



City of Reedsburg
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STAFF REPORT

AGENDA ITEM: _____

To: Common Council
Prepared By: Steven Zibell, Public Works
Date of Meeting: November 11th, 2019

Subject: Scope of Services for Wastewater Treatment Facility Facilities Plan

BACKGROUND AND REQUEST

As you are aware we have been seeing a significant increase in loadings and flow at our wastewater facility. This last summer we have done flow monitoring in the collection system looking for areas of increased flows. During this process we found a few leaking pipes and manholes but no significant area of infiltration or abnormal flow. Next summer we will be fixing some of these issues we found during this study. Our next step in the process is to start a Facilities Plan. Our last Facilities Plan was completed in 2004 -2005. Attached is a memorandum from Town and Country Engineering giving a detailed background and explaining the scope of work to be done over this next year.

This will give a new capacity rating with our current plant and also determine what we may need to do for future loadings along with future phosphorous regulations. This plan will also help with our grading (CMAR) we do every year from the DNR. The Public Works Committee has recommended to proceed with this proposal.

Request to have the Mayor sign an agreement with Town and Country Engineering.

STAFF RECOMMENDATION

Public Works and staff recommend proceeding with this proposal from Town and Country Engineering to complete a new Facilities Plan for our wastewater treatment facility.

Attachment:
Scope of Services Memorandum

SCOPE OF SERVICES MEMORANDUM

Date: September 18, 2019

To: Steve Zibell, Director of Public Works – City of Reedsburg

From: Ben Heidemann, P.E., Vice President – Town & Country Engineering

Subject: Scope of Services for Wastewater Treatment Facility Facilities Plan

The City of Reedsburg would like to undertake a Facilities Planning Study to evaluate long term wastewater needs. Over the past several years, influent loads to the City's wastewater treatment facility (WWTF) have been increasing. The plant is currently overloaded based on average flows and loads, and severely overloaded during periods of peak loads and high flows. While the plant has been marginally able to process the increased loads of Biochemical Oxygen Demand (BOD) and Suspended Solids (SS) and continue meeting its effluent limits, the slug or peak loads have caused operational hardships. The treatment of phosphorus has been very difficult when the plant is overloaded, to the extent of having daily effluent concentrations over 1 mg/L. With the recent approval of the Wisconsin River Total Maximum Daily Load (TMDL), the City has received an allocation for phosphorus discharge to the Baraboo River and is expecting a permit modification to include this allocation. Under normal loading conditions the plant should be capable of meeting the proposed phosphorus limits, but more stringent TMDL limits are expected once the State adopts site-specific criteria for portions of the Wisconsin River basin. Once these are implemented, the City will not be able to meet these limits without a major upgrade or a variance.

The last comprehensive update at the plant was completed in 2006. This upgrade included a new headworks building with a mechanical step screen and grit washing equipment; a primary clarifier/fermentation tank and selector basins for biological phosphorus removal; expansion of aeration basin capacity; two new final clarifiers; new UV disinfection equipment; and a comprehensive SCADA system. The facility upgrade also included upgrading the RAS/WAS pumping systems, additional blowers, modifications to sludge holding tanks, expanding the dewatered sludge building and adding garage facilities. Following a historic flood in 2008, flood-recovery and flood-proofing measures were undertaken. An upgrade to the sludge processing system was completed in 2014, which added a second centrifuge, provided increased capacity, and allowed for better management of recycle streams. The most recent project, completed in 2018, added a new blower building and four new aeration blowers to replace aging and inefficient aeration blowers and provide additional capacity to treat increasing loads at the plant. The City has also recently completed additional flood-proofing measures following an all-time high river crest in August 2018.

Based on the current plant loading and discussions with staff it is understood that the WWTF is in need of improvements that may include treatment capacity upgrades, equipment replacement, safety improvements, and efficiency improvements. It was originally desired to pursue facility planning efforts after major industrial loads could be quantified, however recent overloading to WWTF warrants starting the Facilities Plan as soon as possible.

A Facilities Plan will evaluate alternatives to address the long term needs of the wastewater treatment in the City of Reedsburg; including an evaluation of existing capacity, future design conditions (including industrial and hauled waste consideration), deficiencies with the current system, alternatives to meet long term wastewater treatment needs, capital and operational cost estimates, user rate impacts, and discussion of possible funding opportunities. This plan would

address deficiencies at the existing WWTF and the new regulatory requirements associated with phosphorus. The scope of the Facilities Plan would include the following:

- A. Evaluate the past 5 years of influent flow and loadings as compared with current design criteria.
- B. Incorporate information from the infiltration/inflow (I/I) study that the City and Town and Country have undertaken over the past year.
- C. Develop new facility 20 year design criteria. This will include new design population and loadings for flow, BOD, suspended solids, ammonia, and phosphorus; all of which have limits in the City's discharge permit. The future needs for residential, commercial, and industrial growth and any possible development of unsewered areas will be considered. These projections will be based on previous planning documents completed by the City, input from the City staff and leaders, input from the County, and DOA projections.

In 2018 the City and Town and Country sent capacity requests to the three major industrial users, Saputo, Foremost, and Nutegrity, asking for long term flow and loading projections and alerting them to increased loads at the City's WWTF and potential surcharges for phosphorus loads. These requests were followed by inspections of the industry flow monitoring and sampling facilities, identification of deficiencies, meetings with each of the industries, and implementation of a phosphorus surcharge. One industry has been asked to modify their discharge and monitoring facilities and these upgrade are on-going. The facilities planning task will require continued coordination with the industries and follow-up on the previous capacity requests, with services provided on an hourly basis outside of the proposed facilities plan fee. If other major contributors to the system are identified during the planning process then their flows and loads will also be considered.

In early 2019 the City also sent letters to neighboring communities that may be interested in regionalization of wastewater treatment facilities. The planning process will include follow-up with these communities to determine if regionalization is a desired and feasible alternative.

- D. Provide an in-depth evaluation of each of the main treatment processes at the facility with a determination if it will be adequate for accommodating future loadings and estimating remaining design life. Existing administration, laboratory, and maintenance facilities will also be evaluated.
- E. Develop a list of project alternatives for expansion or upgrade of the entire treatment facility to accommodate future loadings, address any current deficiencies, provide a safe and reliable operating environment, and improve operational efficiency. This evaluation will take into consideration phosphorus requirements and include consideration for future regulatory requirements, such as nitrogen. The evaluation will also include alternative sites for the WWTF and potential regionalization options if these are identified.
- F. Submit initial design projections and alternatives to the DNR for review and a mid-course review meeting before continuing on to other aspects of the planning document.
- G. Determine capital, operation, and replacement costs for each of the alternatives and analyze the present total worth cost for each. The present worth cost is used to determine the economic viability of each alternative.
- H. Address environmental impacts of each alternative and evaluate non-quantitative issues such as health and safety, ease of operation, impact on traffic patterns, etc.

- I. Assist the City in selection of the preferred alternative.
- J. Evaluate the impact on user rates for the selected alternative.
- K. Identify options for funding of the selected alternative and make recommendations to the phasing in of any improvement included.
- L. Prepare an implementation schedule based upon discussions with City staff and leaders.
- M. Hold a public hearing to update the public and discuss the intended option to be implemented.
- N. Submit the facilities planning document to the WDNR for approval once complete.

The cost for facilities planning will vary depending on the number of meetings required, length of time to agree on projections and alternative selection, and the time required for regulatory liaison. The engineering cost for the above scope will be billed on an hourly basis and will not exceed \$57,000. As noted below, tasks specific to coordination with industries and neighboring communities and identification of alternative sites will be billed on an hourly basis outside of this proposed not to exceed fee.

There are other potential expenses that the City may have to assume during facilities planning but which will not be defined until the study is undertaken. This may include:

- Identification of alternative sites and coordination with other communities on any potential regionalization options. Due to recent major flooding events and ongoing concerns with the location and size of the current WWTF site, it is our understanding that the City wishes to consider alternative sites for future wastewater facilities. Identification of alternate sites and coordination on regional alternatives will be performed on an hourly basis outside of the proposed facilities plan fee. If an alternative or regional site is selected for further evaluation, this evaluation will be included the facilities planning document as part of this Scope.
- Coordination with the industries, including meetings, communication, and follow-up on the previous capacity requests and sampling/monitoring improvements will be performed on an hourly basis outside of the proposed facilities plan fee.
- Effluent toxicity evaluations and studies
- Soils investigations
- Wetland studies
- Archeological investigations
- Endangered species evaluations
- Easements, land acquisitions, or negotiations with landowners
- Procurement of grants and loans

Owner Provided Work and Information:

1. Provide all pertinent treatment facility data; reports; WDNR correspondence; records of violations; flow bypassing information; facility limitations; maintenance records; system repair documentation; and other related data.
2. Perform additional treatment facility testing, if needed for the evaluation. These tests could be for ammonia, phosphorus, D.O., temperature, micro-organism evaluations, chlorides, etc.; plus any stream testing that may be required.
3. Provide the latest master plan and any other planning documents that would aid in developing population projections for the City.
4. Provide an electronic version of the user charge system.

Procurement of grants and loans to finance the project is not included in the scope of services. It's assumed that Clean Water Fund money will be available. Town and Country will submit Intent

to Apply each year to the DNR to establish the City's project on the Clean Water Fund Priority list at no charge.

We can assist the City in addressing any of these additional work items, if required, and would do so based on a per diem basis.

We at Town & Country Engineering, Inc. wish to thank you for allowing us to serve the City of Reedsburg on this project. If you have any questions regarding the above material, please feel free to call.