



CITY OF CRESTVIEW

OFFICE OF THE CITY CLERK

P.O. DRAWER 1209, CRESTVIEW, FLORIDA 32536

Phone # (850) 682 - 1560 Fax # (850) 682-8077

August 10, 2021

5:00 PM

Council Chambers

CITY COUNCIL SPECIAL MEETING

The Public is invited to view our meetings on the City of Crestview Live stream a at <https://www.cityofcrestview.org> or the City of Crestview Facebook Page. You may submit questions on any agenda item in advance (by 3:00 PM the day of the meeting, please) to cityclerk@cityofcrestview.org.

1. **Call to Order**
2. **Pledge of Allegiance**
3. **Open Meeting**
4. **Approve Agenda**
5. **Action Items/Public Hearing**
 - 5.1. Resolution 2021-19
6. **Comments from the Audience**
7. **Comments from the Mayor and Council**
8. **Adjournment**

Note: The Presentations section is for items that were submitted by a citizen or group of Citizens no later than the Wednesday 2 weeks prior to the meeting to the Clerk's office for approval. These items will be scheduled under the section titles Presentations and Reports. Supporting documents must be submitted at this time to be on the regular agenda. All Action Item are for staff and elected officials only and must be submitted for approval no later than the Wednesday 10 days prior to the meeting. Those not listed on the regular agenda who wish to address the council should fill out a yellow card. The Card must be submitted to the City Clerk. Speaking time should be three minutes or less, large groups may designate a spokesperson. All remarks should be addressed to the Council as a whole and not to individual members. All meeting procedures are outlined in the Meeting Rules and Procedures brochure available outside the Chambers. If any person decides to appeal any decision made by the City Council with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. The City Council of the City of Crestview, Florida does not discriminate upon the basis of any individual's disability status. Anyone requiring

reasonable accommodation as provided for in the American With Disabilities Act to insure access to and participation in the meeting should contact the Office of the City Clerk at (850)682-1560 prior to the meeting to make appropriate arrangements.

Any invocation that is offered before the official start of the City Council meeting shall be the voluntary offering of a private person, to and for the benefit of the City Council. The views or beliefs expressed by the invocation speaker have not been previously reviewed or approved by the City Council or the city staff, and the City is not allowed by law to endorse the religious beliefs or views of this, or any other speaker. Persons in attendance at the City Council meeting are invited to stand during the opening invocation and Pledge of Allegiance. However, such invitation shall not be construed as a demand, order, or any other type of command. No person in attendance at the meeting shall be required to participate in any opening invocation that is offered. A person may exit the City Council Chambers and return upon completion of the opening invocation if a person does not wish to participate in or witness the opening invocation.



Staff Report

CITY COUNCIL MEETING DATE: August 10, 2021

TYPE OF AGENDA ITEM: Resolution

TO: Mayor and City Council
CC: City Manager, City Clerk, Staff and Attorney
FROM:
DATE: 8/5/2021
SUBJECT: Resolution 2021-19

BACKGROUND:

As part of the City of Crestview Comprehensive Plan and preparing to continually meet the need for waste water infrastructure needs the City of Crestview has begun several capital improvement projects this year. One of those is a new belt press and two digesters for solids handling at the Waste Water Treatment Plant. Another is the engineering, permitting, plans and construction of four additional Rapid Infiltration Basins for the increased need of disposal capacity.

DISCUSSION:

When planning these projects and researching funding options we found one of the best resources for current projects is the State Revolving Fund offered through the Florida Department of Environmental Protection. Their current interest rate for qualifying projects can be as low as zero percent. One of the requirements for applying and qualifying for this funding is a Public Hearing which is being held tonight, certifying the financial planning information provided is correct and the approval of the attached resolution by the City Council.

GOALS & OBJECTIVES

This item is consistent with the goals in A New View Strategic Plan 2020 as follows;

Foundational- these are the areas of focus that make up the necessary foundation of a successful local government.

Financial Sustainability- Achieve long term financial sustainability

Organizational Capacity, Effectiveness & Efficiency- To efficiently & effectively provide the highest quality of public services

Infrastructure- Satisfy current and future infrastructure needs

Communication- To engage, inform and educate public and staff

Quality of Life- these areas focus on the overall experience when provided by the city.

Community Character- Promote desirable growth with a hometown atmosphere

Safety- Ensure the continuous safety of citizens and visitors

Mobility- Provide safe, efficient and accessible means for mobility

Opportunity- Promote an environment that encourages economic and educational opportunity

Play- Expand recreational and entertainment activities within the City

Community Culture- Develop a specific identity for Crestview

FINANCIAL IMPACT

The amount requested to FDEP is for this August SRF meeting we are seeking approval for the \$5,012,000 Solids Handling Construction Loan and the \$150,000 RIBs Planning Loan. We are then eligible to apply for the RIBs Design and Construction Loan at the next FDEP November Hearing.

Total request for inclusion to FDEP August Hearing SRF Loan in the amount of \$5,162,000.

RECOMMENDED ACTION

Staff respectfully requests approval of Resolution 2021-19

1. Accept the planning document on the project prepared by Jacobs Engineering, dated July 2021; and
2. Certify that this public hearing was held on August 10, 2021; and
3. Certify that the financial planning information discussed at the public hearing is correct and that the City of Crestview has the capability to repay the loan; and
4. Certify that the project is in accordance with the City's Comprehensive Plan.

Attachments

1. Capital Financing Plan. Signed
2. Crestview WWTF Solids Handling and Effluent Disposal Planning Document

RESOLUTION: 2021-19

**A RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF CRESTVIEW, FLORIDA, RELATING TO THE
FLORIDA DEPARTMENT OF ENVIRONMENTAL
PROTECTION (FDEP) STATE REVOLVING FUND
(SRF), ADOPTION OF THE WASTEWATER FACILITY
PLAN FOR THE IMPLEMENTATION OF THE
CRESTVIEW WWTP SOLIDS HANDLING
IMPROVEMENTS PROJECT AND THE RAPID-RATE
INFILTRATION BASIN (RIBS) EXPANSION
PROJECT, AND PROVIDING FOR AN EFFECTIVE
DATE.**

WHEREAS, The City Council of Crestview, Florida (The Council) hereby approves the submission of an application for an SRF low-interest loan (the Loan) for the Crestview WWTP Solids Handling Improvements Project and the Rapid-Rate Infiltration Basin (RIBs) Expansion Project (the Project), hereby accepting the planning documentation and meeting other purposes; and

WHEREAS, Florida Statutes provide for loans to local government agencies to finance the construction of wastewater facilities; and Florida Administrative Code requires the formal authorization by The Council to formally adopt a facility plan outlining necessary wastewater facility improvements to comply with State of Florida funding requirements; and

WHEREAS, The Council authorized CH2M Hill, Inc., (a subsidiary of Jacobs Engineering Group) to prepare a planning document in order to comply with the requirements of State Statutes and Florida Administrative Code pertaining to the SRF Loan Program; and

WHEREAS, formal adoption of the proposed planning document is required for the City of Crestview to participate in the State Revolving Loan Fund Program;

THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CRESTVIEW, FLORIDA THAT:

The City Manager is hereby designated as the authorized representative to provide the assurances and commitments that will be required by the Facility Plan.

SECTION 1: The Mayor is authorized to:

1. Accept the planning document on the project prepared by Jacobs, dated July 2021; and
2. Certify that this public hearing was held on August 10, 2021; and
3. Certify that the financial planning information discussed at the public hearing is correct and that the City of Crestview has the capability to repay the loan; and

4. Certify that the project is in accordance with the City's Comprehensive Plan.

SECTION 2: The Mayor is further authorized to submit an application for an SRF loan for the project(s) to the FDEP and to furnish such information as they may request in connection with an application for the SRF loan, including assurances of financial capability to repay the loan.

SECTION 3: The Mayor is further authorized to execute any and all other necessary instruments in connection with obtaining the SRF loan for the project.

SECTION 4: The net water and sewer system revenues, including reconnection fees, after payments of all prior and senior liens, are pledged for the repayment of the loan.

SECTION 5: All Resolutions or part of Resolutions in conflict with any of the provisions of this Resolution are hereby repealed.

SECTION 6: If any section or portion of a section of this Resolution proves to be invalid, unlawful, or unconstitutional, it shall not be held to invalidated or impair the validity, force, or effect or any other section or part of this Resolution.

Section 7. Effective Date

This Resolution shall take effect upon its approval and adoption by the City Council.

PASSED AND ADOPTED IN REGULAR SESSION THIS 10th DAY OF AUGUST, 2021

CITY OF CRESTVIEW, FLORIDA

JB Whitten, Mayor

Attest:

Elizabeth M. Roy, City Clerk

CAPITAL FINANCING PLAN

CITY OF CRESTVIEW

(Project Sponsor)

Wayne Steele

(Authorized Representative and Title)

CRESTVIEW, FLORIDA 32536

(City, State, and Zip Code)

GINA TOUSSAINT

(Capital Financing Plan Contact, Title and Telephone Number)

198 NORTH WILSON STREET

(Mailing Address)

CRESTVIEW, FLORIDA 32536

(City, State, and Zip Code)

The Department needs to know about the financial capabilities of potential State Revolving Fund (SRF) loan applicants. Therefore, a financial capability demonstration (and certification) is required well before the evaluation of the actual loan application.

The sources of revenues being dedicated to repayment of the SRF loan are IMPACT FEES/UTILITY COLLECTIONS

(Note: Projects pledging utility operating revenues should attach a copy of the existing/proposed rate ordinance)

Estimate of Proposed SRF Loan Debt Service

Capital Cost*	<u>\$5,162,000</u>
Loan Service Fee (2% of capital cost)	<u>\$103,240</u>
Subtotal	<u>\$5,265,240</u>
Capitalized Interest**	<u>\$80,163</u>
Total Cost to be Amortized	<u>\$5,345,403</u>
Interest Rate***	<u>2.03%</u>
Annual Debt Service	<u>\$326,523</u>
Annual Debt Service Including Coverage Factor****	<u>\$375,501</u>

* Capital Cost = Allowance + Construction Cost (including a 10% contingency) + Technical Services after Bid Opening.

** Estimated Capitalized Interest = Subtotal times Interest Rate times construction time in years divided by two.

***20 GO Bond Rate times Affordability Index divided by 200.

**** Coverage Factor is generally 15%. However, it may be higher if other than utility operating revenues are pledged.

List annual debt service beginning two years before the anticipated loan agreement date and continuing at least fifteen fiscal years. Use additional pages as necessary.

#1 2008 SRF Coverage % 115 Insured (Yes/No)	#2 2010 Capital Imp. Bond State Revolving Coverage % 115 Insured (Yes/No)	#3 2013 STATE REVOLVING LOAN Coverage % 115 Insured (Yes/No)
#4 2015 WATER & SEWER BOND Coverage % 125 Insured (Yes/No)	#5 2016 WATER & SEWER BOND Coverage % 125 Insured (Yes/No)	#6 2021 CAPITAL IMP. BOND Coverage % 125 Insured (Yes/No)

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**SCHEDULE OF ACTUAL REVENUES AND DEBT COVERAGE
FOR PLEDGED REVENUE**

(Provide information for the two fiscal years preceding the anticipated date of the SRF loan agreement)

	FY2019	FY2020
(a) Operating Revenues (Identify)		
<u>CHARGES FOR SERVICES</u>	<u>\$7,111,049</u>	<u>\$7,308,220</u>
(b) Interest Income	<u>\$20,351</u>	<u>\$11,918</u>
(c) Other Incomes or Revenues (Identify)		
<u>MISCELLANEOUS</u>	<u>\$20,376</u>	<u>\$189,010</u>
<u>IMPACT FEES</u>	<u>\$599,501</u>	<u>\$717,201</u>
(d) Total Revenues	<u>\$7,751,277</u>	<u>\$8,226,349</u>
(e) Operating Expenses (excluding interest on debt, depreciation, and other non-cash items)	<u>\$5,561,008</u>	<u>\$5,120,842</u>
(f) Net Revenues (f = d – e)	<u>\$2,190,269</u>	<u>\$3,105,507</u>
(g) Debt Service (including coverage) Excluding SRF Loans	<u>\$842,961</u>	<u>\$836,254</u>
(h) Debt Service (including coverage) for Outstanding SRF Loans	<u>\$1,122,729</u>	<u>\$1,122,729</u>
(i) Net Revenues After Debt Service (i = f – g – h)	<u>\$224,579</u>	<u>\$1,146,524</u>

Source:

Notes:

**SCHEDULE OF PROJECTED REVENUES AND DEBT COVERAGE
FOR PLEDGED REVENUE**
(Begin with the fiscal year preceding first anticipated semiannual loan payment)

	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>
(a) Operating Revenues (Identify) CHARGES FOR SERVICES	<u>\$7,356,735</u>	<u>\$7,651,004</u>	<u>\$7,957,044</u>	<u>\$8,275,326</u>	<u>\$8,606,339</u>
(b) Interest Income	<u>\$12,395</u>	<u>\$12,891</u>	<u>\$13,406</u>	<u>\$13,942</u>	<u>\$14,500</u>
(c) Other Incomes or Revenues (Identify) IMPACT FEES	<u>\$714,000</u>	<u>\$742,560</u>	<u>\$772,262</u>	<u>\$803,153</u>	<u>\$835,279</u>
MISCELLANEOUS	<u>\$560,049</u>	<u>\$582,451</u>	<u>\$605,749</u>	<u>\$629,979</u>	<u>\$655,178</u>
(d) Total Revenues	<u>\$8,643,179</u>	<u>\$8,988,906</u>	<u>\$9,348,461</u>	<u>\$9,722,400</u>	<u>\$10,111,296</u>
(e) Operating Expenses ¹	<u>\$5,145,813</u>	<u>\$5,300,188</u>	<u>\$5,459,193</u>	<u>\$5,622,969</u>	<u>\$5,791,658</u>
(f) Net Revenues (f = d - e)	<u>\$3,497,366</u>	<u>\$3,688,718</u>	<u>\$3,889,268</u>	<u>\$4,099,431</u>	<u>\$4,319,638</u>
(g) Existing Debt Service on Non-SRF Projects (including coverage)	<u>\$898,289</u>	<u>\$903,739</u>	<u>\$902,093</u>	<u>\$905,303</u>	<u>\$903,154</u>
(h) Existing SRF Loan Debt Service (including coverage)	<u>\$1,122,729</u>	<u>\$1,122,729</u>	<u>\$1,122,729</u>	<u>\$1,122,729</u>	<u>\$1,122,729</u>
(i) Total Existing Debt Service (i = g + h)	<u>\$2,021,018</u>	<u>\$2,026,468</u>	<u>\$2,024,822</u>	<u>\$2,028,032</u>	<u>\$2,025,883</u>
(j) Projected Debt Service on Non-SRF Future Projects (including coverage)					
(k) Projected SRF Loan Debt Service (including coverage)	<u>\$375,501</u>	<u>\$375,501</u>	<u>\$375,501</u>	<u>\$375,501</u>	<u>\$375,501</u>
(l) Total Debt Service (Existing and Projected) (l = i + j + k)	<u>\$2,396,519</u>	<u>\$2,401,969</u>	<u>\$2,400,323</u>	<u>\$2,403,533</u>	<u>\$2,401,384</u>
(m) Net Revenues After Debt Service (m = f - l)	<u>\$1,100,847</u>	<u>\$1,286,749</u>	<u>\$1,488,945</u>	<u>\$1,695,898</u>	<u>\$1,918,254</u>

Source:

Notes: (i.e. rate increases, explanations, etc.)

1. For existing and proposed facilities, excluding interest on debt, depreciation, and other non-cash items.

CERTIFICATION

I, Gina Toussaint, certify that I have reviewed the information
Chief Financial Officer (please print)

included in the preceding capital financing plan worksheets, and to the best of my knowledge, this

information accurately reflects the financial capability
of

City of Crestview

Project Sponsor

I further certify that City of Crestview has the financial capability to ensure
Project Sponsor

adequate construction, operation, and maintenance of the system, including this SRF project.



Signature

8/3/2021

Date

25 W Cedar Street
Suite 350
Pensacola, FL 32502

www.jacobs.com

Subject	Crestview WWTP Solids Handling and Effluent Disposal Planning Document		
Attention	City of Crestview	Project No.	D3403200
From	CH2M Hill Engineers Inc. as a subsidiary of Jacobs		
Date	July 30, 2021		

1. Introduction

The City of Crestview (City) Wastewater Treatment Facility (WWTF) receives, treats, and disposes of domestic wastewater generated in the City's wastewater service area. The original treatment facility at this location was constructed in 1994. Upgrades to the residuals treatment and handling processes were completed in 1996, and the construction of a new master lift station was completed in 2006 (Phase 1). The City completed a major upgrade to the plant in 2008 (Phases 2 and 3), which expanded the original treatment capacity from 2.1 million gallons per day (mgd) maximum month average daily flow (MMADF) to 2.75 mgd MMADF. The location of the WWTF is shown in Figure 1.

In 2010 the City projected their population growth to increase at a faster rate as a result of the Base Realignment and Closure (BRAC) program that was set to reassign personnel to the nearby Eglin Air Force Base (AFB) and Hurlburt Field. At that time CH2M Hill prepared the City of Crestview WWTF Phase 4 Expansion Planning Document with the recommendation to upgrade the WWTF in a two-phased expansion. However, before the construction of the project began, the projected growth rate slowed because the BRAC program did not generate the population growth as expected. The first phase of the Phase 4 project was therefore reduced in scope and ultimately included the construction of a new chlorine contact basin and sodium hypochlorite feed facilities as well as the construction of five rapid-rate infiltration basins (RIBs). A side stream tertiary treatment filter was added for public access reuse and the plants effluent disposal capacity was increased from 2.1 mgd to 2.75 mgd annual average daily flow (AADF).

The City has seen significant growth in recent years and that growth has introduced a need to expand and build new residential communities. This growth has led to an increase in influent flow at the City's WWTF. The City has also seen a dramatic increase in solids loadings over the last five years. These increased loadings follow a seasonal trend and have been consistent during the last several years. The existing aerobic digester capacity has effectively been 100-percent utilized during winter months the last few years. The plant is also limited on dewatering and solids hauling capacity because they utilize roll-off containers and cannot use tractor trailers for sludge hauling. As the flows continue to increase this is cause for concern resulting in the need to expand the plant's solids handling facilities. To meet this goal, Jacobs (as a subsidiary of CH2M Hill) has prepared design documents for the Crestview WWTF Solids Handling Improvements project. The project includes the construction of two new aerobic digesters, a sludge

transfer pump station, a new dewatering building with space for two 2-meter belt filter presses, a dewatered cake screw conveyor and truck loading bay, a belt filter press feed pump station, and associated electrical and site upgrades.

In addition, planned expansion of the SR 85 bypass road and the future East-West corridor will be constructed on the existing effluent spray field thus reducing the overall effluent disposal capacity at the WWTF. The WWTF permit has since been modified to include an effluent land application capacity of 2.36 mgd AADF based on the elimination of several of the spray field zone. The City therefore needs to increase the plant's disposal capacity to meet existing flows and to accommodate projected future flows. To meet this goal the City has recently acquired an approximately 49 acre parcel north of the WWTF with the intent to construct additional infiltration basins and upgrade the plant's effluent pump station to convey the treated water to this new site. A site plan showing the location of the Crestview WWTF and the proposed effluent disposal site is shown in Figure 1.

The City is applying to obtain a loan from the State Revolving Fund (SRF) for both the construction of the Solids Handling Improvements project and the planning phase associated with the Wingard property RIBs Expansion. Following the RIBs planning phase the City would like to apply for design and construction loans.

This technical memorandum (TM) describes the three alternatives evaluated for expanding both the solids handling facilities and the effluent disposal capacity for the WWTF, addresses the environmental effects of the projects, presents a cost breakdown of the selected alternatives, and summarizes the schedule for implementing the two projects.

2. Solids Handling Improvements

2.1 Alternative Comparison – Solids Handling Improvements

Three alternatives to meet the solids handling goals were evaluated below in detail. A description of each alternative and the estimated costs for the two action alternatives are provided in this TM.

2.1.1 Alternative 1 – Solids Handling Upgrades Matching Existing Conditions

Alternative 1 includes the expansion of the plant's digestion, dewatering, and solids hauling capacity based on the approach of duplicating each process to double their current capacity. The existing digesters have floating surface mechanical aerators that require minimal maintenance and are easily accessible which is why this alternative proposes to use the same style aerators in the new digesters. The plant currently has a single 1-meter belt filter press which discharges to a cake screw conveyor for disposal into a roll off dumpster. The new dewatering system under this alternative is proposed to include a new 2-meter belt filter press to double the dewatering capacity. The existing BFP has been in service at the plant for many years and still works effectively with minimal maintenance. The plant operators prefer the new dewatering system match the existing technology. The new dewatering building is also proposed to include space for the existing BFP to be relocated to this building as a standby unit for redundancy.

The small dumpster size also limits the plants dewatering capacity therefore the new dewatering building is planned to include space for a tractor trailer to use for hauling dewatered cake. The belt filter press

requires operator oversight but generally does not require extensive maintenance. Because of the ease of maintenance, history of effective treatment, and operator familiarity it is advantageous to duplicate the existing systems for the solids handling improvements expansion.

Alternative 1 includes the addition of the following new components:

- Two new aerobic digesters with floating surface aerators
- A new intermediate sludge transfer pump station to convey sludge between the new and existing digesters
- A new belt-filter press feed pump station
- A new dewatering building containing a new 2-meter belt filter press, cake conveyor, and truck loading bay

The estimated capital costs for Alternative 1 are summarized in Table 2.1. The total estimated capital cost is \$5,012,000. A site plan for Alternative 1 is shown in Figure 2.

Table 2.1

Detailed Cost Estimate for Alternative 1 – Solids Handling Expansion (Duplication of Existing Systems)
Crestview WWTF Solids Handling Improvements

DESCRIPTION	COST
Sitework	\$90,000
Yard Piping	\$270,000
Site Electrical	\$450,000
Aerobic Digesters	\$1,350,000
Intermediate Sludge Pump Station	\$135,000
BFP Feed Pump Station	\$135,000
Dewatering Building	\$2,070,000
Subtotal Construction Cost	\$4,500,000
Contingency (10%)	\$450,000
Engineering	\$62,000
Total Capital Cost	\$5,012,000

2.1.2 Alternative 2 – Solids Handling Upgrades with Alternate Technologies

Alternative 2 similarly includes the expansion of the plant's digestion, dewatering, and solids hauling capacity. This alternative however alters the process equipment to different treatment technologies that are commonly used in municipal wastewater treatment. Two new rectangular aerobic digesters would be constructed utilizing blowers and bubble diffusers for aeration. Diffused aeration systems have their

advantages with the ability to aerate more efficiently compared to surface aeration systems; however, because the diffusers are at the bottom of the digesters the resulting maintenance is more difficult and costly. A new dewatering building is also included in this alternative with the installation of a new centrifuge for digested biosolids dewatering. The building will include a similar cake conveyor and truck loading bay similar to Alternative 1. The new dewatering would still be designed with adequate space to relocate the existing belt filter press and be available as a standby or redundant unit for high load periods. The operational downfall of changing to the centrifuge is that the plant operators will now have to maintain two separate types of equipment. Additionally, the optimum polymer needed for each unit may be different which would require the plant to purchase and handle an additional chemical.

This includes the addition of the following new components:

- Two new aerobic digesters with a diffused aeration system including blowers and bubble diffusers.
- A new centrifuge feed pump station
- A new dewatering building containing a new centrifuge for digested biosolids dewatering, a cake conveyor, and a truck loading bay

The estimated capital costs for Alternative 2 are summarized in Table 2.2. The total estimated capital cost is \$5,336,500.

Table 2.2

Detailed Cost Estimate for Alternative 2 – Solids Handling Expansion (Alternate Technologies)

Crestview WWTF Solids Handling Improvements

DESCRIPTION	COST
Sitework	\$90,000
Yard Piping	\$270,000
Site Electrical	\$550,000
Aerobic Digesters	\$1,850,000
BFP Feed Pump Station	\$135,000
Dewatering Building	\$2,100,000
Subtotal Construction Cost	\$4,995,000
Contingency (10%)	\$499,500
Engineering	\$62,000
Total Capital Cost	\$5,556,500

2.1.3 Alternative 3 – No Action

The third alternative is to delay the construction of new solids handling facilities to incorporate this work into the future WWTF expansion. This alternative would allow the City to further assess the population

growth projections resulting from the SR 85 bypass and East-West corridor development. However, because the facility is already out of digestion capacity this is not a viable. It is anticipated that without the additional digester capacity, the WWTF will not be able to maintain compliance with its permit during the cold weather months. The City would not be able to meet the digestion requirements and solids would need to be transported to a landfill. This is a very costly alternative and is not preferred.

2.2 Present Worth Analysis

A present worth (PW) analysis was performed on the solids handling Alternatives 1 and 2 described previously. The assumptions used for the analysis are summarized in Table 2.3. The project is scheduled to start construction in 2021. The overall planning period was assumed to be 20 years with a discount rate of 4.375 percent used as provided by the Florida Department of Environmental Protection (FDEP). The annual operation and maintenance (O&M) costs were estimated based on the existing O&M costs, adjusted for the increased equipment and labor requirements resulting from each expansion. All costs are presented in 2021 dollars.

Table 2.3

Assumptions for Cost Comparisons
Crestview WWTF Solids Handling Improvements

Parameter	Value
Year of Present Worth Dollars	2021
Year of Construction of Alternative 1	2021
Construction Cost, Alternative 1	\$5,012,000
Construction Cost, Alternative 2	\$5,556,500
Planning Period	20 Years
Discount Rate	2.5%
Annual O&M Costs, Alternative 1	\$308,000
Annual O&M Costs, Alternative 2	\$390,000

For Alternative 1, the PW of the O&M costs were estimated assuming a constant annual O&M expense of \$308,000 per year over the 20-year planning period. Using a PW factor of 15.6 (P/A, 2.5 percent, 20 years), the resulting PW of the O&M costs is \$3,666,000. The total PW for Alternative 1 is \$8,678,000, which is the sum of the capital costs and the PW of the O&M calculated as follows:

$$\$5,012,000 \text{ (capital cost)} + \$4,804,800 \text{ (O\&M PW)} = \$9,816,800 \text{ (total PW)}$$

For Alternative 2, the PW of the O&M costs were calculated assuming a constant annual O&M expense of \$390,000 per year over the 20-year planning period. The resulting PW of the total O&M costs over the 20-year period is \$6,084,000. The total PW for Alternative 2 is \$11,640,500, which is the sum of the capital costs and the PW of the O&M calculated as follows:

$$\$5,556,500 \text{ (capital cost)} + \$6,084,000 \text{ (O\&M PW)} = \$11,640,500 \text{ (total PW)}$$

Alternative 1 has the lowest PW value; therefore, it would be financially more advantageous than Alternative 2.

2.3 Environmental Effects/Benefits

Because this project will be constructed within the boundaries of the existing WWTF, there will be no negative effects to wildlife or wildlife habitats. The proposed project will improve the treatment of the wastewater and generated solids before being disposed of through land application. This will provide a positive effect on surface water and groundwater quality. There will be no adverse effects on minorities.

2.4 Selected Alternative

Based on the alternative comparison and the environmental effects and benefits, Alternative 1 was selected to provide additional treatment capacity for the City for the following reasons:

- Lower initial capital cost and lower total PW cost
- Easier operation and maintenance requirements
- All of the new and existing facilities and associated equipment will be the same, which results in more consistent operations and allows for better redundancy and interchangeability of parts and equipment.

2.5 Implementation Schedule

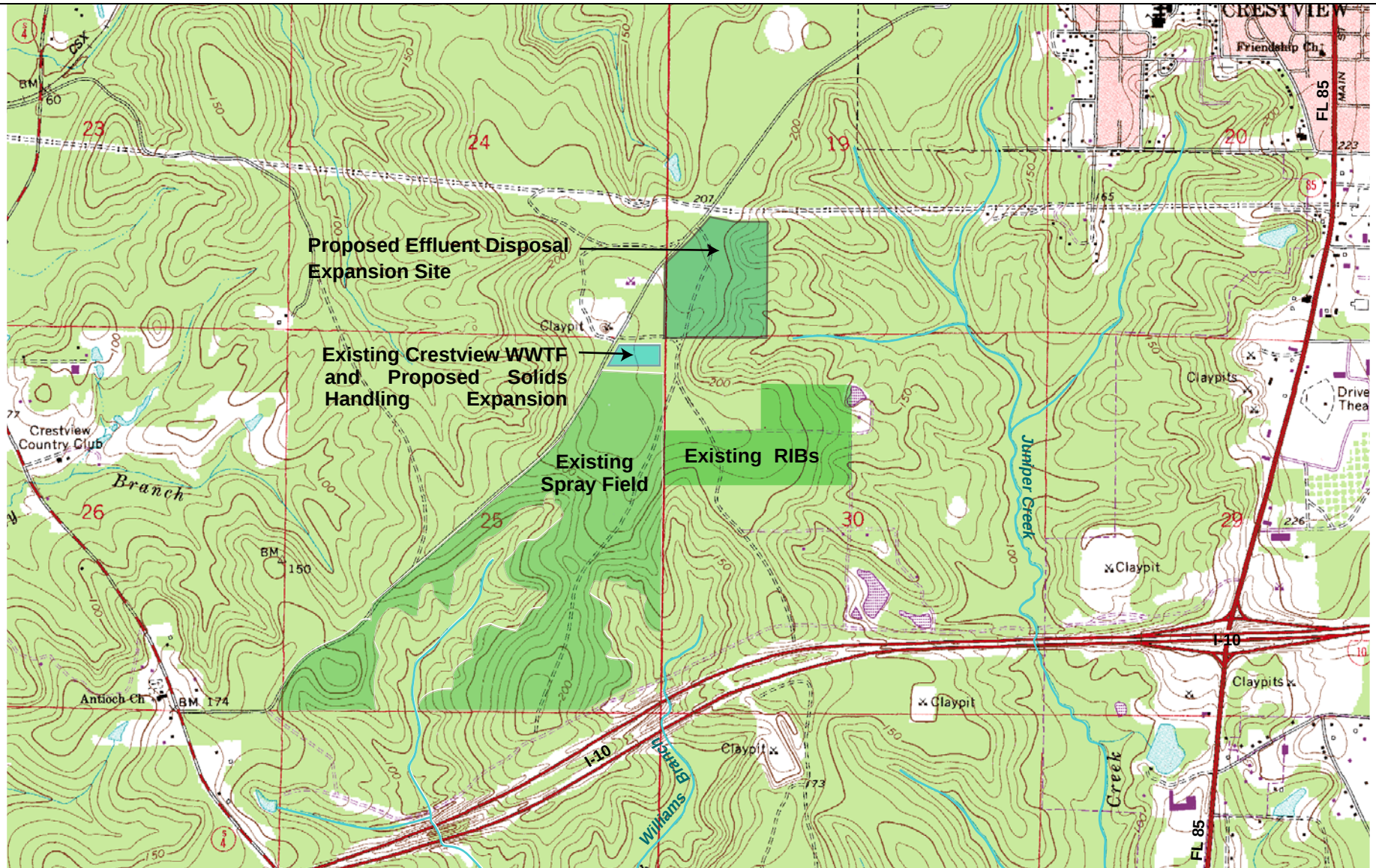
The schedule of key project milestones is summarized in Table 2.4.

Table 2.4

Implementation Schedule

Crestview WWTF Solids Handling Improvements

Milestone	Completion Date
WWTF Minor Permit Modification Obtained from the Florida Department of Environmental Protection (FDEP)	June 21, 2021
Contract Documents Complete and Ready for Bid	April 1, 2021
Bid Phase Complete	May 18, 2021
Construction Complete and WWTF Operational	December 31, 2022



Source: USGS Crestview South Quadrant

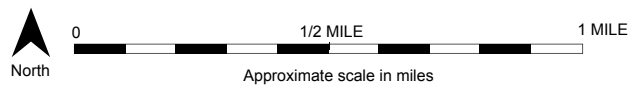


FIGURE 1
Site Location Map WWTF Solids Handling
and Effluent Disposal Expansion
City of Crestview, FL

Jacobs

3. Effluent Disposal Expansion

3.1 Alternative Comparison – Disposal Expansion

Three alternatives to address the WWTF's effluent disposal capacity limitations were evaluated below in detail. A description of each alternative and the estimated costs for the two action alternatives are provided in this TM. The location of the proposed disposal expansion site is shown in Figure 1.

3.1.1 Alternative 1 – Rapid-Rate Infiltration Basin Expansion

Alternative 1 is to maximize the disposal capacity of the newly acquired Wingard property located to the Northeast of the Crestview WWTF with the construction of rapid-rate infiltration basins (RIBs). The planning and design phases will include an extensive evaluation of the site including site investigations, hydrogeologic monitoring and testing, and hydraulic loading and groundwater mounding modeling to optimize the infiltration basin design.

RIB systems are effective disposal systems for maximizing the disposal capacity of a site. The effectiveness of the system is heavily dependent of soil conditions, topography, and ground and surface water proximity. The cost effectiveness of RIBs is also heavily dependent on topography but are generally significantly cheaper to construct and maintain. These systems have minimal infrastructure or mechanical components associated so the capital costs are primarily composed of civil site work which is also an advantage on a relatively level site.

The estimated capital costs for Alternative 1 are summarized in Table 3.1. The total estimated capital cost is \$3,150,000. The site location of Alternative 1 is shown in Figure 1.

Table 3.1

Detailed Cost Estimate for Alternative 1 – Infiltration Basin Expansion
Crestview WWTF Effluent Disposal Expansion

DESCRIPTION	COST
Sitework	\$1,250,000
Pump Station and Forcemain	\$750,000
RIBs	\$1,000,000
Subtotal Construction Cost	\$2,727,000
Contingency (10%)	\$273,000
Engineering (Services During Construction)	\$150,000
Total Capital Cost	\$3,150,000

3.1.2 Alternative 2 – Spray Field Expansion

Alternative 2 is to construct a new spray field on the Wingard property. The advantage to the spray field option is there is less site work required since the site is not required to be level such that the spray headers can apply the effluent across the existing topography. Too much slope however will significantly impact the site's acceptable loading rate. The plant already has spray fields so this would be not be a new operation for the plant personnel to learn. A negative of spray fields is the operation and maintenance time and costs required are significantly higher infiltration basins due to the vast extent of irrigation piping and sprinkler heads which are routinely clogged or damaged.

The estimated capital costs for Alternative 1 are summarized in Table 3.1. The total estimated capital cost is \$3,150,000. The site location of Alternative 2 is the same project site as Alternative 1 shown in Figure 1.

Table 3.2

Detailed Cost Estimate for Alternative 1 – Spray field Expansion
Crestview WWTF Effluent Disposal Expansion

DESCRIPTION	COST
Sitework	\$750,000
Pump Station and Forcemain	\$750,000
Spray field	\$2,000,000
Subtotal Construction Cost	\$3,500,000
Contingency (10%)	\$350,000
Engineering (Services During Construction)	\$150,000
Total Capital Cost	\$4,000,000

3.1.3 Alternative 3 – Future Disposal Expansion

Alternative 3 is a no immediate action alternative under the pretense of the City developing a WWTF disposal system masterplan. Jacobs is currently evaluating the capacity of the existing RIBs and spray field in an attempt to increase their permitted disposal capacity. Increasing the capacity of the existing facilities could allow the City additional time to evaluate additional effluent disposal alternatives. Even with the addition of the newly proposed 49-acre disposal site described in Alternatives 1 and 2 this expanded capacity is not expected to be sufficient over the City's long-term estimated flow projections.

Alternative 3 could be a viable option but is a much riskier option to choose. The increase in disposal capacity with the existing disposal sites is not guaranteed and the current and committed flows have nearly maxed out the plant's disposal capacity. Additionally, the implementation schedule also has to be considered for planning, design, land acquisition and construction. The flows will likely exceed the plant's disposal capacity before the new infrastructure can be put into service with a continuation of the population growth trends. Because of these factors it is recommended that the City proceed with expanding their disposal capacity on the already acquired 49-acre parcel. Selecting either Alternative 1 or

2 will provide the City with the immediately needed disposal capacity increase that is needed and will comfortably provide the City time to identify additional disposal sites.

3.2 Present Worth Analysis

A present worth (PW) analysis was performed on the effluent disposal expansion Alternatives 1 and 2 described previously. The assumptions used for the analysis are summarized in Table 3.3. The project is scheduled to start design in 2021 and construction in 2022. The overall planning period was assumed to be 20 years with a discount rate of 2.5 percent used as provided by the Florida Department of Environmental Protection (FDEP). The annual operation and maintenance (O&M) costs were estimated based on the existing O&M costs, adjusted for the increased equipment and labor requirements resulting from each expansion. All costs are presented in 2021 dollars.

Table 3.3

Assumptions for Cost Comparisons

Crestview WWTF Solids Handling Improvements

Parameter	Value
Year of Present Worth Dollars	2021
Year of Construction of Alternative 1	2022
Construction Cost, Alternative 1	\$3,150,000
Construction Cost, Alternative 2	\$3,650,000
Planning Period	20 Years
Discount Rate	2.5%
Annual O&M Costs, Alternative 1	\$63,000
Annual O&M Costs, Alternative 2	\$187,000

For Alternative 1, the PW of the O&M costs were estimated assuming a constant annual O&M expense of \$63,000 per year over the 20-year planning period. Using a PW factor of 15.6 (P/A, 2.5 percent, 20 years), the resulting PW of the O&M costs is \$982,800. The total PW for Alternative 1 is \$4,132,800, which is the sum of the capital costs and the PW of the O&M calculated as follows:

$$\text{\$3,150,000 (capital cost) + \$982,800 (O\&M PW) = \$4,132,800 (total PW)}$$

For Alternative 2, the PW of the O&M costs were calculated assuming a constant annual O&M expense of \$187,000 per year over the 20-year planning period. The resulting PW of the total O&M costs over the 20-year period is \$2,917,200. The total PW for Alternative 2 is \$6,567,200 which is the sum of the capital costs and the PW of the O&M calculated as follows:

$$\text{\$4,000,000 (capital cost) + \$2,917,200 (O\&M PW) = \$6,567,200 (total PW)}$$

As seen in the analysis above, O&M costs are typically less for infiltration basins compared to alternate effluent disposal systems because other than the effluent pumping station there are no other mechanical

parts needing routine maintenance. Alternative 1 has the lowest PW value; therefore, it would be financially more advantageous than Alternative 2.

3.3 Environmental Effects/Benefits

The project site is located on a parcel adjacent to the Crestview WWTF which is currently undeveloped and forested. The environmental assessment is proposed to be conducted during the project planning phase to identify any environmentally sensitive wildlife or vegetation. The design will consist of any environmental mitigation measures necessary. The disposal capacity permitted will be set at a limit which will not negatively impact the surface water or groundwater quality. There will be not adverse effects on minorities.

3.4 Selected Alternative

Based on the alternative comparison and the environmental effects and benefits, Alternative 1 was selected to provide additional treatment capacity for the City for the following reasons:

- Lower initial capital cost and lower total PW cost
- Significantly less operation and maintenance requirements
- Higher disposal capacity

3.5 Implementation Schedule

The schedule of key project milestones is summarized in Table 3.4.

Table 3.4

Implementation Schedule

Crestview WWTF RIBs Expansion

Milestone	Completion Date
WWTF Minor Permit Modification Obtained from the Florida Department of Environmental Protection (FDEP)	May 1, 2022
Contract Documents Complete and Ready for Bid	September 1, 2022
Bid Phase Complete	November 1, 2022
Construction Complete and WWTF Operational	July 1, 2023