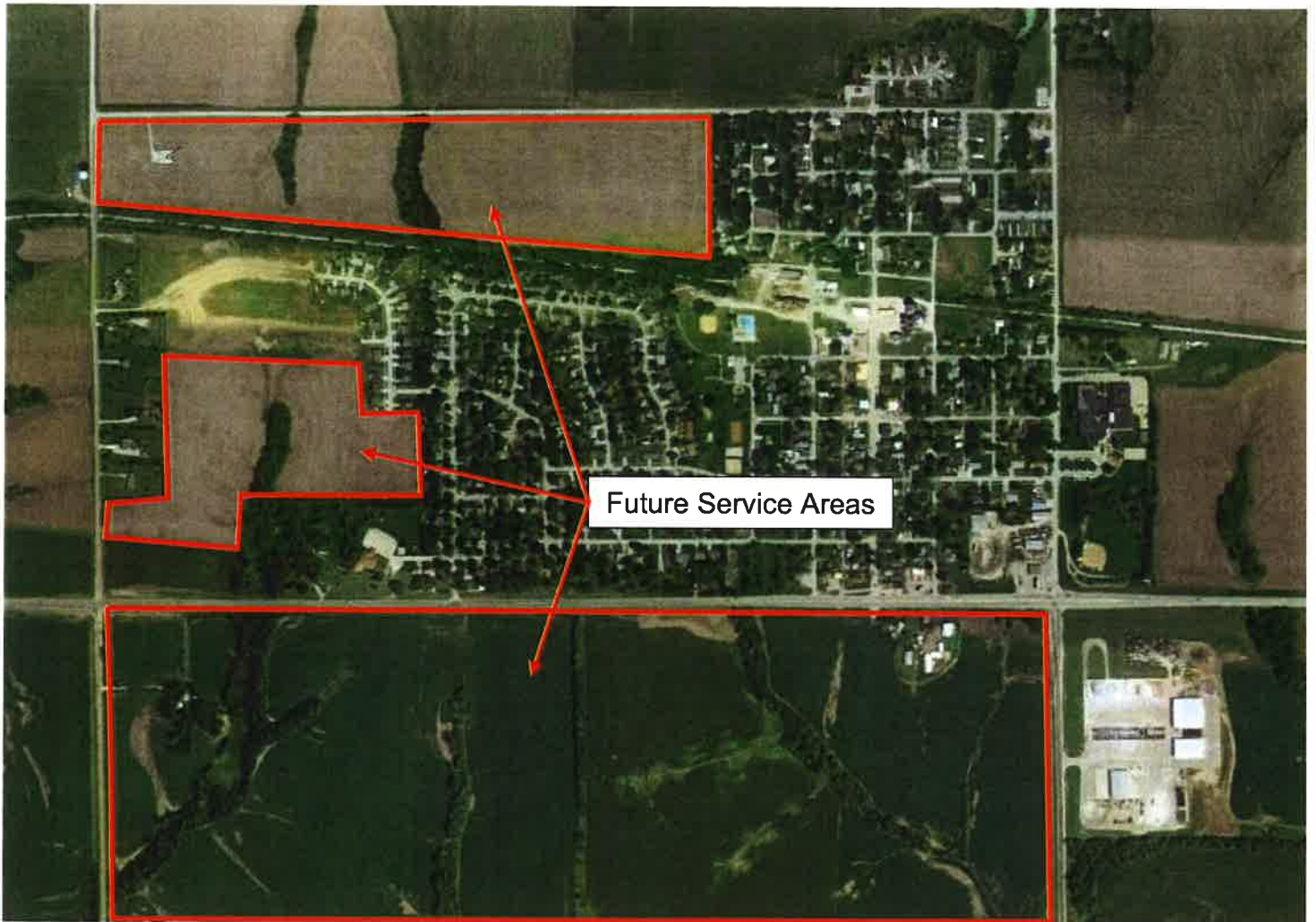
We look forward to fostering a partnership with the Village of Eagle and are invested in the success of your growing community. Thank you again for the opportunity to make a submission and presentation for this exciting endeavor. We welcome the opportunity to discuss our Team, proposed approach, and value we can bring to you and your community partners.

Sincerely,

SNYDER & ASSOCIATES, INC.

Barbara Johnston, PE  
Project Manager

Brett Paige, PE  
Project Engineer



## PROPOSAL FOR VILLAGE OF EAGLE, NE

---

Professional Services for Water  
and Sewer System Studies

November 24, 2021

## PREPARED FOR

Village of Eagle, Nebraska  
747 S. 2nd Street  
Eagle, NE 68347

## TABLE OF CONTENTS

2	Statement of Interest & Qualifications Project Team
5	Water System Study Project Scope & Fees Related Technical Experience
12	Sewer System Study Project Scope & Fees Related Technical Experience
19	Additional Information Fee Schedule Insurance



**Barbara Johnston, PE**  
Project Manager  
Cell: 402.213.6139  
[bjohnston@snyder-associates.com](mailto:bjohnston@snyder-associates.com)

**SNYDER & ASSOCIATES, INC.**  
11850 Nicholas Street, Suite 110  
Omaha, Nebraska 68154  
Office: 402.934.5122



## STATEMENT OF INTEREST & QUALIFICATIONS

Snyder & Associates, Inc. is extremely interested in providing engineering services to the Village of Eagle to study the community's water and sewer systems. We have assembled an experienced team of talented engineers, planners, technicians, and operators that has completed numerous system evaluation projects for communities similar to Eagle. We have the necessary expertise to create hydraulic and GIS network models of water and wastewater systems. Our Team is committed to making you successful with effective communication and timely deliverables.

We understand that population growth and planned future development within Eagle and the surrounding area have triggered the desire to study and evaluate the community's water distribution and sanitary sewer systems. Our Team will help you develop a holistic approach to these systems that meets your near-term and long-term goals.

Within the pages of this proposal, Snyder & Associates, Inc. proposes a scope and fee for both a limited desktop analysis of these systems and a full, detailed study of them. The desktop analyses would evaluate existing records and known capacities and storage volumes to identify shortcomings in Eagle's existing system for the projected demand of future development. The full analyses will help to ensure no further issues are experienced in the future. With a detailed evaluation, the Village of Eagle will be able to verify the optimal diameters of water mains for replacement, see fire demand deficiency areas, and quickly and accurately inform new developments if Eagle can accommodate their proposed expansion, by having a model to provide instant results. A detailed description of the scopes and a breakdown of fees for the water and sewer system studies can be found on Pages 5 and 11, respectively.

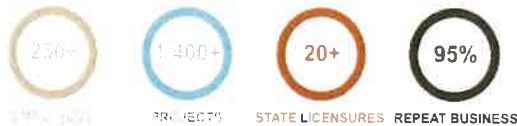
We understand that budget constraints can limit the improvements a community is able to complete and will work with you to determine the most appropriate, cost-effective, and right-size solution for your system. We can help you navigate the funding process, write grant applications, and administer funding documentation, if needed. Traditional funding sources for water and wastewater projects include the following:

- Revenue Bonds
- General Obligation Bonds
- Water Wastewater Advisory Committee (WWAC) Clean Water State Revolving Fund (CWSRF)
- Department of Health and Human Services (DHHS) Drinking Water State Revolving Loan Fund (DWSRF)
- The USDA Rural Development Water and Waste Disposal Loan and Grant Program
- Nebraska Department of Economic Development Community Development Block Grant (CDBG) Program

We look forward to fostering a partnership with the Village of Eagle and are invested in the success of your water and sewer systems. The Snyder & Associates, Inc. Team offers an experienced group of professionals that bring energy, innovation, and proven results. We are excited about the opportunity to provide these services and will be committed to providing you with the planning tools needed to continue sustainably growing your community. Thank you for the opportunity to make a submission for this exciting endeavor and we welcome any discussion regarding our Team, proposed approach, and value we can bring to you and your community partners.

## OUR STORY

Snyder & Associates, Inc. is an Iowa-founded, multi-disciplinary planning and engineering firm serving clients throughout the Midwest and nationwide. An enduring philosophy of responsive, personal service tailored to individual client needs has guided us for over 40 years. As a community of problem solvers, we excel at pioneering sustainable, efficient solutions that help our clients achieve growth and resilience.



From historic preservation to new construction, we're committed to bringing your vision to life through creative, dependable solutions. Together, we'll explore optimized solutions so you can make informed decisions. From concept through construction, we advocate for our clients, working to minimize your administration and coordination needs with responsive communication and commitment.

We're driven by possibility and take pride in our ability to guide project success. Complex challenges and constrained resources don't break our stride—they inspire us.

## IMPROVING THE WORLD AROUND US

At Snyder & Associates, forward-thinking, experienced people are one of our greatest strengths. They're a catalyst for positive change, pushing the boundaries of possibility to improve the communities we serve and call home. With your immediate and future needs in mind, we'll help you proactively address infrastructure challenges.



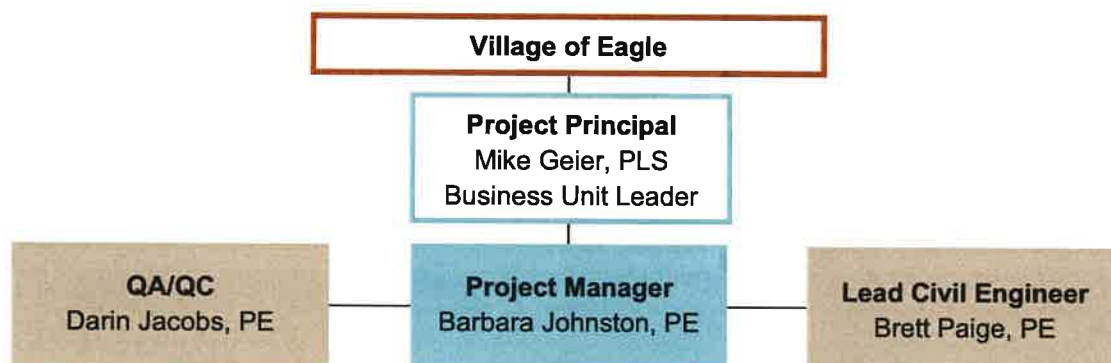
For us, it's about more than just the project at hand. It's about building long-term relationships with the people we serve and improving community quality of life.

## HYDRAULIC MODELING SOFTWARE

InfoWater offers state-of-the-art modeling features to further evaluate systems for fire-flow availability, water age, chemical tracing, pump energy consumption, and others. Most of the modeling effort is absorbed in the development and calibration process. Once a calibrated model is achieved, being able to quickly model various scenarios can be streamlined. Therefore, if Eagle determines a specific type of analysis is essential for this project, our Team can effectively accommodate your needs.

## PROJECT TEAM

The Organizational Chart below describes the Team that will be committed to this project. Resumes of dedicated project staff are included on the following page.



## MEET THE TEAM

**DARIN JACOBS, PE****Water Resources Group Leader, QA/QC**

Mr. Jacobs has been a Project Manager and Design Engineer of water and wastewater projects for more than 25 years. He leads the Water Resources Group and is a licensed Civil Engineer in 11 states, including Nebraska. His wastewater design experience includes activated sludge, fixed media, lagoon treatment systems, aerobic digesters, anaerobic digesters, pumped digester mixing systems, jet aeration mixing systems, pump stations, mechanical aeration systems, and disinfection system design. He also has experience in water supply, treatment, storage, and distribution, including numerous treatment facilities, pump stations, and piping systems for water supply conveyance. Darin started his engineering career in the construction industry which provides unique knowledge of cost estimating and field experience necessary to successfully build projects with considerations for constructability and cost effectiveness. He has the authority to assign staff resources needed to accomplish all phases of a project and is responsible for quality assurance and control.

**BARBARA JOHNSTON, PE****Project Manager**

Ms. Johnston has worked as a Civil Engineer and Project Manager at Snyder & Associates, Inc. for six years. She holds Bachelor's and Master's degrees in Civil Engineering, with an emphasis in sustainable community development. Barbara's experience covers a variety of areas, including roadway reconstruction, storm and sanitary sewer improvements, recreational trails, site design, construction administration and observation, and airport facilities. Her expertise includes plan preparation, permitting, site planning and design, and project coordination with clients, contractors, stakeholders, and regulatory agencies. Barbara is a licensed Professional Engineer in the states of Nebraska and Iowa and she works out of the Snyder & Associates, Inc. Omaha office, managing projects for Nebraska communities.

**BRETT PAIGE, PE****Project Engineer**

Brett is a licensed Professional Engineer with 10+ years of experience in the civil engineering field. His project experience includes hydraulic modeling, water distribution system evaluation and design, urban sanitary and storm sewer design, utility rehabilitation, asset management, public involvement, and capital improvement planning. He provides a wide range of services for clients, including system analysis, design, utility coordination, construction document preparation, cost estimating, permitting, funding, bidding, and construction contract management. Brett has an extensive background evaluating water and sewer systems for communities of varying sizes ranging from populations of a few hundred up to 60,000 people. His knowledge of operation and historical significance of dated systems will be utilized as a resource to the project.

## WATER SYSTEM STUDY

Our approach to working with the Board will be foundationally supported through effective communication. We believe that project success is driven by collaboration and being responsive to the needs of our clients. To ensure we are all successful, Barbara Johnston, our Project Manager will be in regular coordination with the Village Maintenance Department to provide project updates, expertise, and ultimately operate as an extension of your staff.

Snyder & Associates, Inc. has developed a two-phase scope for the Village's consideration. The first phase includes a limited evaluation of the water system to identify immediate needs. The second phase includes a holistic evaluation of the water system in its entirety. The project scopes listed below include the estimated fees, which are not to exceed amounts. We would appreciate any questions the Village Board may have in relation to either option or if a modified scope is desired.

### PROJECT SCOPE PHASE 1: LIMITED WATER SYSTEM ANALYSIS (\$5,000)

Snyder & Associates, Inc. will complete a desktop analysis of the Village's water system which includes an evaluation of water use records, well pump capacities, and water tower storage volume. The well pump capacity will be compared to the actual water use the Village delivers to identify if any shortcomings exist in the supply system under existing conditions. Future projections will be quantified and added to the existing system demand to identify at which point supply capacity will be reached. In addition, the Village's elevated storage will be evaluated in a similar manner to compare existing capacities and identify future storage limitations for new development. Lastly, it is understood that the Village has identified priority locations to upsize water mains. These water mains will be evaluated to determine optimum diameters and project cost estimates will be prepared.

An engineering report will be provided to the Village that summarizes the study findings, potential buildout scenarios, and recommendations with costs. The tasks included in the Phase 1 scope will be **completed within 45 days from the notice to proceed and obtaining data from the Village.**

#### Upon completion of Phase 1, we will accomplish the following:

- Know the resiliency of Eagle's supply (wells) and storage (tower) systems.
- Accurately identify existing well field capacity.
- Identify well field shortcomings if one well failed.
- Know if and when additional wells might be needed, based on population.
- Identify potential locations if an offsite well is needed, based on population.
- Know if and when a new elevated storage tower might be needed, based on population.
- Tabulate existing system capacity metrics (percentage of overall).
- Highlight future development capacity limits for existing system based on population.
- Provide preliminary cost estimates for current planned water main replacement and extension projects.

#### **Task 1 – Data Collection and Review (\$1,500)**

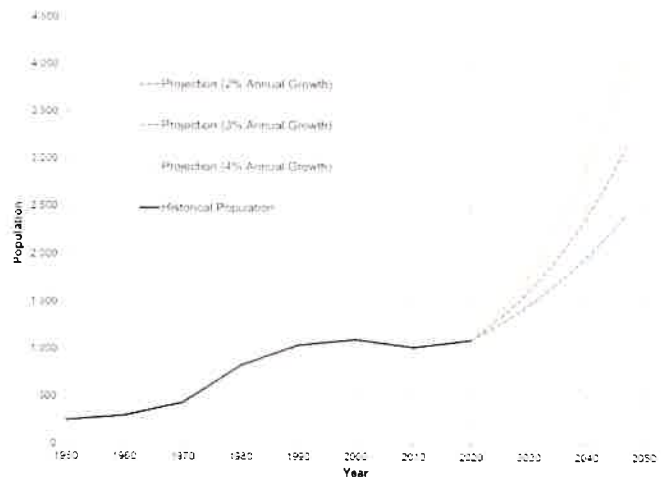
Data collection will provide the foundation for the development of the water system network. Snyder & Associates, Inc. will prepare a list of the requested information to present to the Village Maintenance Department at the project kickoff meeting following project award. A thorough review of the requested information will be performed once the data is obtained from the Department. Data gaps will be identified, and steps to fill those gaps will be completed. Examples of the information that are necessary to establish an accurate water model include but are not limited to the following:

- |                             |                                      |
|-----------------------------|--------------------------------------|
| • Water network maps        | • Operational settings of facilities |
| • Facility plans/as-built's | • Land use information               |
| • MOR's and billing records | • Valve operation records            |
| • Pump curves               | • Maintenance records                |



**Task 2 – Population and Water Use Evaluation (\$2,000)**

The Village of Eagle is a primarily residential community with a recent trend in new development. We will review historical population trends and project future conditions for varying rates to forecast a timeline of maximum buildout. An example graphic of this process is shown to the right. Without processing actual population data, we included some assumptions in this projection. However, from previous experience, we typically evaluate growth trends ranging from 2-5% per year to understand various conditions. This allows for a better understanding of when to plan for system upgrades or adjust new development allowances until additional resources are available. The population values will be correlated to planning demand values defined by the Nebraska DEE and compare to actual billing records provided by the Maintenance Department. The MOR's will be reviewed and compared to billing record metrics to establish accurate demand values needed for modeling and identify water loss percentages.



*Historical population and projection graphic for the Village of Eagle, NE.*

**Task 3 – Technical Memo (\$1,500)**

Provide a technical memorandum to summarize the findings of Tasks 1 and 2, including initial assessment of existing data and identification of system limitations.

**PROJECT SCOPE PHASE 2: SYSTEM-WIDE WATER STUDY (\$12,000)****Upon completion of Phase 2, we will accomplish the following:**

- Have a holistic understanding of Eagle's water system, including supply, storage, and distribution for existing and future development scenarios.
- Be able to quickly provide answers regarding system impacts for known current development interest and for any future inquiries.
- System-wide understanding of current fire flow capabilities.
- Provide solutions to improve water quality, including a water age analysis.
- Have an optimized location, size, and height for a new tower when it is needed.
- Provide a solution for the low-pressure issues on the west side of the Village.
- A guidance path for any potential funding opportunities.
- The Village will have a digital map of their water system network. Hard copies will be provided.
- We will provide a professional engineering report that will act as a roadmap for the Village to improve their existing system and plan for future expansion to accommodate new development. Planning level costs will be included.
- Present results and recommendations to the Village Board.

**Task 4 – Model Development (\$4,000)**

The water distribution system hydraulic model and GIS network will be developed simultaneously with one another. The first step to developing the water model will include creating the network elements in GIS and importing the shapefiles into the water model software. We plan to update the attribute information for the model elements using the information requested under Task 1. One benefit to using InfoWater is the program offers multiple cleanup tools to expedite the model importing process and fill data gaps necessary for simulations be completed. Once the GIS information is to an appropriate quality level, the water network will be ready for import into the model. Water network features that will be imported include water main, valves, operational facilities, and pumps.

Regular communication with the Maintenance Department will occur during this process to ensure accurate information is included in the network. Elevation information will be assigned to network features based on LiDAR surface information necessary to produce pressure gradients in the model. The primary operational facilities will rely on as-built plan information to assign elevation attributes.

Flow demands will be input based on population metrics and billing records to simulate a base average daily scenario. Using the average demand as the base condition allows us to quickly apply peaking factors to simulate maximum daily or peak daily conditions.

#### **Task 5 – Hydrant Testing and Calibration (\$2,500)**

Hydrant testing would be completed in coordination with the Maintenance Department. This information will be critical to understanding the operation of the existing system and correct connectivity errors otherwise unknown without testing data. It is recommended that hydrant testing is performed on up to 12 hydrants throughout the community. We will provide guidance for the ideal testing locations and can work with the Maintenance Department to support field efforts if requested. Testing will include recorded static and residual pressures of two (2) hydrants per testing location and the flow capacity of the opened hydrant. This information will be assembled in a spreadsheet and referenced in the hydraulic model. \*



*Hydrant testing ensures the ability to provide water at an acceptable pressure and flow rate for public health and emergency operations.*

\* It is our understanding that the Village of Eagle has recently completed pressure testing on approximately 70 hydrants. If additional testing is required, we will coordinate with the Village on testing locations and needs.

Using hydrant data provided by the Village, the model will be calibrated to the hydrant testing information where no known valve deficiencies are present to gain further confidence in the results produced by the modeling software. Calibration will consist of matching the hydrant testing pressures and flows within 5% accuracy. In addition, result critical values will be adjusted, such as pipe roughness based on materials, connectivity, and facility settings to match hydrant testing results.

#### **Task 6 – Water System Modeling of Scenarios (\$2,500)**

Once a calibrated hydraulic model is achieved, we will proceed with capacity evaluations of the existing system under average day, maximum day, and peak hourly scenarios. It is important to evaluate maximum demand scenarios to understand how key system facilities respond to the increased stress of water consumption. In addition, we also propose to evaluate a peak hour scenario that represents a “worst-case” simulation during a maximum demand month and peak diurnal time such as in the morning for a residential community such as Eagle. The demand multiplier commonly used is around 4 for this condition. Following the completion of the existing conditions evaluations, we will model similar scenarios for future growth and known upcoming development areas.

If requested by the Village of Eagle, we can perform a fire flow analysis regarding Insurance Service Office (ISO) requirements and identify areas of concern. For example, a typical single-family residential property must be provided with 500gpm for a 1-hour duration at the main. We can easily evaluate this scenario with modeling tools if the Maintenance Department desires.

The hydraulic modeling completed during this task will be utilized to identify if/when the Eagle’s existing system will be at risk for being over-utilized. In addition, it will be referenced as a planning tool to identify water main sizes for new development or replacement of existing water mains.

#### **Task 7 – Funding Planning (\$1,000)**

We will work closely with the Village Maintenance Department to determine best suited options to fund any improvement projects deemed necessary for additional growth. Initial options include low interest loans, tax reimbursement strategies, and connection fee cost sharing with developers. A summary of traditional funding sources for wastewater projects includes the following:

- Revenue Bonds
- General Obligation Bonds
- Water Wastewater Advisory Committee (WWAC) Clean Water State Revolving Fund (CWSRF)
- Department of Health and Human Services (DHHS) Drinking Water State Revolving Loan Fund (DWSRF)
- The USDA Rural Development Water and Waste Disposal Loan and Grant Program
- Nebraska Department of Economic Development Community Development Block Grant (CDBG) Program

**Task 8 – Engineering Report (\$4,500)**

An engineering report will be provided as a final deliverable for the project. This document will include a summary of the evaluation process, model development and calibration, modeling results and recommendations for future planning. Although not required, cost estimates can be provided if system deficiencies are identified based on the analysis results to assist the Village Board of Trustees and Maintenance Department with planning for future improvements and continue providing excellent water service to areas residents. The report will also summarize appropriate pipe sizing needed to accommodate future development. Following the Board and Maintenance Department's review of a draft version of the engineering report, a final report will be provided. A presentation will be prepared to summarize the findings in the report and presented to the Village Board.

**Meetings/Schedule**

We anticipate up to two in-person meetings will be necessary to complete this project. This includes the project kickoff meeting and final presentation to the Village Board. The tasks included in the Phase 2 scope will be **completed within 60 days from conclusion of Phase 1.**



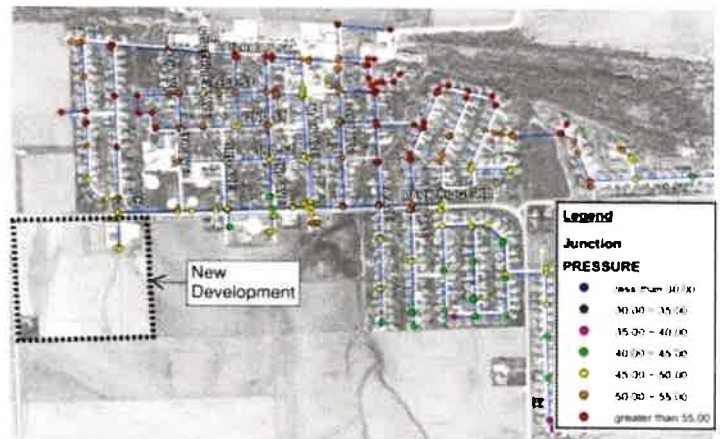
## RELATED TECHNICAL EXPERIENCE

### WATER DISTRIBUTION STUDY – ATKINS, IOWA

Snyder & Associates, Inc. completed an evaluation of the City of Atkins water distribution system in 2019. The project evaluated the operation of the City's existing water system with the development and calibration of a hydraulic model. The primary purpose of the project was to assist the City with identifying system deficiencies, plan for future growth and prioritizing improvements based on model results and strategic asset management goals.

The City of Atkins is located about 15 miles west of Cedar Rapids, Iowa and is primarily a bedroom community with low and medium-density residential housing. The City has experienced a relatively aggressive and inconsistent growth pattern ranging from 10-35% population increases in 5-year increments. The City's water system is comprised of two supply wells, a Reverse Osmosis (RO) treatment plant, three high-service pumps, a 190,000 gallon elevated storage tank, and 11 miles of water main with diameters ranging from 4-inches to 8-inches in diameter. A hydraulic model of the water system was developed in InfoWater, a GIS-based modeling platform. This allowed the importing of system features and critical modeling data to be expedited since the selected modeling platform's basis of operation is built from an asset management approach. The city provided information including facility as-builts, pump curves, water system maps, MOR's and other sources of information was referenced to build the hydraulic model. Once the base network was created, hydrant testing was completed to verify system connectivity and calibrate the model to the field test data. The calibration process allowed our modeling team to gain confidence in the model's output and identify locations that had abnormal flow patterns related to valve statuses or isolated crosses. Once calibration was complete, the model was utilized to evaluate the function of the existing system under multiple scenarios, including average day, maximum day, peak hour, and fire-flow demand scenarios. These scenarios were also run for future conditions based on determining population trends through the year 2036 to assess the ability of the current facilities to support that increased level of demand.

The final deliverable included an engineering report that summarized the evaluation process and identified improvements to the City's system to adequately maintain aged assets and support future growth patterns with priorities.



## PROJECT SUMMARY

### CLIENT

City of Atkins

### CONTACT

Todd Damon  
Water and  
Wastewater  
Superintendent  
319.202.1022  
Atkinsh2o@netins.net

### TEAM

Brett Paige, PE  
Kelli Scott, PE

### SERVICES PROVIDED

Civil Engineering  
Planning  
Analysis

### DETAILED SERVICES

InfoWater Modeling  
Steady State Calibration  
Fire Flow Analysis  
Water Age Analysis  
Capacity Analysis  
Water Main Design  
New Development Planning  
Cost Estimating  
Hydrant Testing  
Connectivity Verification



## WATER SYSTEM REHABILITATION – ADAIR, IOWA

The City of Adair contracted with Snyder & Associates, Inc. in 2014 to analyze the existing city infrastructure. A preliminary engineering report (PER) was prepared for the water supply, storage, treatment and distribution systems. The report detailed numerous deficiencies in the water system and outlined a plan for upgrades and improvements. The project was broken into four phases in which USDA Rural Development funding was sought and received.

Phase I consisted of the replacement of approximately 25,000 feet of the existing water distribution system. The project included water mains, valves, fire hydrants and water services along the entire project route. The project design and IDNR permitting were completed in 2017 and construction of the underway. The Phase 1 portion of the project has a current construction cost of just under \$1.5 million.

Phase II of the project involves replacement of the City's water treatment plant. Recently, the City received a notice of violation from the Iowa DNR for high nitrites and concerns for low chlorine residual. The existing treatment facility is not capable of the necessary treatment required to correct this violation. Options for improvements to the plant include upgrades or complete reconstruction and installation of a Reverse Osmosis (RO) system. The City is pursuing the RO system due to the age of the existing plant and plans to proceed with design in 2018 and construction beginning in 2019.

Phase III involves improvements to the existing water tower. Due to the tower size and lack of mixing equipment, water age is a concern. Additional piping and a manifold will be added to the tower to improve the water quality.

Phase IV involves the installation of an emergency generator for the well field.



project is currently



### PROJECT SUMMARY

#### CLIENT

City of Adair

#### CONTACT

Ryan Billheimer  
Public Works Director  
641.742.3751

#### TEAM

David Sturm, PE  
Wes Farrand, PE

#### CONSTRUCTION COST

Phase I - \$1.5 million  
Phase II - \$3.3 million  
Phase III - \$100,000  
Phase IV - \$200,000

#### SERVICES PROVIDED

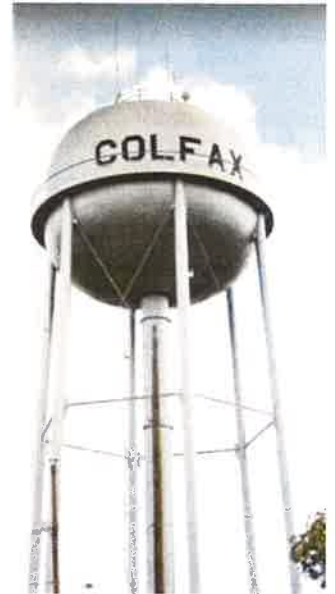
Design Services  
Bid Services  
Construction Services

#### DETAILED SERVICES

Preliminary Engineering  
USDA RD Assistance  
Water Main Design  
Treatment Plant Design  
Bidding Assistance  
Construction Admin.  
Construction Staking  
Construction Observation

## WATER SYSTEM STUDY AND MAIN REPLACEMENT – COLFAX, IOWA

Snyder & Associates, Inc. prepared a study for the City of Colfax to evaluate the City's existing water system, including water supply, water quality, treatment, storage, and distribution. This study will provide recommendations for future capital improvement and maintenance planning using population projections. The City's development has expanded further to the north, creating an additional need for potable water supply and distribution infrastructure. Also, the water quality in the City's water supply has been changing, and the City will need to treat the water differently than they are today. A capital improvement plan (CIP) was prepared for the City. Additionally, an engineering analysis was completed, and improvement recommendations were provided in the CIP. Recommended maintenance procedures were also included to allow the City to properly sustain their system and minimize unexpected emergency repairs.



Snyder & Associates, Inc. was also authorized by the City of Colfax to replace 7,000 feet of water main in several areas of the City's aging water distribution system; some of which has been in service since the 1890's. This project required the use of an array of expertise including hydraulic modeling and water main design. The hydraulic model was developed in InfoWater. Existing CADD information of the City's distribution network was imported into GIS and assigned attributes including material, length, and diameter. Once the attributes were finalized, network components including mains, tanks, and booster stations were imported into InfoWater. Hydrant flow testing was performed by Snyder & Associates, Inc. staff which was used to calibrate the model. In addition to steady-state simulations, which are an instantaneous model run, extended period (EPS) simulations were also performed. The benefit of EPS simulations are to identify key facility deficiencies such as inadequate supply capacity and to perform water quality analysis on the system. Water age was a concern for the modeled system which was why EPS simulations were completed. Existing conditions were compared to the proposed upsized water mains and evaluated for improved water quality metrics. In addition, fire flow scenarios were modeled to identify inadequate pressures.

Following the completion of the hydraulic modeling to confirm the recommended size of proposed water mains, the design task commenced. During the design process, Snyder & Associates, Inc. staff performed field reviews and documented existing conditions to carefully plan and phase construction of the improvements. Designing the water main replacement through the downtown business district proved to be a challenge with the tight corridor, many local businesses, and arterial traffic along Highway 117. Disruptions were minimized by installing the water main utilizing both trenching and trenchless technologies.



**SNYDER ASSOCIATES** Existing Conditions - Water Age @ 150hrs  
Project Name: City of Colfax, Iowa 11/13/2018

## PROJECT SUMMARY

### CLIENT

City of Colfax, IA

### CONTACT

Bob Rhone  
Public Works Director  
515.971.7084  
rrhone7@aol.com

### TEAM

Brett Paige, PE  
Steve Klocke, PE  
Chris Pedersen, PE

### SERVICES PROVIDED

System Evaluation  
Hydraulic Analysis  
Capital Improvement  
Planning  
Civil Engineering  
Design Services  
Bid Services

### DETAILED SERVICES

InfoWater Modeling  
Steady State Calibration  
Fire Flow Analysis  
Water Age Analysis  
Water Main Design  
Force Main Design  
Right-of-Way Acquisition  
SRF Funding Assistance  
CDBG Funding Assistance

## SEWER SYSTEM STUDY

Our approach to working with the Board will be foundationally supported through effective communication. We believe that project success is driven by collaboration and being responsive to the needs of our clients. To ensure we are all successful, our Project Manager will be in regular coordination with the Village Maintenance Department to provide project updates, expertise, and ultimately operate as an extension of your staff.

Snyder & Associates, Inc. has developed a two-phase scope for the Village's consideration. The first phase includes a limited evaluation of the sanitary sewer system to identify immediate needs. The second phase includes a holistic evaluation of the sanitary sewer system in its entirety including gravity mains, pump stations, and wastewater treatment plant related to capacity. The project scopes listed below include the estimated fees, which are not to exceed amounts. We would appreciate any questions the Village Board may have in relation to either option or if a modified scope is desired.

### PROJECT SCOPE PHASE 1: LIMITED SEWER SYSTEM ANALYSIS (\$4,000)

Snyder & Associates, Inc. will complete a desktop analysis of the Village's sanitary sewer system which includes an evaluation of the monthly operating reports (MOR's) at the WWTP. Average day and maximum day values will be tabulated for existing conditions to identify capacity metrics. We will develop and utilize land use mapping designations to identify wastewater flows from existing and future service areas. LiDAR contours will be utilized to define gravity sanitary sewer service area limits, including areas that are outside the Village's corporate boundaries.

An engineering report will be provided to the Village that summarizes the study findings, potential buildout scenarios and recommendations with costs. The tasks included in this scope will be **completed within 45 days from the notice to proceed and obtaining data from the Village.**

#### Upon completion of Phase 1, we will accomplish the following:

- Address the Village's concerns regarding the capacity of the WWTP. We will evaluate the actual capacity compared to the permitted design capacity of 250,000 gallons per day.
- Identify sewer flow characteristics, including average daily and maximum daily values.
- Calculate the system peaking factor and preliminary inflow and infiltration metrics.
- Tabulate existing system capacity metrics (percentage of overall).
- Highlight future development capacity limits for existing system, based on population.
- The Village will be able to provide answers to adjacent potential users with confidence, regarding if they can accept their connections at the WWTP. This includes outside communities and new development.

#### **Task 1 – Data Collection and Review (\$1,500)**

Snyder & Associates, Inc. will prepare a list of the requested information to present to the Village Maintenance Department at the project kickoff meeting following project award. A thorough review of the requested information will be performed once the data is obtained from the Department. The information that will be requested includes the following:

- |   |                                      |
|---|--------------------------------------|
| • Collection system original plans or as-builts | • Pump curves                        |
| • WWTP original plans or as-builts              | • Operational settings of facilities |
| • Lift station plans or as-builts               | • Land use information               |
| • Monthly operating reports (MOR's)             | • Basement backup records            |
| • Existing sewer mapping information            | • Available geotechnical information |

Utilize the Village's monthly operational report data to establish average day, maximum day, and peaking factor flow characteristics. Snyder & Associates, Inc. has in-house flow meter equipment that can be mobilized if necessary to target sewersheds that might be contributing excessive inflow and infiltration (I/I) or truth the reported values directly upstream of the treatment plant.



**Task 2 – Land Use and Population Projections (\$1,000)**

Develop and utilize land use mapping designations to identify wastewater flows from existing and future service areas. Calculations will be based on both planning level design density metrics and actual densities computed during this task. Use LiDAR contours to define gravity sanitary sewer service area limits, including areas that are outside the Village's corporate boundaries. A basement depth of 9' at the upstream end will serve as the limiting basis to allow gravity flow connection to the City's existing system. Pump station connections will also be considered for known development priorities.

**Task 3 – Technical Memo (\$1,500)**

Provide a technical memorandum to summarize the findings of Tasks 1 and 2, including initial assessment of existing data and identification of system limitations.

**PROJECT SCOPE PHASE 2: SYSTEM-WIDE SEWER STUDY (\$9,000)****Upon completion of Phase 2, we will accomplish the following:**

- A system-wide understanding of your collection system in relation to capacity limitations for gravity sewers, lift stations, and WWTP.
- Highlight future development capacity limits for existing collection system, based on population.
- Recommended solutions for protection/re-alignment of the trunk sewer directly upstream of the WWTP.
- System expansion options and anticipated timelines, based on population growth trends.
- A guidance path for any potential funding opportunities.
- The Village will have a digital map of their sanitary sewer collection system. Hard copies will be provided.
- We will provide a professional engineering report that will act as a roadmap for the Village to improve their existing system and plan for future expansion to accommodate new development. Planning level costs will be included.
- Present results and recommendations to the Village Board.

**Task 4 – Data Gap Survey (\$2,000)**

We will fill data gaps necessary for the capacity analysis through field reconnaissance efforts. This will include GPS survey of sewer assets, invert measurements, pipe diameters and materials. This task will include up to two days of field work to collect information with the assistance from the Village Maintenance Department.

**Task 5 – Capacity Analysis (\$3,500)**

It is understood that the existing treatment plant is an activated sludge facility with an oxidation ditch, final clarifier with UV disinfection. The design capacity of the plant is 0.25 million gallons per day (MGD). The Village currently observes an average daily flow of approximately 80,000 gallons per day (gpd) and an elevated flow rate of nearly 100,000 gpd. This equates to roughly 40% utilization of the existing treatment plant's capacity. Snyder & Associates, Inc. will evaluate the holistic capacity of the Village's collection system including gravity sewer, lift stations, and the wastewater treatment plant. Existing plans, maps, previous studies (if available), pump curves, and operational data will be utilized to evaluate the existing capacity of these systems. Following the existing conditions analysis, the ultimate buildout capacity will be calculated for the existing system. This will include creating maps that highlight potential limits of development. The relative amount of impact will be determined based on projected land uses and wastewater flows. System restrictions will be identified and optimization alternatives will be provided. These alternatives will include upsizing solutions to optimize the least restrictive component of the Village's system. For example, if a trunk sewer conveyed into the treatment plant is restricted, the feasibility to upsize the sewer will be compared to the additional development area that may be gained if completed.

The capacity analysis will be based on known existing sewer system flow values which includes I/I. The removal of I/I from the Village's system will be one of the factors considered to gain additional capacity to accommodate a larger development limit. This will be based on peaking factors identified in Task 1. Depending on the geotechnical characteristics of the area, I/I removal may have variable effects on the adjacent system. If sandy soils are present and a deteriorated sewer pipe is replaced/lined, flows conveyed to the treatment plant could actually increase. Their natural permeability allows for exfiltration of wastewater through sewer pipe defects into the surrounding soil. This acts as a natural form of treatment similar to a sand filter.



**Task 6—Funding Planning (\$1,000)**

We will work closely with the Village Maintenance Department to determine best suited options to fund any improvement projects deemed necessary for additional growth. Initial options include low interest loans, tax reimbursement strategies, and connection fee cost sharing with developers. A summary of traditional funding sources for wastewater projects includes the following:

- Revenue Bonds
- General Obligation Bonds
- Water Wastewater Advisory Committee (WWAC) Clean Water State Revolving Fund (CWSRF)
- The USDA Rural Development Water and Waste Disposal Loan and Grant Program
- Nebraska Department of Economic Development Community Development Block Grant (CDBG) Program \*

\* Cost planning and identification of potential funding sources will be accomplished as part of the water system study. Funding sources for both water and wastewater projects will be considered.

**Task 7 – Engineering Report (\$3,500)**

Provide an engineering report that includes service area maps and estimated wastewater flows for future developed conditions. The report will identify ultimate buildout limits for the City and projections of the anticipated year buildout conditions may occur before upgrades are needed of the City's existing facilities. Recommendations for necessary improvements for defined development limits will be included with planning level costs.

**Meetings/Schedule**

We anticipate up to two in-person meetings will be necessary to complete this project. This includes the project kickoff meeting and final presentation to the Village Board. The tasks included in this scope will be **completed within 60 days from conclusion of Phase 1.**

**ADDITIONAL SERVICES****Flow Monitoring (\$3,000)**

Flow monitoring can be provided, if needed, to include one meter for up to three (3) months. \*

\* It is our understanding that the Village has sufficient meters installed for needed flow data. If additional flow monitoring is desired, Snyder & Associates, Inc. can provide those services.

## RELATED TECHNICAL EXPERIENCE

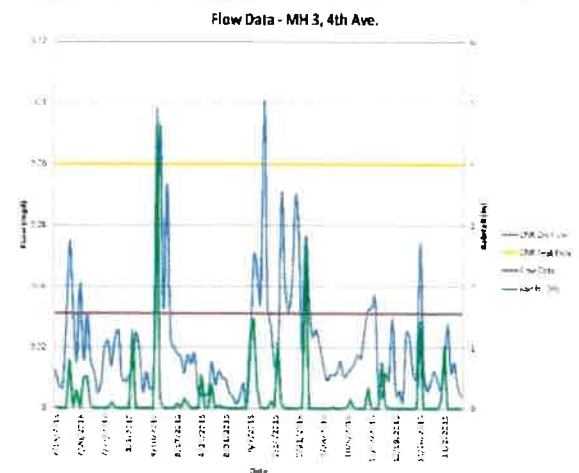
### WASTEWATER TREATMENT PLANT – ATKINS, IOWA

This project was developed to meet the NPDES compliance schedule issued to the City of Atkins for ammonia-nitrogen and e. Coli limits. In addition to these water quality limits, the City also received a limit for total nitrogen due to a Total Maximum Daily Load (TMDL) issued for the Cedar River. Improvements included an activated sludge (Aero-Mod) treatment facility followed by UV disinfection. The existing aerated lagoon cells were converted to flow equalization to minimize the sizing of the mechanical treatment equipment.

Snyder & Associates, Inc. prepared the Facility Plan to address capacity issues, effluent limits, and proposed alternatives to improve the treatment process. During the study it was also determined that the existing lift station was undersized and improvements would be necessary. The lift station improvements included multiple pumps with varying pumping capacity to ensure operational efficiency.

The design of these treatment facilities took into account not only the potential for future growth rates for the City of Atkins, but also the potential for future nutrient reduction requirements. Since the City had a requirement to meeting total nitrogen effluent limits, it was determined that the future planning for total phosphorus removal also be included within the design.

Snyder & Associates, Inc. provided the planning and design services for this project, as well as construction administration and observation of the new treatment plant.



## PROJECT SUMMARY

### CLIENT

City of Atkins

### CONTACT

Todd Damon  
Public Works Director  
319.202.1022

### TEAM

Lindsay Beaman, PE  
Nick Eisenbacher, PE

### BUDGET

\$8 Million

### CONSTRUCTION COST

WWTP - \$5.6 Million  
Sewer - \$200,000

### SERVICES PROVIDED

Facility Plan  
Design Services  
Construction Management

### SUBCONSULTANT SERVICES

Architectural  
Building Mechanical  
Building Electrical

### DETAILED SERVICES

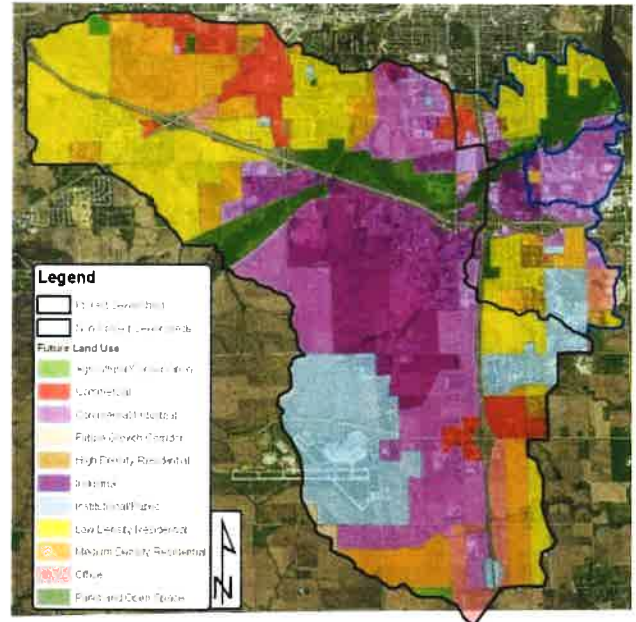
Survey  
Floodplain Evaluation  
DNR Permitting  
Structural Design  
Design  
City Council Meetings  
Opinion of Cost  
Bid Services  
Construction  
Administration and  
Observation

## PRAIRIE CREEK SANITARY SEWER CAPACITY IMPROVEMENTS – CEDAR RAPIDS, IOWA

The City of Cedar Rapids retained the services of Snyder & Associates, Inc. to utilize the existing flow data and service tributary provided by the City to evaluate the hydraulic needs and pipe sizing to serve the large industrial areas of southwest Cedar Rapids. This evaluation focused on the replacement of an existing 42-inch interceptor sewer and functional design led to the conclusion to replace over 5000 LF with 66-inch sewer. The City has GIS data of the entire collection system. Existing flow metering data that the City had been and continues to collect provided baseline data, while future land-use maps were overlaid onto the consultant drafted sewersheds to create the hydraulic models for future capacity needs. Additionally, the study reviewed alternative alignments, easement needs, and estimated costs for the different alternatives. Project corridor included I-380 DOT right-of-way crossing needs and coordination. Replacement interceptor sewer currently in design for fall 2018 planned construction.

### Achievements

- Identified locations of existing and future probable capacity limitations.
- Flow and rainfall data review
- Developed a hydraulic model of the system to project future flow conditions based on growth projections for dry and wet weather flows.
- Provided technical memorandum to supplement current sewer capacity CIP
- Alignment alternatives analysis provided most economical route for future improvements
- Potholing to determine utility conflicts in conjunction with alignment determination
- 5,100 LF of 66-inch diameter replacement project in design for fall 2018 construction.



## PROJECT SUMMARY

### CLIENT

City of Cedar Rapids

### BUDGET

\$40,000

### SERVICES PROVIDED

Civil Engineering  
Functional Design  
Technical Memorandum  
Survey  
Geotech (sub)  
Potholing (sub)

### DETAILED SERVICES

Field Assessment  
Desktop Assessment  
Hydraulic Analysis  
Current and Future  
Analysis  
Alignment Alternatives  
Easement Services  
DOT ROW Permitting  
Order of Magnitude  
Project Recommendations

### CONTACT

David Wallace, P.E.  
Sanitary/Storm Sewer  
Program Manager  
319.286.5814  
Davidw@cedar-rapids.org

### TEAM

Patrick Schwickerath, PE  
Justin Harland, PE



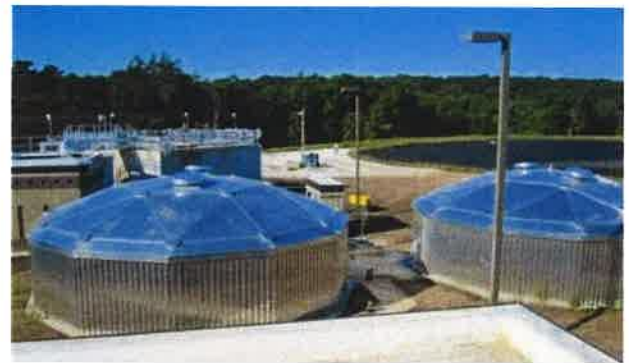
## WASTEWATER TREATMENT PLANT – SAC CITY, IOWA

The Sac City Wastewater Treatment Plant was originally constructed in the late 1970s and was in need of renovation. The plant was originally designed as a fixed film Rotating Biological Contactor (RBC) treatment system. After decades of being in service, some components of the facility were in need of replacement. Working with the City and IDNR, Snyder & Associates, Inc. determined that the plant could be upgraded using a significant amount of the existing facility while also incorporating the RBC technology the City was familiar with.

As the plant was more than 30 years old, many critical components were either at or approaching the end of their useful life. Buildings were in need of significant structural improvement and roofing needed to be replaced. The RBC units had been in continuous service since the 1970s and were experiencing mechanical failures. The final clarifiers were also nearing the end of their expected service life. Storage and treatment of biosolids had caused ongoing disposal issues as those systems were originally constructed with very little capacity. Due to Inflow and Infiltration (I & I) in the collection system, flows to the plant often exceeded hydraulic and treatment capabilities. All wastewater in the City was moved to the plant through a duplex main pump station which was constructed at the same time as the treatment plant. The pump station was in need of a capacity upgrade and renovation due to its age. The main pump station was renovated with new dry pit submersible pumps designed to maximize the amount of water pumped through the existing force main.

In order to accommodate high flows experienced during rain events, a synthetically lined 5 million gallon flow equalization basin was constructed. Using the basin, the treatment plant could be operated within its capacity and excess wastewater could be treated at a later time when flows dropped below treatment plant capacity. The project also included a complete renovation of the headworks. The headworks upgrades included two new rotary fine screens and a vortex grit removal system. All six of the existing RBC units were replaced and biological capacity maximized. The final clarifiers had experienced freezing issues since original installation. Both units were replaced and new aluminum covers installed. The existing chlorination-dechlorination disinfection system was renovated and chlorine storage was upgraded to modern standards.

The inadequate biosolids treatment and storage created operational difficulties shortly after original construction was completed. To upgrade the system, pumps were installed to move biosolids from the final clarifiers to a storage unit in order to provide finite system control. Existing biosolids components were significantly upgraded, including construction of a new blower building and a new biosolids storage and treatment system. A modern SCADA control system and significant electrical upgrades were constructed along with improving HVAC to meet modern standards. New emergency power generators were also installed. Numerous funding sources, including CDBG, SRF, American Recovery and Reinvestment Act (ARRA), and user rates, were used to finance the improvements.



### PROJECT SUMMARY

#### CLIENT

City of Sac City

#### CONTACT

Bryant Clair  
Wastewater  
Superintendent  
712.660.4915

#### TEAM

Darin Jacobs, PE  
Matt Mahler, PE

#### BUDGET

\$5,500,000

#### SERVICES PROVIDED

Facility Plan  
Design  
Construction Administration  
Survey  
Construction Observation  
Bidding Assistance  
Construction Phase  
Assistance

#### DETAILED SERVICES

Gravity Sewer Evaluation  
Pump Station Evaluation  
Design of Pump Station &  
Treatment Plant  
Improvements  
Design of Emergency  
Connections  
DNR Permitting  
City Council Meetings  
Opinion of Cost



## SIMILAR PROJECTS

Recent program experience for funding, design assistance and construction services for I/I reduction improvements, including rate studies, collection system plans of action, WWTP facility planning or capital improvement study assistance, are detailed in the following paragraphs. The primary area of concern for each of these projects was elimination of sources of I/I to reduce flows to each respective WWTP, or to eliminate bypassing and/or unscheduled discharges at the WWTP. Projects were designed to fit the community's size and funding abilities, often being phased in order to maximize funding agency assistance to the community.

**Hartford, Iowa (Pop. 733)** – For this project, an I/I study was performed utilizing smoke testing, system flow monitoring, WWTP MOR analysis, sump pump discharge connection assessment, and system cleaning and televising to determine where non-sanitary water was entering the sewer system. The City was provided a schedule of recommended improvements in addition to costs estimates and funding options.

**Toledo, Iowa (Pop. 2,369)** – Snyder & Associates, Inc. prepared a Sanitary Sewer System Facility plan which included analysis of the wastewater flows from the collection system. The analysis included review of past records and field review of the sanitary sewers system. The results were used to design collection system improvements and upgrade the City's aerated three cell continuous lagoon wastewater treatment plant to an activated sludge treatment plant. Snyder & Associates, Inc. is currently assisting the City with further pursuit of I/I elimination within the sanitary sewer collection system.

**Cedar Falls, Iowa (Pop. 40,713)** – Project included sanitary sewer assessment and recommendations for the I/I and urban growth causing capacity issues within the current collection system. Snyder & Associates, Inc. conducted flow monitoring and field inspection activities to locate, quantify, and evaluate rainfall-induced inflow and infiltration. Detailed manhole inspections and televising was conducted on a portion of the sewer within the study area. A hydraulic model of the collection system was created for planning of system capacity improvements. Subsequent projects have included the design and construction of the 17th Street Lift Station which increased pump capacity from 17,000 gpm to 24,000 gpm and has the capacity for addition upgrades to pump 37,500 gpm. Snyder & Associates, Inc. is currently working on the preliminary design plans for 8,000 LF of trunk sewer upsize and replacement through a highly developed corridor.

**Lambs Grove, Iowa (Pop. 174)** – This Project involved a citywide assessment of the existing sewer system. A review of inspection reports and sewer videos and on-site inspection was utilized to develop a prioritized list of recommended improvements to the 85-year-old sewer system. Cost opinions were developed for each of the proposed improvements, and the improvements were then grouped into small projects the City could manage with the limited available funding. This project also reviewed various funding alternatives and studied the City's current sewer fee structure, and the impact the proposed improvements would have on user rates.

**Essex, Iowa (Pop. 722)** – Project included a complete system assessment to identify areas of infiltration and inflow, replacement of interceptor mains, manhole replacement or rehabilitation, and construction of a disinfection system at the municipal treatment plant. Snyder previously assisted the community with rehabilitation of over 10,000 feet of sewer main, replacement of manhole structures, construction of a lift station and treatment plant improvements. This project is funded in part with a CDBG grant.

**Avoca, Iowa (Pop. 1,683)** – Construction of new 12" trunk/interceptor main, replacement of 8"/10" trunk mains and investigation of sources of system I/I to reduce flows to the WWTP to more reasonable levels and to eliminate by-pass within the collection system. Projects were broken down into replacement or relining and/or rehabilitation segments. Projects began in 2010 with phasing through 2014.

**Bedford, Iowa (Pop. 1,508)** – Provided recent study to city to update treatment plant facility and examination of collection system to reduce I/I. Proposed work includes construction of a disinfection system at the WWTP, replacement or rehabilitation of six (6) system lift stations, and reconstruction, relining or rehabilitation of 30,000 LF of the collection system to reduce or eliminate I/I and separate storm water systems from sanitary systems. The City has taken recommended steps to eliminate I/I through the abatement of sump pumps, roof or foundation drains or other sources of non-sanitary residential discharge into the collection system.

## FEE SCHEDULE

**SNYDER & ASSOCIATES, INC.**  
**2021-22**  
**STANDARD FEE SCHEDULE**

Billing Classification/Level	Billing Rate	
Professional		
Engineer, Landscape Architect, Land Surveyor, GIS, Environmental Scientist Project Manager, Planner, Right-of-Way Agent, Graphic Designer		
Principal II	\$220.00	/hour
Principal I	\$209.00	/hour
Senior	\$190.00	/hour
VIII	\$174.00	/hour
VII	\$165.00	/hour
VI	\$157.00	/hour
V	\$146.00	/hour
IV	\$136.00	/hour
III	\$124.00	/hour
II	\$112.00	/hour
I	\$99.00	/hour
Technical		
CADD, Survey, Construction Observation		
Lead	\$133.00	/hour
Senior	\$127.00	/hour
VIII	\$118.00	/hour
VII	\$109.00	/hour
VI	\$98.00	/hour
V	\$88.00	/hour
IV	\$80.00	/hour
III	\$72.00	/hour
II	\$66.00	/hour
I	\$58.00	/hour
Administrative		
II	\$68.00	/hour
I	\$56.00	/hour
Reimbursables		
Mileage	current IRS standard rate	
Outside Services	As Invoiced	

## INSURANCE



## CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
09/17/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Holmes Murphy & Assoc - CR  201 First Street SE, Suite 700  Cedar Rapids, IA 52401  INSURED Snyder & Associates, Inc.  2727 Southwest Snyder Blvd P.O. Box 1159 Ankeny, IA 50023	1-800-300-0325	CONTACT NAME: Leslie Babcock PHONE (A/C, No, Ext): 800-527-9049 FAX (A/C, No): E-MAIL ADDRESS:  INSURER(S) AFFORDING COVERAGE INSURER A: XL SPECIALTY INS CO NAIC # 37885 INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:
---	----------------	---

COVERAGES CERTIFICATE NUMBER: 63219905 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input type="checkbox"/> OCCUR <input type="checkbox"/>  GEN'L AGGREGATE LIMIT APPLIES PER POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:					EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	AUTOMOBILE LIABILITY ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY <input type="checkbox"/>					COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y/N <input type="checkbox"/> N/A If yes, describe under DESCRIPTION OF OPERATIONS below:					PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E L EACH ACCIDENT \$ E L DISEASE - EA EMPLOYEE \$ E L DISEASE - POLICY LIMIT \$
A	Professional Liability Claims Made		DPR9983538	09/24/21	09/24/22	Per Claim 2,000,000 Aggregate 4,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

## CERTIFICATE HOLDER

## CANCELLATION

\*\*\*For Proposal Purposes Only\*\*\*

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

*Leslie Babcock*

ACORD 25 (2016/03)  
lbabcockr  
63219905

The ACORD name and logo are registered marks of ACORD

© 1988-2015 ACORD CORPORATION. All rights reserved.

December 2, 2021



Village of Eagle  
Mr. John Surman, Chairman  
540 C Street  
Eagle, Nebraska 68347

**RE: Scope of Services for Water and Sewer System Evaluations | Village of Eagle**

Dear Mr. Surman and Village Board Members:

At JEO, we go beyond projects and provide our clients with a trusted relationship and an experience rooted in helping you become an even better community for your citizens. The development of infrastructure projects is only part of the job. To truly be successful, we provide guidance, consultation, and input into the important decisions you face day in and day out.

JEO provides engineering services for over 150 Nebraska communities. Also, JEO is a Nebraska-based engineering firm and very familiar with the Water and Waste Water Advisory Committee (WWAC), Nebraska Department of Environment and Energy (NDEE), and the permitting process. We have worked closely with USDA, and have completed numerous preliminary engineering reports with SEARCH grants.

Our team is poised and ready to build a trusted partnership with the Village of Eagle. We bring the right blend of expertise to successfully deliver on your projects, and we differentiate ourselves through the following benefits to Eagle.

- **COMMITTED RESOURCES AND RESPONSIVENESS:** JEO's Water Infrastructure Group is comprised of 30 team members and is ready to begin work on your project. Our priority is to provide you cost-effective, high-quality, and technically sound deliverables that are provided on time and within budget. We provide consistent, timely communication with our clients throughout the project process. Our experienced team will help you fully understand your options, develop the best solution, navigate through the funding and permitting agencies and implement the project to create a lasting benefit to the community.
- **WATER AND SEWER UTILITY EXPERIENCE:** In the last five years, JEO has completed 92 water and wastewater system evaluations for communities throughout Nebraska and Iowa. We recently provided engineering services for projects very similar to Eagle in Waverly, Malcolm, and Ceresco. Each community had an aging water and/or sewer system that was in need of replacement. Through diligent evaluation and careful planning, JEO was able to lay out a course of action to replace or upgrade the system to increase reliability and capacity while also minimizing user rate impacts.
- **FUNDING EXPERTISE:** Our team of engineers and funding specialists have worked closely with grant writers and the WWAC committee on numerous projects to successfully obtain grant and loan funding to help Nebraska communities defray project costs. Over the past 10 years, we have successfully written applications that have resulted in over \$370 million in community betterment project.

We know you have many options when it comes to engineering services, but we are positive the JEO team will make your project a success. JEO is committed to serving the Village of Eagle and is confident that the way we do business is what truly sets us apart. Please feel free to contact me if you have any questions or require additional information.

Sincerely,

DANE SIMONSEN, PE

**Senior Project Manager**

dsimonsen@jeo.com





**AGREEMENT  
BETWEEN OWNER AND ENGINEER  
FOR  
PROFESSIONAL SERVICES**

THIS IS AN AGREEMENT effective as of the date signed by the Owner ("Effective Date") between Village of Eagle, Nebraska ("Owner") and JEO Consulting Group, Inc. ("Engineer").

Owner's project, of which Engineer's services under this Agreement are a part, is generally identified as follows:

2021 Water System Limited Evaluation, JEO Project #211638.00

Owner and Engineer further agree as follows:

**ARTICLE 1 - SERVICES OF ENGINEER**

---

**1.01 Scope**

- A. Engineer shall provide, or cause to be provided, the services set forth herein and in Exhibit A.

**ARTICLE 2 - OWNER'S RESPONSIBILITIES**

---

**2.01 Owner Responsibilities**

- A. Owner responsibilities are outlined in Section 3 of Exhibit B.

**ARTICLE 3 - Compensation**

---

**3.01 Compensation**

- A. Owner shall pay Engineer as set forth in Exhibit A and per the terms in Exhibit B.
- B. The Standard Hourly Rates Schedule shall be adjusted annually (as of approximately January 1st) to reflect equitable changes in the compensation payable to Engineer. The current hourly rate schedule as set forth in Exhibit C.

## ARTICLE 4 - EXHIBITS AND SPECIAL PROVISIONS

---

### 4.01 Exhibits

Exhibit A – Scope of Services  
Exhibit B – General Conditions  
Exhibit C – Hourly Rate Range

### 5.02 Total Agreement

- A. This Agreement (consisting of pages 1 to 8 inclusive, together with the Exhibits identified as included above) constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

Owner: Village of Eagle, Nebraska

Engineer: JEO Consulting Group, Inc.



By: \_\_\_\_\_

By: Dane Simonsen

Title: \_\_\_\_\_

Title: Project Manager

Date Signed: \_\_\_\_\_

Date Signed: 11-29-2021

Address for giving notices:

Address for giving notices:

Village of Eagle

JEO Consulting Group, Inc.

747 S 2<sup>nd</sup> Street

2000 Q Street

Eagle, NE 68347

Lincoln, NE 68503

## SCOPE OF SERVICES

### 2021 Water System Limited Evaluation EAGLE, NEBRASKA JEO Project # 211638.00

**Project Description:** The basic services in Item 1 include a limited evaluation of the Villages existing water usage to determine if the existing water supply and water storage facilities are sufficient for the future water demands.

The basic services in Item 2 include the development of a hydraulic model of the Villages water system based off information gathered in Item 1. The hydraulic model will be prepared in WaterCAD for the intended use of evaluating the effects of proposed water main replacements, water main extensions, connecting additional users to the system, and managing pressure in the water system as usage increases. The evaluation will also provide a recommendation and cost estimate to replace the existing water main on 4th Street and extend the water main on G Street.

#### **Item 1: Water Supply and Storage Evaluation**

- A. Meet with Village Designated Representative to Review Project Approach and Available Information (Project Kick-off Meeting)
  - 1. Review the purpose and objectives of the study and data needs.
  - 2. Review the existing water system maps of the Village of Eagle.
  - 3. Perform an on-site review of the major system components for the water system.
  - 4. Review project schedule and milestones.
- B. Describe Area to be Served
  - 1. Describe area served by water system, including topography and other pertinent land features of the area (prepare maps and sketches, as necessary).
  - 2. Review historical population trends and develop population projection for the next 20 years based on past historical population trends and projected future development.
- C. Evaluate Existing Facilities
  - 1. Review the history of the existing water system and prepare an inventory of the various components of the water system, including supply, treatment, distribution, and storage components. This inventory is to be completed using existing records that are readily available from the Village or other sources.
  - 2. Evaluate the physical condition of the various components of the water system, including supply, treatment, and storage components. This evaluation is to be completed using existing records that are readily available from the Village or other sources, and visual observations of the components.
  - 3. Evaluate the capacity and adequacy of the various components of the water supply and storage components. This evaluation is to be completed using existing records that are readily available from the Village or other sources.
  - 4. Review and evaluate past water use records and develop projections for water use requirements for the system, including average and peak daily demands.
  - 5. Review pumping and drawdown records for the water supply wells and evaluate capacity of the local aquifer.
- D. Develop and Evaluate Alternatives
  - 1. Develop recommendations or alternatives for improvements to the water system, based on the evaluation of the existing water facilities and projected future water needs.

## EXHIBIT A

2. Develop preliminary design criteria for the recommended water system improvements.
3. Develop opinions of project cost for the recommended improvements to the water system. Opinions of cost to include development, land and right, legal, engineering, construction, equipment, contingencies, and interim interest.
4. Develop opinions of the Operation and Maintenance (O&M) cost for the alternative recommended water system improvements.
5. Provide a "cost-effective analysis" of the alternative recommended improvements, including project costs and 20-year present worth of the projected O&M cost for the water system.
6. Evaluate and prioritize the recommended improvements/alternatives for the water system.
7. Provide maps and sketches showing the proposed improvements, including, preliminary design layout for each recommended design improvement alternative if necessary.
8. Determine the projected additional land necessary to implement each design alternative – including estimated amount of land required, approximate location, and potential alternate location(s), as applicable.
9. Determine a potential timetable to implementation of the recommended alternative.
10. Provide a summary of opinions of project costs, O&M costs and user fees.
11. Review funding options and financing alternatives, which may be available to the Village:
  - a. State Revolving Fund (SRF) for Drinking Water NHHS
  - b. USDA/RD Programs
  - c. CDBG, Community Development Block Grant Programs
  - d. Municipal Bonds

### F. Water System Report

1. Develop a report outlining the evaluation of the water system, the alternative recommendations for improvements and summary of opinions of project costs, O&M costs, cost effective evaluation and user fees for the Village as described in this Scope of Services.
2. Provide a general description of the proposed facility, including preliminary design criteria utilized and basic hydraulic calculations, as applicable.
3. Attend up to two (2) meetings with the Village Staff or Board to review the report.

### ***Item 2: Water System Hydraulic Model***

#### A. Prepare Hydraulic Model

1. Data Collection: JEO will meet with key water system staff to review major components of the water system and model to utilize during the calibration of the model. The Village will provide JEO with information pertaining to water operations data, flushing data, monthly water meter records, and other pertinent records.
2. Distribution Model Development. We propose to utilize WaterCAD software for the basis of the water distribution model. The model will include the most recent available aerial image(s) and maps of the area to provide a user-friendly interface. It is proposed to develop a static model (a model that reflects a particular moment in time) setup to reflect a minimum of three flow condition scenarios. The model will be used to predict how the water distribution system will hydraulically react to existing and future demand and user connection scenarios. Thus, it is essential that the base model first be designed and calibrated to accurately reflect existing hydraulics of the water distribution system, prior to its use in modeling future scenarios.
3. Water Model Calibration: The next step in development of the model is calibration. Calibration refers to the process of adjusting model parameters to match field observed conditions. JEO will compare the actual operating conditions of the water system with those predicted by the water model. The Village has provided the actual operating conditions which include a comparison of hydrant flow test data and pressure monitoring at points in the system at multiple points in time. JEO will conduct one additional pressure test that includes pressure at a nearby home. Demonstration of the model's ability to accurately predict existing hydraulic



## EXHIBIT A

performance is essential prior to its use for evaluation of future upgrades or changes in operational parameters.

### B. Prepare Technical Memorandum

1. Utilize the water model results:
  - a. Evaluate fire flow needs.
  - b. Evaluate the overall distribution system improvements related to age, size and location.
  - c. Evaluate system pressure needs.
  - d. Cost estimates for recommended improvements.
  - e. Prepare a technical memorandum summarizing the above.

### C. Additional Services Not Included, But Can Be Included If Requested

1. System Fire Hydrant Testing.
2. Drawing of a new water system map.
3. Additional meetings.
4. Any other item not outlined in the scope of services.
5. Topographic survey.
6. Geotechnical investigation.
7. Laboratory sampling and materials testing.
8. Water rate study.
9. Environmental permitting.
10. Meetings not identified above.
11. Design, bidding or construction phase services.

### ***Estimated Project Timeline***

Item 1 Water Supply and Storage Evaluation Completion:	60 days from notice to proceed
Item 2 Water System Hydraulic Model Completion:	90 days from notice to proceed

### ***Project Fee***

Item 1 Water Supply and Storage Evaluation Completion:	\$6,000 Hourly
Item 2 Water System Hydraulic Model Completion:	\$5,000 Hourly

The Owner may initiate Item 1 and Item 2 separately or together at their discretion. The scope/fee may be expanded to include additional items at the request of the Village.

## JEO Consulting Group, Inc. GENERAL CONDITIONS

**1. SCOPE OF SERVICES:** JEO Consulting Group, Inc. (JEO) shall perform the services described in Exhibit A. JEO shall invoice the owner for these services at the fee stated in Exhibit A.

**2. ADDITIONAL SERVICES:** JEO can perform work beyond the scope of services, as additional services, for a negotiated fee or at fee schedule rates.

**3. OWNER RESPONSIBILITIES:** The owner shall provide all criteria and full information as to the owner's requirements for the project; designate and identify in writing a person to act with authority on the owner's behalf in respect to all aspects of the project; examine and respond promptly to JEO's submissions; and give prompt written notice to JEO whenever the owner observes or otherwise becomes aware of any defect in work.

Unless otherwise agreed, the owner shall furnish JEO with right-of-access to the site in order to conduct the scope of services. Unless otherwise agreed, the owner shall also secure all necessary permits, approvals, licenses, consents, and property descriptions necessary to the performance of the services hereunder. While JEO shall take reasonable precautions to minimize damage to the property, it is understood by the owner that in the normal course of work some damage may occur, the restoration of which is not a part of this agreement.

**4. TIMES FOR RENDERING SERVICES:** JEO's services and compensation under this agreement have been agreed to in anticipation of the orderly and continuous progress of the project through completion. Unless specific periods of time or specific dates for providing services are specified in the scope of services, JEO's obligation to render services hereunder shall be for a period which may reasonably be required for the completion of said services.

If specific periods of time for rendering services are set forth or specific dates by which services are to be completed are provided, and if such periods of time or date are changed through no fault of JEO, the rates and amounts of compensation provided for herein shall be subject to equitable adjustment. If the owner has requested changes in the scope, extent, or character of the project, the time of performance of JEO's services shall be adjusted equitably.

**5. INVOICES:** JEO shall submit invoices to the owner monthly for services provided to date and a final bill upon completion of services. Invoices are due and payable within 30 days of receipt. Invoices are considered past due after 30 days. Owner agrees to pay a finance charge on past due invoices at the rate of 1.0% per month, or the maximum rate of interest permitted by law.

If the owner fails to make any payment due to JEO for services and expenses within 30 days after receipt of JEO's statement, JEO may, after giving 7 days' written notice to the owner, suspend services to the owner under this agreement until JEO has been paid in full all amounts due for services, expenses, and charges.

**6. STANDARD OF CARE:** The standard of care for all services performed or furnished by JEO under the agreement shall be the care and skill ordinarily used by members of JEO's profession

practicing under similar circumstances at the same time and in the same locality. JEO makes no warranties, express or implied, under this agreement or otherwise, in connection with JEO's services.

JEO shall be responsible for the technical accuracy of its services and documents resulting therefrom, and the owner shall not be responsible for discovering deficiencies therein. JEO shall correct such deficiencies without additional compensation except to the extent such action is directly attributable to deficiencies in owner furnished information.

**7. REUSE OF DOCUMENTS:** Reuse of any materials (including in part plans, specifications, drawings, reports, designs, computations, computer programs, data, estimates, surveys, other work items, etc.) by the owner on a future extension of this project, or any other project without JEO's written authorization shall be at the owner's risk and the owner agrees to indemnify and hold harmless JEO from all claims, damages, and expenses including attorney's fees arising out of such unauthorized use.

**8. ELECTRONIC FILES:** Copies of Documents that may be relied upon by the owner are limited to the printed copies (also known as hard copies) that are signed or sealed by JEO. Files in electronic media format of text, data, graphics, or of other types that are furnished by JEO to the owner are only for convenience of the owner. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk.

a. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it shall perform acceptance tests or procedures within 30 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 30 day acceptance period shall be corrected by the party delivering the electronic files. JEO shall not be responsible to maintain documents stored in electronic media format after acceptance by the owner.

b. When transferring documents in electronic media format, JEO makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by JEO at the beginning of the project.

c. The owner may make and retain copies of documents for information and reference in connection with use on the project by the owner.

d. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

e. Any verification or adaptation of the documents by JEO for extensions of the project or for any other project shall entitle JEO to further compensation at rates to be agreed upon by the owner and JEO.

**9. SUBCONSULTANTS:** JEO may employ consultants as JEO deems necessary to assist in the performance of the services. JEO shall not be required to employ any consultant unacceptable to JEO.

**10. INDEMNIFICATION:** To the fullest extent permitted by law, JEO and the owner shall indemnify and hold each other harmless

