Ivins City Staff Report
City Council Meeting 12/17/2020

Agenda Item: Discuss and Consider Expenditure for Wastewater Treatment Plant Feasibility Analysis

Submitted by: Charles R. Gillette, P.E., Public Works Director and City Engineer

Recommended City Council Action:
Approve expenditure of $28,969 for wastewater treatment plant feasibility analysis

BACKGROUND:

Ivins City needs to start construction on an irrigation system but has found it difficult to find a reliable source of water for the system and thus we have delayed the design work that has been approved for construction of an irrigation water tank and transmission pipelines. There is a source of water that might be had by negotiating with the Shivwits Band of Paiute Indians for 2000 acre-feet of water rights they have, but this source of water is not inexpensive and we need to look at one more alternative before we pursue this option. This alternative option is the concept that Ivins City stops sending wastewater to the St George Regional Water Reclamation Plant and instead builds its own wastewater treatment and reclamation facility and uses this as a source of irrigation water.

FINDINGS AND ANALYSIS:

The study will need to look at the costs and savings of discontinuing it wastewater partnership with the City of St George and installing a wastewater treatment plant with the ability to reuse the wastewater in an irrigation system. It will likely also hinge on the costs to install a water storage reservoir that would be needed to store water in the winter when irrigation demands are greatly diminished but sewer flows continue at a steady rate. It is possible that to make it feasible, the City of Santa Clara would need to participate.

Ivins City has asked Bowen Collins to prepare an estimate for an original scope that came out to $28,969.00. We discussed the possibility of reducing the scope to $20,000 approximate cost and they removed some scope items and prepared a lower estimate of $18,468.00.

Staff would like the City Council to authorize the full cost of $28,969.00 but provide the option to stop and evaluate the progress of the study at the lower cost level before deciding to proceed with the full study.

SUPPORT MATERIALS:

- Full Scope Proposal
- Reduced Scope Proposal

FINANCIAL IMPACT:

Water Fund GL51-4284.1: 50%
Sewer Fund GL52-4287.5: 50%
The water and sewer capital budgets will need to be amended to account for the unplanned expense.

Respectfully Submitted:

Charles R. Gillette, P.E.
Public Works Director & City Engineer

Content Review:

Dale Coulam, City Manager

BOWEN COLLINS
& ASSOCIATES

20 NORTH MAIN, SUITE 107 • ST. GEORGE, UTAH 84770
TEL: 435.656.3299 • FAX: 435.656.2190

October 19, 2020

Chuck Gillette
Public Works Director
Ivins City
55 North Main
Ivins, Utah 84738

Subject: Proposal for Sewer Treatment Feasibility Analysis FULL SCOPE

Dear Chuck:

It is our understanding that Ivins City is interested in determining the economic feasibility of developing its own sewer treatment facilities. The feasibility analysis will consist of comparing the costs and benefits of a new treatment facility to determine if treating wastewater in-house is a financially viable alternative for the City. This letter includes the proposed scope of services for a detailed feasibility analysis.

PROPOSED SCOPE OF SERVICES

Task 1: Progress and Coordination Meetings. BC&A will prepare for and attend one kick-off/work meeting with Ivins City personnel to review primary project objectives, current wastewater flow data, financial information, and other data needed for the study. BC&A will prepare for and attend three progress meeting with Ivins City personnel to review preliminary findings of the study, draft report review comments, and one additional coordination meeting as needed. BC&A will prepare for and attend one meeting to present the study to Ivins City Council.

Task 2: Determine Current and Future Wastewater Flows. BC&A staff will gather and evaluate data to determine current wastewater flows produced by Ivins City and Santa Clara City. Using the assumed growth projections in the available planning documents for Ivins and Santa Clara, BC&A will project future wastewater flows leaving each community. These flows will be used to identify the conceptual capacity of the proposed wastewater treatment facility, as well as subsequent future expansion phases that would be needed to meet growing demands.

Task 3: Determine Size and Cost of Treatment Facilities. BC&A staff will use the results from Task 2 to determine the required size of a Membrane Bioreactor (MBR) treatment facility. Based on conversations with Ivins City, minimizing odor from the proposed facility is critical, which necessitates the use of an MBR concept. Other treatment options may be less expensive but would not adequately address the City's odor abatement concerns and will not be analyzed as part of this task. Capital and operation/maintenance costs will be determined based on the estimated size of the first construction phase and subsequent phases. Implementing a wastewater treatment plant with a reuse application will require storage to be able to produce reuse water throughout the course of the year. BC&A will discuss reservoir alternatives with Ivins City and include the estimated costs associated with reservoir construction and the pumping infrastructure needed to deliver water to the reservoir. Ongoing O&M costs associated with the reservoir/reuse water transmission facilities will also be evaluated and included in the feasibility analysis.

Task 4: Evaluation of Existing and Future Irrigation Water Demands. BC&A will evaluate existing and projected irrigation demands to identify how and where water from the proposed treatment plant could be used. BC&A will use the information from the City's Secondary Irrigation Master Plan to identify how timing would play a role in the feasibility of the project. For instance, not being able to utilize all of the reuse water produced by the plant in the early years of its operation may influence the overall feasibility of the project. BC&A will coordinate with Santa Clara City and St. George City to identify potential locations that could benefit from reuse water produced from an Ivins City treatment facility.

Task 5: Feasibility Analysis. BC&A staff will determine the financial feasibility of a wastewater treatment facility utilizing the information gathered from previous tasks. The feasibility analysis will focus on a "revenue needs" approach by evaluating the annual revenue requirements for the City's water and sewer utilities under 2 scenarios:

1. Adding a localized wastewater treatment facility and reservoir to utilize reuse.

2. Do nothing

The annual revenue requirements for each alternative will be compared to identify if and when a "break even" point would occur in which the proposed wastewater treatment plant would provide a long-term savings to the City. This analysis will include all of the anticipated revenue requirements for each scenario, including water purchase costs, wastewater treatment expenses, bond payments for capital improvements, other O&M costs, increased staffing costs, necessary user rate and impact fee revenue, etc.

Task 6: Technical Memorandum. BC&A staff will prepare a draft Technical Memorandum (TM) summarizing the analyses from Tasks 2 through 5 above for the City's review. Once comments are received a final TM will be provided incorporating the comments.

BC&A Deliverables:

- Digital file of the Wastewater Treatment Feasibility Analysis TM summarizing the results of the previous tasks.

SCHEDULE

A generalized project schedule is shown below relative to receiving contractual notice to proceed. BC&A estimates the project will be completed in approximately 8 weeks from the notice to proceed.

Project Task/Milestone	Anticipated Completion Date
Kickoff Meeting	1 week from NTP
Preliminary Results Meeting	4 weeks from NTP
Draft TM for City Review	5 weeks from NTP
Final Draft TM Submitted	8 weeks from NTP
Presentation to City Council	At next available meeting time

COST SUMMARY

BC&A will complete this scope of services on a time and materials basis for a fee not to exceed $28,969 without prior authorization. Estimated man hours and project costs have been included in Exhibit A for reference. As discussed during a phone call on October 7, BC&A identified an overpayment from Ivins City on a previous project during an internal audit that amounts to $8,879.50. This overpayment will be credited toward the fee for this study, reducing the net fee to $20,089.50.

We have enjoyed working with Ivins City and are very interested in further assisting you with this project. Please call if you have any questions. We are willing to negotiate the scope of services if something in this proposal does not meet the needs of Ivins City.

Sincerely,
Bowen Collins & Associates, Inc.

Todd Olsen, P.E.
Project Manager

Attachment

Exhibit A - Fee Proposal

Wastewater Feasibility Analysis

Ivins City

Engineering Man-Hour and Fee Estimate

Last Updated 10/19/2020

BOWEN COLLINS & ASSOCIATES

		BOWEN COLLINS & ASSOCIATES STAFF									
		Office		Engineers				Subtotal Hours	Subtotal Labor	Subtotal Expenses	Total Cost
	Labor Category	Clerical	Editor	Proj. Eng.	Proj. Eng.	Proj. Man.	PIC/QAQC				
	Staff	K. Buhler	M. Hilbert	C. Moultrie	A. Anderson	T. Olsen	K. Larsen				
Tasks	2020 Labor Rate	$81.00	$85.00	$124.00	$124.00	$158.00	$180.00				
1	Progress and Coordination Meetings			10	16			26	$3,224.00	$242.00	$3,466.00
2	Determine Current and Future Wastewater Flows			4	16			20	$2,480.00	$140.00	$2,620.00
3	Determine Size and Cost of Treatment Facilities			24	15			39	$4,836.00	$273.00	$5,109.00
4	Evaluate Existing and Future Irrigation Water Demands			4	15			19	$2,356.00	$133.00	$2,489.00
5	Feasibility Analysis			45	20	4	6	75	$9,772.00	$525.00	$10,297.00
6	Technical Memorandum	1	2	24	12			39	$4,715.00	$273.00	$4,988.00
	Total Project Hours	**1**	**2**	**111**	**94**	**4**	**6**	**218**			
	Total Project Cost								**$27,383.00**	**$1,586.00**	**$28,969.00**

Expenses Include:

Mileage reimbursement at $0.75/mile

$7/hr Computer/Communication Charge

BOWEN COLLINS
& ASSOCIATES

20 NORTH MAIN, SUITE 107 • ST. GEORGE, UTAH 84770
TEL: 435.656.3299 • FAX: 435.656.2190

October 19, 2020, Updated November 13, 2020

Chuck Gillette
Public Works Director
Ivins City
55 North Main
Ivins, Utah 84738

Subject: Attachment A - Proposal for Wastewater Treatment Feasibility Analysis REDUCED SCOPE

Dear Chuck:

It is our understanding that Ivins City is interested in determining the economic feasibility of developing its own wastewater treatment facilities. The feasibility analysis will consist of comparing the costs and benefits of a new treatment facility to determine if treating wastewater in-house is a financially viable alternative for the City. This letter includes the proposed scope of services for a high-level feasibility analysis.

PROPOSED SCOPE OF SERVICES

Task 1: Progress and Coordination Meetings. BC&A will prepare for and attend one kick-off/work meeting with Ivins City personnel to review primary project objectives, current wastewater flow data, financial information, and other data needed for the study. BC&A will prepare for and attend two additional progress meetings throughout the course of the project. In order to improve time efficiency, these meetings will be held online via video conference.

Task 2: Determine Current and Future Wastewater Flows. BC&A staff will gather and evaluate data to determine current wastewater flows produced by Ivins City and Santa Clara City. Using the assumed growth projections in the available planning documents for Ivins and Santa Clara, BC&A will project future wastewater flows leaving each community. These flows will be used to identify the conceptual capacity of the proposed wastewater treatment facility, as well as subsequent future expansion phases that would be needed to meet growing demands.

Task 3: Determine Size and Cost of Treatment Facilities. BC&A staff will use the results from Task 2 to determine the required size of a Membrane Bioreactor (MBR) treatment facility. Based on conversations with Ivins City, minimizing odor from the proposed facility is critical, which necessitates the use of an MBR concept. Other treatment options may be less expensive but would not adequately address the City's odor abatement concerns and will not be analyzed as part of this task. Capital and operation/maintenance costs will be determined based on the estimated size of the first construction phase and subsequent phases. Implementing a wastewater treatment plant with a reuse application will require storage to be able to produce reuse water throughout the course of the year. However, a reservoir will most likely be needed to service the proposed secondary irrigation system in Ivins regardless of whether Ivins is supplied water from the District or from localized reuse facility. Therefore, it will be assumed that any reservoir improvements would be common to most source development alternatives in Ivins. Under this assumption, the capital/O&M costs evaluated in this study will focus on the wastewater treatment facility itself and any piping/pumping infrastructure needed to deliver the finished water to an assumed reservoir location.

Task 4: Feasibility Analysis. BC&A staff will evaluate the financial feasibility of a wastewater treatment facility utilizing the information gathered from previous tasks. The feasibility analysis will focus on comparing the annual costs to both treat wastewater and provide secondary irrigation water to Ivins City under the following scenarios:

1. Add a localized wastewater treatment facility with reuse together than the necessary transmission infrastructure to deliver finished reuse water to an assumed reservoir location.

2. Continue to send wastewater to St. George and acquire irrigation water from WCWCD, including the estimated cost to connect a WCWCD source to an assumed reservoir location to service the irrigation system.

The evaluation will not include a detailed analysis of how a wastewater treatment plant in Ivins would affect local or regional impact fees or individual user rates. This study is intended to provide a high-level analysis of the feasibility of a wastewater treatment facility and to provide recommendations for further analysis.

Task 5: Technical Memorandum. BC&A staff will prepare a draft Technical Memorandum (TM) summarizing the analyses from Tasks 2 through 4 above for the City's review. Once comments are received a final TM will be provided incorporating the comments.

BC&A Deliverables:

- Digital file of the Wastewater Treatment Feasibility Analysis TM summarizing the results of the previous tasks.

SCHEDULE

A generalized project schedule is shown below relative to receiving contractual notice to proceed. BC&A estimates the project will be completed in approximately 8 weeks from the notice to proceed.

Project Task/Milestone	Anticipated Completion Date
Kickoff Meeting	1 week from NTP
Preliminary Results Meeting	4 weeks from NTP
Draft TM for City Review	5 weeks from NTP
Final Draft TM Submitted	8 weeks from NTP
Presentation to City Council	At next available meeting time

COST SUMMARY

BC&A will complete this scope of services on a time and materials basis for a fee not to exceed $18,468 without prior authorization. Estimated man hours and project costs have been included in Exhibit A for reference. As discussed during a phone call on October 7, BC&A identified an overpayment from Ivins City on a previous project during an internal audit that amounts to $8,879.50. This overpayment will be credited toward the fee for this study, reducing the net fee to $9,588.50.

We have enjoyed working with Ivins City and are very interested in further assisting you with this project. Please call if you have any questions. We are willing to negotiate the scope of services if something in this proposal does not meet the needs of Ivins City.

Sincerely,
Bowen Collins & Associates, Inc.

Todd Olsen, P.E.
Project Manager

Attachment

Exhibit A - Fee Proposal

Wastewater Feasibility Analysis

Ivins City

Engineering Man-Hour and Fee Estimate

Last Updated 11/13/2020

BOWEN COLLINS & ASSOCIATES

		BOWEN COLLINS & ASSOCIATES STAFF									
		Office		Engineers				Subtotal Hours	Subtotal Labor	Subtotal Expenses	Total Cost
	Labor Category	Clerical	Editor	Proj. Eng.	Proj. Eng.	Proj. Man.	PIC/QAQC				
Tasks	Staff	K. Buhler	M. Hilbert	C. Moultrie	A. Anderson	T. Olsen	K. Larsen				
1	Progress and Coordination Meetings			4	8			12	$1,488.00	$84.00	$1,572.00
2	Determine Current and Future Wastewater Flows			4	12			16	$1,984.00	$112.00	$2,096.00
3	Determine Size and Cost of Treatment Facilities			16	12			28	$3,472.00	$196.00	$3,668.00
4	Feasibility Analysis			28	16	2	4	50	$6,492.00	$350.00	$6,842.00
5	Technical Memorandum	2	2	24	6			34	$4,052.00	$238.00	$4,290.00
	Total Project Hours	**2**	**2**	**76**	**54**	**2**	**4**	**140**			
	Total Project Cost								**$17,488.00**	**$980.00**	**$18,468.00**

Expenses Include:

Mileage reimbursement at $0.75/mile

$7/hr Computer/Communication Charge