

DEVOLA SANITARY SEWER IMPROVEMENTS – PHASE II

Muskingum Township
Washington County, Ohio

GENERAL PLAN

For Submittal to the Ohio Environmental Protection Agency



Ohio Environmental Protection Agency
Southeast District Office
Division of Surface Water
Attn: Enforcement Supervisor
2195 Front Street
Logan, Ohio 43138

Ohio Environmental Protection Agency
Division of Surface Water
Attn: Enforcement Section
P.O. Box 1049
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Submitted November 26, 2019

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Submitted on Behalf of:



Washington County Commissioners
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Purpose

This General Plan is to communicate the approach of the project to the Ohio Environmental Protection Agency (OEPA) as dictated in the Director's Final Findings and Orders dated September 12, 2012 and ordered by Judge Lewis in his November 29, 2018 Order. This general plan includes strategies for treating the sewage; proposed locations of collection and treatment facilities; cost estimates for the required improvements; cost effective analysis; financial mechanisms to fund the improvements; operation, maintenance and replacement costs; and an implementation schedule for completing a Permit to Install (PTI) application.

Background

Devola is a census-designated place (CDP) located to the east side of the Muskingum River and north of the City of Marietta in Washington County, Ohio. It has a population of approximately 2,652 residents per the 2010 census. For the purposes of this project and plan, the Ohio EPA's Service Area limits are bounded approximately to the north by County Road 341 to Town Hall Lane (including the areas around Strecker Lane, Sylvan Way, Ohio Boulevard and Kentucky Avenue); to the east by State Route 60; to the south down to a line 200 feet south of Lawton Road by the Muskingum River; and to the west to Elm Tree Lane (including Magnum Magnetix and an unidentified trailer park along County Road 551). This area is currently served by a combination of individual septic systems and a centralized sewer system. This central sewer was connected to the Marietta treatment system in 2012 and is known as Phase I. Phase II contains the individual septic systems and is the focus of this plan. Figure 1 shows the limits of the service area and the delineation of the two phases.

In 2011, the Ohio EPA investigated high nitrate readings in the Devola Area. The investigation concluded that the failing septic systems in Devola are significantly contributing to the nitrate contamination in the groundwater, above the drinking water standard level of 10 parts per million (ppm). The OEPA also determined that the lots in the Devola Area are not suited for new or upgraded on-lot individual sewage disposal systems, due to the size of the lots and soil conditions present.

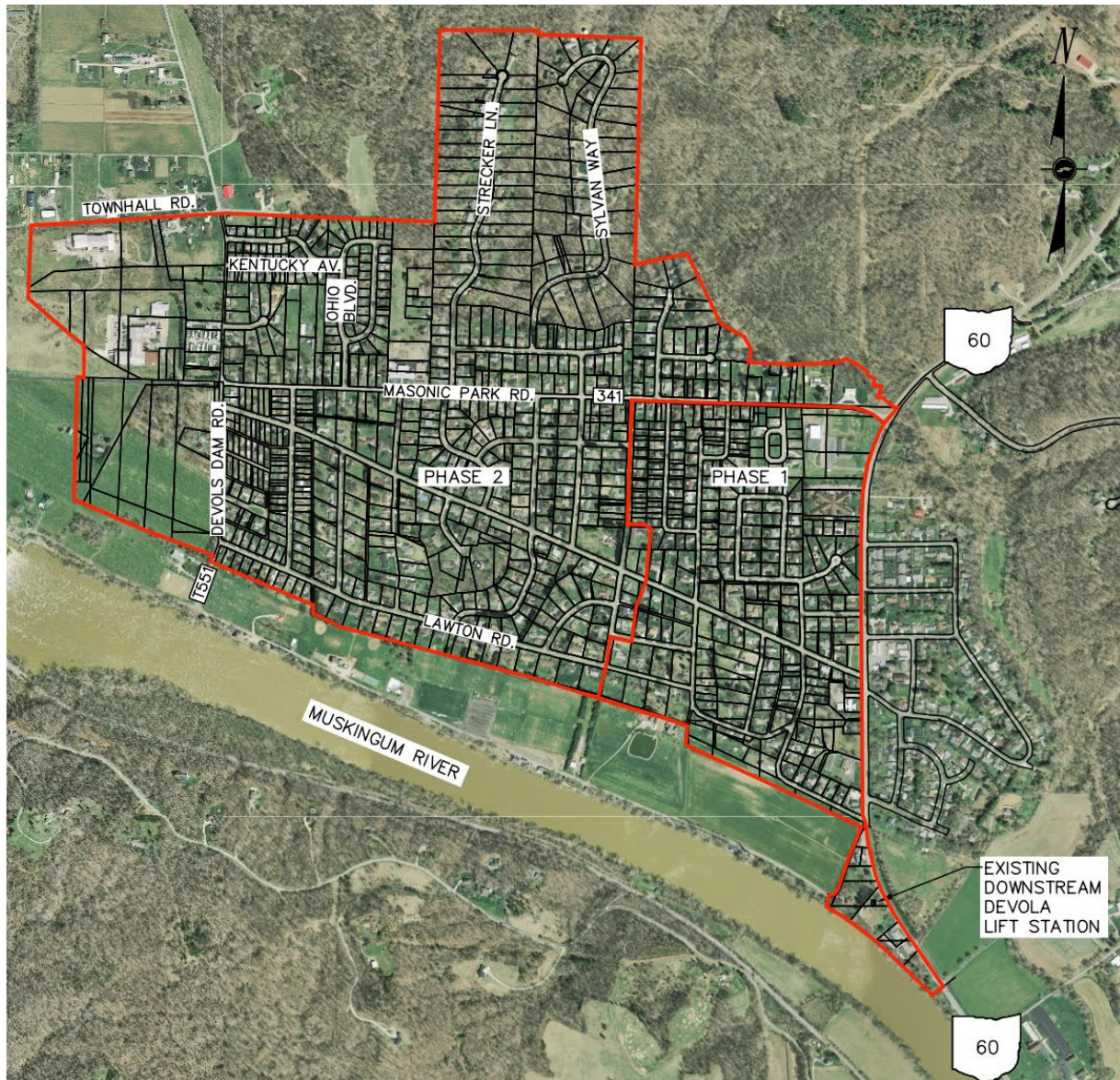


FIGURE 1 – OEPA'S SERVICE AREA LIMITS FOR DEVOLA

Facility Plan

In compliance with Ohio EPA findings and orders, no discharge to surface waters will be allowed. A new central sanitary sewer improvement project will be designed and constructed to serve Phase II within the Devola Service Area. This new sewer system will consist of approximately 55,000 feet of sewer main network installed by either open-cut trenching, borings or directional drilling; and connections to approximately 553 properties. The proposed sanitary sewer will tie into the Phase I existing system, which then flows to the downstream Devola lift station located at 4441 Hwy 60, south of Devola. The Devola lift station will then transport the effluent approximately 5.5 miles to the City of Marietta to be treated at the Marietta Wastewater Treatment Plant located at 440 E. 8th St., Marietta, OH, 45750. See Figure 2 for the Facility Area Map for locations of the identified facilities.

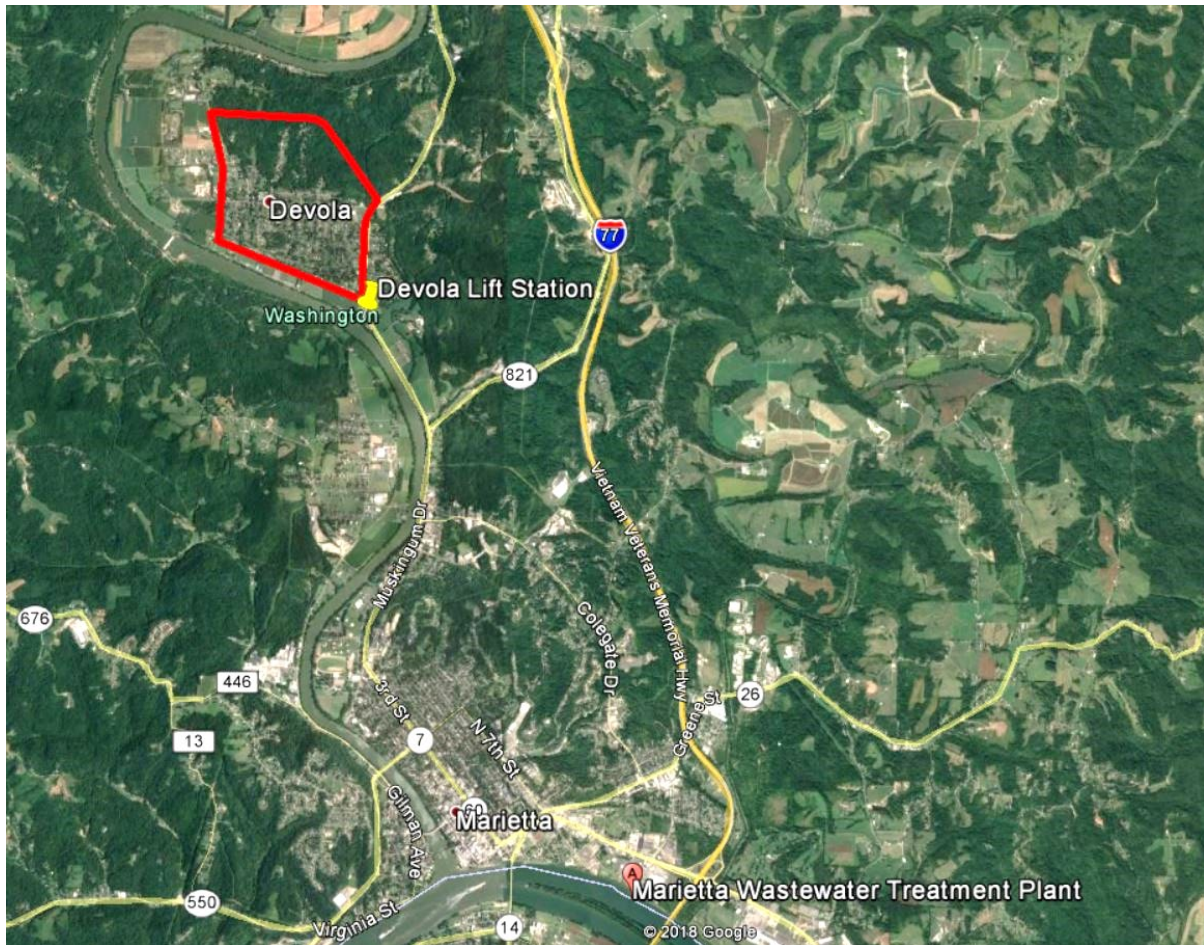


FIGURE 2 – FACILITY AREA MAP

WSP will also review properties within the Phase I service area to ensure compliance. Currently, initial findings have revealed at least 10 properties that have yet to be connected to the central sewer network. Once the final investigation has been made, any necessary sewer main extensions or lateral connections will be included with the project. Additionally, WSP has been contracted to review the condition of the Phase I infrastructure, including the Devola Lift Station. This condition assessment will identify areas of needed improvements or repairs and will also become part of the project.

The Phase II proposed sewer alignment is anticipated to run primarily along the rear yards of the properties when feasible. This will allow for a relatively short lateral connection between the sewer mains and the buildings. Furthermore, it appears that most of the existing sewers are already located in the rear of the properties. Existing rear property Right-Of-Way (ROW) in this area, in the form of unpaved alleys and existing utility corridors, is currently public owned. In many cases this would eliminate the necessity of acquiring easements. This alignment will also reduce pavement disturbance and impact to roadways. Although rear property alignment is preferable, it will also present challenges in the form of established

vegetation and trees as well as appurtenances like sheds, patios and fences. See Figure 3 for a typical proposed rear property alignment and lateral connection.

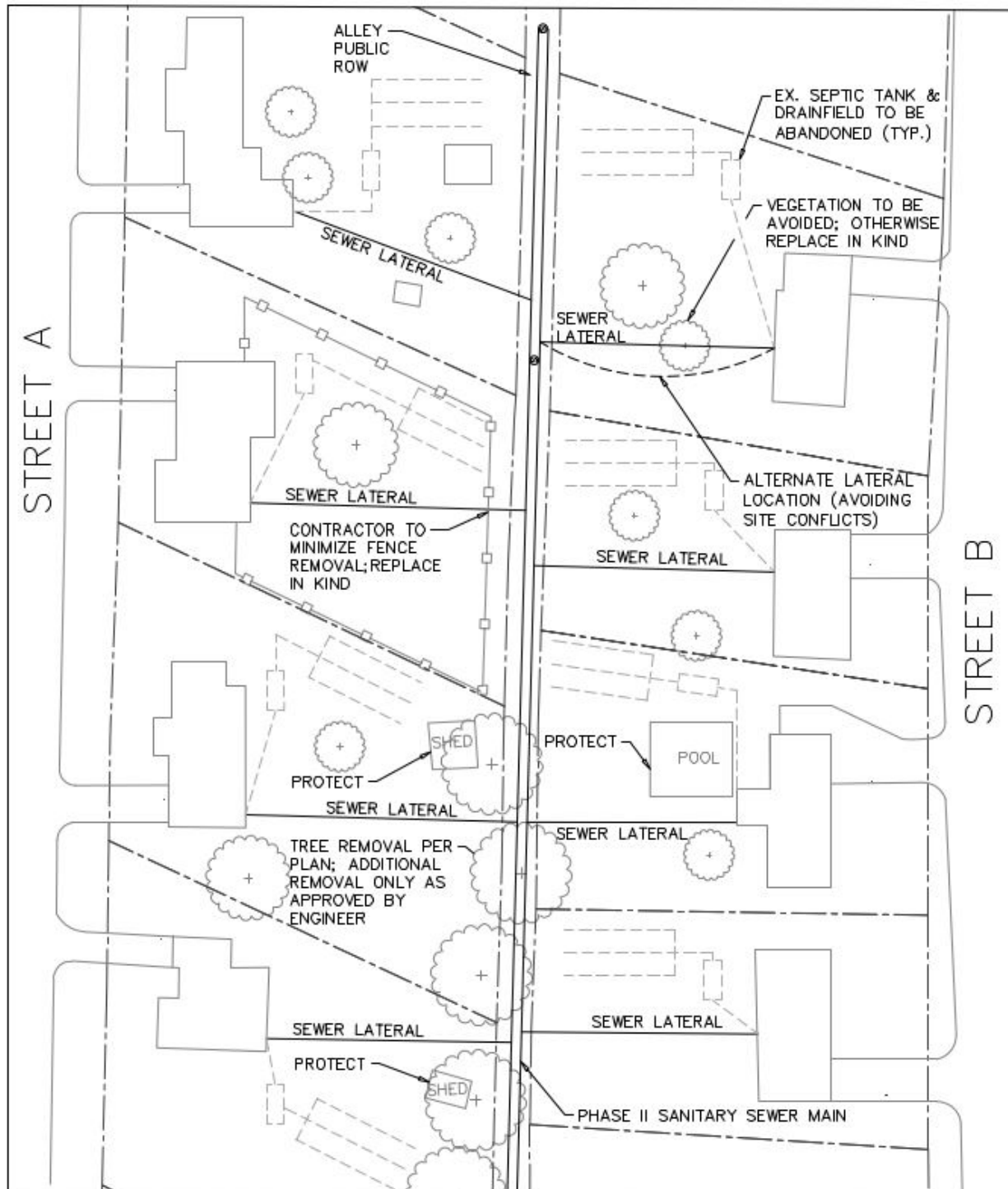


FIGURE 3 – TYPICAL PROPOSED REAR PROPERTY ALIGNMENT AND LATERAL CONNECTION

To process the additional flow from Phase II, the Devola lift station may require upgrades to increase its capacity. This will be verified after the amount of additional flow being added to the sewer system is

determined. Any necessary improvements to the existing lift station will be included as part of the project construction.

The Marietta Wastewater Treatment Plant was designed and constructed by the City of Marietta to include the anticipated flow from the Devola Service area, and the plant is currently treating the effluent from Phase I. Current dry weather treatment capacity is roughly 4 million gallons per day (MGD), with a wet weather peak design flow of 11 MGD. The actual current dry weather flow to the plant is 2.7 MGD. No additional upgrades to the Marietta Wastewater Treatment Plant are anticipated due to this project, as there is sufficient dry and wet weather capacity to handle the additional flows.

Once the proposed sewer system, along with necessary existing network and lift station upgrades, are placed in service, individual properties will be connected to the main system. After connections are established, existing individual septic systems will be disconnected and properly abandoned.

Proposed Approach

This project will be performed in calculated stages and set milestones. This includes phases for Design, Easement/ROW Acquisition, Funding, Bidding, Construction and Final Acceptance. Subsequent sections of this plan will review the Cost Estimates, Funding, and the Project Schedule.

The design of the Phase II sewer improvements will be broken into two major sections— preliminary and final design. The preliminary design phase will include an assessment of the existing facility and recommendations for improvements for the Phase I network and the existing Devola Lift Station, a preliminary alignment, as well as coordination with the affected property owners. The property owners will be engaged and their input into the design will help create a more successful result. They could provide existing individual facility locations as well as input into alignment routes. The topographic survey will also commence during the preliminary design phase. By the end of the first design phase, the actual number of connections within the OEPA Service Area will be finalized. Client deliverables will include a preferred alignment, key existing infrastructure repairs or upgrades, and an opinion of probable construction cost.

The second part of the design phase will further refine the plans by incorporating client, agency, and property owner comments. This final design will deliver fully prepared contract documents including plans, technical specifications, opinion of probable construction cost, and bidding instructions. By then, easement and ROW acquisition will be substantially complete. Proper permits will be applied for, including but not limited to a PTI.

Once the ROW has been acquired and all necessary permits have been obtained, the project will be bid, a responsible low bidder will be awarded the project, and construction will commence. As described earlier, the main sewer network installation and existing infrastructure repairs or upgrades can be completed concurrently. However, this work will need to be completed and tested before lateral connections and individual septic system abandonment can occur. However, once construction is completed, final acceptance by the agencies, including OEPA, and compliance with ORC Chapter 6111 can be realized.

Design Alternatives

Four different alternatives were considered for this project –

- 1) A mostly gravity system connecting to the existing Marietta Wastewater Treatment Plant in which the individual property owners are responsible for connecting their laterals to the main system.
- 2) A similar gravity system in which the County is responsible for connecting individual laterals to the system.
- 3) A pressurized system connecting to the existing Marietta plant in which the individual property owners are responsible for connecting their laterals to the main system.
- 4) A similar pressurized system in which the County is responsible for connecting individual laterals to the system.

Below is a summary of each alternative, comparing the merits of each and the potential challenges which would be involved.

Alternative 1

Alternative 1 involves the design and construction of a gravity sanitary sewer system, which would connect to the existing Phase I system, then downstream to the existing Devola Lift Station, and finally be transported to the Marietta Wastewater Treatment Plant. A gravity system for this project would require PVC sewer main pipe in diameters ranging from 8" to 10"; it would necessitate potentially deep excavations, a new lift station, or a lengthy deep boring to maintain a positive slope. Such excavations, typically 10-12 feet deep, would have a heavy impact on public and private amenities. This would include street crossings, trees and landscaping, and rear yard amenities such as sheds, fences and patios.

The construction of a new lift station would also be required to convey some of the flow, and would add a significant upfront cost to the project, as well as maintenance and operation costs. This alternative will also require the property owners to comply with the Sewer Authorities to connect their lateral to the main and to properly abandon their existing individual waste water treatment facility. Property owners will have some flexibility with the location of the lateral, within the bury depth and slope constraints imposed by a gravity system.

Alternative 2

Alternative 2 involves the design and construction of the same gravity sanitary sewer system as described in Alternative 1, except that the contract would include connecting each sewer lateral to the main and abandoning the existing septic systems. The Sewer Authority will require the property owners to allow access to their existing system to make the improvements. This method ensures that the entire gravity system will work as designed, as the general contractor will be responsible for installing all the specified components of the system and ensuring adequate pipe slopes. Therefore, this option minimizes the risk of improper installation by individual property owners. Proper abandonment of the individual septic facilities will be performed once the lateral connections are completed.

Alternative 3

Alternative 3 involves the design and construction of a pressurized sewer system connecting to the gravity portion of Phase I. The flow will then proceed in similar fashion to the Devola Lift Station and then onto the Marietta Wastewater Treatment Plant. Individual grinder pump units would be installed at each property to lift the sewage and pressurize the system, eliminating the need for a major lift station. This

system would also reduce the amount of excavation needed. It will require a single excavation on each property to connect the lateral to the grinder pump unit; the lateral is then constructed in a shallow, narrow trench below the frost line. The laterals can be installed with turns to avoid many rear yard amenities and do not need to maintain a specific slope. The system main pipes would be PVC and range from 2" to 6" in size, while the laterals would be 1-1/4". This shallow excavation would reduce the amount of land that is disturbed, resulting in lower costs for excavation and restoration. The property owner would be responsible for supplying power to the grinder pump, annual maintenance, and replacing the pumps at the end of their useful lifespan.

As in Alternative 1, the Sewer Authority will require the property owners to comply with the order to individually install the specified grinder pump unit, connect their lateral to the main, and properly abandon their existing individual waste water treatment facility. In this case, property owners would have more flexibility with the location of the lateral, as they would not face the slope constraints imposed by a gravity system.

Alternative 4

Alternative 4 involves the design and construction of the same pressurized sanitary sewer system as described in Alternative 3, except that the contract would include connecting each sewer lateral to the main and abandoning the existing septic systems. The Sewer Authority will require the property owners to both allow access to their existing system to make the improvements and provide a single phase electrical connection for the grinder pump unit. This method ensures that the entire pressurized system will work as designed, as the general contractor will be responsible for installing all the specified components of the system. Therefore, this option minimizes the risk of improper component selection or installation by individual property owners. Proper abandonment of the individual septic facilities will be performed once the lateral connections are completed.

Life Cycle Cost Analysis

To evaluate the alternatives, a Life Cycle Cost Analysis was performed for each one. The purpose of a Life Cycle Cost Analysis is to estimate the overall costs of project alternatives and to select the design that ensures that the facility will provide the lowest overall cost of ownership consistent with its quality and function. For the purposes of this sewer project, the analysis included the design of the system, property acquisition, initial construction costs, and operation and maintenance over its functional design life, which was taken as a 20-year period. All the costs were adjusted and totaled to a present-day value.

For Alternative 1, costs associated with the sanitary sewer mains, manholes, property service lateral stub-outs, a lift station, existing facility repairs and upgrades, and contingencies (such as erosion control, traffic maintenance, and restoration) were considered. The total capital construction present worth was found to be \$11,720,720; the unit cost was \$20,818 per connection. In addition, the total present worth of operation and maintenance for the gravity system was estimated at \$2,554,000 over a 20-year period, resulting in a total net present value of \$14,274,720.

For Alternative 2, costs associated with the sanitary sewer mains, manholes, property service laterals stub-outs, a lift station, existing facility repairs and upgrades, property service laterals and connections, abandonment of existing septic systems, and contingencies were considered. The total capital construction present worth was found to be \$17,395,760; the unit cost was \$30,898 per connection. In addition, the total present worth of operation and maintenance for the gravity system was estimated at \$2,554,000 over a 20-year period, resulting in a total net present value of \$19,949,760.

For Alternative 3, the costs of the sanitary sewer pressure main pipes, air release valves and cleanouts, property service connection tees, existing facility repairs and upgrades, and contingencies were considered. The total capital construction present worth was found to be \$5,418,800; the unit cost was \$9,625 per connection. In addition, the total present worth of operation and maintenance for the gravity system was estimated at \$1,642,000 over a 20-year period, resulting in a total net present value of \$7,060,800.

For Alternative 4, the costs of the sanitary sewer pressure main pipes, air release valves and cleanouts, property service connections, grinder pump units and service laterals, abandonment of existing septic systems, existing facility repairs and upgrades, and contingencies were considered. The total capital construction present worth was found to be \$12,461,900; the unit cost was \$22,135 per connection. In addition, the total present worth of operation and maintenance for the gravity system was estimated at \$1,642,000 over a 20-year period, resulting in a total net present value of \$14,103,900.

Recommended Alternative (Preliminary)

Based on the preliminary input, the gravity pipe network described in Alternative 1 is to be the recommended solution for the project. Even though this alternative is more expensive than the pressurized sanitary sewer, at this point of the design process, it's the more attractive alternative to the public and the county officials. At \$11.75M and long-term operation and maintenance costs of \$106,700 per year. This solution is for installing only the public portion of the sewer system at a cost of \$20,818 per connection. Individual property owners can expect to pay an additional \$10,000 or more to connect their laterals and abandon their existing septic systems. See the Cost Estimate section for a more in-depth breakdown of the costs associated with all the proposed alternatives. The project funding will also utilize the costs derived from this alternative.

Once the design process is further along and the two public involvement meetings have been held in January and April of 2020, the proposed design might change to address input from the public and unforeseen challenges.

Preliminary Cost Estimate

Predicting the construction cost estimate is always very challenging, particularly at this early stage of the project. The cost estimates prepared here by the engineer represent their best judgment as a design professional familiar with the construction industry. It is recognized, however, that the engineer has no control over the cost of labor, material, equipment, contractor method of determining bid prices, or market conditions. Accordingly, the engineer cannot and does not guarantee that bids will not vary from the construction cost estimate prepared.

The capital construction cost estimate for all four alternatives is shown below, followed by a Net Present Value (NPV) Table. The major cost drivers are listed and a 20% contingency has been added to the total for unaccounted expenses and overruns. A project cost has been identified and was also added to account for the survey, engineering design, existing condition assessment, permitting, easement acquisition cost and fees, and construction administration of the project.

Alternative 1

Gravity Sewer System (Without Laterals)

System Component	Unit	Quantity	Unit Cost	Total Cost
8-inch Gravity Pipe (typical 0 to 10 ft bury)	lf	50,858	\$90.00	\$4,577,220.00
10-inch Gravity Pipe	lf	4,034	\$105.00	\$423,570.00
4-foot Standard Manhole	ea	220	\$4,200.00	\$924,000.00
Property Service Lateral Stub (Tee)	ea	563	\$25.00	\$14,075.00
Sub Area Lift Station (Capacity <0.25 MGD)	ea	1	\$287,200.00	\$287,200.00
Erosion Control, Traffic Maintenance, Restoration	ls	1	\$750,119.00	\$750,119.00
Upgrades to Existing Devola Pump Station	ls	1	\$125,000.00	\$125,000.00
Repairs and Upgrades to Existing Phase 1 Network	ls	1	\$250,000.00	\$250,000.00
Sub-Total				\$7,351,184.00
Contingency (20%)				\$1,470,237.00
Project Costs				\$2,899,300.00
Total Capital Construction Cost				\$11,720,720.00

Gravity Sewer System w/o Laterals

Total Capital Construction Present Worth (PW)	\$11,720,720
Total Operation & Maintenance PW (20 years)	\$2,554,000
Net Present Value (NPV)	\$14,274,720
Annual O&M Cost (Year 1)	\$106,689

Alternative 2

Gravity Sewer System

System Component	Unit	Quantity	Unit Cost	Total Cost
8-inch Gravity Pipe (typical 0 to 10 ft bury)	lf	50,858	\$90.00	\$4,577,220.00
10-inch Gravity Pipe	lf	4,034	\$105.00	\$423,570.00
4-foot Standard Manhole	ea	220	\$4,200.00	\$924,000.00
Property Service Lateral	lf	33,780	\$75.00	\$2,533,500.00
Property Service Lateral Connection	ea	563	\$2,500.00	\$1,407,500.00
Sub Area Lift Station (Capacity <0.25 MGD)	ea	1	\$287,200.00	\$287,200.00
Erosion Control, Traffic Maintenance, Restoration	ls	1	\$1,130,144.00	\$1,130,144.00
Upgrades to Existing Devola Pump Station	ls	1	\$125,000.00	\$125,000.00
Abandon Individual Existing Septic Facilities	ea	563	\$750.00	\$422,250.00
Repairs and Upgrades to Existing Phase 1 Network	ls	1	\$250,000.00	\$250,000.00
Sub-Total				\$12,080,384.00
Contingency (20%)				\$2,416,077.00
Project Costs				\$2,899,300.00
Total Capital Construction Cost				\$17,395,761.00

Gravity Sewer System

Total Capital Construction Present Worth (PW)	\$17,395,761
Total Operation & Maintenance PW (20 years)	\$2,554,000
Net Present Value (NPV)	\$19,949,761
Annual O&M Cost (Year 1)	\$149,105

Alternative 3

Pressure Sewer System (Without Laterals)

System Component	Unit	Quantity	Unit Cost	Total Cost
2-inch Pressure Pipe (typical frost depth bury)	lf	16,468	\$30.00	\$494,040.00
3-inch Pressure Pipe (typical frost depth bury)	lf	21,408	\$32.00	\$685,056.00
4-inch Pressure Pipe (typical frost depth bury)	lf	13,174	\$35.00	\$461,090.00
6-inch Pressure Pipe (typical frost depth bury)	lf	3,842	\$45.00	\$172,890.00
Air Release Valve	ea	18	\$1,800.00	\$32,400.00
Clean-Outs (both in-line and terminal)	ea	55	\$1,250.00	\$68,750.00
Property Service Lateral Connection (w/cap)	ea	563	\$350.00	\$197,050.00
Erosion Control, Traffic Maintenance, Restoration	ls	1	\$271,961.40	\$271,961.40
Upgrades to Existing Devola Pump Station	ea	1	\$125,000.00	\$125,000.00
Repairs and Upgrades to Existing Phase 1 Network	ls	1	\$250,000.00	\$250,000.00
Sub-Total				\$2,758,237
Contingency (20%)				\$551,647
Project Costs				\$2,108,900
Total Capital Construction Cost				\$5,418,785

Pressure Sewer System w/o Laterals

Total Capital Construction Present Worth (PW)	\$5,418,785
Total Operation & Maintenance PW (20 years)	\$1,642,000
Net Present Value (NPV)	\$7,060,785
Annual O&M Cost (Year 1)	\$52,772

Alternative 4

Pressure Sewer System

System Component	Unit	Quantity	Unit Cost	Total Cost
2-inch Pressure Pipe (typical frost depth bury)	lf	16,468	\$30.00	\$494,040.00
3-inch Pressure Pipe (typical frost depth bury)	lf	21,408	\$32.00	\$685,056.00
4-inch Pressure Pipe (typical frost depth bury)	lf	13,174	\$35.00	\$461,090.00
6-inch Pressure Pipe (typical frost depth bury)	lf	3,842	\$45.00	\$172,890.00
Air Release Valve	ea	18	\$1,800.00	\$32,400.00
Clean-Outs (both in-line and terminal)	ea	55	\$1,250.00	\$68,750.00
Property Service Lateral	lf	33,780	\$25.00	\$844,500.00
Property Service Lateral Connection	ea	563	\$300.00	\$168,900.00
Simplex Grinder Pump Unit	ea	563	\$8,000.00	\$4,504,000.00
Erosion Control, Traffic Maintenance, Restoration	ls	1	\$398,636.40	\$398,636.40
Upgrades to Existing Devola Pump Station	ea	1	\$125,000.00	\$125,000.00
Abandon Individual Existing Septic Facilities	ea	563	\$750.00	\$422,250.00
Repairs and Upgrades to Existing Phase 1 Network	ls	1	\$250,000.00	\$250,000.00
Sub-Total				\$8,627,512
Contingency (20%)				\$1,725,502
Project Costs				\$2,108,900
Total Capital Construction Cost				\$12,461,915

Pressure Sewer System

Total Capital Construction Present Worth (PW)	\$12,461,915
Total Operation & Maintenance PW (20 years)	\$1,642,000
Net Present Value (NPV)	\$14,103,915
Annual O&M Cost (Year 1)	\$105,413

Additionally, the estimated annual treatment and operating costs for the Marietta Wastewater Treatment Facility associated with the increased effluent from the Devola area are summarized below.

Estimated Annual Treatment Costs

INPUTS		CALCULATION
TOTAL CUSTOMERS		563
GALLONS PER DAY		150
TOTAL GALLONS PER DAY		84,450
TOTAL DAYS		365
TOTAL ANNUAL GALLONS		30,824,250
CONVERT GALLONS TO 100 CUBIC FOOT (CF.)	$30.1\text{M} / 7.48 / 100$	41,206
MARIETTA TREATMENT COST = \$6.19 / 100 CF.		\$6.19
TOTAL ANNUAL TREATMENT		\$255,066

Annual Operating Cost

INPUTS	
MARIETTA CITY SEWER PLANT (40 YR. DEBT)	\$73,125
OPERATING, MAINTENANCE, AND REPAIR (OMR)	\$30,000
ESTIMATED TREATMENT COSTS	\$255,066

Project Financing Plan

Building the Devola sewer system requires planning, engineering, and construction phases, which will take a few years to complete. As with most infrastructure projects, the public has an option to pay all the costs with cash up front, or to finance all (or a portion) of the costs over time using loans. The preliminary finance plan for the Devola Sewer project includes both up-front cash and long-term financing. The project financing plan has two distinct goals:

- Take maximum advantage of public grant programs to reduce the cost to Washington County residents.
- Leverage public loan programs, thereby spreading out the project costs and reducing the annual/monthly financial burden to Devola residents.

This section of the Devola General Plan outlines the overall project cost, sources of project financing, and pro forma summary of project financial plan.

Sources of Project Financing

Washington County considered a broad range of grant and loan programs to offset the Devola Sewer Project costs, aided by the staff from the Ohio Rural Community Assistance Partnership. Below is a summary of the potential funding sources available, along with the amount expected from each source.

Grant Programs

- Ohio Public Works Commission (OPWC) Grant: Eligible applicants are counties, cities, villages, townships, and water and sanitary districts (ORC 6119 or 6117). Eligible projects are for improvements to roads, bridges, culverts, water supply systems, wastewater systems, storm water collection systems, and solid waste disposal facilities. Based on the funding allocation to Southeast Ohio, the maximum available for this grant is \$400,000.
- US Army Corps of Engineers Grant: Water Resources Development Act of 1999 (Public Law 106-53), Section 594: This law is in place to help alleviate some of the environmental infrastructure problems throughout the state. The law provides a program of federal assistance through the U.S. Army Corps of Engineers (USACE). Specifically, the law states that assistance may be provided for design and/or construction of publicly owned water related environmental infrastructure and resource protection and development projects. The maximum amount available for this grant is \$1,000,000.
- Appalachian Regional Commission (ARC) Grant: ARC provides funds for basic infrastructure services, including water and sewer facilities, that enhance economic development opportunities or address serious health issues for residential customers. The maximum amount available for this grant is \$250,000.

Loan Programs

- Ohio Public Works Commission Loan: In addition to OPWC grants, loans are available for the same eligible applicants and projects, with a 30-year, 0% interest term. Maximum available for this loan is \$400,000.
- Ohio EPA Loan: Municipal wastewater treatment improvements and non-point pollution control projects also are eligible for financing under the Ohio Water Pollution Control Loan Fund. This state revolving fund, jointly administered by the OWDA and Ohio EPA, was established in 1989 to

replace the Construction Grants Program. Construction loans are the most flexible available, at a term of 45 years and current market rate of 1.38%. The plan is to finance the balance of the project with this Ohio EPA program.

Plan of Finance

Based on a total project cost of \$11.75 million, the table below provides a summary of grant financing used to reduce the overall cost burden of the Devola project, which leaves a total of \$10.10 million to be financed with loans. The second half of the table shows the debt service for the OPWC and Ohio EPA loans, which totals \$304,139 annually.

Grant and Loan Financing Breakdown

TOTAL PROJECT COST	\$ 11,750,000			
CASH UP FRONT				
USDA - RD GRANT	\$	-		
OPWC - GRANT	\$	400,000		
US ARMY CORPS OF ENGINEERS GRANT	\$	1,000,000		
ARC GRANT	\$	250,000		
TOTAL TO BE FINANCED	\$ 10,100,000			
LOAN FINANCING	Amount	Rate	Term (Yrs.)	Annual Payments
OHIO EPA LOAN	\$ 9,700,000	1.38%	45	\$ 290,806
USDA - RD LOAN	\$ -	4.25%	30	\$ -
OPWC LOAN	\$ 400,000	0.00%	30	\$ 13,333
TOTAL ANNUAL DEBT SERVICE				\$ 304,139

Total annual costs include debt service, Operations, Maintenance and Repair (OMR), 40-year debt retirement for the Marietta City Sewer Plant, and estimated treatment costs for 30.8 million gallons of annual sewer flow. These are summarized in the table below.

Annual Debt Service and Treatment Costs

CATEGORY	ANNUAL COST
DEBT SERVICE	\$ 304,139
OPERATIONS, MAINTENANCE, AND REPAIR (OMR)	\$ 30,000
MARIETTA CITY SEWER COST (40 YR DEBT RETIREMENT)	\$ 73,125
TREATMENT COST (30.8M GALLONS)	\$ 255,066
TOTAL DEBT, OMR, AND TREATMENT COSTS	\$ 662,330

Washington County has a sewer charge of \$70/month pay for existing sewage treatment costs. The Devola sewer project, spread over 1623 total customers in the Devola Service Area, increases costs by \$34.01 per month, resulting in a total sewer bill of \$104.01 for Devola residents.

Calculation of New Washington County Sewer Rate

DEVOLA SEWER: ADDITIONAL MONTHLY COST PER CUSTOMER

DEVOLA PROJECT COSTS	
TOTAL DEBT, OMR, AND TREATMENT COSTS	\$ 662,330
MONTHLY COSTS (ANNUAL COST/12)	\$ 55,194
MONTHLY COST PER CUSTOMER (MONTHLY COST/1623)	\$ 34.01
WASHINGTON COUNTY - CURRENT MONTHLY SEWER RATE	\$ 70.00
NEW DEVOLA SERVICE AREA MONTHLY SEWER RATE	\$ 104.01

Project Schedule

The Ohio Attorney General has indicated that the Project is to be completed within two years of approval of this General Plan. Due to the current scope of the project, the following schedule is proposed to achieve compliance with the EPA orders within a three-year time frame. A separate request to the Director of the OEPA for the same schedule has also been issued under a separate cover.

The process of completing this project involves many steps, which are outlined in the table below. It will start with a field survey to pick up the topography, locate the underground utilities, and provide ground elevations. The preliminary design will also be initiated while the field survey is occurring; this process will include both the client's and the property owners' input. Once the mapping has been completed by mid-January, the design work, along with the public involvement, will be well underway. Two public involvement meetings are planned in January and April 2020; these meetings are meant to educate the public, to build support for the project, and to solicit more information from the property owners about their existing systems and the proposed alternatives. The preliminary plan (30%) submittal is currently scheduled to be submitted to the client for review in the 3rd week of April 2020 and to be finalized by July 2020. After it is finalized, the ROW and easement design and plan development will start; the existing system will be inspected and analyzed at the same time. During this period, the design and plans will be further advanced and finalized for a submittal to the client by mid-December 2020 for review and approval. The Permit to Install (PTI) application is anticipated to be submitted by December 31, 2020. Once final plans are approved, the acquisition of the ROW and easements will be finalized, the relocation of all the underground utilities will begin, and the bid plans will be processed and advertised. The bid opening is anticipated to happen at the beginning of March 2021, and the contractor's notice to proceed is expected on July 1st, 2021. All construction except for the lateral connections can be completed by November 30, 2022, and Compliance with ORC chapter 6111 can be attained by December 30, 2022. Afterwards, the County can give the mandate for property owners to connect to the sewer network.

Project Schedule	
Milestone	Completion Date
Design Notice to Proceed (WSP)	October 16, 2019
General Plan Submitted to OEPA	November 26, 2019
Aerial Mapping completed	January 10, 2020
1 st Public Meeting	January 14, 2020
2 nd Public Meeting	April 14, 2020
Submit Preliminary Plans (30%) to the Washington County Engineer's Office for review and approval	April 21, 2020
Preliminary Plans Completed (30%)	July 1, 2020
Begin R/W and Easement design	July 1, 2020

Finalize R/W and Easement Plans	October 30, 2020
Final Design Submittal	December 15, 2020
Begin R/W and Easement Acquisition	December 15, 2020
Permit to Install Application Submittal	December 31, 2020
Finish R/W and Easement Acquisition	March 1, 2021
Finish all Utility Relocations	March 29, 2021
Bid Opening	May 31, 2021
Contractor Selection	June 7, 2021
Notice to proceed with Construction	July 1, 2021
Completion of Construction of the sewer network (not including lateral connections to the homes)	November 30, 2022
Attaining Compliance with ORC Chapter 6111	December 30, 2022
Washington County Commissioners order the Home Owners to connect to the new sanitary system.	January 2, 2023