

Village of Covington

Wastewater Treatment Plant Evaluation / Study

Village Council
June 28, 2021



Introduction / History

- The original wastewater treatment facility was constructed in 1941
- Updates occurred in 1956, 1968, and 1980.
- Type of facility is considered a trickling filter facility.
- Discharges treated wastewater into the Stillwater River under a NPDES Permit. This permit expires in September 2021.



Wastewater Treatment Plant Plans / Studies

- In **August 2013** the Village received a Study from CH2MHill which looked at the plant, its needs, and set a pathway forward for the Village to follow to bring it up to current standards.
- In the **fall of 2020** the Village received an estimate for replacement from Mote Engineering for the plant at \$13,269,012, which did not include any detail only estimates.
- In the **spring of 2021** the Village determined it wanted a full update to the 2013 study and went out for bid.
- Kleinfelder was the lowest and best bidder and provided the study under discussion.



WWTP Plan Highlights

- Document is 51 pages and has additional appendices covering exact proposed equipment.
- Lays out the existing conditions, constraints, and opportunities with the existing infrastructure.
- Details the flows and pollutant concentrations that the plants sees on average.
- Details the NPDES permit effluent limitations that must be met after September 2021.



WWTP Plan Highlights

- Details the current conditions and what our average flow is within the system.
- Clearly explains the process our system uses to treat waste and evaluates each part of the process.
- Provides alternatives and recommended improvements for the system.
- Provides funding mechanisms and financing / loan options for the Village to consider.



WWTP Alternatives to Consider

Three alternatives are provided for consideration:

1. Replacement of some components, utilization of existing infrastructure that can be saved.
2. Complete abandonment of existing facility and construction of new plant.
3. Abandonment of existing facility and connection to the City of Piqua.



WWTP Alternative 1

- Construction of a new headworks, sequencing batch reactor (SBR) and dried sludge storage facilities.
- **Advantages:**
 - Does not require any settling tanks
 - Process flexibility
 - Operational flexibility provided by separate mixing
 - Provides a stable sludge
 - Will meet BADCT effluent requirements
 - Automatic storm treatment mode
- **Disadvantages:**
 - Will generate additional sludge due to improved solids removal
 - Biological process requires blowers for diffused aeration
 - Waste sludge has a lower solids concentration



WWTP Alternative 2

- Complete abandonment of existing wastewater treatment plant and construction of new sequencing batch reactor type WWT facility.
- **Advantages:**
 - New system would be designed to meet all needs and standards.
 - Could be located and designed to minimize all negative impacts.
- **Disadvantages:**
 - Will utilize additional land.
 - Cost.



WWTP Alternative 3

- Complete abandonment of existing wastewater treatment plant and construction of two regional pump stations and force mains to transfer flow to the City of Piqua.
- **Advantages:**
 - Needed improvements to the system would not cost the Village in capital costs.
 - Lowest capital cost for the Village.
- **Disadvantages:**
 - Rate structure will not be controlled by the Village.
 - Substantial immediate impact to residents on monthly costs.



Study Recommendation

- Based on the consultants review and understanding of the existing treatment facility and the necessary improvements they recommend **ALTERNATIVE 1.**



Capital Cost

Table 7 WWTP Alternative Summary

	Rehabilitation of WWTP Facility	New Wastewater Treatment Facility	Regional Connection to Piqua
Project Cost	\$14,000,001	\$16,666,000	\$7,414,000
Annual Debt Payment	\$345,386	\$408,550	\$181,746
Estimated O&M	\$600,000	\$600,000	\$200,000
User Charges			\$850,000
Total Annual Cost	\$945,386	\$1,008,550	\$1,231,746



Financing Options

- State Capital Improvement Funds (OPWC)
- USDA Rural Development
- Ohio Water Development Authority
- Ohio Environmental Protection Agency
- Ohio Small Cities Community Development Block Grant
- Sewer Capital Improvement Fund (Village Funds)
- Potential ARPA or Federal Infrastructure Funding



Financing Options

Likely Best Option

- USDA
- 40 Year Loan
- 1.75%
- 30% Grant (roughly \$4.2m)
- Debt Service: \$345,386 / year / 40 years



Rate Structure Analysis

Village of Covington

Annual Increase:

Year	Balance	3% Revenue	2% Expenses	Debt	Revenue - Expenses	Ending Balance
2022	\$493,265	\$563,070	\$380,520		\$182,550	\$675,815
2023	\$675,815	\$579,962	\$388,130		\$191,832	\$867,647
2024	\$867,647	\$597,361	\$395,893	\$172,693	\$28,775	\$896,422
2025	\$896,422	\$615,282	\$403,811	\$345,386	-\$133,915	\$762,507
2026	\$762,507	\$633,740	\$411,887	\$345,386	-\$123,533	\$638,974
2027	\$638,974	\$652,752	\$420,125	\$345,386	-\$112,758	\$526,215
2028	\$526,215	\$672,335	\$428,527	\$345,386	-\$101,578	\$424,637
2029	\$424,637	\$692,505	\$437,098	\$345,386	-\$89,979	\$334,658
2030	\$334,658	\$713,280	\$445,840	\$345,386	-\$77,946	\$256,713
2031	\$256,713	\$734,679	\$454,757	\$345,386	-\$65,464	\$191,249
2032	\$191,249	\$756,719	\$463,852	\$345,386	-\$52,519	\$138,730
2033	\$138,730	\$779,421	\$473,129	\$345,386	-\$39,094	\$99,636
2034	\$99,636	\$802,803	\$482,591	\$345,386	-\$25,174	\$74,462
2035	\$74,462	\$826,887	\$492,243	\$345,386	-\$10,742	\$63,720
2036	\$63,720	\$851,694	\$502,088	\$345,386	\$4,220	\$67,939

Annual Increase:

Year	Balance	4% Revenue	2% Expenses	Debt	Revenue - Expenses	Ending Balance
2022	\$493,265	\$563,070	\$380,520		\$182,550	\$675,815
2023	\$675,815	\$585,593	\$388,130		\$197,462	\$873,277
2024	\$873,277	\$609,017	\$395,893	\$172,693	\$40,431	\$913,708
2025	\$913,708	\$633,377	\$403,811	\$345,386	-\$115,820	\$797,888
2026	\$797,888	\$658,712	\$411,887	\$345,386	-\$98,561	\$699,327
2027	\$699,327	\$685,061	\$420,125	\$345,386	-\$80,450	\$618,877
2028	\$618,877	\$712,463	\$428,527	\$345,386	-\$61,450	\$557,427
2029	\$557,427	\$740,962	\$437,098	\$345,386	-\$41,522	\$515,905
2030	\$515,905	\$770,600	\$445,840	\$345,386	-\$20,626	\$495,279
2031	\$495,279	\$801,424	\$454,757	\$345,386	\$1,282	\$496,561
2032	\$496,561	\$801,424	\$463,852	\$345,386	-\$7,814	\$488,747
2033	\$488,747	\$801,424	\$473,129	\$345,386	-\$17,091	\$471,657
2034	\$471,657	\$801,424	\$482,591	\$345,386	-\$26,553	\$445,104
2035	\$445,104	\$801,424	\$492,243	\$345,386	-\$36,205	\$408,899
2036	\$408,899	\$801,424	\$502,088	\$345,386	-\$46,050	\$362,849

Annual Increase:

Year	Balance	5% Revenue	2% Expenses	Debt	Revenue - Expenses	Ending Balance
2022	\$493,265	\$563,070	\$380,520		\$182,550	\$675,815
2023	\$675,815	\$591,224	\$388,130		\$203,093	\$878,908
2024	\$878,908	\$620,785	\$395,893	\$172,693	\$52,199	\$931,107
2025	\$931,107	\$651,824	\$403,811	\$345,386	-\$97,373	\$833,734
2026	\$833,734	\$684,415	\$411,887	\$345,386	-\$72,858	\$760,876
2027	\$760,876	\$718,636	\$420,125	\$345,386	-\$46,875	\$714,001
2028	\$714,001	\$754,568	\$428,527	\$345,386	-\$19,346	\$694,655
2029	\$694,655	\$792,296	\$437,098	\$345,386	\$9,812	\$704,467
2030	\$704,467	\$831,911	\$445,840	\$345,386	\$40,685	\$745,152
2031	\$745,152	\$873,506	\$454,757	\$345,386	\$73,364	\$818,516
2032	\$818,516	\$873,506	\$463,852	\$345,386	\$64,269	\$882,785
2033	\$882,785	\$873,506	\$473,129	\$345,386	\$54,992	\$937,776
2034	\$937,776	\$873,506	\$482,591	\$345,386	\$45,529	\$983,305
2035	\$983,305	\$873,506	\$492,243	\$345,386	\$35,877	\$1,019,183
2036	\$1,019,183	\$873,506	\$502,088	\$345,386	\$26,032	\$1,045,215

Annual Increase:

Year	Balance	6% Revenue	2% Expenses	Debt	Revenue - Expenses	Ending Balance
2022	\$493,265	\$563,070	\$380,520		\$182,550	\$675,815
2023	\$675,815	\$596,854	\$388,130		\$208,724	\$884,539
2024	\$884,539	\$632,665	\$395,893	\$172,693	\$64,079	\$948,618
2025	\$948,618	\$670,625	\$403,811	\$345,386	-\$78,571	\$870,047
2026	\$870,047	\$710,863	\$411,887	\$345,386	-\$46,410	\$823,637
2027	\$823,637	\$753,515	\$420,125	\$345,386	-\$11,996	\$811,640
2028	\$811,640	\$798,726	\$428,527	\$345,386	\$24,812	\$836,453
2029	\$836,453	\$846,649	\$437,098	\$345,386	\$64,165	\$900,618
2030	\$900,618	\$897,448	\$445,840	\$345,386	\$106,222	\$1,006,840
2031	\$1,006,840	\$951,295	\$454,757	\$345,386	\$151,152	\$1,157,992
2032	\$1,157,992	\$951,295	\$463,852	\$345,386	\$142,057	\$1,300,050
2033	\$1,300,050	\$951,295	\$473,129	\$345,386	\$132,780	\$1,432,830
2034	\$1,432,830	\$951,295	\$482,591	\$345,386	\$123,318	\$1,556,147
2035	\$1,556,147	\$951,295	\$492,243	\$345,386	\$113,666	\$1,669,813
2036	\$1,669,813	\$951,295	\$502,088	\$345,386	\$103,821	\$1,773,634



Impact and Timeline

Likely Best Option (Alternative 1 w/ USDA Loan)

- 4% increase each year necessary for at least 10 years (2022-2032)
- Currently scheduled for 3% increase each year through 2024
- Would cost average residential user (\$23.30/month for sewer) an additional \$0.23 per month or \$2.79 annually above the existing increase (\$290.78 instead of \$287.99 for 2022).

<u>Timeline:</u>	Design	07/2021 – 11/2021	
	OEPA PTI	12/2021 – 03/2022	
	Bid Advertise	05/2022	
	Bid Award	07/2022	Depends on Funding Approvals
	Begin Construction	08/2022	
	Complete	08/2023	
	First Debt Payment	01/2024 (1/2 Debt) Collected in last six (6) months 2023	



Next Step

- Discussion and resolution to go out for bid to design of selected alternative at July 19th meeting.
- Village will need to fund engineering costs or determine funding sources.
- Follow timeline noted below:

Design	07/2021 – 11/2021	
OEPA PTI	12/2021 – 03/2022	
Bid Advertise	05/2022	
Bid Award	07/2022	Depends on Funding Approvals
Begin Construction	08/2022	
Complete	08/2023	
First Debt Payment	01/2024 (1/2 Debt) Collected in last six (6) months 2023	



Questions?

Representatives from Kleinfelder are available for questions this evening.

Email: administrator@covington-oh.gov and I will try and answer or get answers to all questions.



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