



Areawide Water Quality Management Plan

2025 Update

INTRODUCTION

The Areawide Water Quality Management Plan, or 208 Plan, from Section 208 of the Clean Water Act, is a TMACOG policy document created through collaboration of staff and members. The plan outlines our region's consensus for managing wastewater and associated infrastructure as well as best management practices for urban stormwater, agricultural runoff, and septic system management. TMACOG collaborates with the designated management agencies (DMAs) to maintain the 48 facility planning areas (FPAs) in the 208 Plan. Through sewage and wastewater management, regional governments sustain an efficient and cost-effective system that provides clean water and protects public health. While conducting annual updates of facility planning areas, TMACOG staff continue to work toward a comprehensive update of the plan, to be completed by 2027.

Purpose of the 208 Plan

- Requirement of the Clean Water Act (Section 208)
- Outline the region's long-term plan for managing wastewater and associated infrastructure
 - Identifies wastewater treatment work necessary to meet anticipated municipal and industrial wastewater treatment needs for a 20-year period
 - Establishes priorities for capital improvements

Chapters of the 208 Plan and Summary of Substantive Changes

- Changes for 2025 Update
 - Chapter 1 - AREAWIDE OVERVIEW – **No Changes**
 - Chapter 2 - DESCRIPTION OF PLANNING AREA – **No Changes**
 - Chapter 3 - TMACOG WATER QUALITY POLICIES – **No Changes**
 - Chapter 4 - FEDERAL AND STATE LAWS AND TMACOG POSITION STATEMENTS – **No Changes. Chapter to be archived following 208 Comprehensive Update**
 - Chapter 5 - PUBLIC WASTEWATER TREATMENT – **FPA Updates**
 - Chapter 6 - ON-SITE SEWAGE TREATMENT – **No Changes**
 - Chapter 7 - AGRICULTURE, DRAINAGE, AND HABITAT – **No Changes**
 - Chapter 8 - STORMWATER MANAGEMENT – **No Changes**
 - Chapter 9 – PUBLIC DRINKING WATER – **New Chapter**

Chapter 5: Public Wastewater Treatment – Individual Facility Planning Areas (FPAs)

- This year, FPAs within Ottawa and Wood counties were updated. Some of the major updates made were adding an introduction paragraph to each of the FPA updates, updating sewer and critical sewage area boundaries, updating existing text, and updating the capital improvement schedules. Changes listed below for each county are the updates received from the designated management agencies in charge of their respective facility planning areas.

Summary of Updates for Facility Planning Areas in Ottawa County:

- Ottawa County plans to explore the construction of a new wastewater treatment plant to serve Bay Township and western Portage Township. The project is scheduled to begin in 2027, with completion anticipated by 2033, and is currently budgeted at \$30 million.
- Four projects have been completed in the Catawba Island FPA while one project has been added to the capital improvement plan. This is an upgrade of P.S. #450 and is scheduled for 2026 while five other projects are scheduled for the future.
- Allen/Jerusalem Township sanitary sewer system is scheduled to start future service to the Curtice/Williston FPA. This project is expected to cost \$20 million and would be led by Lucas County and Ottawa County DMAs.
- Danbury Township FPA has added a wastewater treatment alum feed improvement project to its capital improvement plan, with completion expected in 2026. The existing WWTP improvement project is scheduled for completion in 2028. Additionally, five other sanitary sewer extension projects, including Church Rd Phase III, State Route 163 Extension, Memorial Shoreway (Johnson's Island), Lightner Road (African Lion Safari), and Port Clinton Eastern Road—are planned for future implementation.
- The Village of Elmore has expanded its sewer area west of State Route 15, south to the Ohio Turnpike, and extending to the Portage River. The Village is also planning to complete an I&I sewer line rehabilitation project by 2029, with an estimated cost of \$237,190. As part of this effort, they are in the planning stages of finishing smoke testing and coordinating with a contractor for sewer televising.
- The Genoa FPA has two future projects planned. The Village is conducting a study to evaluate expansion options for its wastewater treatment plant and is planning to begin the installation of a new aeration system in 2027. The boundaries for the sewer areas were also modified. The sewer area boundaries at the northern part have been corrected to align with the current system. Also, there have been extensions at the south and western part of the area as well as at the eastern side.
- The Belham Road sewer extension project in Salem Township located in the Oak Harbor FPA is planned for 2036.
- One project within Port Clinton FPA is scheduled to be undertaken in 2034 with a capital improvement budget of over \$3.8 million.
- For Put-in-Bay FPA, five new projects have been added to the capital improvement schedule. One of these projects is scheduled to be completed in 2025, three are scheduled for 2026, 2027, and 2028 respectively. One project is scheduled for the future.

Summary of Update for Facility Planning Areas in Wood County:

- The Bloomdale sanitary sewer I&I removal project that was scheduled for 2026 has been moved to the future. This project is with Bloomdale - Bairdstown FPA and will be managed by NWWSD.

- The Huffman/Kramar general plan for sewers within the Bowling Green FPA, which was scheduled for 2025 has been moved to the future with an increase in the capital improvement budget to \$6 million. Part of the Dunbridge area sewer project is scheduled to be completed this year (2025) and others scheduled for the future.
- Custar-Milton Center FPA has scheduled to complete a lagoon sludge removal project in 2028. This project needs \$25,000 in capital improvement funds to complete.
- In the Cygnet/Jerry city FPA, the Cygnet pump station project has been completed in 2021. A new project, Hammansburg Sanitary Sewer System, is scheduled for the future and is estimated to cost about \$2 million.
- In the Hoytville FPA, a new project has been scheduled for 2029. This project is estimated to cost \$200,000 and will be managed by NWWSD.
- Many changes have been made to the capital improvement plan for the Perrysburg FPA. The State Route 25 Sewer from King Road to Five Point Road projects, that were initially scheduled for 2025 and 2026, have been moved to the future. The total capital improvement budget for sewer rehabilitation has been increased to \$8 million. The capital improvement plan for the other remaining projects has been changed. Most of the projects that were scheduled for the period of 2016 to 2025 have been completed.
- The Village of Tontogany has estimated that it will cost \$600,000 to improve its wastewater treatment plant. The project is estimated to cost \$100,000 in 2025 and the remaining \$500,000 is for the future.
- Weston WWTP improvements project is scheduled to start in 2026 to 2028 with total capital improvement budget of \$2.2 million. A sanitary sewer and lateral rehabilitation project is also scheduled for 2027 in Weston FPA.
- The critical sewage area boundary for the Sugar Ridge Road and Dunbridge Road areas within the Bowling Green FPA has been changed to sewer area.

Chapter 9: Public Drinking Water – New Chapter

- A Public Drinking Water chapter was drafted and will be added to the 208 plan. It provides a comprehensive overview of the public drinking water systems in TMACOG's 208 planning area. It includes content such as drinking water regulations, infrastructure, and emerging challenges. It outlines the structure and function of drinking water facilities, including 19 treatment plants serving nearly 600,000 people across northwest Ohio and southeast Michigan. The chapter highlights the importance of safe and reliable drinking water, the impact of contaminants such as lead and PFAS, and threats from nutrient pollution and harmful algal blooms. It also emphasizes the increasing vulnerability of water systems due to severe weather events such as heat, drought, winter weather, and flooding. The chapter concludes with policy recommendations to enhance system resilience, ensure regulatory compliance, and protect public health through investments in infrastructure, emergency preparedness, and regional coordination.



Toledo Metropolitan Area Council of Governments

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Vision Statement

TMACOG will be the governmental partner of
choice to coordinate regional assets,
opportunities, and challenges.

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OTTAWA COUNTY FACILITY PLANNING AREAS

BAY TOWNSHIP FACILITY PLANNING AREA

The Bay Township Facility Planning Area (FPA) is a designated region within the Bay Township area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Bay Township (Figure 5-10). Bay Township FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Ottawa County which is represented by Designated Management Agencies. The responsibility of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Ottawa County:** Will plan and construct facilities; and own and operate them if, and when built.

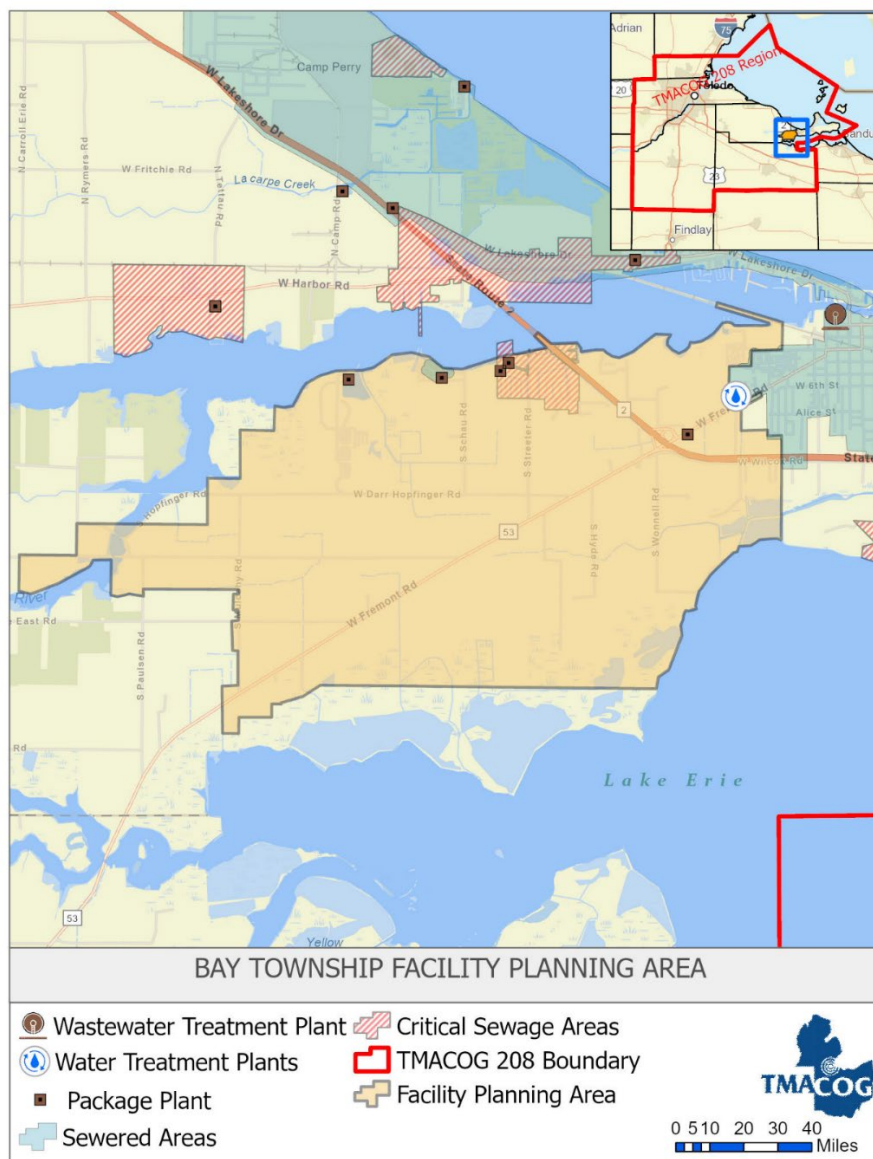


Figure 5-10: Bay Township Facility Planning Area

Table 5-26: Bay Township Area Population

Area	Population
Bay Township, entire jurisdiction *	1,142
Total	1,142

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

There are no municipal or county sewerage facilities in this area. There are several package plants located within the FPA, these are listed in Table 5-27.

Table 5-27: Package Plants in the Bay Township Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity (gpd)
Erie Islands Resort & Marina ^A	OT-135	Private	1989	2PS00008	110,000
Hy-Miler BP Station ^A	OT-06		1969		1,500
Johnny's Resort/Recreational Camp ^A	OT-137	Private	1990	2PR00150	12,500
Lagoon Saloon ^A	OT-147	Private*			4,200
Portage Cove MHP ^A	OT-140	Private*	1985		8,000

^AStatus is active

*Facility type is assumed

Note: Data are based on current available data as of April 2019

Issues

None at the present.

Future Needs

Public sanitary sewers may be needed to eliminate existing package plants and serve areas where development occurs. Ottawa County and Bay Township are discussing future potential service area [expansions](#).

[The Ottawa County Commissioners incentivize affordable housing. Bringing water and sewer to areas near employers can aid in the Commissioner's directives. Ottawa County plans to explore the possibility of constructing a new wastewater treatment facility to serve Bay Township and Western Portage Township. Because a general plan for water in Bay Township is already complete, a Bay Township general plan for wastewater facilities is planned for 2027.](#)

The capital improvement schedule for the Bay Township FPA is shown in Table 5-28.

Table 5-28: Bay Township FPA Capital Improvement Schedule

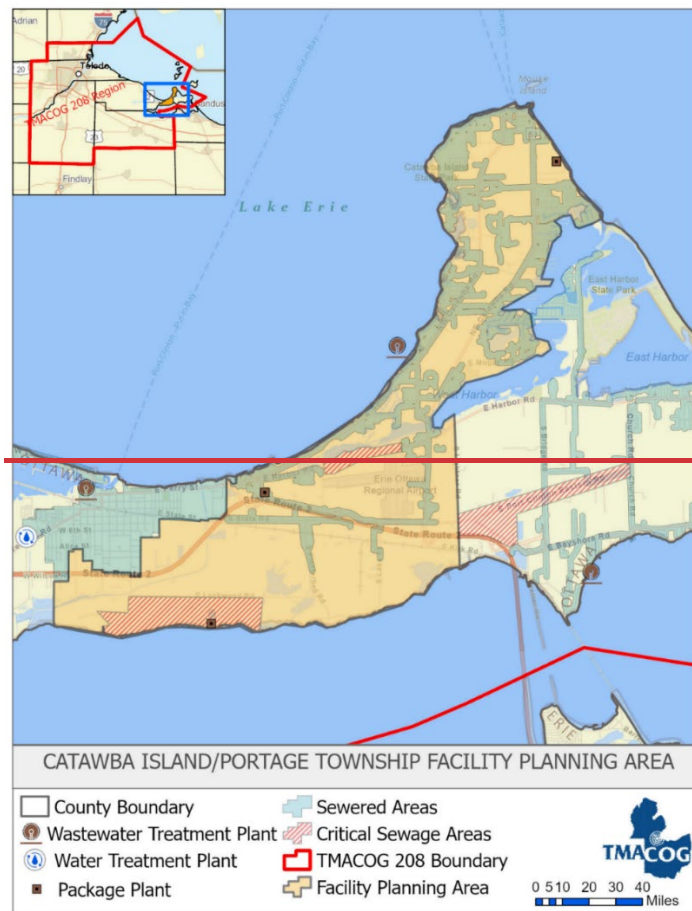
Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Bay Twp. Regional Wastewater Treatment Plant and Collection System	Ottawa County	\$30,000,000							Plan for 2033
		\$30,000,000							

CATAWBA ISLAND/PORTAGE TOWNSHIP FACILITY PLANNING AREA

The Catawba Island/Portage Township Facility Planning Area (FPA) is a designated region within the Catawba Island and Portage Township area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Catawba Island/Portage Township (Figure 5-11). Catawba Island/Portage Township FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Ottawa County which is represented by Designated Management Agencies. The responsibility of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Ottawa County:** Owns and operates the wastewater treatment plant and sanitary sewers.



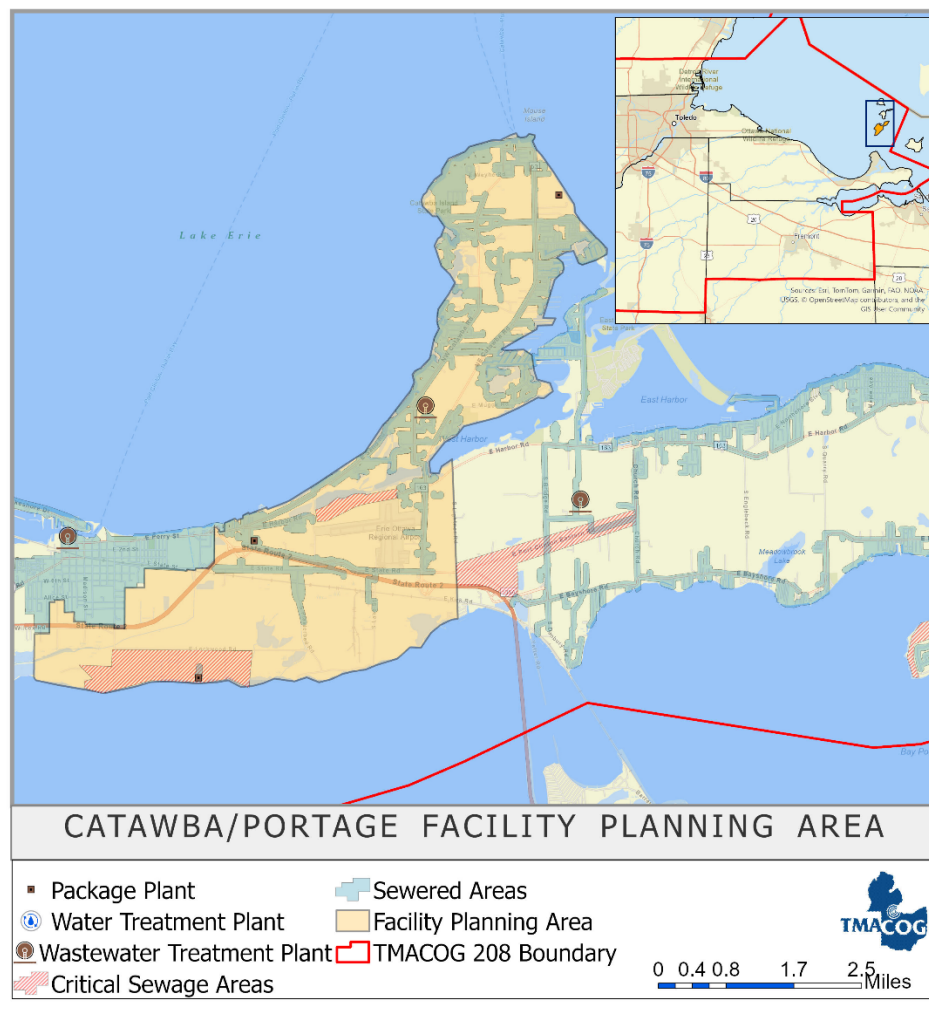


Figure 5-11: Catawba Island Facility Planning Area

Table 5-29: Catawba Island Area Population

Area	Population
Port Clinton, entire jurisdiction*	6,025
Catawba Island Township, entire jurisdiction	3,711
Portage Township, entire jurisdiction	1,558
Total	11,294

*only part of this jurisdiction is within the FPA boundary

Source: U. S. Census 2020 decennial census.

Present Facilities

The Catawba Island/Portage Township WWTP was built in 1991 with the region's last U.S. EPA Construction Grant. Prior to that time, the area was served by private septic systems and more than 50 package plants in Catawba Island Township alone. A 1984 survey found a third of the township's wells contaminated. This WWTP replaced the Catawba Island package plants and another 10 in Portage Township, greatly improving sewage treatment. The facility is an activated sludge plant with two batch reactor units. Because these units operate on a batch rather than continuous flow-through basis, they can accommodate widely varying flow rates. Final effluent goes through chlorination/dechlorination before discharge to Lake Erie. The plant has a summer average daily capacity of 1.34 mgd, and a winter

average daily capacity of 0.68 mgd. Ohio EPA data shows an average flow of 0.3722 mgd during the period of 2013-2017.

The Catawba Island/Portage Township system is also unique in the region for its collection system. Much of Catawba Island Township has very shallow bedrock. To reduce construction costs, a pressure sewer system was installed. Individual houses tap into the sewer with grinder pumps, which are owned and operated by the County. The southern part of the system, in Portage Township, is served by conventional gravity sewers. [Moore's Dock Road Sanitary Sewer Rehab/Replacement Project was completed in 2021 for \\$373,623.](#)

Package plants located in the FPA are listed in Table 5-30.

Table 5-30: Package Plants in the Catawba Island Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Bayshore Inn ^A	OT-116	Private	1987	2PR00164	8,300
Sandy Shores Mobile Home Park ^A	OT-40	Private	1984	2PR00257	12,500
Catawba Shores Mobile Home Park ^A	OT-20	Private*			

^AStatus is active

Note: Data are based on current available data as of April 2019

*Facility type is assumed

Issues

Portage and Catawba Island Townships in Ottawa County are especially popular areas for summer homes, boating, fishing, and other recreational use. These areas developed heavily without the benefit of public sewers. Failed septic systems and dozens of package plants contributed to severe problems with untreated sewage in ditches and streams. Construction of this wastewater plant eliminated many existing pollution problems and allowed further recreational development. Plant capacity is expected to be adequate for future needs.

Future Needs

- ~~In 2015, a sewer extension project was proposed to serve the remainder of SR 163 in Portage Township, east of Christy Chapel Road, a critical sewage area. The cost for the project is estimated at \$1,260,000 based on updates from the OCSED 5 Year Plan.~~
- ~~Additional sewer extensions are needed to serve areas not covered by the original construction or subsequent extensions. Beachfront housing on small lots, notably south of Lockwood Road in Sections 7, 8, and 9 of Portage Township, and replacement of the onsite sewage treatment facilities at Sorenson Products and other commercial facilities should be a priority.~~
- ~~Sanitary sewers should be installed in Portage Township south of Port Clinton, identified as a Critical Sewage~~
- Package plants and septic systems should not be permitted in areas that may be served by public sewers.
- [Sanitary sewer](#) ~~These and additional~~ infrastructure projects are listed in the Capital Improvement

Schedule in Table 5-31.

Table 5-31: Catawba Island FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Moore's Dock Road Sanitary Sewer Rehab/Replacement Project	Ottawa County								
P.S. #450 (SR 53) Upgrade	Ottawa County	\$1,082,330		2026					
PCI Future WWTP Sludge Removal Improvements	Ottawa County	\$8443,000,00750							2033
South Portage Twp. Sewers	Ottawa County	TBD	-	-	-	-	-	-	
SR 163 Sanitary Sewer Extension East of Christy Chapel Road	Ottawa County	\$1,260560,000787							2033
SR 163 & SR 53 Sanitary Sewer Corridor Analysis for Replacement/Upgrade	Ottawa County	TBD							
SR 163 Sewer Ext. West of Lightner Road	Ottawa County	TBD							TBD
Gill Road Sanitary Sewer Extension	Ottawa County	TBD							TBD
P.S. #450 (SR 53) PCI Expansion/Upgrade	Ottawa County	TBD							
PCI Grinder Pump Replacement	Ottawa County	TBD							TBD
		\$25,156643,515117							

The Curtice/Williston Facility Planning Area (FPA) is a designated region within the village of Curtice/Williston area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Curtice/Williston (Figure 5-12). The Curtice/Williston FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from Lucas and Ottawa Counties. The responsibilities of these agencies are outlined below:

- **Ottawa County:** Plans, owns and operates facilities in Ottawa County unincorporated areas.
- **Lucas County:** Plans, owns and operates collection system in Lucas County unincorporated areas.



Table 5-32: Curtice/Williston Area Population

Area	Population
Allen Township, entire jurisdiction*	2, 754
Jerusalem Township, entire jurisdiction*	2,895
Total	5,649

*only part of this jurisdiction is within the FPA boundary.

Source U.S. Census 2020 decennial census.

Present Facilities

There are no public sewerage facilities in this Facility Planning Area. There are two package plants: a 57,000 gpd plant at Wildflower Place Subdivision in Curtice and a 32,500 gpd plant at the Luther Home of Mercy in Williston (Table 5-34).

Table 5-33: Package Plants in the Curtice/Williston Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Luther Home of Mercy ^A	OT-04	Private	1972, 1983	2PS00013	32,500
Wildflower Place Subdivision ^A	OT-155	Public	1999	2PW00010	57,000

^AStatus is active

Note: Data are based on current available data as of April 2019

Issues

Curtice

Curtice is an unincorporated, unsewered community in Jerusalem (Lucas County) and Allen Townships (Ottawa County). About three quarters of the town is located within Ottawa County.

In 1985, there were 145 houses in Curtice and there has been substantial new construction since that time. Six sewage bypasses to Cedar Creek were found in the village. Both the Toledo-Lucas County Health Department (TLCD) and Ottawa County Health Department have conducted sampling in the area, and found water quality violations due to high bacteria levels. Stream sampling conducted in 2015-2016 by the TLCHD, Ottawa County Health Department and the Ohio EPA documented bacterial concentrations above water quality standards at several stream sampling locations. Sewers are needed to solve the problem. In March 2016, the TLCD sent a letter to Ohio EPA in accordance with Section 6117.34 of the Ohio Revised Code to state a complaint of the unsanitary conditions present in the area.

Williston

Williston is an unincorporated community in Allen Township (Ottawa County); it is larger than either Clay Center or Rocky Ridge. Sewage is treated by home septic systems and one package plant. There is direct evidence that many septic systems have failed, in that there are obvious sewage bypasses to Crane Creek. The largest outfall is on the west side of Martin-Williston Road (Township Road 7), north of the Allen Township Cemetery. A large storm sewer discharges raw sewage and groundwater to the creek

here. Ohio EPA or the Ottawa County Health Department should conduct stream and/or septic system tests to confirm the situation.

The single package plant in Williston serves the Luther Home of Mercy, and has a capacity of 32,500 gpd. In 1987, this facility served 127 residents and 300 to 350 staff. A house count at that time put a rough population estimate for Williston at 650. Approximately 90,000 gpd of treatment capacity would be needed to serve the entire town.

Being close, Williston to Curtice, Williston should be included in sewerage facility planning for Curtice - unless sampling fails to document a public health problem. Having both communities together in a sewage project improves the chances that the project will be financially feasible, in addition to solving sewage problems for both towns.

Future Needs

Ottawa County and Lucas County worked in collaboration and hired Poggemeyer Design Group ([aka Kleinfelder](#)) to develop a General Plan for the Curtice-Williston Area. The General Plan was prepared in response to the Ottawa County and Lucas County Health Departments and Ohio EPA findings of water quality degradation in Cedar Creek and Crane Creek throughout the Curtice-Williston area. In April 2019, Ottawa County and Lucas County completed a General Plan of Sewerage for the Curtice and Williston Unsewered Area. Since the Genoa WWTP did not have the capacity to provide treatment, the best option was to collect and pump to the City of Oregon WWTP for treatment.

The Curtice and Williston Unsewered Area General Plan was submitted to the Ohio EPA in April 2019 by the two Boards of County Commissioners. Since that time, Ottawa County and Lucas County officials have met with local, state and federal elected officials having jurisdiction over this area; as well as all federal and state funding program representatives assigned to the State of Ohio in an effort to develop an affordable financing plan for the project, which has since risen in cost to ~~\$19,784,988~~ [approximately \\$20 million](#).

The sanitary sewer project as proposed would serve 840 equivalent dwelling units (EDU's); resulting in a \$23,553.56 per EDU up-front construction cost. Including Operation, Maintenance and Repair expenses, the estimated bill would be \$218.00 per month per EDU. Elected, engineering and administrative officials from both Ottawa County and Lucas County have concluded that the Curtice-Williston Sanitary Sewer Project is unaffordable without substantial grant funding.

In an effort to have a good chance to secure H2Ohio grant funding, Ottawa and Lucas County were advised to prove and document how the Curtice-Williston ~~s~~Sanitary ~~s~~Sewer ~~p~~Project would deliver a "Big Bang for the Buck". On October 22, 24, 28 and 30 in 2019, the Ottawa County Sanitary Engineering Department obtained and tested four E.coli samples, each day, from Cedar Creek and Crane Creek that were taken upstream and downstream of Curtice and Williston. The E.coli test results for Cedar Creek, upstream and downstream of Curtice, did not show substantial stream degradation. The E.coli test results for Crane Creek, upstream and downstream of Williston and the Wildflower Subdivision in Curtice, documented that the stream quality improved since the downstream E.coli concentration was lower than the upstream on every test performed.

Because of the in-house upstream/downstream testing results and recognizing that sufficient grant funding does not exist to affordably enable an area-wide sanitary sewer system to be constructed to serve the Curtice-Williston Area, Ottawa County and Lucas County believe that the only way to

proceed is to have the Ohio EPA complete a thorough water quality modeling analysis of the two streams and, at the same time, require the Ottawa County and Lucas County Health Departments to complete a detailed sanitary survey investigation throughout the area. Once this work is completed, sufficient documentation will then exist to substantiate moving forward with the appropriate corrective action solution to remedy the documented problems; which Ottawa County and Lucas County believe (at this point) will be the replacement of on-lot sewage treatment systems that have been confirmed to fail.

A meeting was held on July 14, [2020](#), with the Ohio EPA, Ottawa County and Lucas County to have an in depth discussion of the plan moving forward for the Curtice-Williston Area. Ms. Tiffani Kavalec, Chief Division of Surface Water, appreciated the position statement submitted by Ottawa and Lucas Counties. The position statement proposed a sanitary survey of Curtice and Williston to be completed by Ottawa and Lucas County Health Departments as well as request the Ohio EPA to complete a thorough water quality modeling analysis of Cedar and Crane Creeks. An estimated timeline of two years was projected to complete the sanitary surveys and water quality modeling analysis. This timeline may vary depending on any unknown circumstances related to COVID-19. Ms. Kavalec agreed to prepare a proposal to present to Ms. Laurie Stevenson, Director of the Ohio EPA, for Ms. Stevenson's approval.

The Ohio EPA issued and entered the Director's Final Findings and Orders on May 25, 2021 to the Ottawa County Commissioners, Ottawa County Board of Health, Lucas County Commissioners and Lucas County Regional Board of Health for the Unincorporated Areas of Curtice and Williston. Lucas County and Ottawa County respondents shall submit a Home Sewage Sanitary Survey Plan for the Curtice/Williston Areas for Ohio EPA's review and approval. The Home Sewage Sanitary Survey Plan's goal shall be to document the type of system serving each home in the Curtice/Williston Areas and its environmental performance. The Home Sewage Sanitary Survey Plan shall be implemented within two years of the plan's approval by Ohio EPA which can be modified upon written agreement of all Parties.

~~The Ohio EPA intends to conduct further water quality surveys of Cedar and Crane Creeks during summer of 2021 to document potential upstream sources of pollutants and how they may factor into water quality observed in the area. However, if restrictions due to COVID-19 prevent sampling from occurring in summer of 2021, then the sampling will be conducted during summer of 2022. The Ohio EPA entered into an agreement with U.S. Geological Survey to perform Microbial Source Tracking to Assist Public Health Nuisance Investigations on Cedar and Crane Creeks, Lucas and Ottawa Counties in Ohio.~~

A 2021 study by the U.S. Geological Survey and Ohio EPA found that Cedar and Crane Creeks near Curtice, Ohio, are significantly impaired by E. coli contamination, with human-origin fecal matter identified as the primary source. Sampling at 12 sites revealed high levels of the human-associated MST marker HF183/BacR287, detected in 97% of all samples and strongly correlated with E. coli concentrations. Notably, 91% of samples exceeded Ohio EPA's E. coli threshold. The Martin Williston Road ditch was highlighted as a significant point source of human contamination along Crane Creek, suggesting upstream inputs as well. While a canine marker (BacCan) was also detected, it overlaps with human waste, limiting its diagnostic value.

The capital improvement plan for the Curtice/Williston FPA is shown in Table 5-35.

Table 5-34: Curtice/Williston FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Allen/Jerusalem Twp. Sanitary Sewer System	Lucas County and Ottawa County	\$20,000,000							TBD; Dependent upon Modeling, Sanitary Survey, and Financing

DANBURY TOWNSHIP FACILITY PLANNING AREA

Danbury Facility Planning Area (FPA) is a designated region within the township of Danbury where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Danbury Township (Figure 5-13). The Danbury FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within this boundary, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by the Ottawa County which is represented by Designated Management Agencies.

Designated Management Agency Responsibilities:

- **Ottawa County:** Owns and operates the wastewater treatment plant and sanitary sewers in the unincorporated areas and the Village of Marblehead.

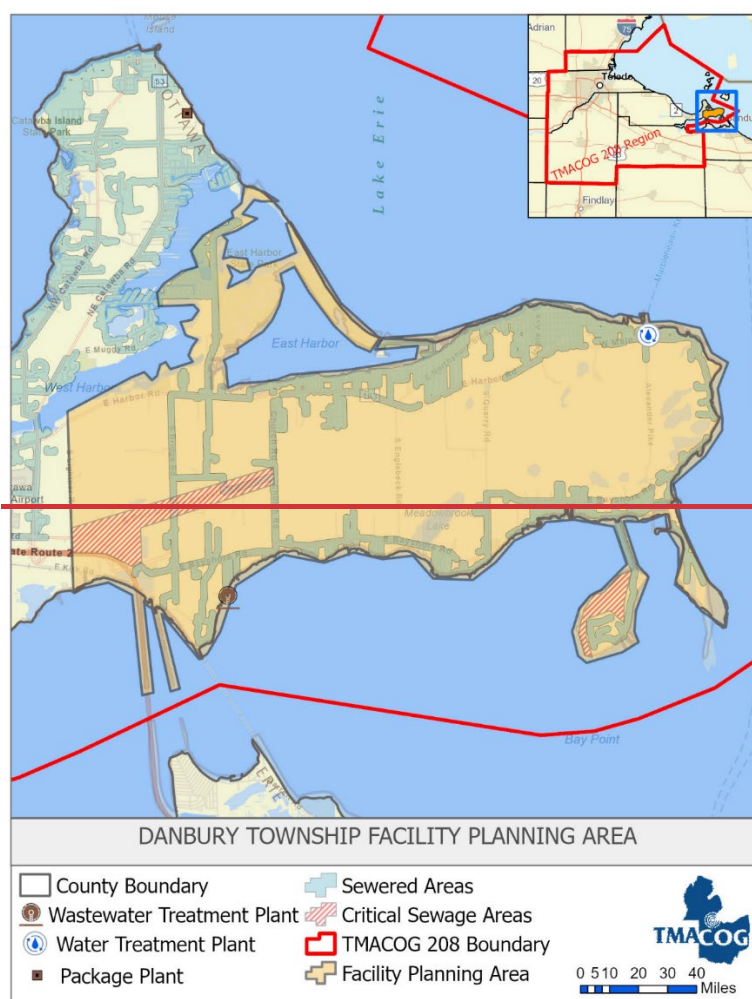




Figure 5-13: Danbury Township Facility Planning Area

Table 5-35: Danbury Township Area Population

Area	Total Population
Marblehead, entire jurisdiction	865
Danbury Township, entire jurisdiction	4,924
Total	5,789

Source: U.S. Census 2020 decennial census.

Present Facilities

The Danbury Township WWTP was built to serve the most densely-developed portions of the Township. The treatment plant, expanded in 2005, has three facultative aerated lagoons designed for an average flow of 3.8 ~~mgd~~ MGD and peak flow of 6.0 ~~mgd~~ MGD. Ohio EPA data shows an average flow of 1.073-145 ~~mgd~~ MGD during the period of 2013-2018-2017-2023. Equipment includes a tertiary Actiflo unit and alum feed to meet phosphorus limits. The effluent is chlorinated and dechlorinated before discharging to Sandusky Bay-releasing.

Issues

Danbury and Catawba Island Townships in Ottawa County are especially popular areas for summer homes, boating, fishing, and other recreational ~~uses~~. These areas developed heavily without ~~the benefit of~~ public sewers. Failed septic systems and dozens of package plants contributed to severe problems with untreated sewage in ditches and streams. Construction of this wastewater plant eliminated many existing pollution problems and allowed further recreational development. In the years since the construction of the treatment plant, there have been several sewer extensions, providing service to previously unsewered areas. Consequently, the flow has gradually increased.

Future Needs

- Additional sewer extensions are needed to serve areas not covered by the original construction.
- Sewer extensions to eliminate remaining problems areas and provide service to new development. New package plants and septic systems should not be permitted in areas that may be served by public sewers.
- ~~Extend sanitary sewers along SR 163 west to the Danbury/Portage Township line. The project was petitioned in 2003; its estimated cost is \$921,560.~~
- ~~These and additional infrastructure projects are listed in the Capital Improvement Schedule in~~ See Table 5-36 for sanitary sewer capital improvement projects in Danbury Township.

Table 5-36: Danbury Township FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Danbury Twp. WWTP Alum Feed Improvements	Ottawa County	\$250,000	-	2026	-	-			
Danbury Township WWTP Improvements	Ottawa County	\$1,604,800				2028			
Church Rd Sanitary Sewers Phase III	Ottawa County	\$105,525							2037
SR 163 Sanitary Sewer Extension to Unsewered Areas	Ottawa County	\$967,638							2036
Memorial Shoreway Sanitary Sewer Extension (Johnson's Island)	Ottawa County	TBD							TBD
Lightner Road Sanitary Sewer Extension to serve African Lion Safari	Ottawa County	TBD							TBD
Port Clinton Eastern Road Sanitary Sewer Extension (from Bayshore Rd to Church Rd)	Ottawa County	TBD							TBD

Elmore Facility Planning Area (FPA) is a designated region within the Elmore area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Elmore (Figure 5-14). The Elmore FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within this boundary, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by the Village of Elmore which is represented by Designated Management Agencies.

- Village of Elmore:** Owns and operates wastewater treatment facilities, and collection system within the corporate limits.



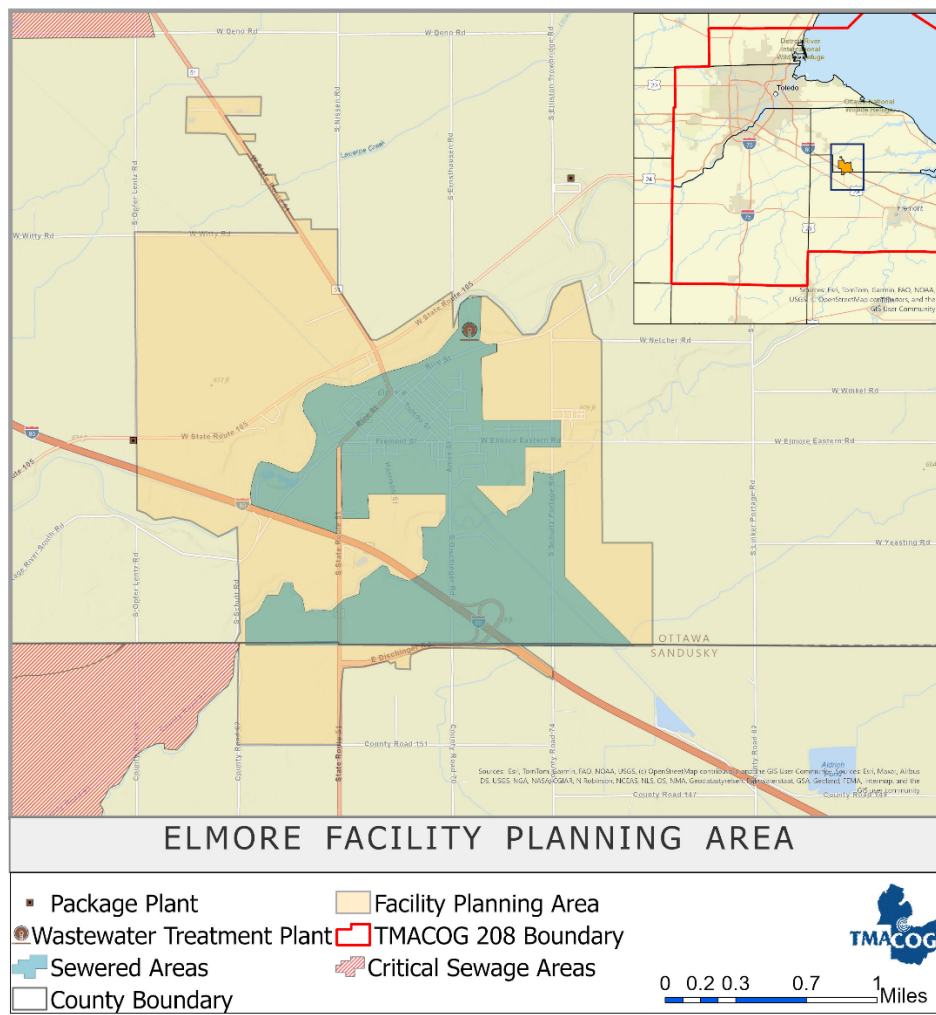


Figure 5-14: Elmore Facility Planning Area

Table 5-37: Elmore Area Population

Area	Population
Elmore, entire jurisdiction	1,370
Harris Township, entire jurisdiction (Ottawa County)*	2,910
Washington Township, entire jurisdiction (Sandusky County)*	2,315
Woodville Township, entire jurisdiction (Sandusky County)*	3,303
Total	9,989

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Elmore WWTP is an oxidation ditch plant with two clarifiers, aerobic digesters/-sludge storage, and ultraviolet disinfection of final effluent. The plant's design capacity is 0.275 mgd, expecting an average daily flow of 0.180 mgd and peak daily 1.25 mgd. Liquid sludge is applied to farmland.

A new pump station was built, routing all flows to the new plant, eliminating the two SSOs. The new plant includes two independent oxidation ditches, giving the facility the ability to treat high storm flows without interfering with the normal wastewater treatment process. During a rainfall event, the oxidation ditch facility can enter a stormwater treatment mode, reducing or eliminating the need for a retention basin.

The Elmore sewer system was formerly combined sanitary and storm. In 1991, work began to separate the system and was completed in 2000 at a total cost of \$900,000, all constructed with local funds. In 2009, Elmore completed a Sanitary Sewer Interceptor Replacement and a new Trunk Sanitary Sewer Main project at a cost of \$1.1 million, funded largely with Ohio Public Works Commission (OPWC) loans and local funds. The new WWTP was completed in 2013 at a cost of \$5.5 million, with financing from the OPWC and the Ohio Water Pollution Control Loan Fund.

Issues

The new wastewater plant is expected to provide adequate treatment capacity, including flows that previously discharged through sanitary sewer overflows. Some sources of I/I have been eliminated, but extraneous flows into the sanitary sewers continue to be a problem. The new plant is designed with peak capacity to treat the wet weather flows.

Future Needs

With completion of sewer separation and a new wastewater treatment plant, Elmore's sewer system will meet the community's needs.

The current NPDES permit indicates:

- The Village of Elmore shall complete an Infiltration and Inflow (I&I) Study and Elimination Program.
- The plan shall be submitted to Ohio EPA not later than 18 months from the effective date of the permit.
- Summary reports shall be submitted not later than March 1 of each year.
- The I&I Study and Elimination Program shall be completed by no later than the expiration of the permit.

During the time of this review (August 2025), Elmore was in the process of an I&I investigation; as part of this process, they smoke tested about 40% of the Village's storm sewers and shall be contracting to have these sewers televised. The Village was in the planning stages of completing the smoke testing and working with the contractor for the televising portion.

- The capital improvement plan for the Elmore FPA is shown in Table 5-38.

Table 5-38: Elmore FPA Capital Improvement Schedule

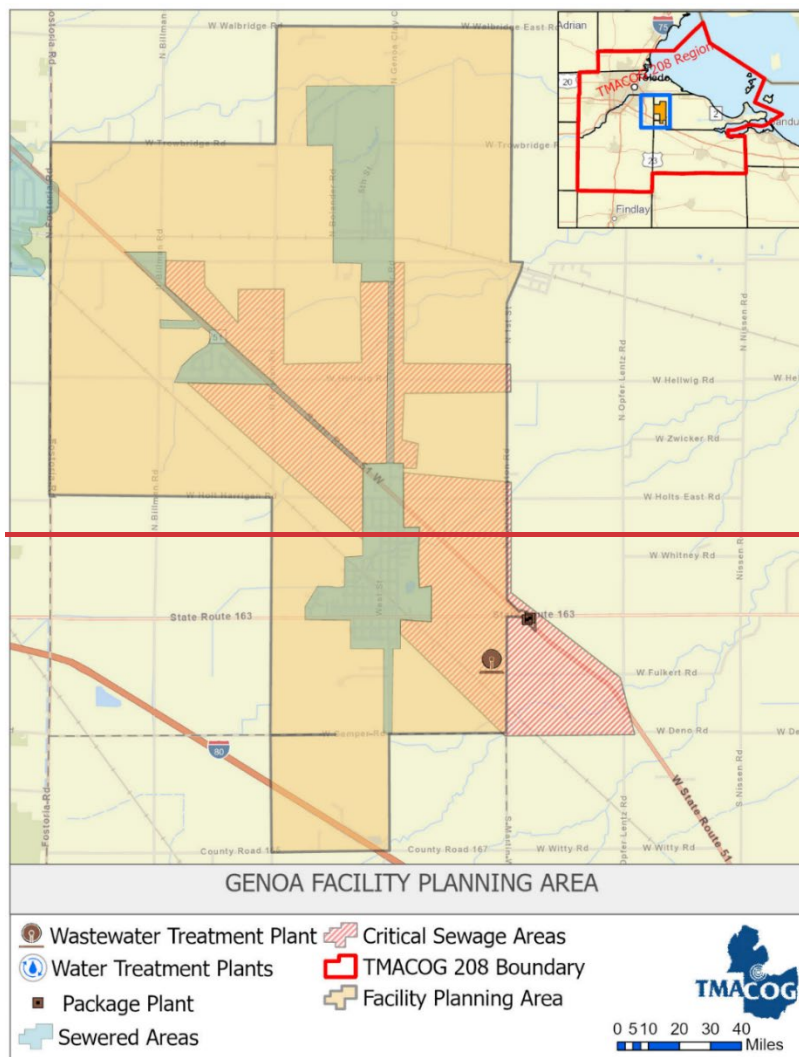
Project	DMA	Total Cost (\$)	Annual Capital Improvement Needs (\$)						
			2025	2026	2027	2028	2029	2030	Future
I & I plan rehabilita tion of sewers lines		237,190					237,190		

GENOA FACILITY PLANNING AREA

The Genoa Facility Planning Area (FPA) is a designated region within the village of Genoa area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Genoa (Figure 5-15). The Genoa FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from the village of Genoa and Ottawa County. The responsibilities of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Genoa:** Owns and operates wastewater treatment facilities, and collection system within the corporate limits.
- **Ottawa County:** Owns and operates collection system in Ottawa County unincorporated areas, and the Village of Clay Center, connecting to Village system for treatment services. Genoa maintains sewers under contract with Ottawa County.



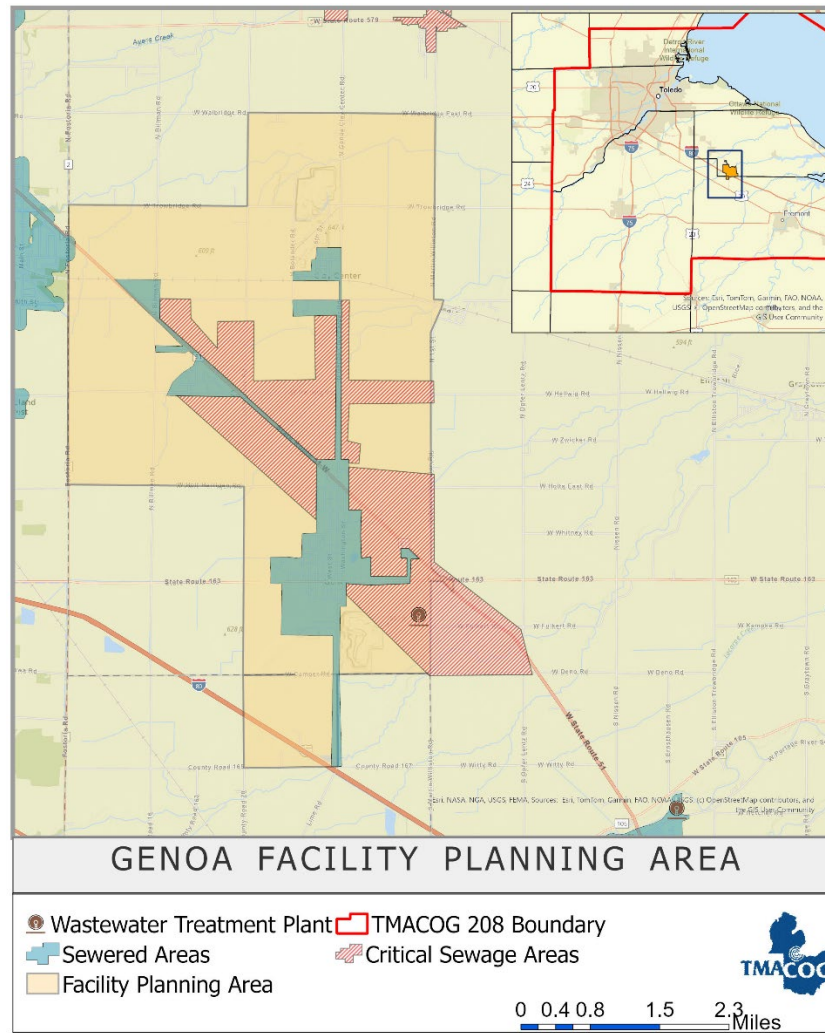


Figure 5-15: Genoa Facility Planning Area

Table 5-39: Genoa Area Population

Area	Total Population
Genoa, entire jurisdiction	2,232
Clay Center, entire jurisdiction	262
Allen Township, entire jurisdiction*	3,773
Clay Township, entire jurisdiction*	4,825
Woodville Township, entire jurisdiction*	3,303
Total	14,395

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census

Present Facilities

Genoa has a lagoon treatment system with a design flow of 0.60 mgd. Ohio EPA data shows an average

flow of 0.401 mgd, and a peak flow of 0.610 mgd during the period of 2004-2009. There are several package plants in the area; several others have been eliminated by tapping into the Genoa system in recent years, including Woodland Estates, the rest areas at the Ohio Turnpike Rest Areas in Woodville Township located 1.5 miles south of Genoa, Genoa High School, and Guardian Industries.

Genoa completed separation of its sanitary sewer system and elimination of all combined sewer overflows in 2001.

Package plants located in the FPA are listed in Table 5-40. The Greenwood permit calls for the plant to tap into the Genoa system within 60 months (2016).

Table 5-40: Package Plants in the Genoa Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Blue Moon Apartments ^A	OT-133	Private	1991	2PW00019	2,000
Ernesto's Restaurant ^A	OT-47	Private	1964,2000	2PR00153	3,000

^AStatus is active

Note: Data are based on current available data as of April 2019

Issues

~~The Toussaint River TMDL included sampling at three locations near Genoa,~~

~~“Three sampling locations were selected in close vicinity of the Village of Genoa. Samples were collected at Camper Road (RM 20.20) upstream from the discharge from the Genoa WWTP, downstream from the discharge adjacent to Fulkert Road (RM 19.65) and at Fulkert Road (RM 18.40). ... Increased nitrate+nitrite and phosphorus concentrations were observed downstream from the Genoa WWTP At Camper Road (RM 20.20), fecal coliform bacteria levels exceeded the PCR [Primary Contact Recreation] ... criterion on two occasions. Because Genoa’s sanitary sewer system does not extend south to Camper Road, the most likely source of fecal coliform bacteria contamination was poorly treated sewage from failed on-lot septic systems.~~

~~“Downstream from the wastewater treatment plant adjacent to Fulkert Road (RM 19.65), sample results indicated one fecal coliform bacteria exceedances of the PCR criterion. Median phosphorus levels remained below the respective target value. At Martin Wilson Road (RM 11.30) nitrate+nitrite decreased compared to levels upstream at RM 14.73, but remained above the target value. Median phosphorus levels approached the target value of 0.1 µg/l.”~~

~~The TMDL shows the attainment status of the Toussaint River at miles 20.2 and 19.7 as “full,” and at 18.4 as “partial” due to sedimentation, noting row crop agriculture and the quarry as sources. The data show exceedances for fecal coliform and strontium at all three sites, and total dissolved solids as well at river mile 18.4.~~

~~The Toussaint River TMDL study included sampling at three locations near the Village of Genoa. The~~

results of the sampled data from three sites are as follow:

- **River Mile (RM) 20.20 – Camper Road (upstream of Genoa WWTP):**
Fecal coliform bacteria levels exceeded the Primary Contact Recreation (PCR) criterion on two occasions. Genoa’s sanitary sewer system does not extend south to this location; therefore, the most likely source of contamination is attributed to poorly treated sewage from failing on-lot septic systems.
- **RM 19.65 – Adjacent to Fulkert Road (downstream of Genoa WWTP):**
Increased concentrations of nitrate+nitrite and phosphorus are observed downstream from the Genoa WWTP. One exceedance of the PCR criterion for fecal coliform bacteria is recorded. Median phosphorus concentrations remain below the target value.
- **RM 18.40 – Fulkert Road (further downstream):**
Data show continued exceedances for fecal coliform bacteria and elevated levels of strontium and total dissolved solids.

At a downstream location, Martin Wilson Road (RM 11.30), nitrate+nitrite concentrations decrease compared to upstream levels at RM 14.73, yet still remain above the target threshold. Median phosphorus values approach the target of 0.1 µg/L.

The attainment status reported in the TMDL classifies RM 20.2 and 19.65 as in “full attainment” of water quality standards, while RM 18.4 is assessed as “partial attainment” due to sedimentation. Sources of impairment at RM 18.4 include row crop agriculture and quarry activity. Exceedances for fecal coliform bacteria and strontium are documented at all three Genoa-area sites, with total dissolved solids additionally exceeding limits at RM 18.4.

Clay Township

High bacteria levels in streams due to failed septic systems have long been documented. The areas of concern are in Clay Township Section 20. Providing sanitary sewers to these areas would significantly improve South Branch Turtle Creek. The health concernsproblem indicated by the County Health Department would also improve dramatically. In response to these issuesproblems, a building ban was imposed several years ago. Ottawa County, the Village of Genoa, and the Village of Clay Center developed plans for expansion of the Genoa WWTP costing \$500,000, and a phased extension of sanitary sewers. Several phases have been built; sewers for the Village of Clay Center and along Genoa-Clay Center Road were completed in 2004.

Future Needs

- Continue and complete Allen/Clay Township sewers (Phase V). ~~Phase V and is estimated cost of \$2,275,000, scheduled for 2022.~~
- Phase VI (areas adjacent to the Village of Genoa) ~~\$2.7 million, are~~ both depending on financing.
- Implementation of the Toussaint River Basin TMDL calls for reducing phosphorus loadings to this watershed. In 2015, Ohio EPA ~~has~~ set a deadline ~~in 2015~~ for a General Plan to meet 1.0 mg/l

monthly average effluent phosphorus. The capital improvement plan supports state and federal financial assistance to implement the needed facilities. The deadline for implementing the general plan is in 2017.

- The village is currently studying expansion scenarios for their WWTP. This study will show that the WWTP could be feasibly expanded to 3.5 MGD. An expansion, expected to be to 1.0 MGD, is expected to start with an installation of a new aeration system in 2027. Cost estimates is expected by the end of the 2025.

~~This plan supports state and federal financial assistance to implement the needed facilities.~~ The capital improvement plan for the Genoa FPA is shown in Table 5-41.

Table 5-41: Genoa FPA Capital Improvements Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Allen / Clay Twp. Sanitary Sewer Extension, Phase 5	<u>Ottawa County</u> Ottawa County	<u>\$2,388,750</u> \$2,388,750	<u>\$2,388,750</u>						<u>2035</u>
Allen / Clay Twp. Sanitary Sewer Extension, Phase 6: <u>areas adjacent to Genoa</u>	Ottawa County	<u>\$2,754,156</u> <u>640</u>							<u>\$2,754,156</u> <u>2040</u>
		<u>\$5,143,290</u> <u>6-390</u>							

LOCUST POINT FACILITY PLANNING AREA

Locust Point Township Facility Planning Area (FPA) is a designated region within the village of Locust Point where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Locust Point (Figure 5-16). The Locust Point FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from Carroll Township Regional Water and Sewer District. The responsibilities of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Carroll Township Regional Water and Sewer District:** Responsible for planning sewerage facilities, and will own and operate a system, if and when built.



Figure 5-16: Locust Point Facility Planning Area

Table 5-42: Locust Point Area Population

Area	Population
Carroll Township, entire jurisdiction	2,117
Total	2,117

Source U.S. Census 2020 decennial census.

Present Facilities

The Locust Point area includes numerous marinas, mobile home parks, summer and permanent residences, and the Davis-Besse nuclear power plant. There are several package plants in this area (Table 5-43), and several marinas that use honey tanks. Like in Danbury and Catawba Townships, growth in the recreational industry has applied~~provides~~ pressure for growth, and adequate sewage treatment ~~is needed~~ to accommodate the growth.

Table 5-43: Package Plants in the Locust Point Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Fenwick Marina ^A	OT-156	Public		2PR00130	15,000
First Energy Davis Besse Nuclear Power Plant ^A	OT-10A	Private	1974	2IB00011	15,000
First Energy Davis Besse Nuclear Power Plant ^A	OT-10B	Private	1974	2IB00011	23,000
Green Cove Condominiums ^A	OT-117	Private	1987	2PS00007	77,000
Inland Mobile Home Park/Magee East Marina ^A	OT-12	Private		2PY00074	35,000
Magee Marsh Nature Center ^A	OT-13	Private*	1971		6,000
Turtle Creek Marina & Campground ^A	OT-160	Private	2006	2PS00011	20,000

^AStatus is active

*Facility type is assumed

Note: Data are based on current available data as of April 2019

Issues

Although less heavily developed than Danbury or Catawba Island Townships, the situation is similar: pressure for lakefront recreational development has preceded the availability of sanitary sewers. Ohio EPA notes septic sewage issues in storm sewers in beach-front housing areas. It would be better for the existing package plants in these areas tap into a join system to solve this problem. ~~Existing package plants would be better to tap into a joint system than upgrade.~~

The density of development, especially along the lake front where many houses are on small lots, calls for a public sewer system. Additional development will only make the problem worse, and the need greater.

Ohio EPA conducted a Total Maximum Daily Load (TMDL) study of the Toussaint River in 2003, which includes part of this FPA.

Future Needs

A General Plan or facilities study will be needed to determine how best to serve this area.

~~Please use this table if you have any ongoing project or planned project for the future.~~

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Middle Bass Facility Planning Area (FPA) is a designated region within the village of Middle Bass where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by wastewater treatment facilities in the village of Middle Bass (Figure 5-17). The Middle Bass FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from Ottawa County. The responsibilities of these agencies are outlined below:

- **Ottawa County:** Will own and operate sewerage system, if and when built.



Table 5-44: Middle Bass Area Population

Area	Population
Put-in-Bay Township, entire jurisdiction*	813
Total	813

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

There are no public wastewater treatment facilities in this FPA.

Package plants in the FPA are listed in Table 5-45.

Table 5-45: Package Plants in the Middle Bass Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
East Point Villas ^A	OT-158	Private	2005	2PW00017	4,000
Lake Erie Utilities Co. ^A	OT-128	Private	1988	2PR00057	62,000
Middle Bass Club ^A	OT-92	Private	1980	2PW00020	5,000
St. Hazard ^A	OT-148	Private		2PR00117	35,000
Walleye's, J.F. Restaurant ^A	OT-152	Private	1997	2PR00125	15,000

^AStatus is active

Note: Data are based on current available data as of April 2019

Issues

Like South Bass Island, sewage treatment needs for Middle Bass are driven much more by peak recreational use during the summer than by year-round residents. As part of redeveloping the Lonz Winery property, the Lonz and Burgundy Bay Subdivision package plants were eliminated. The new Lake Erie Utilities plant serves Burgundy Bay and the Ohio Department of Natural Resources (ODNR) park.

In the long-term, the need for a central sewerage system for the island will increase. Development has continued, and individual systems are an increasing problem. Of note is beach front housing on small lots, notably on the island's north pan-handle.

Future Needs

- The Township and County should evaluate long-term options to meet wastewater treatment needs. A facilities study should be prepared to evaluate need, feasibility, and financing. Options may include:
 - A single wastewater plant serving the entire island.
 - A single wastewater plant serving all Middle Bass Island and all or part of South Bass Island.
 - Provide wastewater treatment service for all Middle Bass Island and all or part of South Bass

Island by connecting to the Catawba Island/Portage Township WWTP.

[There are no public sewer projects planned for Middle Bass Island in the next 20 years.](#)

Oak Harbor Facility Planning Area (FPA) is a designated region within the village of Oak Harbor where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Oak Harbor (Figure 5-18). The FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from the village of Oak Harbor and Ottawa County. The responsibilities of these agencies are outlined below:

- **Village of Oak Harbor:** Owns and operates the wastewater treatment facility and collection system within the corporate limits, and operates the collection system in unincorporated areas, connecting to the [vVillage](#) system.
- **Ottawa County:** Owns the collection system in Ottawa County unincorporated areas, connecting to the [vVillage](#) system for treatment services.



Table 5-46: Oak Harbor Area Population

Area	Population
Oak Harbor, entire jurisdiction	2,821
Salem Township, entire jurisdiction*	5,311
Total	8,132

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census

Present Facilities

The Oak Harbor WWTP is a trickling filter plant with an average flow capacity of 0.930 mgd. Ohio EPA data shows an average flow of 0.678 mgd and a peak flow of 7.333 mgd during the period of 2004-2009. The treatment processes include primary settling, pre-aeration, trickling filters, final settling, and ultra-violet disinfection. The peak capacity whole meeting effluent standards is 2.16 mgd. The peak hydraulic capacity is 4.33 mgd at which rate 2.16 mgd receives complete treatment, and the additional 2.17 mgd receives primary treatment and disinfection. Sludge handling facilities have been upgraded. The new facilities were completed in 2000 at a cost of \$1,003,563, and include aerobic digestion and a belt filter press. Class B Sludge may be applied to farmland, disposed of in a solid waste landfill, or taken to another municipal wastewater treatment plant, commonly referred to as Publicly Owned Treatment Works (POTW).

In 1990, Oak Harbor completed major storm sewer improvements, to separate storm runoff from the sanitary sewer system. Four major storm sewers were built: (1) Locust Street, from Main to the Portage River; (2) Finke Street, its entire length to the river; (3) Toussaint Street from Walnut to the river; and (4) Locust from North Railroad Street to Lacarpe Creek. The project cost was \$1.276 million, locally-funded. These improvements should substantially reduce Oak Harbor's I/I ~~problems, and~~ problems and reduce bypassing.

- The collections system currently has seven permitted overflow points. An updated LTCP was approved by OEPA in 2018. The 2018 LTCP includes constructing a new storm sewer and sanitary sewer in the Church Street corridor from S. Railroad Street to the Portage River, installing a CSO Basin Overflow at the 5MG retention basin, installing a storm sewer at the intersection of State Route 19 and Main Street, installing a storm sewer on Oak Street and potentially closing CSO's 8 and 10, in addition to the previously closed CSO's 2, 4, and 7. These new facilities were completed in June 2021 at the cost of \$9.2 million. Funding was provided by local funds and the USDS in the form of grants and loans.
- Park Street from State Route 19 to Church Street was totally reconstructed included a new storm sewer directed to the Church Street Storm at a cost of \$400,000. This was completed in July 2021. This project was funded by local funds and the Ohio Public Works Commission.
- Oak Harbor completed a Long-Term Control Plan (LTCP) that was approved by Ohio EPA in 2004. The plan includes a collection and treatment solution, with an intercepting sewer between the present combined sewer overflows (CSOs) and the river and a 5.0 million gallon CSO retention basin. Other improvements include screening and pumping facilities for the CSO retention basin. The new facilities

and repairs were completed in 2013 at a cost of \$7.62 million.

Package plants located in the FPA are listed in Table 5-47.

Table 5-47: Package Plants in the Oak Harbor Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Chet's Place Campground ^A	OT-159	Public	2006	2PR00234	3,500
Portage Pointe Condos/Oak Harbor Golf Course ^A	OT-115	Public	1986	2PR00127	12,000

^AStatus is active

Note: Data are based on current available data as of April 2019

Future Needs

- Additional sewer separation projects will be built if required to reduce extraneous stormwater entering the system and reduce CSO events.
- ~~The Village is currently addressing treatment operations to reduce ammonia concentrations in the discharge, with the goal to meet final effluent limits by 2021.~~
- Sewer extensions to eliminate remaining problem areas and provide service to new development. New package plants and septic systems should not be permitted in areas that may be served by public sewers. Several areas have been identified as needing service:
 - South of the Portage River, Ohio EPA testing identified septic sewage in a ditch crossing SR 19.
 - Tap residences along SR 19 north of the Village into the sewer system, up to Salem-Carroll Road.
 - ~~Behlman Road Sewer Extension, north of SR 163; this project has an estimated cost of \$381,000 and a target date of 2025.~~

The capital improvement plan for the Oak Harbor FPA is shown in Table 5-48.

Table 5-48: Oak Harbor FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Salem Twp. – Behlman Rd Sewer Extension	Ottawa County	\$4,000,050							2036

PORT CLINTON FACILITY PLANNING AREA

Port Clinton Facility Planning Area (FPA) is a designated region within the city of Port Clinton where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Port Clinton (Figure 5-19). The Port Clinton FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from the city of Port Clinton and Ottawa County. The responsibilities of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **The City of Port Clinton:** Owns and operates wastewater treatment facilities, and the collection system within the corporate limits.
- **Ottawa County:** Owns the collection system in unincorporated areas, except as agreed between Ottawa County and the City of Port Clinton. Additionally, Ottawa County operates the collection system in unincorporated areas, except as agreed upon between Ottawa County and the City of Port Clinton. All sewers in the planning area connect to the Port Clinton system for treatment services under contract.

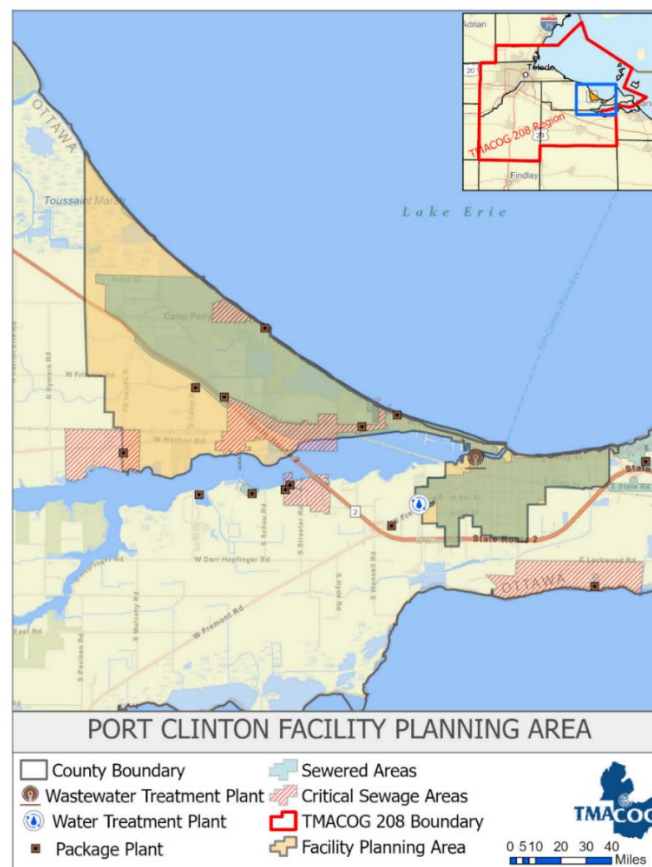


Figure 5-19: Port Clinton Facility Planning Area

Table 5-49: Port Clinton Area Population

Area	Population
Port Clinton	6, 025
Bay Township, entire jurisdiction*	1,142
Erie Township, entire jurisdiction*	1,147
Total	8,314

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census

Present Facilities

Port Clinton has an activated sludge plant which experiences heavy I/I flows. The treatment plant began expansion with the completion of Phase I in 2004. Phase I included new primary treatment, chlorination, and the Actiflo system. The design average daily flow rate is 2.0 mgd; the plant has a peak daily design for secondary treatment of 4.0 mgd, and a peak daily flow rate of 24.0 mgd for their Actiflo system. The City of Port Clinton's Wastewater Treatment Plant has an average daily flow of approximately 2.699 MGD. This translates to an estimated annual treatment volume of around 985 million gallons. Ohio EPA data shows an average flow of 1.843 mgd, and a peak flow of 17.110 mgd during the period of 2004-2009.

The Port Clinton system experiences heavy I/I flows; the purpose of the Actiflo system is to enable the plant to treat as much storm flow as possible up to 24.0 mgd and meet permit requirements under high flow conditions. The extraneous water results in overflows from the system's combined sewer overflow (CSO) into the Portage River. Duckbill valves which stopped the inflow from high lake levels were installed on the CSOs in the late 1990s, decreasing peak flows by about 1.0 mgd. The amount of inflow the system receives is influenced by the lake level. Dechlorination facilities were added to the plant in 1995.

The wastewater plant underwent an extensive upgrade and capacity expansion to treat wet weather capacity.

- The first phase (Phase IA) included a new headworks, modified the influent coarse screening, replaced influent fine screening, and modified the chlorine contact chamber. An Actiflo system capable of handling 24.0 total mgd was also installed: a compact device that includes screening, flocculation, settling, and disinfection. The normal daily flow is sent directly to secondary treatment while the Actiflo system is used for' during wet weather flows.

The second phase expanded the biological treatment, final clarifiers, and sludge handling. The upgraded plant produces Class B sludge, dewatered by sludge press, and was completed in 2009.

Since 1999, Port Clinton has received a series of state and federal grants, including federal line-items of \$1.4 million in 1999, \$485,000 in 2001, and \$630,000 and \$607,433 in 2003. In addition, Port Clinton secured an Ohio Public Works Commission (OPWC) grants/loans, State and Tribal Assistance Grant (STAG) funding of \$257,957. In all, Port Clinton raised \$3.7 million in federal and state grants from 1999-2003. In 2006, Port Clinton applied for \$3.266 million in financing from the Ohio Water Pollution Control (OWPC) Loan Fund for Phase II improvements. In 2008, a \$2.79 million low-interest loan was approved

by the Ohio EPA Water Pollution Control Loan Fund for the second phase of Port Clinton's Long-Term Control Plan to increase plant capacity. These projects have all been completed.

There are several package sewage treatment plants located in the Port Clinton FPA; they are listed in Table 5-50.

Table 5-50: Package Plants in the Port Clinton Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Perry House ^A	OT-67	Private*	1969		2,500
Portage View Mobile Home Park ^A	OT-68	Private	1985	2PY00056	12,500
Sunset Inn ^I	OT-69	Private*	1974		9,000
White Caps Campground ^A	OT-144	Private*	1988		6,000
Willow Beach Trailer Park ^A	OT-73	Private	1964	2PY00085	9,000
Wagon Wheel ^I	OT-71	Private	1960	2PY00084	12,500

^AStatus is active; ^IStatus is inactive

*Facility type is assumed

Note: Data are based on current available data as of April 2019

Issues

Combined Sewer Overflows

Port Clinton's combined sewer overflows have been addressed per the Consent Decree with U.S. EPA. All but one CSO has been eliminated, by utilizing the Actiflo system, stopping lake inflow to remaining CSO, and current sewer separation projects

The city is under a consent decree with U.S. EPA for its CSOs. In 2000, Port Clinton eliminated three CSOs, is not accepting new sewer taps in the combined sewer area, and installed flap valves on all remaining regulators. In 2003, the pump stations were upgraded, with new pumps and controls, greater capacity, at a cost of \$700,000. In 2004, the Jackson Street CSO regulator was eliminated, leaving the Port Clinton system with one CSO point (Adams Street). In 2012, telemetering was added to the Adams Street CSO.

Package Plants and Onsite Sewage Systems

In 2009, the force main connecting Camp Perry with the Port Clinton sewerage system was completed. For reasons of environmental protection, public health, and financial viability of sewer system improvements, it is necessary that existing package plants and onsite systems be eliminated, and restrictions be placed on new onsite systems. The following restrictions apply to §§ 21, 22, 26, 27, 28, 33, 34, 35, and 36 of Erie Township in this FPA when Ottawa County and Port Clinton deem the force main connecting Camp Perry with Port Clinton available for local service connections along its route:

- No new package plants shall be permitted; connection to the Port Clinton sewerage system shall be required.
- No replacement package plants shall be permitted; connection to the Port Clinton sewerage system shall be required.

- No upgraded package plants shall be permitted; connection to the Port Clinton sewerage system shall be required. Repairs to maintain proper operation are allowed when they do not change the design capacity of the package plant or make a fundamental design change required to comply with effluent standards.
- No new onsite sewage treatment systems shall be permitted:
 - Except for property where no sanitary sewer connecting to the Port Clinton sewerage system is Available and Accessible (see **Chapter 5**), and provided the on-site system produces no off-lot discharge;
 - In all other cases, connection to the Port Clinton sewerage system shall be required.
- Existing on-site sewage disposal or treatment systems may not be replaced, repaired, or upgraded where a sanitary sewer connecting to the Port Clinton sewerage system is Available and Accessible.
- Existing on-site sewage disposal or treatment systems may be replaced, repaired, or upgraded, but only where the complete system is on-lot, and it produces no off-lot discharge, and where no sanitary sewer connecting to the Port Clinton sewerage system is Available and accessible.

Future Needs

- Ottawa County and the City of Port Clinton wastewater treatment services agreement for a portion of Erie Township, including Camp Perry, the Erie Industrial Park, and the BFI landfill. The first areas served were Camp Perry and Fenner Dunlop, completed in 2009. A sewer to collect the BFI landfill's leachate is planned at an estimated cost of \$860,345.
- With the expansion and upgrade of the WWTP completed, the plant will handle wet weather flow substantially better than the old system. Port Clinton will continue to separate sewers as feasible.
- ~~The City of Port Clinton will prepare a Phosphorus Discharge Optimization Evaluation plan and submit to the Ohio EPA Northwest District Office by the end of 2017.~~
- ~~Ottawa County entered into a contract with Underground Utilities in February 2018 to install sewers in the Ascher Beach Area at the east end of the Erie Twp: SR 163 and Richey Road Critical Sewage Area. The project is an assessment project with a projected completion date of August 2018. This project will eliminate three package plants (Spinnaker Bay, Wagon Wheel, and Transmissions Unlimited). The new eastern boundary of the critical sewage area will be the western boundary of Spinnaker Bay Condominium on the north side of SR163 and the western boundary of Transmissions Unlimited on the South side of SR 163. After speaking with the City of Port Clinton, all parcels, with only one exception, within the Richey Road portion of this Critical Sewage area (16C-OT) are connected to an existing sewer collection system. The only parcel not connected to sewer is the old Jackknife Marina at the end of Richey Road. This property is not within the City limits. Presently, it is not in use as a marina. It is our understanding that there is one single family dwelling with a holding tank. The owner has expressed interest in connecting to the new sewer system. Because this area is outside the City limits but within the City of Port Clinton's 208 FPA, when the property has a development plan, we will consult with the City and entertain connection options at that time.~~

~~Ottawa County suggests removing the "Richey Road" portion of the name of this area (16C-OT) to correctly reflect its defined area; the new name for this area should be Erie Twp: SR 163 and Lakeshore Drive.~~

- In February 2018, Ottawa County entered into a contract with Underground Utilities to install sewers in the Ascher Beach Area at the east end of the Erie Township: SR 163 and Richey Road Critical Sewage Area. The project, an assessment initiative, was completed in August 2018 and resulted in the elimination of three package plants: Spinnaker Bay, Wagon Wheel, and Transmissions Unlimited. The eastern boundary of the critical sewage area is now defined as the western boundary of Spinnaker Bay Condominium (north side of SR 163) and the western boundary of Transmissions Unlimited (south side of SR 163). Following consultation with the City of Port Clinton, it was determined that all parcels within the Richey Road portion of this Critical Sewage Area (16C-OT), with one exception, are now connected to the existing sewer collection system. The only unconnected parcel is the former Jackknife Marina at the end of Richey Road, which lies outside city limits and is currently inactive as a marina. The property contains one single-family dwelling with a holding tank, and the owner has expressed interest in connecting to the sewer system in the future. Since the parcel is located outside city limits but within the City of Port Clinton’s 208 FPA, any future development plans will prompt consultation with the City to explore connection options. Ottawa County recommends renaming this area from “Erie Twp: SR 163 and Richey Road” to “**Erie Twp: SR 163 and Lakeshore Drive**” to more accurately reflect the updated service area boundaries.

The capital improvement plan for the Port Clinton FPA is shown in Table 5-51.

Table 5-51: Port Clinton FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
<u>Erie Twp. Sanitary Sewer Extension</u>	<u>Ottawa County</u>	<u>\$3,847,156</u>							<u>2034</u>

PUT-IN-BAY FACILITY PLANNING AREA

The Put-in-Bay Facility Planning Area (FPA) is a designated region within the village of Put-in-Bay where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Put-in-Bay (Figure 5-20). The Put-in-Bay FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from the Village of Put-in-Bay and Ottawa County. The responsibilities of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Put-in-Bay:** Owns and operates wastewater treatment facilities, and the collection system within the corporate limits. Sets standards for collection system in unincorporated area, which the Village will own and operate after construction.
- **Ottawa County:** Plans and may construct the collection system in unincorporated areas, connecting to Village system for treatment services.



Figure 5-20: Put-in-Bay Facility Planning Area

Table 5-52: Put-in-Bay Area Population

Area	Population
Put-in-Bay, entire jurisdiction	154
Put-in-Bay Township, entire jurisdiction*	813
Total	967

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Put-in-Bay wastewater plant was built in the early 1980s, originally to serve the central downtown area of the Village, eliminating package plants and individual septic systems. Like other coastal areas in Ottawa County, the served population on a summer weekend is far greater than the permanent residents. While there are only 128 year-round residents in the Village, there are often 10,000 persons in town during the spring and summer. The treatment plant is a sequencing batch reactor (SBR) activated sludge facility with a design capacity of 500,000 gpd in three SBR units with fine bubble diffusers, ultraviolet disinfection, sludge dewatering and storage, and standby power generator. The plant was expanded in 2010 with the third SBR unit costing \$890,000 from the Corps of Engineers, \$650,000 from the Ohio Public Works Commission (OPWC), up to \$1.3 million from American Recovery and Reinvestment Act (ARRA), and a low interest loan from Ohio Water Development Authority (OWDA).

In 2004, the summer average daily flow was 0.1 mgd, and the peak daily was 0.31 mgd. The winter average daily flow was 0.03 mgd and the peak daily was 0.28 mgd. The WWTP was originally designed based on a waste stream of 300 mg/L BOD₅. As the service area has expanded, the influent strength has regularly approached 200 mg/L BOD₅.

Before the installation of the current treatment plant, the Village used a 0.12 mgd extended aeration plant. This plant is still used as an aerobic digester during summer months when the system experiences its peak organic loadings.

There are several package plants in the unincorporated areas of South Bass Island (Table 5-53).

Table 5-53: Package Plants in the Put-in-Bay Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Bird's Nest ^A	OT-86	Private	1982	2PR00208	7,000
Fox's Den Campground ^A	OT-90	Private	1980	2PR00207	5,000
Island Club MHP ^A	OT-136	Private	1988	2PR00074	29,000
Miller Boat Lines ^A	OT-153	Private		2PR00154	5,000
Put-in-Bay Condos ^A	OT-142	Private	1987	2PR00222	10,600
Saunder's Resort South ^A	OT-93	Private	1983	2PR00133	4,500
South Bass Island State Park ^A	OT-95	Public	1992	2PP00045	20,000
Victory Park Resort ^A	OT-97	Private*	1958	No discharge	1,500

^AStatus is active

*Facility type is assumed

Note: Data are based on current available data as of April 2019

Issues

The existing system should be expanded to serve the entire Village. Most of the Village is presently served; the remaining areas should be connected. A public sewerage system is needed to serve as much of the developed part of South Bass Island as possible. Conventional extended aeration package plants are poorly suited to handle widely varying flow rates. When small treatment plants receive surge flows, they provide little wastewater treatment.

The Ottawa County Health Department is concerned with the potential for failed septic systems on South Bass Island. The Health Department determines the adequacy of septic systems whenever there is an application for a building or development permit, and during mortgage inspections. In addition, all permits currently issued for new or replacement septic systems include a requirement for annual inspections of the septic system and an operational and maintenance permit for the life of the septic system. Whenever the Health Department finds evidence of a failed or failing septic system it requires the owner to replace the septic system.

The village is working with Ohio EPA to create a phosphorous reduction plan. This is currently in the planning stage and will be updated once next steps are determined.

Package Plants and Onsite Sewage Systems

Ohio EPA, Ottawa County Commissioners, Ottawa County Health Department, and the Put-in-Bay Township Trustees negotiated Findings & Orders that impose a Special Connection Ban on South Bass Island. For reasons of environmental protection, public health, and financial viability of sewer system improvements restrictions need to be placed on new on-site systems and package plants. The following restrictions apply to the entirety of South Bass Island:

- No new package plants shall be permitted; connection to the Put-in-Bay sewerage system shall be required.
- No replacement package plants shall be permitted; connection to the Put-in-Bay sewerage system shall be required.
- No expansions to existing package plants shall be permitted; connection to the Put-in-Bay

sewerage system shall be required. This shall not preclude an expansion to a system that is in violation of its National Pollutant Discharge Elimination System (NPDES) permit and expansion is necessary to handle existing flows so long as a connection to the Put-in-Bay system is not available or accessible. If a plant is expanded under this condition, no additional connections to the system will be permitted.

- Repairs to maintain proper operation are allowed when they do not change the design capacity of the package plant.
- No new onsite or off-site sewage treatment systems shall be permitted:
 - except for the limited situations identified in the Ohio EPA's 2008 Findings and Orders;
 - until the Special Connection Ban in the Ohio EPA's 2008 Findings and Orders has been lifted.
- Existing on-site and off-site sewage disposal or treatment systems may not be replaced, repaired, or upgraded where a sanitary sewer connecting to the Put-in-Bay sewerage system is Available and Accessible (see **Chapter 6**).
- The term "off-site sewage system" means a sewage system with a discharge that will leave the property where the system is located, including, but not limited to a discharge to a storm sewer, ditch, or surface water.

Future Needs

- Sewer extensions will be needed to provide service in the Township portions of South Bass Island, and some parts of the Village of Put-in-Bay as well. The township portions are estimated at ~~\$3.2~~ millions.
- The existing wastewater plant requires additional capacity for ~~current and near-term~~ future needs. The Village, Township, and County have entered a long-term agreement that addresses service needs for South Bass and Gibraltar Islands; Stone Lab on Gibraltar Island was connected to the Put-in-Bay sewer in 2007. Sewage flows vary greatly by season and weekday versus weekend.
- ~~In 2018, installation of a lining to approximately 400 feet of sewer line on Delaware Street and Toledo Avenue.~~ See Capital Improvement needs.

The capital improvement plan for the Put-in-Bay FPA is shown in Table 5-54.

Table 5-54: Put-in-Bay FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs (\$)						
			2025	2026	2027	2028	2029	2030	Future
Delaware St. 400' sewer lining	PIB				<u>\$50,000</u> <u>k</u>				
Toledo Ave. 700' storm sewer	PIB	<u>Updated below</u>							
WTP Sewer Tie-In	PIB		<u>Completed 2022</u>						
Biosolids Drying Pad Upgrade	PIB	<u>100,000</u>			<u>\$100,000</u> <u>k</u>				
PIB Township Sewer Extensions	Ottawa County	<u>TBD</u>							<u>2045</u>
<u>Storm from Toledo to Cincinnati</u>		<u>50,000</u>	<u>50,000</u>						
<u>Cincinnati storm sewer to Bath Street to lake discharge</u>		<u>60,000</u>		<u>60,000</u>					
<u>Storm from Concord Str to Erie Str</u>		<u>50,000</u>			<u>50,000</u>				
<u>Stoiber Dorns to park drain system</u>		<u>50,000</u>				<u>50,000</u>			

Several additional infrastructure projects are underway with costs and timelines to be updated.

* New 3" forced main from monument to LS to Toledo gravity sewer for future use on hold

- Sybil gravity sewer~~LPS~~ from water plant to Langram Ave. gravity sewer
- Toledo Ave LPS to Langram Ave.
- Reverse flow on Loraine Ave. to wastewater plant, lowering load on the Bathhouse LS
- Extending Shore Villas/East Point Rd. gravity currently being installed~~LPS system~~
- ~~Extension of gravity sewer from Catawba LS to State Park using Catawba Ave. Tabled~~
- Change flow from Bayshore Resort to Back Bay Condos to lower loading on Bath Str. LS
- ~~— Storm from Toledo to Cincinnati 2025 \$50 k~~
- ~~— Cincinnati storm sewer to Bath Street to lake discharge 2026 \$50 k~~
- ~~— Storm from Concord Str to Erie Str 2027 \$50 k~~
- ~~Stoiber Dorns to park drain system 2028 \$50 k~~

ROCKY RIDGE FACILITY PLANNING AREA

The Rocky Ridge Facility Planning Area (FPA) is a designated region within the village of Rocky Ridge where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Rocky Ridge (Figure 5-21). The Rocky Ridge FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Designated Management Agencies from the Rocky Ridge. The responsibilities of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Rocky Ridge:** Responsible for planning public sewerage system; and will own and operate it if, and when built.

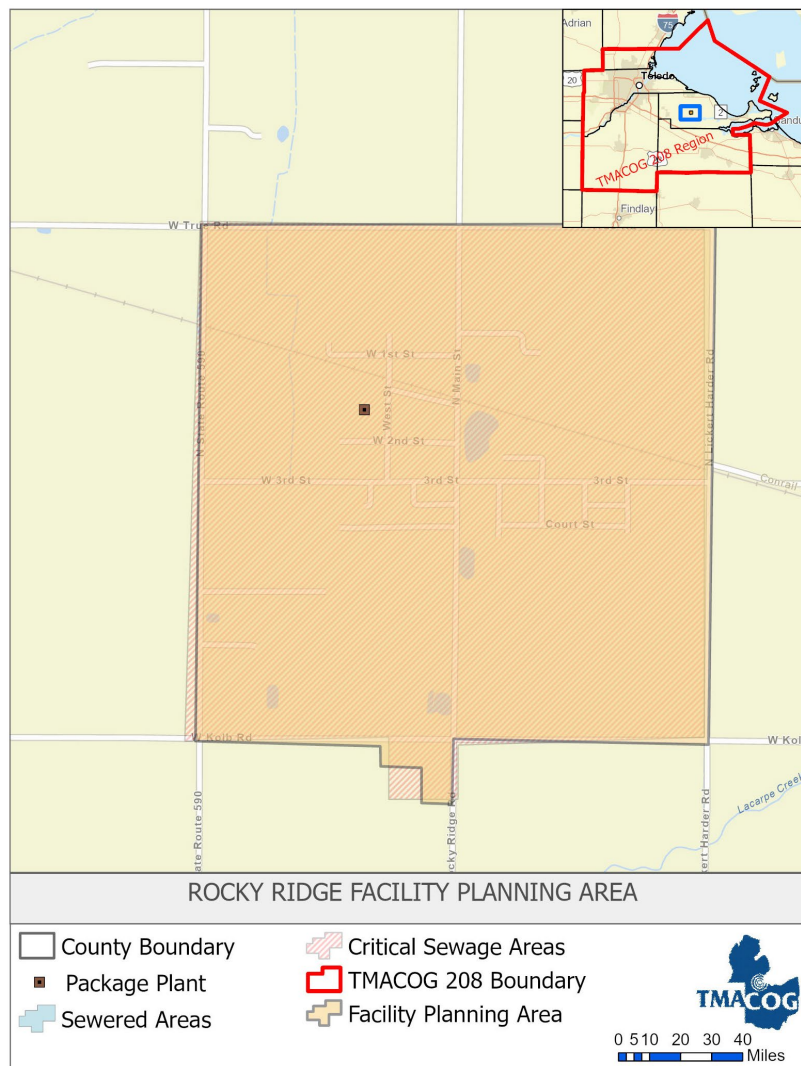


Figure 5-21: Rocky Ridge Facility Planning Area

Table 5-55: Rocky Ridge Area Population

Area	Population
Rocky Ridge, entire jurisdiction	312
Estimates within the FPA boundary	

Source: U.S. Census 2020 decennial census.

Present Facilities

The Village of Rocky Ridge does not have a treatment or a collection system and has been identified as having health problems due to the presence of septic tank effluent in the local ditches. Rocky Ridge School has a 2,100 gpd package plant; otherwise, the Village is served by individual septic systems, many of which are believed to be failing.

Package plants located in the FPA are listed in Table 5-56.

Table 5-56: Package Plants in the Rocky Ridge Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Zinser Homesteadl	OT-08	Private	1984	2PT00029	2,100

¹Status is inactive

Note: Data are based on current available data as of April 2019

Issues

Rocky Ridge's need for a public sewerage system has been long documented. The town is not under orders, however, and there is no currently active project.

The Toussaint River TMDL notes, "Further downstream at Rocky Ridge Road (RM 10.45), fecal coliform bacteria levels exceeded the PCR [Primary Contact Recreation] criterion on one occasion and strontium levels remained elevated. Bacteria levels were likely influenced by the discharge of poorly treated sewage from the unsewered Village of Rocky Ridge."

Future Needs

Rocky Ridge should prepare a General Plan to identify the most cost-effective sewerage option. Implementation should include preparing a financing plan that will make the system affordable to residents. An income survey may be needed to support grant and low interest loan applications.

Building sewers in Rocky Ridge would be expensive because of its shallow bedrock. On the positive side, the Village seems likely to qualify for grant programs. If a sewer system were built, the most likely treatment options would be:

- A new treatment plant for Rocky Ridge.
- Tap into the existing Oak Harbor system; the western edge of the Oak Harbor FPA is about 2.5 miles from the eastern corporate limits of Rocky Ridge.

Please see below for ~~the~~^a planned project ~~infor~~ the future

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Rocky Ridge Sanitary Sewer Project	Ottawa County	TBD							2045
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

WOOD COUNTY FACILITY PLANNING AREAS

BLOOMDALE - BAIRDSTOWN FACILITY PLANNING AREA

The Bloomdale--Bairdstown Facility Planning Area (FPA) is a designated region within the Wood County area where wastewater management, including sewage treatment and disposal, is planned and coordinated (Figure 5-33). The Bloomdale--Bairdstown FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. The Bloomdale--Bairdstown FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibilities of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** The Villages of Bloomdale and Bairdstown are members of Northwestern Water and Sewer District. The District is responsible for planning public sewerage system, which it owns and operates.

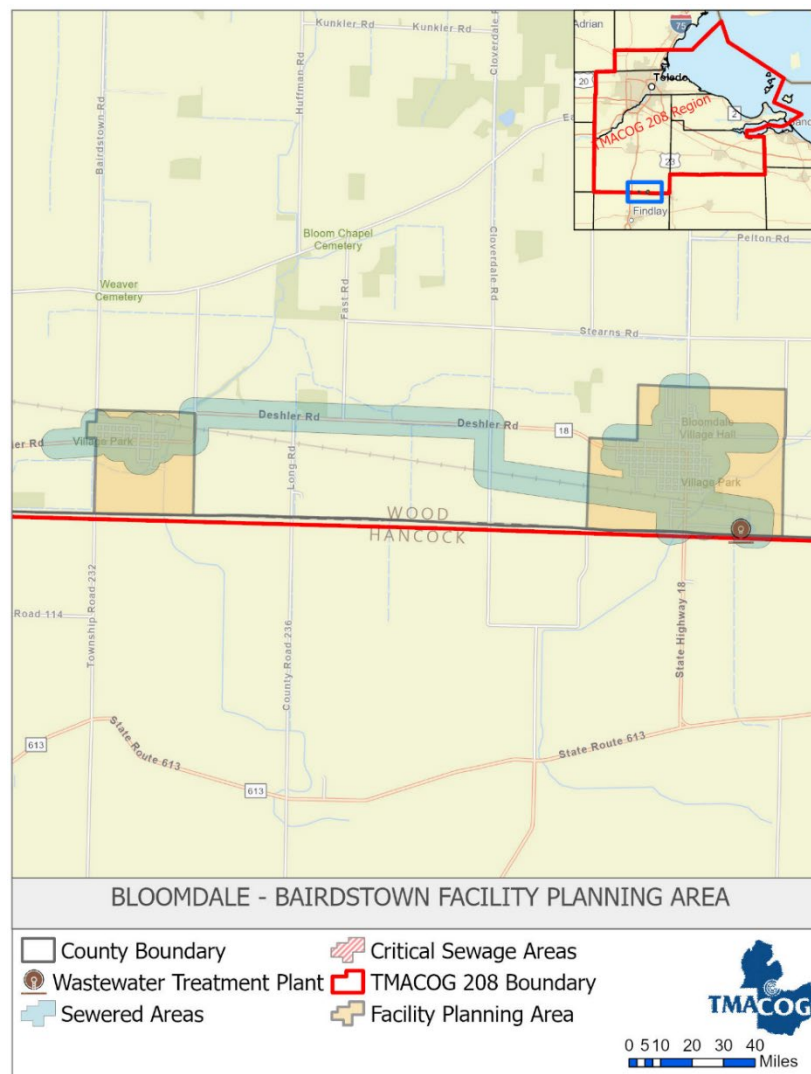


Figure 5-33: Bloomdale-Bairdstown Facility Planning Area

Table 5-80: Bloomdale-Bairdstown Area Population

Area	Population
Bloomdale, entire jurisdiction	665
Bairdstown, entire jurisdiction	115

Source: the U.S. Census 2020 decennial census

Present Facilities

The 2017 Bloomdale/Bairdstown Wastewater Treatment Plant is an Activated Sludge System which includes an oxidation ditch, final settling tanks, ultraviolet disinfection and aerated sludge treatment and storage. The sludge treatment provides disposal options for both land application and landfill. Average daily design flow is at 0.100 mgd and the peak flow is at 0.300 mgd. The average ~~daily~~ monthly flow in 202~~30~~ to 202~~41~~ was 0.08~~52~~ mgd.

The Bloomdale small diameter gravity sewer collection system was constructed in 1991 and the original wastewater plant, which was also constructed in 1991, has been replaced with the new treatment plant that now includes the Village of Bairdstown.

Northwestern Water and Sewer District constructed a conventional gravity sewer collection system in 2017 to serve the Village of Bairdstown. The gravity sewers flow to a main pump station located on State Route 18, just south of the railroad tracks. A second pump station was constructed to deliver sanitary flow to the Bloomdale sewer collection system. As of March 2017, all of Bairdstown is sewered and lateral hook ups to homes are complete.

The Bairdstown sewer system cost \$1,985,438 and the joint WWTP cost \$3,020,000. The project was funded by Community Development Block Grant (CDBG) program and U.S. Department of Agriculture (USDA).

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Bloomdale-Bairdstown wastewater treatment plant.

Future Needs

- This Areawide Water Quality Management Plan supports grant funding and other financial assistance to achieve the future goals for the Bloomdale-Bairdstown FPA.
- Elimination of wet weather flow through sewer and lateral rehabilitation. ~~Lateral hook up to the sanitary sewer installed throughout the Village of Bairdstown.~~

The capital improvement plan for the Bloomdale-Bairdstown FPA is shown in Table 5-81.

Table 5-81: Bloomdale-Bairdstown FPA Capital Improvement Schedule

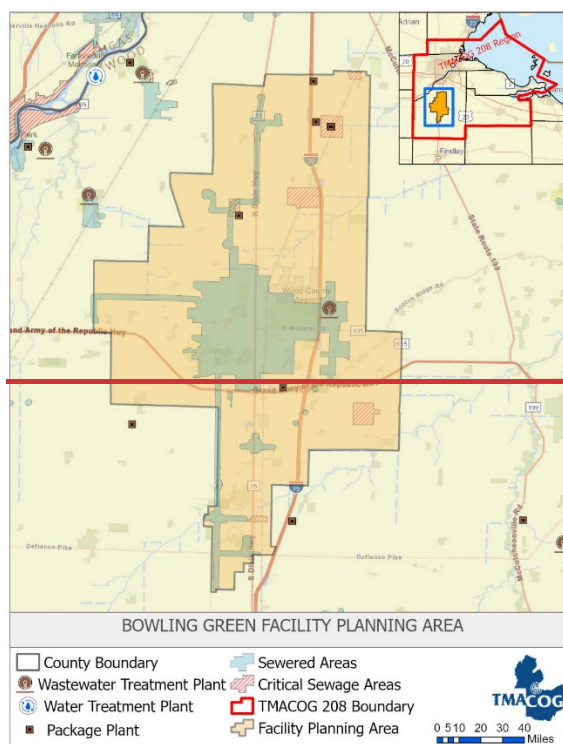
Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2022	2023	2024	2025	2026	2027	Future
Bloomdale Sanitary Sewer I/I Removal	Northwestern Water and Sewer District	\$1050,000					\$50,000		<u>\$100,000</u>
		\$5100,000							

BOWLING GREEN FACILITY PLANNING AREA

The Bowling Green Facility Planning Area (FPA) is a designated region within the Bowling Green area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Toledo (Figure 5-34). The Bowling Green FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by several communities which are represented by Designated Management Agencies. The responsibilities of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **City of Bowling Green:** Owns and operates wastewater treatment facilities, and collection system within the corporate limits.
- **Village of Portage:** Owns the wastewater collection system within the corporate limits; maintenance is conducted by Northwestern Water and Sewer District under contract with the Village.
- **Northwestern Water and Sewer District:** Owns and operates collection systems outside the corporate limits, connecting to the Bowling Green municipal wastewater collection system for treatment services.



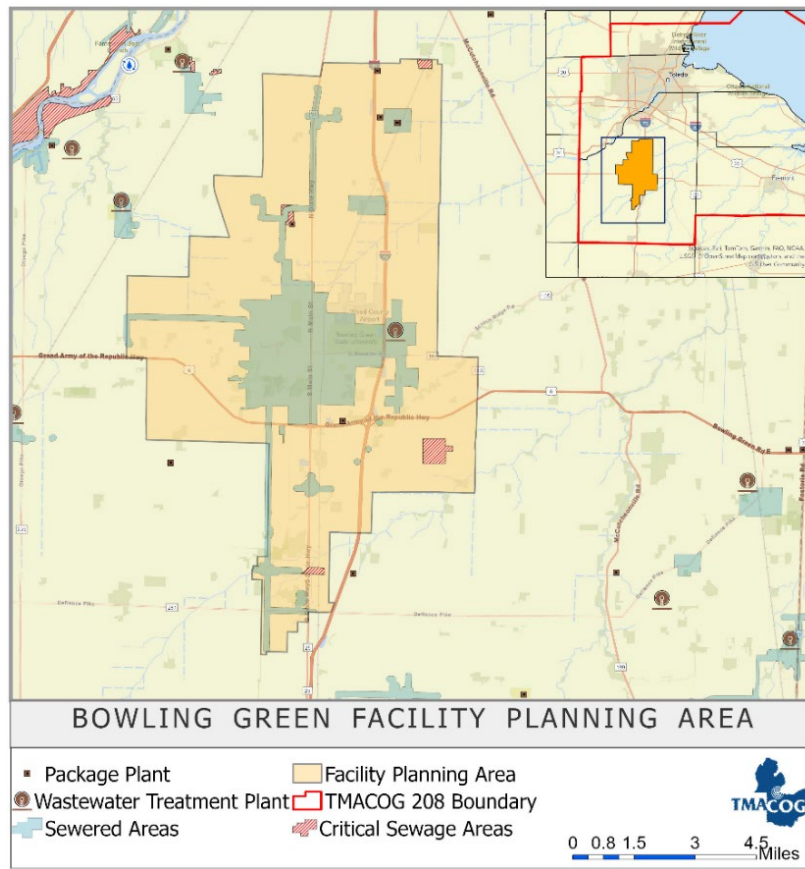


Figure 5-34: Bowling Green Facility Planning Area

Table 5-82: Bowling Green Area Population

Area	Population
Bowling Green, entire jurisdiction	30,808
Portage, entire jurisdiction	398
Center Township, entire jurisdiction*	1,140
Liberty Township, entire jurisdiction*	1,690
Plain Township, entire jurisdiction*	1,625
Portage Township, entire jurisdiction*	1,558

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-82 are from the U.S. Census 2020 decennial census.

Present Facilities

Bowling Green built its current WWTP in 1982. It is an activated sludge plant facility with tertiary disk filters (2009), auto-thermophilic aerobic digestion (ATAD 2005), ultraviolet disinfection (2010), and a septage receiving station (2005). The City of Bowling Green has developed and implemented an industrial wastewater pretreatment program since 2006. In 2018, the treatment plant expanded the expanded the grit removal capacity to 30 mgd.

The plant uses a centrifuge to dewater Class A biosolids. Currently, a local landscape contractor creates commercial topsoil using the biosolids. The plant has an average design capacity of 10.0 mgd, with a peak capacity of 20 mgd. In 2009 the tertiary sand filters were replaced with 30 mgd cloth disc filter units; a 30 mgd ultraviolet disinfection system was installed in 2010. Ohio EPA data shows an average flow of 5.856 mgd and a peak flow of 29.881 mgd during the period of 2010-2013.

The Bowling Green system includes combined sewers serving an area of 1,940 acres (out of about 5,400 acres for the whole service area). When the wastewater plant was built, an underground combined sewage overflow retention tank was included. The retention tank substantially reduces but does not completely eliminate overflows. Portage was included in the Bowling Green FPA and was accounted for in sizing the treatment plant. Portage installed sanitary sewers and tapped into the system in 1991.

The east side of the SR 582/SR 25 intersection is served by the Northwestern Water and Sewer District (District) system. It connects to the system via force main following SR 25, Union Hill, and Brim Roads with treatment provided by Bowling Green.

Rudolph, an unincorporated community of about 200 residences in Liberty Township, is served by the District. It connects to the system via force main following Rudolph Rd with treatment provided by Bowling Green. The Rudolph sanitary sewer system was completed in 2003 at a cost of \$2,208,270. The project received CDBG and USDA grants totaling \$1,188,000; the balance of the capital costs will be paid by residents through rates.

There are several package sewage treatment plants in the Bowling Green FPA, two of which are 20,000 gallons per day or larger. The plant serving the Maurer Trailer Park has been identified as a critical sewage area. A recent court decision did not require the Park to be publicly sewered.

The Wood County Landfill is served by the District via force main along Poe Rd with treatment provided by Bowling Green.

Package plants in the FPA are listed in Table 5-83.

Table 5-83: Package Plants in the Bowling Green Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
13611 Klopfenstein Road ^A	WO-105	Private*	1972		1,500
Elmview C.S.A. Apartments (East) ^A	WO-43E	Private*			1,500
Elmview C.S.A. Apartments (West) ^A	WO-43W	Private			1,500
Industrial Services ^A	WO-04	Private*			1,500
Maurer Trailer Park ^A	WO-64	Private	1967, 1969, 2010	2PY00005	30,000
Principle Business Enterprises, Inc. ^A	WO-45	Private*	1976, 1978	No Disch.	1,500

^AStatus is active

*Facility type is assumed

Note: Data are based on current available data as of April 2019

Issues

The FPA covers part of the SR 25 / I-75 corridor. The Wood County Comprehensive Plan identifies this area for employment opportunities and is therefore included in the FPA with a potential for requiring future service. The area is presently rural with no public sewerage facilities in this area, active package plants, or unsewered developed areas.

Combined Sewer Overflows

As noted above in “Present Facilities,” the Bowling Green sewerage system includes an overflow retention tank. In 2006, Ohio EPA required Bowling Green to submit a Long-Term Control Plan (LTCP) to reduce overflows further.

In January 2007, the City of Bowling Green filed its CSO LTCP with the Ohio EPA and submitted a revised plan on or about June 1, 2007.

1. Although the LTCP was submitted by the Ohio EPA’s deadline, staff wasn’t convinced that the plan left no stone unturned in trying to not only eliminate CSOs, but also addressing wet and damp basement issues for local residents and businesses. As a result, staff began an investigation that included soliciting ideas from multiple engineering firms, reviewing technical documents on the subject and seeking solutions other communities have effectively employed.

The result of this investigation was staff’s development of the City of Bowling Green Comprehensive Wastewater Strategy. This document details the requirements of the City’s 2006 NPDES permit relating to a CSO LTCP and Sanitary Sewer Overflow (SSO) reporting requirements and also lists goals and objectives for a long-term wastewater strategy for the City.

2. On January 24, 2008, City staff met with Northwest District and Central District Ohio EPA

staff to solicit the Agency's reaction to and input on the proposed Comprehensive Wastewater Strategy.

Subsequently to this meeting, the Ohio EPA drafted an NPDES permit modification, effective March 1, 2008, that required upgrades of the clarifiers and the tertiary filters; upgrades of the ultraviolet disinfection system; and reports on characterization of the Wastewater Treatment Plant's increased capacity, characterization of the Storm Water Overflow Holding Basin's capacity, and an evaluation of CSO characteristics including overflow occurrence and volume. These steps were all completed by 2010. The remaining step is an evaluation of the need for additional storage at the Wastewater Treatment Plant to reduce CSO events to four, two, and zero occurrences per year. This evaluation will depend on the effects of the increased flow capacity from the Poe/Mercer Rd pumping station improvements, completed in 2013.

Critical Sewage and Ordered Areas

Several areas in the Bowling Green FPA have been identified as Critical Sewage Areas by the Wood County Health Department and/or Ohio EPA. Additionally, in 2010 Ohio EPA ordered four new areas to receive public sanitary sewers and they should be installed per Ohio EPA schedules.

- **Kramer/Huffman Roads Area:** an Ohio EPA ordered area with failing septic systems that includes about 28-33 houses. The District studied serving the area either by a sewer extension to Bowling Green, and on-site treatment solutions. Both were found to be financially infeasible. Funding applications are submitted on a regular basis to help make the project feasible. The existing systems will be managed under Health Department operation and maintenance requirements.
- **Sugar Ridge/Mercer Roads Area:** an unincorporated community with the adjacent Mercer Road including 75 residences in Center and Middleton Townships. It is about 3.0 miles north of Bowling Green between I-75 and SR 25. The original town of Sugar Ridge lies between the railroad crossing at Sugar Ridge Road on the west and I-75 on the east. More recent development has spread west along Sugar Ridge Road and north and south along Mercer Road. Sanitary sewers were constructed in 2023 to address this Ordered Area.

~~There are no wastewater treatment plants in the Sugar Ridge/Mercer Roads area; therefore, sewage is handled by on-site systems. The soils belong to the Hoytville (poorly drained clays) or Millsdale-Randolph-Romeo (shallow limestone bedrock) Associations. Both soil associations have very severe limitations for onsite sewage disposal.~~

~~Many of the septic systems in Sugar Ridge are believed to have failed, as evidenced by a severe accumulation of black sludge in the ditch on Sugar Ridge Road. The District is the DMA responsible for executing the Ohio EPA orders, which apply to 55 residences; another 23 are optional and may join the system by petition. The District studied constructing a low-pressure sewer system connecting to Bowling Green for treatment via a force main. This project may not be financially feasible. In 2017, the District completed an income survey that will address the older part of town, and which may qualify for financial help. The Army~~

~~Corp of Engineers has offered a grant that covers approximately 60% of the project costs. The NWWSD has received their permit to install for this project, and funding allowed for another 33 homes in addition to the 57 homes in the ordered area to have access to sanitary sewers.~~

Maurer Mobile Home Park: a mobile home park designated as a Critical Sewage Area. It is located just north of Bowling Green and is served by a package plant that discharges to a drainage tile on SR 25. In 2004, this wastewater treatment plant was subject to enforcement action by the Ohio Attorney General. Future changes will be per the court settlement on Ohio EPA's enforcement action.

- **Dunbridge:** an unincorporated community, located at Dunbridge Road and SR 582. There are four package plants in or near the town. Individual residences are served by septic systems. ~~While OEPA has investigated the area, issued orders at this time Dunbridge is not under orders to construct sewers. Sewers are under construction and should be completed by the end of 2025. Dunbridge is identified as a Critical Sewage Area. NWWSD is currently completing this project. This area was under order by the Ohio EPA after investigation conducted as result of WCHD referral.~~
- **Dowling:** an unincorporated community, located at Dowling Road and Conrail tracks between Dunbridge and Carter Roads. Residences are served by septic systems. Dowling is not under orders to construct sewers. The community is split between the Bowling Green and Perrysburg FPAs. Dowling is identified as a Critical Sewage Area
- **Mermill:** There is no existing documentation of sewage problems in Mermill, which has about 30 residences. No stream testing data is available, but septic system failures are very common in Wood County with houses of similar age and size on similar soils. It may be feasible to install sewers and connect to Bowling Green through Rudolph via force main.

208 Policies for New Subdivisions in Bowling Green FPA

It is the policy of the Plan that all new residential subdivisions that are required to be plated under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for plated subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New plated subdivisions shall connect to public sewers and be served by the Bowling Green wastewater treatment plant.

Future Needs

This Plan supports financial assistance for Bowling Green's wastewater facility improvements.

- ~~The District completed a General Plan to eliminate unsanitary conditions for the Sugar Ridge / Mercer Roads area. Ohio EPA orders call for construction of the sewerage system for it by (2015). Funding for this project was secured in 2021 and 2022 from the US Army Corp of Engineers, Ohio Builds and ARPA programs. The Sugar Ridge Sanitary Sewer Project construction will begin in 2022 will be completed in 2023.~~
- The District completed a General Plan to eliminate unsanitary conditions for the Huffman /

Kramer Roads area. ~~Ohio EPA orders call for construction of the sewerage system for it by 2015.~~ However, the system cost has been found not to be affordable. ~~The residents have failing systems with no viable drainage for NPDES or on site sewage treatment systems. Wood County Health Department is currently working with the Wood County Engineer in Liberty Township, for replacement of a storm line to service small lots with several failing systems in the Oak St./Williams St./State Rte. 25 area. This would allow functioning sewage treatment systems to be installed.~~

- ~~Federal funds have been requested and may be available in 2023.~~

The capital improvement plan for the Bowling Green FPA is shown in Table 5-84.

Table 5-84: Bowling Green FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			<u>2025</u>	2026	2027	2028	2029	2030	Future
Sugar Ridge / Mercer general plan, sewers	Northwest ern Water and Sewer District	3,000,000							
Huffman / Kramer general plan, sewers	Northwest ern Water and Sewer District	3,500,000 <u>\$6,000,000</u>	\$3,500,000						<u>\$6,000,000</u>
Dunbridge Area Sewer	Northwest ern Water and Sewer District	\$12,000,000 <u>\$2,500,000</u>	<u>\$12,000,000</u>						\$2,500,000
		\$189,000,000							

7

BRADNER FACILITY PLANNING AREA

The Bradner Facility Planning Area (FPA) is a designated region within the village of Bradner where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Village of Bradner (Figure 5-35). The Bradner FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by several communities which are represented by Designated Management Agencies. The responsibilities of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Bradner:** Owns and operates wastewater treatment facilities, and collection system within the corporate limits.
- **Northwestern Water and Sewer District:** Will own and operate portions of the collection system in unincorporated areas of Wood County, connecting to the Bradner system for treatment services.
- **Sandusky County:** Will own and operate, if and when built, portions of the collection system in unincorporated areas of Sandusky County, connecting to the Bradner system for treatment services.

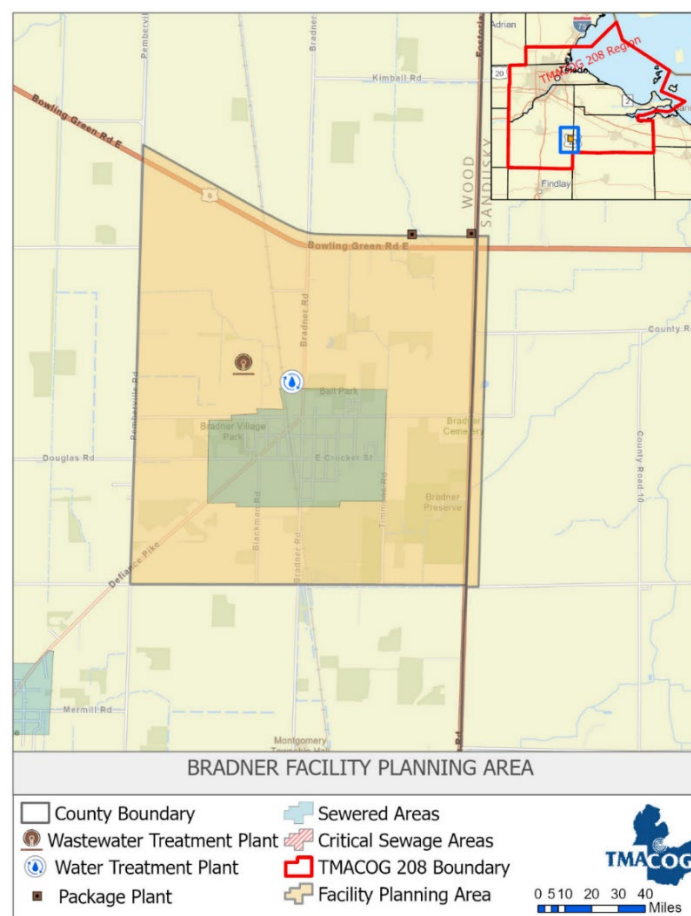


Figure 5-35: Bradner Facility Planning Area

Table 5-85: Bradner Area Population

Area	Population
Bradner, entire jurisdiction	971
Montgomery Township, entire jurisdiction*	4,157
Madison Township, entire jurisdiction*	3,887
Scott Township, entire jurisdiction*	1,330

*only part of this jurisdiction is within the FPA boundary

The 2020 population numbers in Table 5-85 are from the U.S. Census 2020 decennial census.

Present Facilities

The Bradner WWTP is a three-cell lagoon facility that was built in 1988. The plant is a controlled discharge lagoon, meaning it does not discharge continuously, nor does it discharge every day. The system uses conventional gravity sewers. The design capacity is 0.13 mgd; Ohio EPA data shows an average flow of 0.238 mgd, and a peak flow of 0.274 mgd on days where discharges occurred during the period of 2004-2009. Daily, the average discharge was 0.71 mgd. In 2009, Bradner received 75% American Recovery and Reinvestment Act (ARRA) funding on a \$389,000 upgrade for five lift stations.

Package plants located in Bradner the FPA are listed in Table 5-86.

Table 5-86: Package Plants in the Bradner Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Ports Petroleum Fuel Mart #767 ^A	WO-103	Private	1987	2PR00190	4,000
Twin Maples MHP ^A	WO-106	Private		2PY00069	5,000
US 6/23 Retail Sales ^A	SA-21	Private	1973	2PR00202	5,000

^AStatus is active

Note: Data are based on current available data as of April 2019

New Subdivisions

It is the policy of the 208 Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Bradner WWTP.

Future Needs

~~Please fill this table if you have any ongoing project or planned project for future~~

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future

CUSTAR/MILTON CENTER FACILITY PLANNING AREA

The Custar/Milton Facility Planning Area (FPA) is a designated region within the Custar/Milton area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Village of Custar/Milton (Figure 5-36). The Custar/Milton FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibilities of each of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** both the Villages of Custar and Milton Center, and Milton Township are members of Northwestern Water and Sewer District. The District is responsible for the planning, ownership and operations of public sewage systems in both incorporated and unincorporated areas.

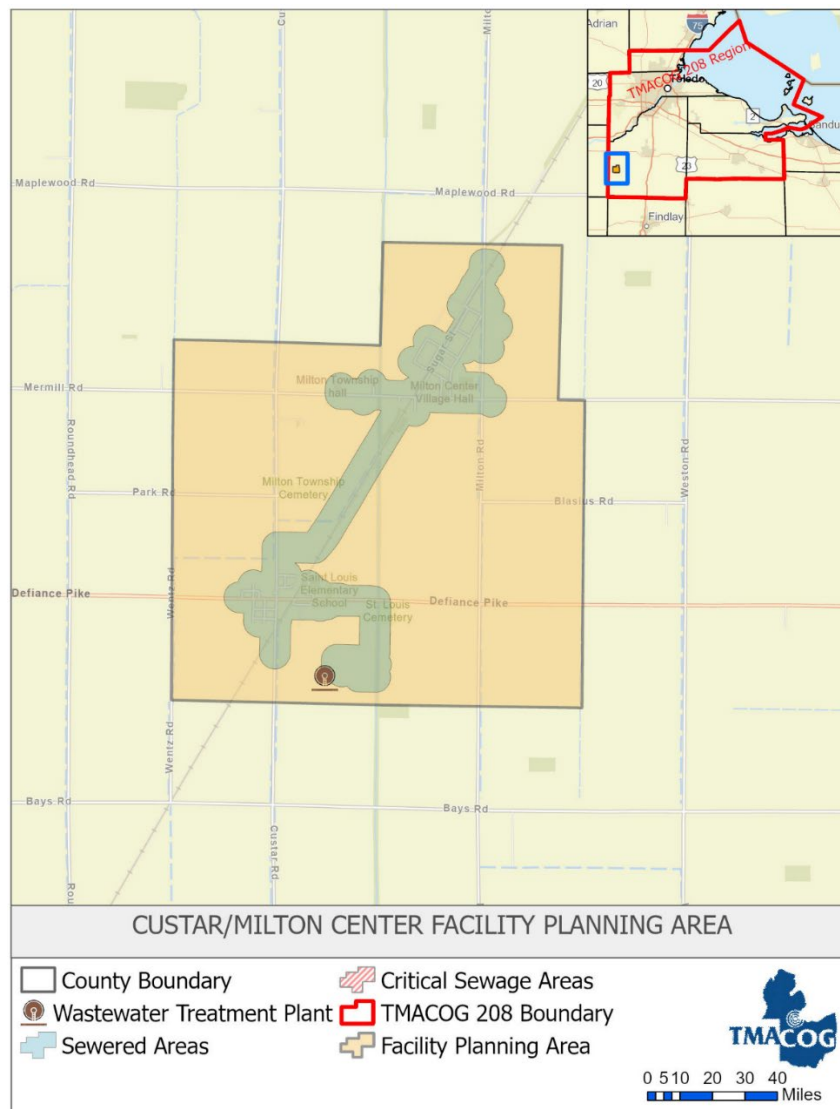


Figure 5-36: Custar/Milton Center Facility Planning Area

Table 5-87: Custar/Milton Center Area Population

Area	Total Population
Custar, entire jurisdiction	178
Milton Center, entire jurisdiction	137
Milton Township, entire jurisdiction*	929
Estimates within the FPA boundary	

*only part of this jurisdiction is within the FPA boundary

The 2020 population numbers in Table 5-87 are from the U.S. Census 2020 decennial census.

Present Facilities

A wastewater collection and treatment system consisting of conventional gravity sewers, a pump station, and a non-aerated facultative controlled discharge lagoon was completed in the Village of Custar in 2006. The plant began serving the Villages of Custar in 2007 and Milton Center in 2008. The wastewater lagoon has a design flow of 0.05 mgd. [The peak outfall discharge in 2023-2024 period was 0.105 mgd.](#)

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Custar wastewater treatment plant.

Future Needs

The current wastewater systems serving both Villages should provide adequate capacity to handle the wastewater demands for the foreseeable future.

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Lagoon Sludge Removal	NWWSD	\$25,000				\$25,000			

CYGNET/JERRY CITY FACILITY PLANNING AREA

The Cygnet/Jerry Facility Planning Area (FPA) is a designated region within the Cygnet/Jerry area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Cygnet/Jerry (Figure 5-37). The Cygnet/Jerry FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibilities of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** Owns and operates the collection system in the Village of Jerry City, the Village of Cygnet, and unincorporated areas.

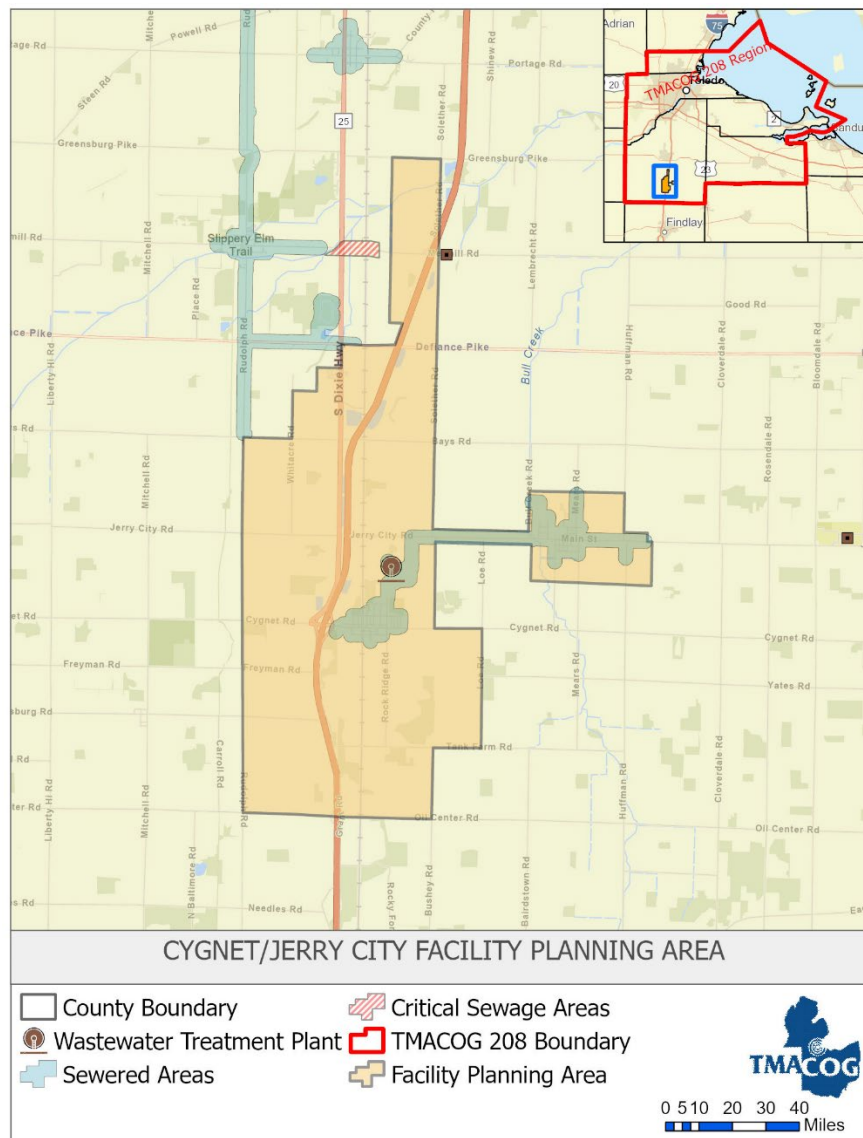


Figure 5-37: Cygnet/Jerry City Facility Area

Table 5-88: Cygnet/Jerry City Area Population

Area	Total Population
Cygnet, entire jurisdiction	543
Jerry City, entire jurisdiction	454
Bloom Township, entire jurisdiction*	2,513
Henry Township, entire jurisdiction*	4,079
Liberty Township, entire jurisdiction*	1,690
Portage Township, entire jurisdiction*	1,558

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-88 are from the U.S. Census 2020 decennial census.

Present Facilities

The Cygnet/Jerry City WWTP is a lagoon facility with an average daily capacity of 0.09 mgd. ~~At the time of construction in 1995, there were 247,220~~ customers in Cygnet and ~~214,172~~ in Jerry City. The plant was designed to allow 50% growth in both towns. Ohio EPA data shows an average flow of 1.502 mgd, and a peak flow of 1.700 mgd during the period of 2004-2007. ~~Peak dD~~ Discharges from the lagoons averaged ~~0.20 mgd in 2020-2021~~ was 0.106 mgd in 2023-2024. The Cygnet sewer system was completed in 1995, and Jerry City's in 1996; both systems are conventional gravity sewer systems. Each Village pumps its sewage to the treatment plant at a main pump station. In 2014, flow meters were added to both main pump stations.

In 2021-2022, the three sewer pump stations in Cygnet were replaced with new submersible stations and a new force main was constructed to make the system operate more efficiently by the elimination of double pumping.

Issues

The Cygnet/Jerry City FPA covers part of the corridor U.S. 25 / I-75. The Wood County Comprehensive Plan identifies this area for employment opportunities and is therefore included in the FPA with a potential for requiring future service. The area is presently rural with no public sewerage facilities available, active package plants, or unsewered developed areas.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Cygnet wastewater treatment plant.

Future Needs

Capital improvement needs include the replacement of each pump station and the addition of flow meters. ~~The pump station rehab and flow meter upgrades will be complete in 2021.~~ The capital improvement plan for the Cygnet/Jerry City FPA is shown in Table 5-89. [Residents in the Hammansburg area have requested that sanitary sewers be extended to serve their homes. Approximately 50 homes would be impacted by this project. The costs per home are very high and significant grant funding will be required to allow it to proceed.](#)

Table 5-89: Cygnet/Jerry City FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
Cygnet Pump Station Replacement and Flow Meter	Northwestern Water and Sewer District	\$410,000							
Hammansburg Sanitary Sewer System		\$410,000	-						\$2,000,000

FOSTORIA FACILITY PLANNING AREA

Fostoria Facility Planning Area (FPA) is a designated region within the Fostoria area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Fostoria (Figure 5-38). The Fostoria FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by several communities which are represented by Designated Management Agencies. The responsibilities of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **City of Fostoria:** Owns and operates wastewater treatment facilities, and collection system within its corporate limits. Owns and operates collection system in Hancock County unincorporated areas, connecting to the City system for treatment services.
- **Northwestern Water and Sewer District:** Owns and operates collection system in Wood County unincorporated areas, connecting to the City system for treatment services.
- **Seneca County:** Owns and operates collection system in Seneca County unincorporated areas, connecting to the City system for treatment services.
- **Village of New Riegel:** Seneca County owns and operates the New Riegel collection system, connecting to the Fostoria system for treatment services.

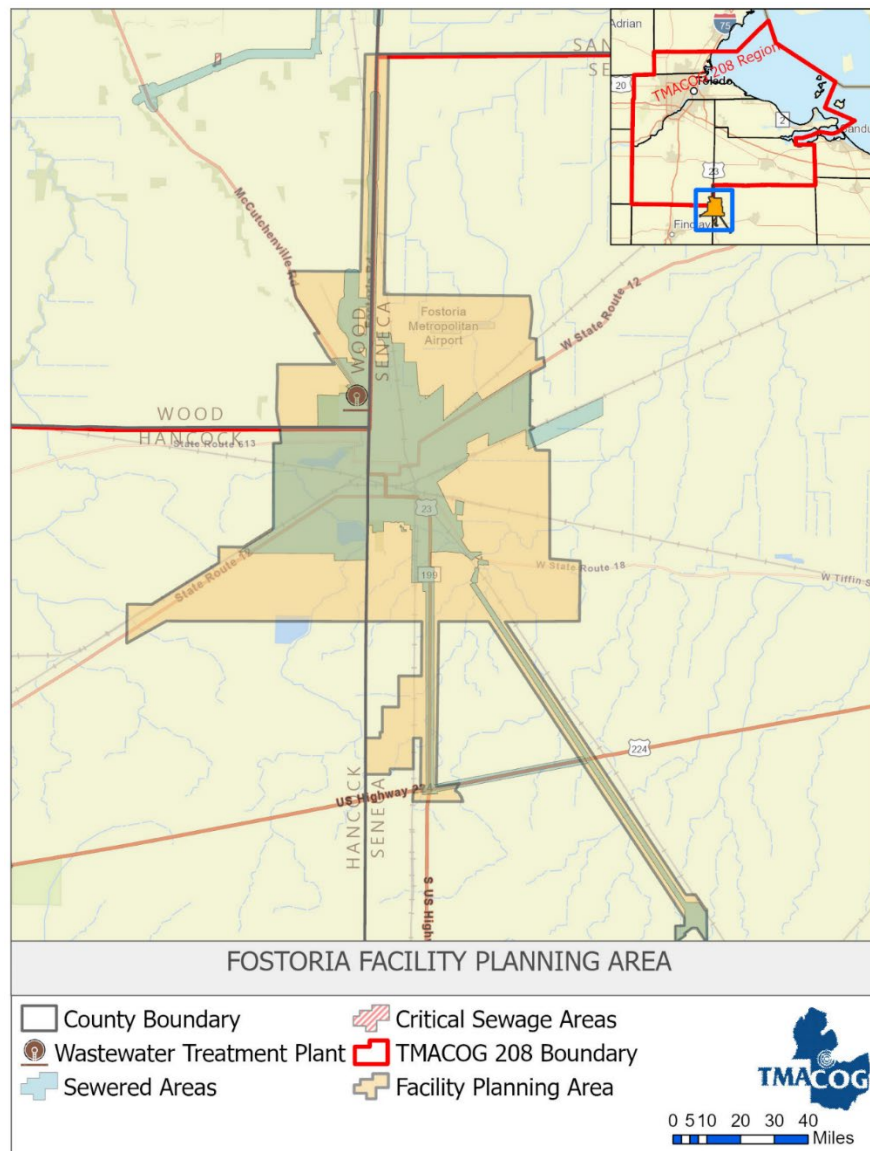


Figure 5-38: Fostoria Facility Planning Area

Table 5-90: Fostoria Area Population

Area	Population
Fostoria, entire jurisdiction	13,046
Perry Township, entire jurisdiction (Wood County)*	1,568
Washington Township, entire jurisdiction (Hancock County)*	4,353
New Riegel, entire jurisdiction	286
Loudon Township, entire jurisdiction (Seneca County)*	2,246

Jackson Township, entire jurisdiction (Seneca County)*	1,401
Total	22,900

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-90 are from the U.S. Census 2020 decennial census.

Present Facilities

The Fostoria WWTP is a primary settling and activated sludge facility that treated an average daily flow of 4.132718 mgd in 20214 with a daily maximum flow of 11.34013.179 mgd and a minimum flow of 2.1431.833 mgd. Primary treatment capacity is 12.7 mgd, and secondary treatment capacity is 12.7 mgd. In 2014, the City completed the installation of two new final 100 feet diameter clarifiers. The previous rectangular clarifiers were converted to six additional aeration tanks. Additionally, improvements were made to the flow splitter chamber into the aeration tanks, and the return sludge pump wet well along with the construction of related piping and flow meters. These improvements increased the secondary treatment capacity to 12.7 mgd. Ohio EPA data showed an average flow of 4.500 mgd, and a peak flow of 12.047 mgd during the period of 2011-2015. The plant uses ultraviolet (UV) disinfection of final effluent; sludge is held in an aerated sludge holding tank until it is dewatered by a belt filter press. In 201623, the City completed installation of a new UV treatment system.

In 1994, the City completed a major upgrade and expansion that included increased primary treatment capacity, elimination of the plant bypass, CSO abatement, and construction of a 2.0 mg primary effluent storage lagoon. The total cost for these improvements was \$7 million. The lagoon stores primary effluent that the second treatment facilities cannot handle during wet weather. The primary effluent is stored until the plant has the capacity to treat it. The primary effluent storage lagoon was removed as part of the current wastewater treatment plant improvements. In 2020 construction was started on a new raw influent pumping station, a coarse bar screen, fine bar screens and a 7.5 mg equalization basin. The plant's pumping capacity will be increased to 45 mgd. Of this flow, 12.7 mgd will go through the treatment plant and the balance will be stored in the equalization basin. ~~The facility is currently fully operational and final testing, punch list items and site restoration is in progress. The project is scheduled for completion by October of 2022. These improvements are complete.~~ The project cost ~~is~~ was approximately \$15 million.

Sixty-eight percent of Fostoria's sewer system was combined. New sewers are separate. There are ~~four~~ 23 CSOs, three of which discharge to the east branch of the Portage River, and ~~one~~ 20 to Wolf CreekCaples-Flack Ditch. In 20214, the City had 10269 CSO events that discharged 177.7580.32 mg into the ~~E~~east ~~B~~branch ~~of the~~ Portage River; there was 40.5646.23" of rainfall recorded that year.

Northwestern Water and Sewer District

The District owns and operates a sanitary sewer force main that serves Charter Steel four miles north of Fostoria on U.S. 23. Additionally, the District serves a subdivision known as "Flechtner Heights" just north of Fostoria's incorporated limits.

Other Outside City Service Areas

Besides the FPA contiguous to the City, Fostoria provides wastewater treatment services to two non-

contiguous areas via force main. These areas include:

- South of the City in Loudon Township of Seneca County along U.S. 23
- The Village of New Riegel

Package plants located in the FPA are listed in Table 5-91.

Table 5-91: Package Plants in the Fostoria Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Hammer-Heinsman Subdivision ^A	SE-11	Public		2PG00011	30,000
Poplar Village MHP ^A	SE-10	Public		2PY00032	18,750

^AStatus is active

Note: Data are based on current available data as of April 2019

Issues

Combined Sewer Overflows

Fostoria's NPDES permit was renewed on ~~January 1, 2017~~September 1, 2022 with an expiration date of ~~December 31, 2021~~August 31, 2027. ~~The permit is currently in the renewal stage~~The permit was modified on July 1, 2025 to add 19 CSOs. The permit modification expires on August 31, 2027. In August 2006, the United States of America on behalf of the U.S. EPA and the Ohio EPA, filed a complaint against the City of Fostoria, Ohio seeking injunctive relief and civil penalties, and alleging that the City of Fostoria violated the Clean Water Act and certain terms and conditions of the NPDES permit.

The City of Fostoria is currently working on the items required by the Consent Decree. ~~The City developed a Combined Sewer System Monitoring and Modeling Plan. The goal of this monitoring and modeling study is to satisfy the hydrologic and hydraulic portions of the planning required for system characterization, monitoring and modeling by the City's NPDES permit. This plan will serve as one of the essential elements of the City's Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP). The ultimate goal of the LTCP is to assure the City's compliance with existing water quality regulations relating to CSOs. The City completed the monitoring and modeling in 2008 and submitted the LTCP to the U.S. EPA Region 5 Office in February 2012.~~The City has completed updated modeling of its sewer system and has submitted it to Ohio EPA and USEPA. The approval of the model is nearly complete. Once the approval is complete the typical year model will be submitted and a new Long Term Control plan will be prepared and submitted to Ohio EPA and USEPA along with a modified schedule for completion of the improvements. This was initiated based on the modified performance of the system as a result of the recently completed improvements at the WWTP.

~~A modification to the LTCP schedule was approved on April 17, 2020. This modification allowed for Phase 2 WWTP upgrades which include a new raw influent pump station with additional wet weather pumping capacity (5 pumps at 10.5 MGD each for wet weather and 2 pumps at 6.2 MGD each for dry weather), mechanical fine screens and a 7.5 MG CSO storage basin to be constructed prior to the elimination of CSO #2 and CSO #3. This project is currently under construction.~~

Unsewered Areas

Several unsewered portions of the Fostoria FPA are likely to need sewers. These areas include:

- A subdivision in Loudon Township, Seneca County, southeast of the corporate limits. No stream sampling data is available, but septic systems in the area are believed to be failing and discharging into the Wolf Creek drainage basin.
- State Route 18, just west of existing sewers. It is recommended by the Hancock County Health Department as a Critical Sewage Area.
- The triangle between Washington Township Roads 218 and 261. It is recommended by the Hancock County Health Department as a Critical Sewage Area.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions in Wood County that are required to be platted under subdivision regulations: for platted subdivisions of more than five (5) lots, septic tanks or individual household sewage treatment systems shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Fostoria wastewater treatment plant.

Future Needs

- The City of Fostoria is facing significant improvements to its sewer system and wastewater treatment plant.
- Fostoria will continue implementation of its CSO Abatement Plan and [and revision of its](#) Long-Term Control Plan.
- Install sanitary sewers in developed but unsewered areas that have documented sewage problems.
- Construct sewer extensions to eliminate remaining problem areas and provide service to new developments. New package plants and septic systems should not be permitted in areas that may be served by public sewers.
- Future collection system and wastewater plant improvements to meet the Long-Term Control Plan requirements in the FPA are provided in Table 5-92. [These will be modified once the revised Long Term Control Plan is completed.](#)

Table 5-92: Fostoria FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
LTCP: CSO No. 2 & 3 Elimination	Fostoria	\$9,510,000 \$10,165,215	\$9,510,000	\$9,510,000					

LTCP: CSO #5 Elimination & Structure Modification	Fostoria	\$250,000 TBD		250,000		TBD			
LTCP: WWTP Upgrades Phase II (Under Construction Completed)	Fostoria	\$1,700,000 \$15,000,000	\$1,700,000						
		\$125,165,215							

GRAND RAPIDS FACILITY PLANNING AREA

The Grand Rapid Facility Planning Area (FPA) is a designated region within Grand Rapid area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Grand Rapid (Figure 5-39). The Grand Rapid FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by several communities which are represented by Designated Management Agencies. The responsibilities of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Grand Rapids:** Owns and operates wastewater treatment facilities, and the collection system within its corporate limits, and connecting the Marina in Henry County to the Village system.
- **Northwestern Water and Sewer District:** Owns and operates collection systems and is responsible for planning and construction of public sanitary sewage systems in unincorporated areas of Wood County. Henry County Regional Water and Sewer was merged with Northwestern Water and Sewer District in 2020
- ~~Henry County Regional Water & Sewer District: Merged with Northwestern Water and Sewer District in 2020. Plans future sewers in unincorporated areas of Henry County; if and when built, the District may construct, own, and operate sewers in these areas.~~

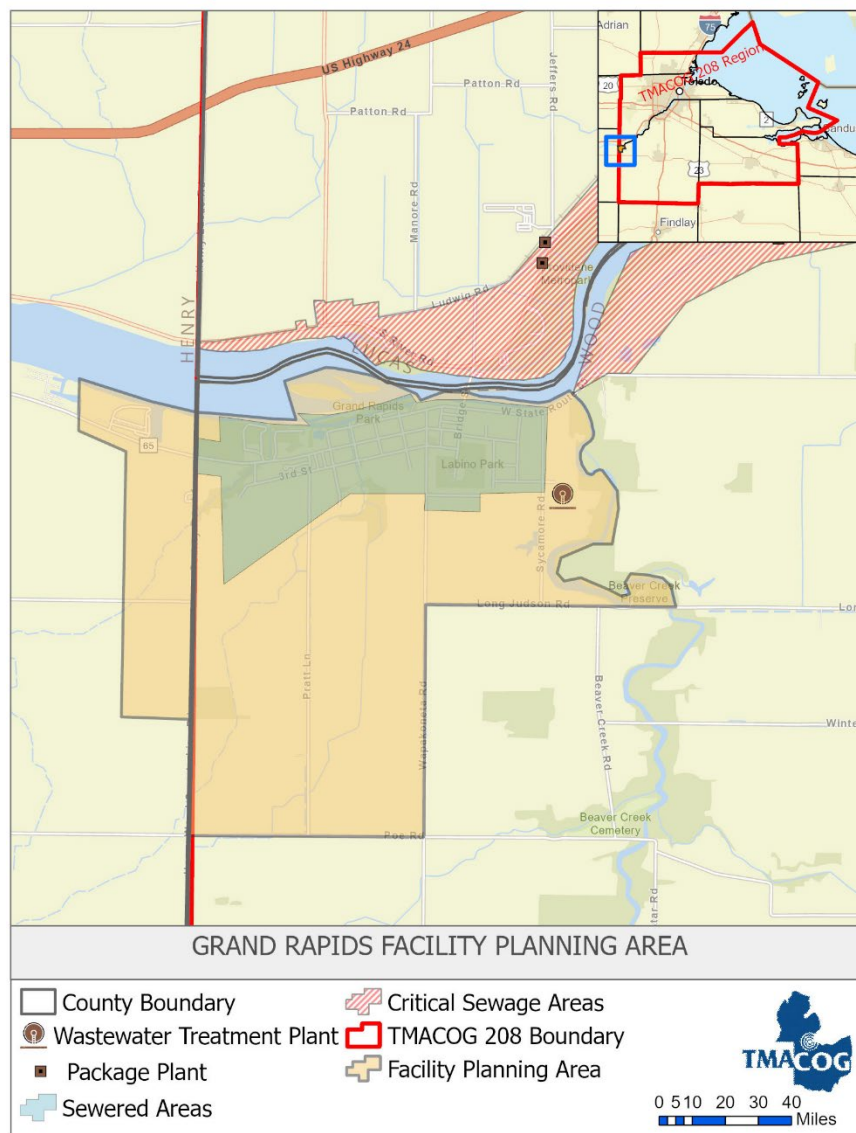


Figure 5-39: Grand Rapids Facility Planning Area

Table 5-93: Grand Rapids Area Population

Area	Total Population
Grand Rapids, entire jurisdiction	925
Grand Rapids Township, entire jurisdiction*	1,586
Washington Township, entire jurisdiction*	1,864
Damascus Township, entire jurisdiction*	1,783
Total	6,158

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-93 are from the U.S. Census 2020 decennial census.

Present Facilities

The Grand Rapids WWTP was built in 1978; it is an oxidation ditch with an average capacity of 0.180 mgd and a hydraulic capacity of 0.6 mgd. Plant facilities include aerobic sludge digestion, and final

chlorination. Sludge is transported to the Bowling Green WWTP for final treatment. Ohio EPA data shows an average flow of 0.063 mgd, and a peak flow of 0.434 mgd during the period of 2014-2018.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Grand Rapids wastewater treatment plant.

Future Needs

Please fill this table if you have any ongoing project or planned project for future

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future

Haskins Facility Planning Area

The Grand Rapid Facility Planning Area (FPA) is a designated region within Grand Rapid area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Grand Rapid (Figure 5-40). The Grand Rapid FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by several communities which are represented by Designated Management Agencies. The responsibilities of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Haskins:** Owns and operates wastewater treatment facilities, and the collection system within the corporate limits.
- **Northwestern Water and Sewer District:** Will own and operate collection systems outside the corporate limits when built and will convey sewerage to the Haskins WWTP for treatment. In 2005, the District signed a 40-year agreement with Haskins for the Village to accept average daily flows of 50,000 gpd of sewage; additional flows may be negotiated.

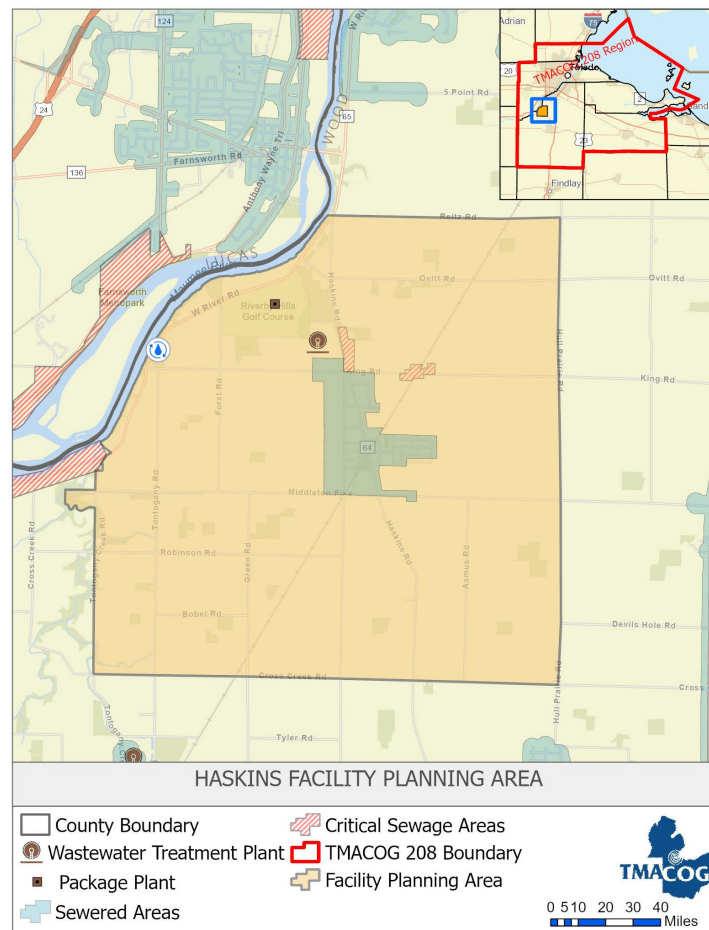


Figure 5-40: Haskins Facility Planning Area

Table 5-94: Haskins Area Population

Area	Total Population
Haskins, entire jurisdiction	1,245
Middleton Township, entire jurisdiction*	5,611
Washington Township, entire jurisdiction*	1,864
Total	8,720

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-94 are from the U.S. Census 2020 decennial census.

Present Facilities

The existing Haskins WWTP was built in 2006. The plant is a 300,000 gpd sequencing batch reactor facility, built at a total cost of \$2.76 million. The WWTP site is 40 acres on the west side of SR 64, just on the north end of the Village. The receiving stream is a ditch along SR 64, flowing north into the Maumee River. Ohio EPA data shows an average flow of 0.176 mgd, and a peak flow of 0.852 mgd during the period of 2014-2018. Liquid sludge is applied to agricultural land.

Package plants located in the FPA are listed in Table -95.

Table 5-95: Package Plants in the Haskins Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Riverby Hills Golf Club ^A	WO-46	Private*			4,000

^AStatus is active

*Facility type is assumed

Note: Data are based on current available data as of April 2019

Issues

Two groups of unsewered houses adjacent to the Village have been identified as Critical Sewage Areas, and need sewer service to eliminate problems from failed on-site systems.

- **State Route 64 north of King Road:** approximately 19 houses are in this area north of town. Bypassing sewage from failed septic systems is present in the roadside ditch. The septic systems for most of these houses are believed to have failed. Therefore, sanitary sewers should be extended to eliminate these septic systems. In 2000, the Wood County Health Department conducted a sanitary survey in this area.
- **King Road / RR:** an unincorporated area on the north side of King Road just east of the railroad tracks. There are 10 houses in this area; a sanitary survey of this area has not been conducted. Sanitary sewers may be needed here in the future.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems

for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Haskins wastewater treatment plant.

Future Needs

Support planning and funding to provide sanitary sewer capabilities to eliminate individual and household septic systems in Critical Sewage Areas.

~~Please fill this table if you have any ongoing project or planned project for future~~

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
-	-	-							

HOYTVILLE FACILITY PLANNING AREA

The Hoytville Facility Planning Area (FPA) is a designated region within village of Hoytville area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Hoytville (Figure 5-41). The Hoytville FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibilities of this agency are outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** Owns and operates wastewater treatment facilities and collection system.

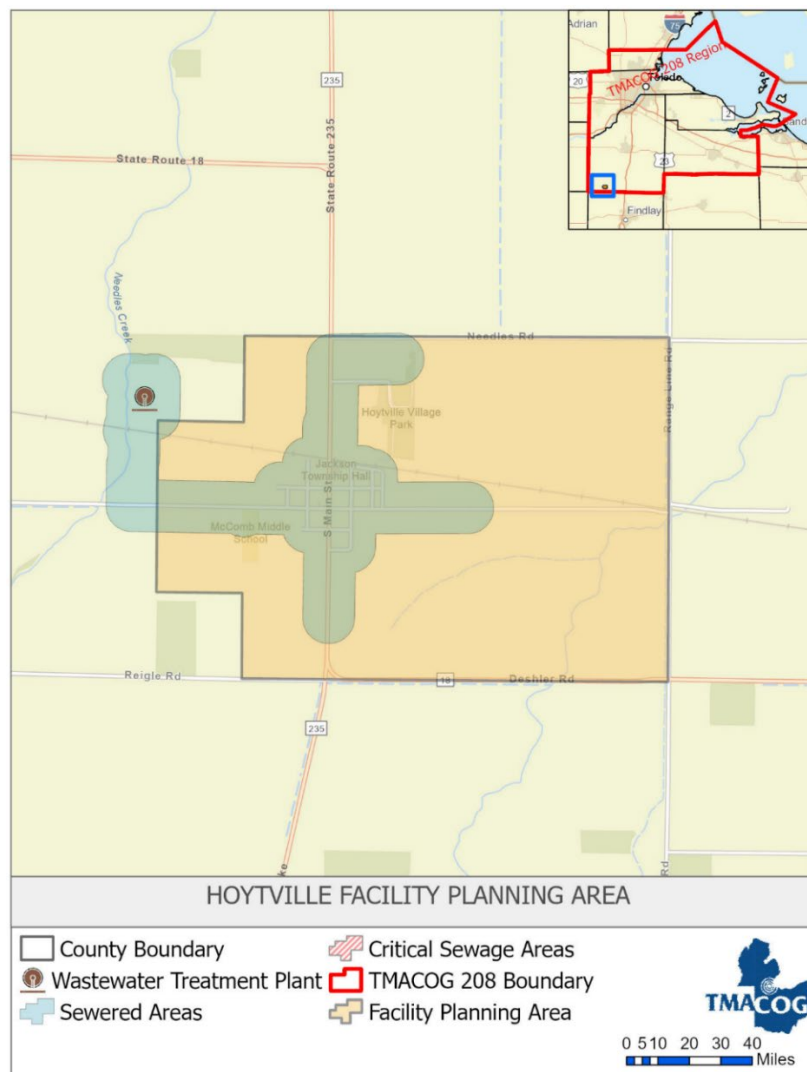


Figure 5-41: Hoytville Facility Planning Area

Table 5-96: Hoytville Area Population

Area	Population
Hoytville, entire jurisdiction	220
Jackson Township, entire jurisdiction*	702
Total	922

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-96 are from the U.S. Census 2020 decennial census.

Present Facilities

Hoytville WWTP was built in 1990 with an average daily design flow of 0.036 mgd. ~~Ohio EPA data shows an average flow of 0.946 mgd when discharging, 0.022 mgd on a daily average, and a peak outflow of 0.056968 mgd was noted during the period of 2023-202404-2009.~~ The plant is a three-cell controlled discharge lagoon system that discharges to Needles Creek only during high flow. The collection is via a Septic Tank Effluent Gravity (STEG) system with small diameter gravity pipes and on-lot septic tanks to capture solids. The Northwestern Water and Sewer District (District) is responsible for pumping the septic tanks and septage handling.

In 2018, the District completed an upgrade to the controlled discharge lagoon system. The project included a new access road, addition of rip rap, replacement of valves and control structures, along with fence repair and replacement. The project was funded by the District with the assistance of a Ohio Water Pollution Control Loan Fund (WPCLF) in the amount of \$380,000.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Hoytville wastewater treatment plant.

Issues

Ohio EPA found excess infiltration and inflow (I/I) is a problem for the collection system. The small-diameter gravity sewer system was not designed to carry storm flows or groundwater. The District evaluated I/I issues, completed the Sanitary Sewer Evaluation Survey (SSES), and has submitted the final report to Ohio EPA. The following details some of the results and actions:

- Some I/I was found in manholes; therefore, manhole lining was completed in early 2011.
- Installation of a flow meter at the main pump station into the lagoon demonstrated that even though I/I remains, its severity was not as great as previously thought.
- ~~Several 4m~~ manholes ~~were replaced~~ ~~are scheduled for replacement~~ in 2023.

Future Needs

The existing pump station will require replacement within the next five years.

Table 5-97: Hoytville FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
<u>Septic tank repair/replacement</u>	<u>NWWS D</u>	<u>\$200,000</u>					<u>\$200,000</u>		

LUCKEY FACILITY PLANNING AREA

The Lucky Facility Planning Area (FPA) is a designated region within village of Luckey area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Luckey (Figure 5-42). The Lucky FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by communities which are represented by Designated Management Agencies. The responsibilities of this agency are outlined below:

Designated Management Agency Responsibilities:

- **Village of Luckey:** Owns wastewater treatment facilities and the collection system within its corporate limits; however, these systems are operated by the Northwestern Water and Sewer District.
- **Northwestern Water and Sewer District:** Owns and operates collection system in unincorporated areas. The District operates the Luckey WWTP under contract with the Village. In 2006, the District entered a 40-year agreement with the Village of Luckey to accept average daily flows of 4,000 gpd of sewage; additional flows may be negotiated.

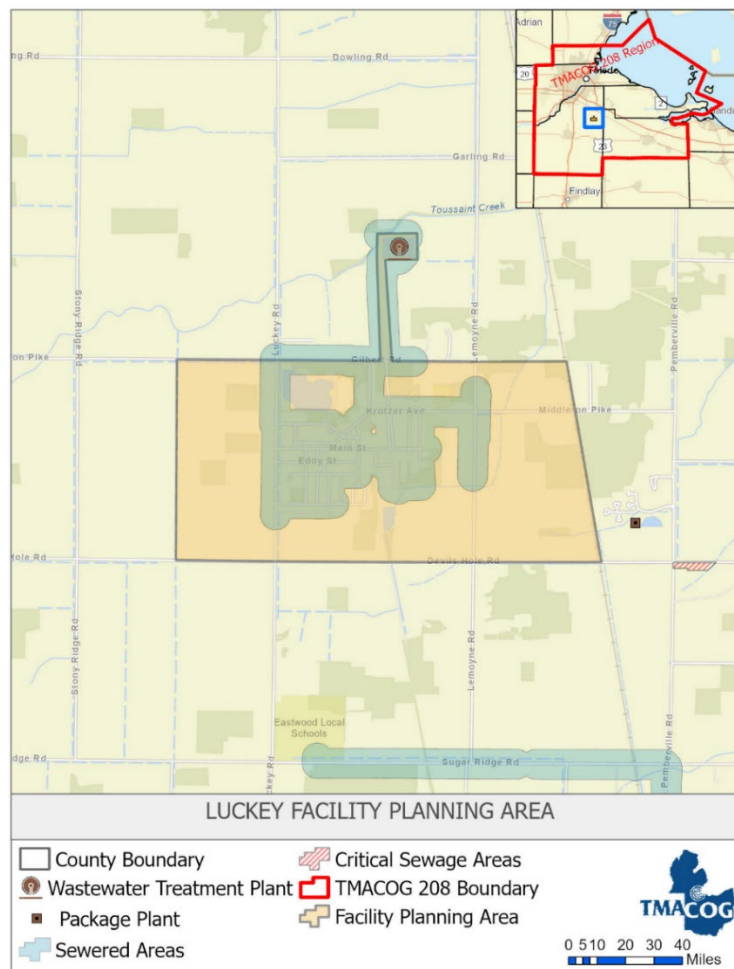


Figure 5-42: Lucky Facility Planning Area

Table 5-97: Luckey Area Population

Area	Total Population
Luckey, entire jurisdiction	1,009
Troy Township, entire jurisdiction*	4,097
Webster Township, entire jurisdiction*	1,230
Total	6,336

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-97 are from the U.S. Census 2020 decennial census.

Present Facilities

The Luckey WWTP was built in 1988 and is a 0.10 mgd controlled discharge lagoon facility. Hydraulic capacity of the system is 0.36 mgd. ~~Ohio EPA data shows an average flow of 0.820 mgd when discharging, 0.049 mgd on a daily average, and a peak flow of 1.380 mgd during the period of 2014-2018.~~ The peak discharge effluent flow in 2023-2024 was 0.070 mgd. Effluent is discharged to Toussaint Creek only during high flow.

Prior to construction of the WWTP, failed septic systems discharged to the Village storm sewer system. Pump stations were built to convey the septic tank effluent to the treatment plant. Existing septic tanks were originally left in place, with the Village responsible for pumping them out and disposing of the septage. In late 2007, sewer separation was completed, eliminating combined sewer overflows (CSOs) and septic tanks. The total project cost was \$4.8 million, financed with \$1.7 million in grants from U.S. EPA/STAG and USDA/Rural Development, and the balance in loans from USDA.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Luckey wastewater treatment plant.

Future Needs ~~(none planned by District)~~

None planned by District.

NORTH BALTIMORE FACILITY PLANNING AREA

The North Baltimore Facility Planning Area (FPA) is a designated region within village of North Baltimore area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in North Baltimore (Figure 5-43). The North Baltimore FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by communities which are represented by Designated Management Agencies. The responsibilities of this agency are outlined below:

Designated Management Agency Responsibilities:

- **Village of North Baltimore:** Owns and operates the wastewater plant and sewers within its corporate limits.
- **Northwestern Water and Sewer District:** Owns and operates sewers in unincorporated areas of Wood County with treatment services provided by the North Baltimore WWTP.
- **Hancock County:** Owns and operates sewers in unincorporated areas of Hancock County with treatment services provided by the North Baltimore WWTP.

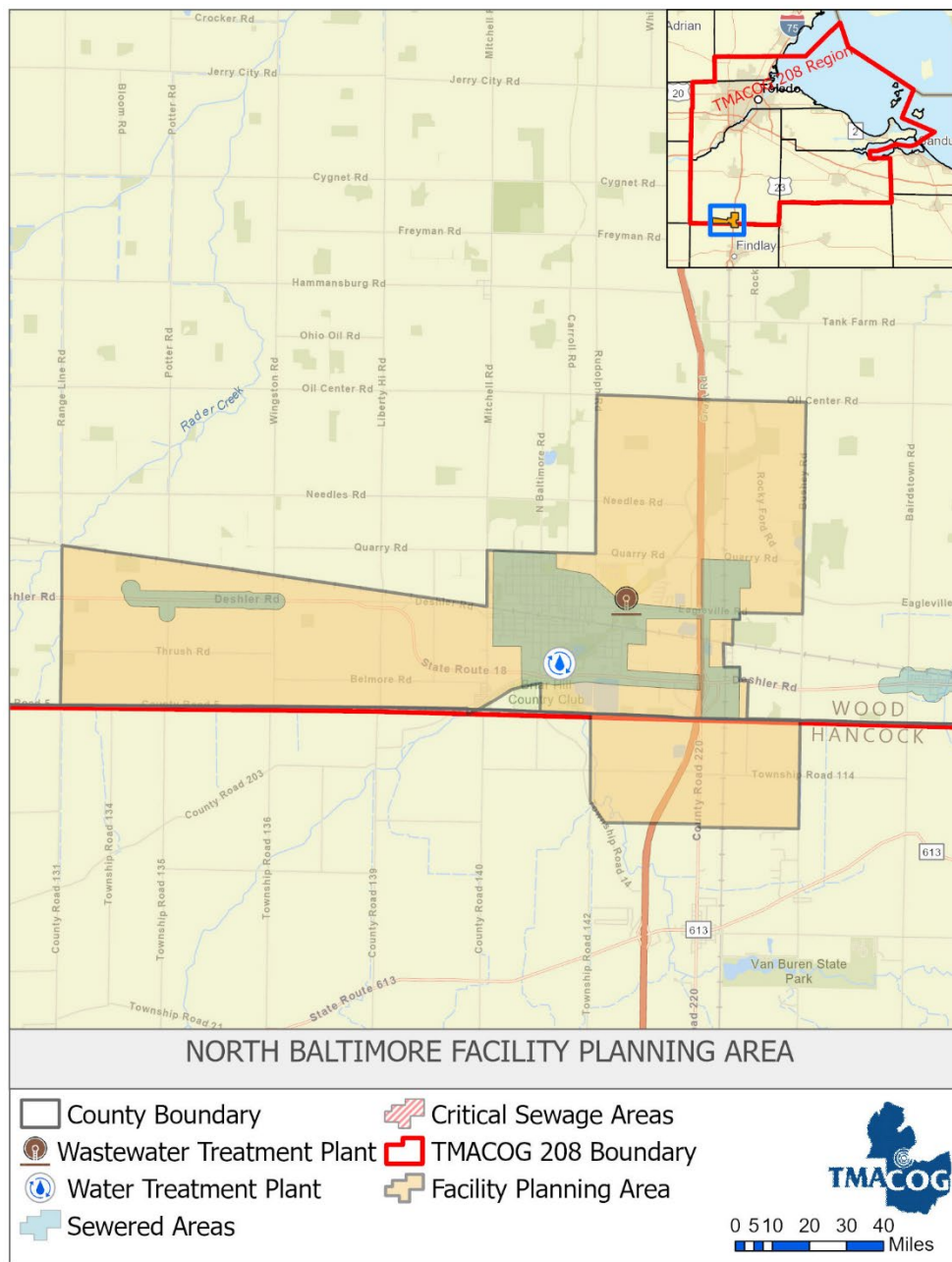


Figure 5-43: North Baltimore Facility Planning Area

Table 5-98: North Baltimore Area Population

Area	Population
Bloom Township, entire jurisdiction*	2,513
Henry Township, entire jurisdiction*	4,079
Jackson Township, entire jurisdiction*	702
Allen Township, entire jurisdiction*	2,754
Total	10, 048

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-100 are from the U.S. Census 2020 decennial census.

Present Facilities

The North Baltimore WWTP is a 0.8 mgd trickling filter plant. Ohio EPA data shows an average flow of 0.718 mgd, and a peak flow of 1.589 mgd during the period of 2015 - 2018. I/I was a serious problem contributing to combined sewer overflow (CSO) events. In 1997, in-house improvements to two overflow structures reduced CSO discharges by 60% during a rain event. In 2000, North Baltimore constructed a 200,000-gallon sludge holding tank to provide 180-day storage capacity at a cost of \$300,000. The Village constructed new sludge dewatering facility in 2009 at a cost of \$780,000.

The Notice to Proceed for the Phase I Sewer Separation Project was completed in May 2012. CSO #1 on Water Street was eliminated in April 2012. Funding for the project was provided by Ohio Water Development Authority (OWDA), U.S. EPA State and Tribal Assistance Grant (STAG), and Ohio Public Works Commission (OPWC) during construction and final long-term financing was provided by U.S. Department of Agriculture and Rural Development (USDA-RD). After completion of the Phase 1 sewer separation project, 32 septic tanks have been abandoned and the properties connected to the new sanitary sewer system.

The Village issued the Notice to Proceed to the contractor for the Phase II Sewer Separation Project in January 2013. The project was completed in 2014 ~~atand-with~~ an estimated cost ~~ofwas~~ \$9,700,000. Completion of this project will satisfy the Ohio EPA's requirement for the Village to separate all sewers by 2017. Funds were provided by the Community Development Block Grant program (CDBG) in the amount of \$600,000 and by OPWC in the amount of \$449,999. The remaining funds are being provided by USDA-RD.

With completion of the sewer separation projects, the wastewater treatment plant is experiencing significant reductions to its flow. In 2016, improvements were completed for the wastewater treatment headworks. The equipment in the headworks (comminatory/screening and raw sewage pumping) area of the wastewater treatment plant were becoming problematic for the plant operators. The electrical gear that services the headworks was also becoming a maintenance/reliability issue. Problems have also been noted in matching the lower flows the plant has been seeing since the completion of the sewer separation projects. These improvements were completed in October 2016 at a total cost of \$1.3 million with funding from the USDA-RD.

In 2018, the Village implemented improvements to the Quadland sanitary lift station that serves the commercial area on the east side of the Interstate 75/State Road 18 interchange.

In 2010, sewers in Henry and Jackson Townships were built to serve the CSX intermodal facility. Initially wastewater treatment was provided by a 5,000 gpd extended aeration package plant. It faced operational challenges of being too large for the actual flow. Another difficulty was finding an acceptable receiving stream for its treated effluent. The CSX plant was abandoned and removed in 2016, in favor of a connection to North Baltimore for treatment services. Future sewer extensions will be needed to accommodate economic development. The FPA boundary follows the service contract area agreed to between CSX and Northwestern Water and Sewer District (District).

Issues

Ohio EPA approved the renewal of North Baltimore's Long-Term Control Plan (LTCP) for combined sewer overflows in 2020. North Baltimore is required to report the status of LTCP implementation annually. The Village's NPDES permit required ds total separation of the collection system by-in 2017. The permit also required ds post construction monitoring of the system to determine if the CSO goals have been met and submission of a written report by-in January 2019 on the results of the post construction monitoring. Per Ohio EPA, the Village needs to complete post construction compliance monitoring on the last CSO. There were four overflows reported between 4/1/15 and 7/1/17; no overflows have been reported since July 2017.

In 2020, the Village completed a "smoke test" of the complete sanitary sewer system as part of the CSO compliance requirements. Specific project improvement recommendations are being prepared in conjunction with assistance from the Great Lakes Community Action Partnership.

The NPDES permit indicates that a written status report on the plant's compliance with their copper final effluent limits. If they are not able to meet the copper effluent limits the status report shall indicate how the Village intends to meet this limit and if additional construction will be required. The Village sent a status report prior to June 2015 stating that they would be able to meet the limits; their data shows no limit violations.

The NPDES permit also indicates the Village shall evaluate its ability to meet *Escherichia coli* limits with its existing facilities. The Village has evaluated its ability to meet the *E. coli* limits with the existing facilities, which they are still using for disinfection.

The wastewater treatment plant is reporting age/condition related issues at the wastewater treatment plant headworks. Improvements to the facility are planned to maintain the Village's ability to comply with permit conditions.

The FPA covers part of the corridor US 25 / I-75. The Wood County Comprehensive Plan identifies this area for employment opportunities and is therefore included in the FPA with a potential for requiring future service. The area is presently rural with no public sewerage facilities in this area, active package plants, or unsewered developed areas.

Northwestern Water and Sewer District

In 2018, the Northwestern Water and Sewer District (NWWSD) and the Village executed a contract for sewer service to the CSX facility and surrounding area. This area is located to the west of the Village on State Route 18 and Liberty Hi Roads. Significant development is expected in the area and a 12" sanitary sewer and pump station have been constructed for future extension as the area develops.

~~The Village and the NWWSD are in the initial planning stages for undertaking a sewer needs assessment specific to the CSX facility, adjacent NorthPoint development, and immediate surrounding area. The purpose of this assessment is to determine the adequacy of the North Baltimore WWTP to serve peak flow levels based upon future development along the State Road 18 corridor. This assessment will help the Village and NWWSD plan for specific needed improvements at the WWTP necessary to serve peak demands.~~

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the North Baltimore wastewater treatment plant.

Future Needs

- ~~• Achieve the milestone of the LTCP under the Village’s NPDES permit:~~
 - ~~○ Submittal of a Phosphorus Discharge Optimization Evaluation Plan by 2020.~~
 - ~~○ Achieve compliance with the final phosphorus loading limit by 2022~~
 - ~~○ Submittal of Post-Construction Compliance Monitoring in 2021~~
 - ~~▪ Eliminate CSOs by 2021 and 2022~~

The following improvements are planned:

- New screening and grinding system for the raw sewage pump station.
- New variable speed lift pumps for the raw sewage lift station.
- New electrical switchgear to replace the existing switchgear that serves the raw sewage pumps and screening area.
- New PLC control system to replace the failed annunciator panel and run the raw sewage pumps.
- New lab facility to house the lab that is currently located above the raw sewage pumping station.
- Sewer service area expansions in Henry and Jackson Townships are likely to be needed to facilitate economic development of the CSX intermodal facility and associated.

Based on current plant performance, no capital projects are anticipated to be required for copper or *E. coli* limit compliance. There are no other projects planned at the present.

Please fill this table if you have any ongoing project or planned project for future

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future

OTSEGO FACILITY PLANNING AREA

The Otsego Facility Planning Area (FPA) is a designated region within village of Otsego area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in North Otsego (Figure 5-44). The Otsego FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibility of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** Responsible for planning public sewerage system; the District owns and operates the collection system and wastewater treatment plant.

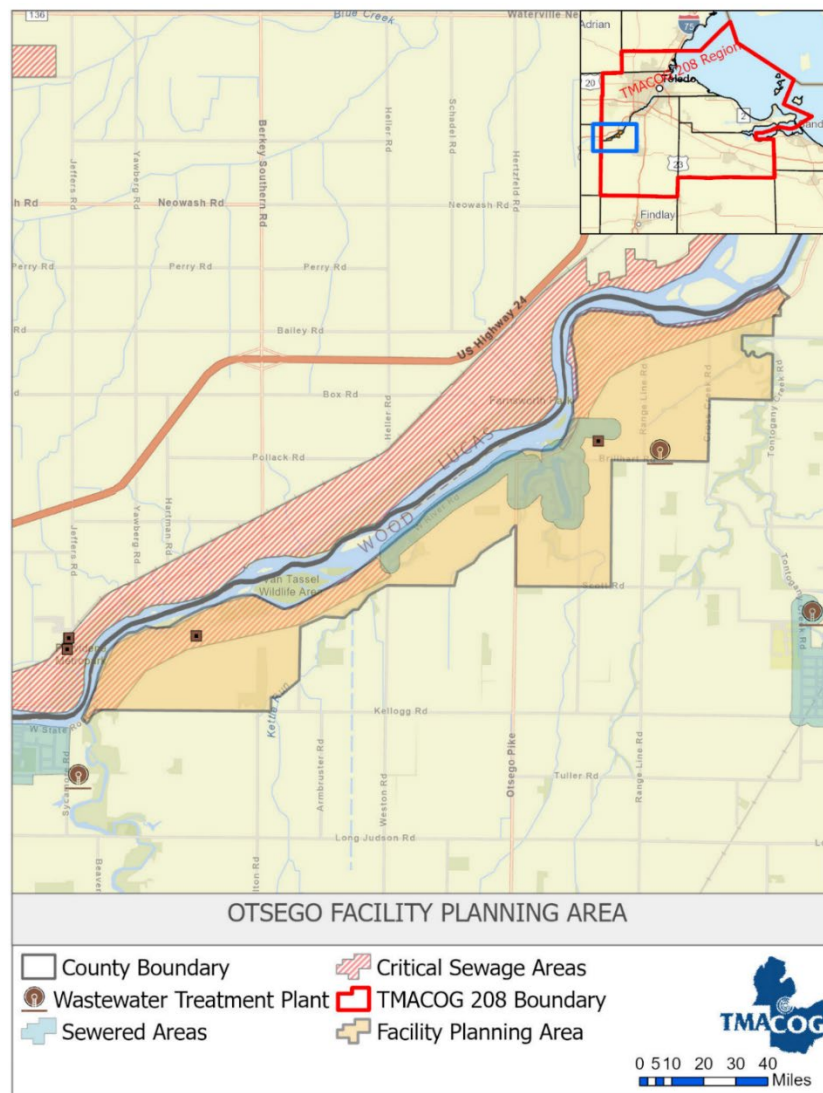


Figure 5-44: Otsego Facility Planning Area

Table 5-99: Otsego Area Population

Area	Total Population
Grand Rapids Township, entire jurisdiction*	1,586
Washington Township, entire jurisdiction*	1,864
Total	3,450

*only part of this jurisdiction is within the FPA boundary.

The 2020 population numbers in Table 5-99 are from the U.S. Census 2020 decennial census.

Present Facilities

Most of the Otsego area is not served by a public sewage system. The one public facility is a package plant owned and operated by the Northwestern Water and Sewer District (the District) that serves the Williamsburg-on-the-River subdivision in Washington Township and West River Road, Otsego Road to Weston Road including Nazareth Hall. This WWTP was built in 2009 and is a 50,000 gpd extended aeration plant that can be expanded. Ohio EPA data shows an average flow of 0.026 mgd 2020-2021. The District took the original Williamsburg WWTP, built in 1972, out of service in 2009. The new treatment plant was designed to provide service to the entire Otsego FPA. The new WWTP, pump station, and force main from the old WWTP, outfall sewer to the Maumee River, and removal of the old WWTP cost \$1,311,235. The project was funded with a \$536,634 American Recovery and Reinvestment Act (ARRA) principle-forgiveness loan and the balance financed over a period of 40 years. [The average monthly effluent flow in 2023-2024 was 0.25 mgd.](#)

Some houses along SR 65, outside the Williamsburg subdivision, are being added to this WWTP's service area. Liquid sludge is transported to the City of Bowling Green WWTP for processing to Class A sludge. Package plants located in the FPA are listed in Table 5-100.

Table 5-100: Package Plants in the Otsego Facility Planning Area

Package Plant	Map ID	Type	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Riverview Manor Trailer Park ^A	WO-11	Private		2PY00061	3,500
Williamsburg-on-the River WWTP ^A	WO-84	Public	2009	PG00097	50,000

^AStatus is active

Note: Data are based on current available data as of April 2019

Issues

Unsewered Areas

The entire riverfront between Grand Rapids and Haskins is a potential growth area. Public water is available and additional development is very likely to proceed. Many of the houses in this planning area are located between River Road (SR 65) and the Maumee River. The bank of the river is steep, the lots are small, and there is no room for an acceptable leaching field. On the other side of River Road, new housing will need to meet the present lot size requirements for sewage disposal.

Williamsburg-on-the-River WWTP

An aggressive I & I removal program, which included sanitary sewer grouting and lining was completed in 2018. Private I/I efforts are currently underway in the Williamsburg subdivision.

Future Needs

Future capital improvements for the Otsego FPA are given in Table (5-101).

~~Table 5-101: Otsego FPA Capital Improvement Schedule~~

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future

PEMBERVILLE FACILITY PLANNING AREA

The Pemberville Facility Planning Area (FPA) is a designated region within village of Pemberville area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Pemberville (Figure 5-45). The Pemberville FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by communities which are represented by Designated Management Agencies. The responsibility of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Pemberville:** Owns and operates wastewater treatment facilities, and collection system within its corporate limits.
- **Northwestern Water and Sewer District:** Owns capacity in the Pemberville WWTP, and will own and operate collection system in unincorporated areas, if and when built, connecting to the Village for treatment services. The District entered into an agreement with Pemberville for the Village to accept average daily flows of 50,000 gpd of sewage; additional flows may be negotiated.

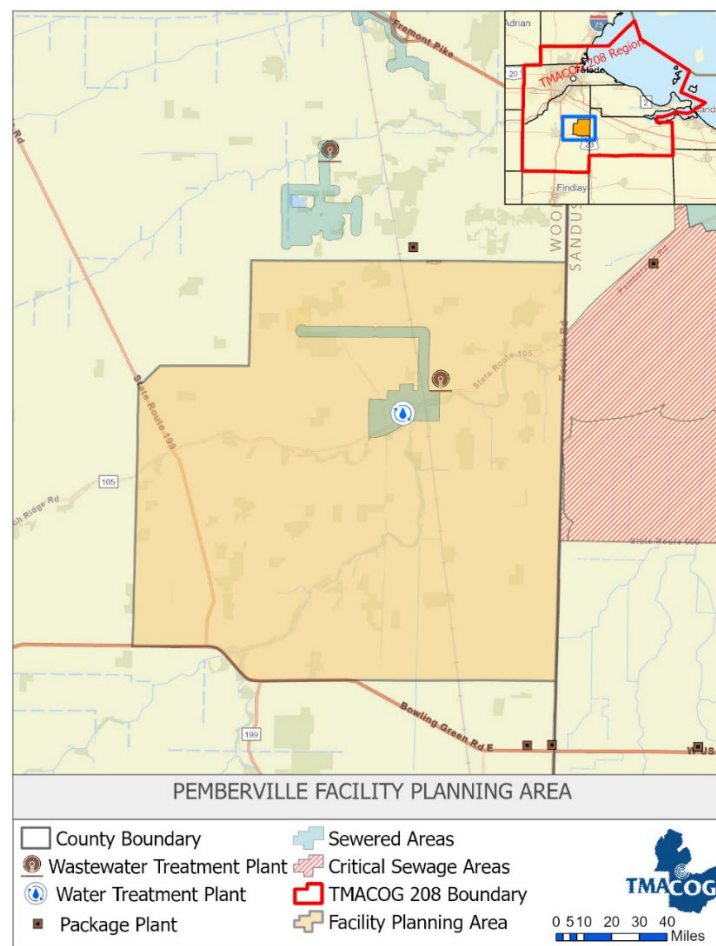


Figure 5-45: Pemberville Facility Planning Area

Table 5-102: Pemberville Area Population

Area	Total Population
Pemberville, entire jurisdiction	1,3626
Freedom Township, entire jurisdiction*	2,649
Troy Township, entire jurisdiction*	4,097
Webster Township, entire jurisdiction*	1,230
Total	21,602

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Pemberville WWTP is a sequencing batch reactor facility built in 2011. The plant was designed for 0.4 mgd average daily flow, 1.0 mgd peak dry weather flow, and 1.3 mgd peak wet weather flow. Ohio EPA data shows an average flow of 0.242 mgd and a peak flow of 0.746 mgd during the period of 2014-2018. The plant was designed to treat greater wet weather flows, and provide service to portions of Freedom and Troy Townships surrounding the Village. The plant cost \$2.5 million to build, and replaced the previous plant, which included an oxidation ditch, a polishing pond, and aerated sludge digesters. The plant is equipped with ultraviolet effluent disinfection. Liquid sludge is applied to agricultural land.

1. The sewers were originally combined, with four overflow points. Pemberville completed its Combined Sewer Overflow (CSO) Abatement Plan by separating the entire system. The Plan, prepared in 1994, called for five phases. It was completed in 1999 at a cost of \$2,037,618, financed through Ohio EPA over a 20-year period. Pemberville spent \$546,730 on additional sewer system improvements to exclude I/I between 2001 and 2009.

There are no package plants located in the FPA. The Eastwood High School package plant has been eliminated as part of an Eastwood school consolidation project. The School District requested Northwestern Water and Sewer District to construct a pump station and force ~~main~~the main to send the sanitary sewer flows to the Pemberville WWTP.

New Subdivisions

It is the policy of this Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Pemberville wastewater treatment plant.

Future Needs

The NPDES permit issued in 2019 indicates that the Village shall evaluate the ability of its existing treatment facilities to meet the final effluent limit (1.0 mg/L) for phosphorus. ~~If the existing treatment facilities are not capable of meeting the final effluent limit for phosphorus, plant improvements will be needed by 2021, and demonstrated by 2022.~~

The capital improvement plan for the Pemberville FPA is shown in Table (5-103).

Table 5-103: Pemberville FPA Capital Improvement Schedule

Please fill this table if you have any ongoing project or planned project for future

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
-	-	-							

PERRYSBURG FACILITY PLANNING AREA

The Perrysburg Facility Planning Area (FPA) is a designated region within village of Perrysburg area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Perrysburg (Figure 5-46). The Perrysburg FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by communities which are represented by Designated Management Agencies. The responsibility of each of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **City of Perrysburg:** Owns and operates wastewater treatment facilities, and portions of the collection system.
- **Northwestern Water and Sewer District:** Owns and operates portions of the collection system, connecting to Perrysburg system for treatment services.
- **City of Rossford:** Northwestern Water and Sewer District owns and operates the collection system within Rossford, connecting a small portion of the collection system to Perrysburg system for treatment services.



Figure 5-46: Perrysburg Facility Planning Area

Table 5-104: Perrysburg Area Population

Area	Population
Perrysburg, entire jurisdiction*	25,041
Rossford, entire jurisdiction*	6,299
Middleton Township, entire jurisdiction*	5,611
Perrysburg Township, entire jurisdiction*	13,571
Total	50,522

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The City of Perrysburg WWTP has an average design capacity of 8.0 mgd, with a peak capacity of 24.0 mgd. Data from [2021-2025](#) showed an average flow of 5.0545 mgd. The plant was originally built in 1958 with expansions in 1972, 1986, and 1991 with recent upgrades in 2008, 2009, and 2011. ~~The most recent expansion was completed in late 2015 and increased the average daily flow capacity to 8.0 mgd. The capacity 2011, 2014, 2015, and 2021.~~ Capacity upgrades were needed because of growth in the service area, new stricter discharge limitations, and treatment of wet weather flows. The Perrysburg WWTP is an activated sludge facility with ultraviolet final effluent disinfection, post aeration, anaerobic sludge digestion, and one biosolids belt filter press and one volute dewatering press. Currently all biosolids are ~~land applied~~ [trucked](#) to local ~~fields~~ [landfills](#).

Issues

~~Combined Sewers~~

[Sanitary Sewer Overflow \(SSO\) Elimination](#)

About 600 acres of the older part of Perrysburg had a combined sewer system, with four wet-weather overflows. Perrysburg submitted ~~its~~ a combined sewer overflow (CSO) ~~Abatement Plan, called a~~ Long Term Control Plan (LTCP) in ~~the mid 1990s which~~ 1996. [This plan](#) called for annual sewer separation projects over a 20-year period. ~~The estimated~~ [The separation of sewers in this area was completed in 2017 at a final](#) cost of ~~the plan in 2013 was \$25 over \$29~~ million.

The CSO area was split into assessment districts for the Cherry and Elm Street regulator areas. The Elm Street ~~area covers from~~ [CSO district covered](#) one-half block west of Louisiana Avenue, ~~extending east~~ to East Boundary Avenue from the [Maumee](#) River to Grassy Creek. Separation of sewers in this area was divided into 13 districts. The ~~remainder of the~~ [Cherry Street](#) CSO ~~area, district covered~~ west of Louisiana [Avenue](#) to West Boundary ~~Avenue is in the Cherry Street district.~~

New storm sewers were installed in both Cherry and Elm Street [CSO](#) districts. New and existing catch basins were connected to the new storm sewers. [Separation of the](#) Elm Street [CSO](#) district was completed in 2001 at a cost of approximately \$9.3 million. ~~The last~~ [Separation of the](#) Cherry Street ~~subdistrict~~ [CSO district](#) was completed in November 2017. ~~Overall Cherry Street district costs exceeded at a cost of approximately~~ \$20.1 million.

[In December of 2023, the Ohio Environmental Protection Agency issued Director's Final Findings and](#)

[Orders \(DFFO\). In these orders, the four CSOs were reclassified as Sanitary Sewer Overflows \(SSOs\) and therefore must be eliminated. The DFFO also required the elimination of an Emergency Response Sanitary Sewer Overflow \(ER SSO\) located near the crossing of Maple Street over Grassy Creek. This was accomplished by lining the Grassy Creek Interceptor Sewer in 2024 at a cost of approximately \\$1.5 million.](#)

Sewer separation projects since 1991 focused on removing stormwater [collected from public propertythe right-of-way](#) (i.e., streets). Some [homeownersproperty owners](#) have separated their private ~~property~~ stormwater ~~inputs and routed some~~[discharge from the sanitary sewer](#) to the new sewers, with financial assistance from City grants. The City increased available funding for private property separation grants in ~~2020 to entice more homeowners to remove their private property stormwater from the sanitary sewer~~[2022 to encourage participation.](#)

Unsewered Areas

There are two package plants located in this FPA, shown in Table 5-105. When public sewers become available, these plants will be abandoned and replaced by a tap to the public sewer.

Table 5-105: Package Plants in the Perrysburg Facility Planning Area

Package Plant	Map ID	Status	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Islamic Center of Greater Toledo	WO-102	Active	1991		8,300
Five Point MHP	WO-120	Active		2PY00073	6,600

Note: Data are based on current available data as of April 2019

Dowling: An unincorporated community, located at Dowling Road and Conrail tracks between Dunbridge and Carter Roads. Residences are served by septic systems. Dowling is not under orders to construct sewers. The community is split between the Bowling Green and Perrysburg FPAs. Dowling is identified as a Critical Sewage Area, which is under the jurisdiction of the Northwestern Water and Sewer District (District).

Shelton Gardens: A portion of Middleton Township in Wood County along Five Point Road from the CSX railroad tracks west to the Maumee River is also known as Shelton Gardens. In 2007, Ohio EPA ordered sanitary sewers for this area. Most of the area was in the Lucas County FPA, but the portion between Hull Prairie Road and the railroad tracks was in the Perrysburg FPA. [Sanitary sewers were constructed on Five Point and River Roads in 2014 to partially address the unsanitary conditions due to failing septic systems. Orders are still in place for additional Five Points Road frontage to the rail east of Hull Prairie Road.](#)

The portion of Shelton Gardens then in the Perrysburg FPA was moved to the Lucas County FPA subject to the following provisos of TMACOG Resolution 2007-26:

THAT the area along Five Point Road between Hull Prairie and the CSX tracks shall remain in the Lucas County FPA until a sewer connected to the Perrysburg system becomes available; and

THAT when a Perrysburg sewer becomes available, the area may revert back to the Perrysburg FPA; sanitary sewer services may be disconnected from the Lucas County system and connected to the Perrysburg system at the City of Perrysburg's discretion; and

THAT the City of Perrysburg and Northwestern Water and Sewer District agree that notwithstanding availability of a Perrysburg sewer, the Hull Prairie-CSX triangle shall remain in the Lucas County FPA and not be moved back to the Perrysburg FPA before January 1, 2028.

New Subdivisions

It is the policy of the Plan that for all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Perrysburg wastewater treatment plant.

Recent Projects

- WWTP upgrades completed from 2005 to ~~2015~~2021 included the following: [headworks improvements](#), [new](#) primary clarifier, primary thickener, ~~additional~~ biosolids storage area, new grit removal equipment, screening equipment, ~~and biosolids handling equipment~~, phosphorous removal [improvements](#), office, and staff facilities, ~~and conversion to~~ [improvements](#), ultraviolet disinfection and plant SCADA system [improvements](#).
- ~~The final phase of the WWTP expansion began in Spring 2014 and concluded in late 2015, which increased the average daily capacity from 5.4 to 8.0 mgd. This phase included capacity increases in the following areas; effluent pumping, and secondary treatment. A digester improvement project is currently under construction and estimated to be completed in 2026. This project includes a new methane flare, new boilers, new heat exchangers, new process piping, and replacement of roof systems of all four digestors. One of these roofs will be a dual membrane system that will allow for the capture of approximately 77,000 cubic feet of biogas that will be used to heat the new boilers.~~
- Perrysburg is working with the Wood County Health District to identify and classify residential properties inside City limits which have no record of sanitary sewer connection. If a sanitary sewer is deemed available, connection will be enforced, and where any discharging Household Sewage Treatment System (HSTS) remain, the properties will be notified to seek individual National Pollutant Discharge Elimination System (NPDES) permit coverage.
- ~~Perrysburg contracted with AECOM Technical Services in March 2016 to conduct a sanitary sewer and combined sewer flow study and General Plan. Draft reports were presented to Ohio EPA in January 2018. During 2018–2020, additional modelling and alternatives were requested by Ohio EPA and completed by the City. The flow monitoring, modelling and General Plan have identified:~~

- ~~Predictions of CSO frequency during a typical year, and for a 5-year design storm at current CSO locations.~~
- ~~Design options to eliminate the Maple Street sanitary sewer overflow at Grassy Creek.~~

The draft reports are summarized below:

- ~~The City contracted with AECOM to install flow meters and analyze flow data in the sanitary sewer system during rainfall events to measure variations in wet weather sewer flow. AECOM input flow data into a computer model to predict the combined sewer system response to various rainfall scenarios. AECOM was charged with determining “the typical year” of rainfall by analyzing historic rainfall data. The model was focused on predicting what rainfall scenarios would exceed the flow capacity of the sanitary sewers and thus trigger CSO’s (combined sewer overflows). The City’s intent since 1992 has been to separate the combined sewers in order to reduce or eliminate CSO’s. The City contracted with AECOM in 2016 before the final sewer separation projects were completed. Through the modeling, AECOM could simulate various rainfall conditions and predict the occurrence and volume of CSO events for each. The final model predicted the number of CSO events under Typical Year rainfall conditions. AECOM produced alternatives including construction of various combinations of relief sewers to reduce the number of CSO events in a typical year to 4 events or fewer. The report included 3 alternatives and cost projections for each alternative. The NPDES permit renewed in 2017 requires the City to monitor overflow events for 48 months and report on progress and feasibility of further reducing or eliminating the CSO events. The most recent modeling in 2020 was based on 5-year frequency storm events.~~
- ~~The City operates an Emergency Response sanitary sewer overflow (ER-SSO) at Maple Street and Grassy Creek when wet weather conditions in the sewer system necessitate emergency pumping into Grassy Creek to avoid back up in basements. The City’s current wastewater permit issued in 2017 required a plan to eliminate this overflow by 2022. In 2016, AECOM was contracted to develop a general plan to eliminate the pumped overflow. AECOM performed sewer flow monitoring and modelling in the watershed around Grassy Creek to predict flow levels in the sanitary sewer system. The model predicted flow levels in the sewer during a 5-year frequency storm. AECOM used the model to propose various combinations of relief sewers and additional pumping capacity to eliminate the need for pumping wastewater into Grassy Creek. Ohio EPA and the City have agreed that the controlling design condition will be elimination of the ER-SSO up to a 10-year frequency rain event. During engineering design to eliminate the ER-SSO to the 10-year storm, questions were raised about the proposed plan’s feasibility. Other alternatives are currently under review. The City requested an extension to the August 31, 2022 deadline.~~
- ~~Per the City’s NPDES permit, a Phosphorus Discharge Optimization Evaluation was submitted in February 2019.~~
- ~~The City’s Post-aeration project was completed in September 2019 per the NPDES compliance schedule~~
- ~~Two projects were recently completed: a SCADA system upgrade and an upgrade to the biosolids~~

~~dewatering system to replace a belt filter press with a volute dewatering press and new conveyor system at the WWTP.~~

- The City currently has a Primary Settling Tank Improvement project in the preliminary design stage. This project will evaluate the cost of adding an additional 66-foot diameter primary settling tank along with modeling treatment processes and influent flow modifications.
- In 2022, the NWWSD completed a lining and rehabilitation project of sanitary sewers located on West Boundary. This sanitary sewer receives flows from the Ford Road Pumping Station. IN 2023, the NWWSD completed rehabilitation and expansion of the Ford Road Pumping Station. Capital Project investment \$7.5 million.

Future Needs

- In June 2026, the City will submit an SSO Elimination Plan to OEPA. This plan will establish improvements in the City's sanitary sewer collection system and WWTP for an as yet to be determined period. It is anticipated that projects will include sanitary sewer main and lateral lining and manhole rehabilitation to reduce I/I.
- Build sewer extensions to eliminate package plants and to provide service to new development. New package plants and septic systems are not to be permitted in areas where public sewers are available.
- ~~Fishbeck prepared a WWTP Capital Project Planning report in 2021. Major report recommendations include replacement of biogas piping and heat exchangers, upgrading biosolids treatment to Class A, retrofitting existing primary clarifiers or added capacity, and adding a compactor to the screening facility. The City is checking loading rates to the primary clarifiers. Digester improvements including heat exchanger and biogas piping replacement are in the design phase. Also planned is a constructed cover over the solids drying beds to keep the biosolids cake out of the rain/snow.~~
- ~~Perrysburg shall continue implementation of its CSO Abatement Plan. Perrysburg's Combined Sewer System Long-Term Control Plan and the project implementation schedule is described above. This Plan supports state and federal financial assistance for these improvements.~~
- ~~The SR 25 Trunk Sewer, from Five Point Road to King Road has been designed. Construction is expected in the 2024-2026 timeframe.~~
- ~~The City is nearing design completion on several sanitary sewer line replacements in the old combined sewer area to repair deteriorated sections of sewer to eliminate I/I from the sewer will occur as necessitated by future development needs.~~
- The District anticipates performing extensive I&I reduction projects through main line lining, grouting, manhole rehabilitation and private lateral replacement within the Perrysburg FPA.
- ~~The structure located on West Boundary which receives flows from the Ford Road pumping station was rehabilitated in 2022 due to corrosion being observed.~~
- ~~Ford Road pumping station rehab to be completed by The District in 2023. Capital Project investment \$7.5 million~~
- The capital improvement plan for the Perrysburg FPA is shown in Table 4-106.

<u>Project</u>	<u>DMA</u>	<u>Total Cost</u>						
-	-	-	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>Future</u>
<u>Rt 25 Sewer: King to Five Point</u>	<u>Perrysburg</u>	<u>\$4,300,000</u>						<u>4,300,000</u>
<u>Sewer Rehabilitation</u>	<u>Perrysburg</u>	<u>\$8,000,000</u>			<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>5,000,000</u>
<u>ER-SSO Elimination</u>	<u>Perrysburg</u>	<u>\$1,500,000</u>	<u>1,500,000</u>					
<u>WWTP Upgrades</u>	<u>Perrysburg</u>	<u>\$21,000,000</u>			<u>8,000,000</u>		<u>15,000,000</u>	
<u>SS300 Area Sewer Replacement and Rehabilitation</u>	<u>Northwestern Water and Sewer District</u>	<u>\$5,000,000</u>						<u>\$5,000,000</u>
-	-	<u>\$39,80,000</u>		-				

Table 5-106: Perrysburg FPA Capital Improvement Schedule

<u>Project</u>	<u>DMA</u>	<u>Total Cost</u>								
-	-	-				<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>Future</u>
<u>Rt 25 Sewer: King to Five Point</u>	<u>Perrysburg</u>	<u>\$4,300,000</u>				<u>2,800,000</u>	<u>500,000</u>			
<u>Sewer Rehabilitation</u>	<u>Perrysburg</u>	<u>\$1,200,000</u>				<u>300,000</u>				
<u>CSO and ER-SSO</u>	<u>Perrysburg</u>	<u>TBD</u>				<u>2,500,000</u>	<u>3,000,000</u>			<u>TBD</u>
<u>WWTP Upgrades</u>	<u>Perrysburg</u>	<u>\$3,980,000</u>				<u>1,100,000</u>	<u>500,000</u>			
<u>SS300 Area Sewer Rehabilitation</u>	<u>Northwestern Water and Sewer District</u>	<u>\$500,000</u>								
<u>West Boundary Manhole/Structure Work</u>	<u>Northwestern Water and Sewer District</u>	<u>\$750,000</u>	<u>-750,000</u>	-						
-	-	<u>\$12,384,000</u>		-	-	-				

RISINGSUN FACILITY PLANNING AREA

The Risingsun Facility Planning Area (FPA) is a designated region within village of Risingsun area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Risingsun (Figure 5-47). The Risingsun FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibility of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** The Village of Risingsun, the Village of West Millgrove, Montgomery Township, and Scott Township are members of Northwestern Water and Sewer District (District). The District is responsible for public sewerage systems in both incorporated and unincorporated areas.

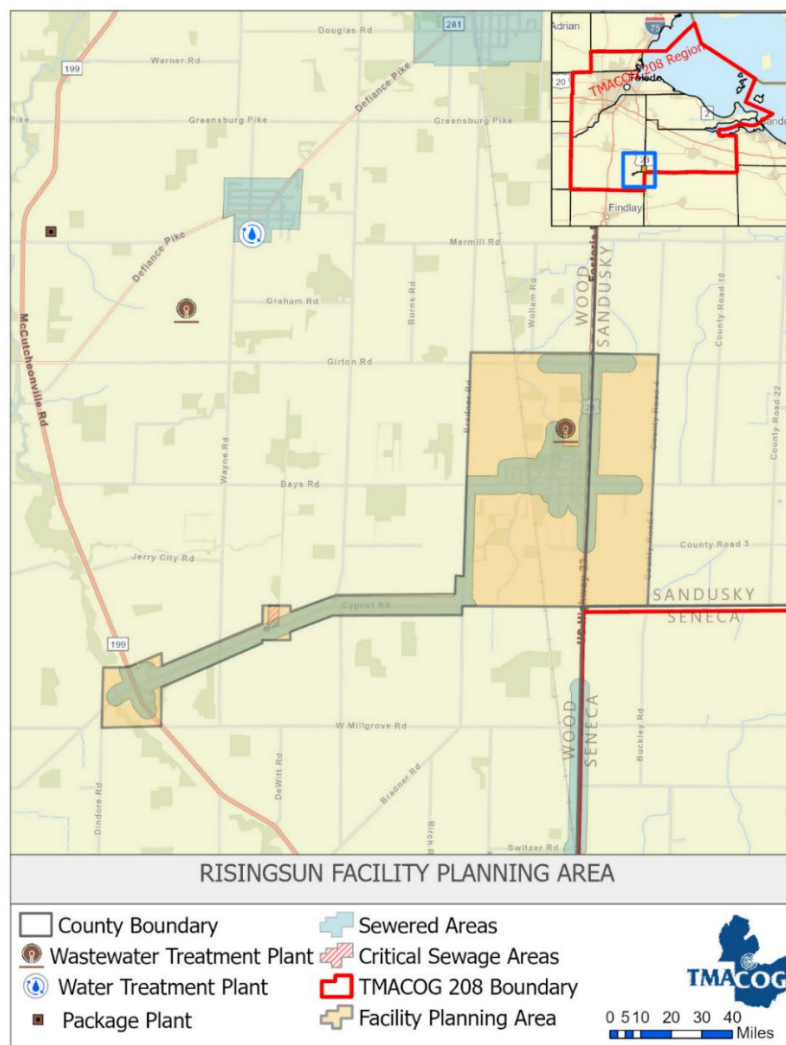


Figure 5-47: Risingsun Facility Planning Area

Table 5-107: Risingsun Area Population

Area	Population
Risingsun, entire jurisdiction (Wood County)	541
West Millgrove, entire jurisdiction	131
Montgomery Township, entire jurisdiction (Wood County)*	4,157
Scott Township, entire jurisdiction (Sandusky County)*	1,333
Perry Township, entire jurisdiction (Wood County)*	15,668
Total	21,830

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Northwestern Water and Sewer District (the District) completed a conventional gravity/force main sewer system and WWTP in 2008 at a total cost was \$4,799,434. Of that cost, \$2,468,300 came from grants and local funds. The treatment plant is an extended aeration plant with an average daily design flow of 95,000 gpd; peak hydraulic capacity is 475,200 gpd (330 gpm). Its Class B sludge is disposed of by discharge to a larger POTW with sludge handling facilities. Ohio EPA data showed an average [monthly](#) flow of 0.03367 mgd during ~~the period of 2023-2024~~ [2020-2021](#).

- In 2012, sewers were installed to serve to Village of West Millgrove, and the critical sewage area at Bays and Bradner Roads. West Millgrove was connected to the Risingsun system via a force main; the force main is available for service, and properties to which it is accessible were ordered to tap. These included buildings in the critical sewage area of Hatton that abut Cygnet Road, but most of the unincorporated town, about 17 residences, have no public sewerage system. Sewage treatment is handled by individual septic systems.
- A new headworks project [was](#) being completed by the District at the WWTP. The project included [ds](#) replacing the existing trash trap with a new precast dual channel vault to house a new augur monster and grinder, a bypass channel with a standard bar screen, and all necessary electrical, mechanical, and structural work.

Issues

Hatton is identified as a Critical Sewage Area (see **Chapter 6**) due to failing septic systems identified through sanitary surveys and inspections. New or replacement on-site sewage treatment systems and replacements are not practical or possible in many cases. Many of the suspected or failing systems are on small lots that do not have room for replacement leaching fields or soil conditions are poor due to shallow bedrock, tight silt/clay soils, and/or seasonally high ground water.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New

platted subdivisions shall connect to public sewers and be served by the Risingsun wastewater treatment plant.

Future Needs

- The town of Hatton remains as a Critical Sewage Area. The town’s approximately 17 residences are close but not accessible to the District’s sanitary sewer. Existing septic systems are believed to be inadequate; a sanitary survey is needed to determine and document their status. It is likely that sanitary sewers will be needed, and financial assistance to make the project feasible.

This Plan supports financial assistance to install sewers and provide treatment for unsewered areas.

Table 5-108: Risingsun FPA Capital Improvement Schedule

None planned

None planned by the DMA.

Please fill this table if you have any ongoing project or planned project for future

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future

TONTOGANY FACILITY PLANNING AREA

The Tontogany Facility Planning Area (FPA) is a designated region within village of Tontogany area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Tontogany (Figure 5-48). The Tontogany FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibility of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** Owns and operates wastewater treatment facilities and the collection system.

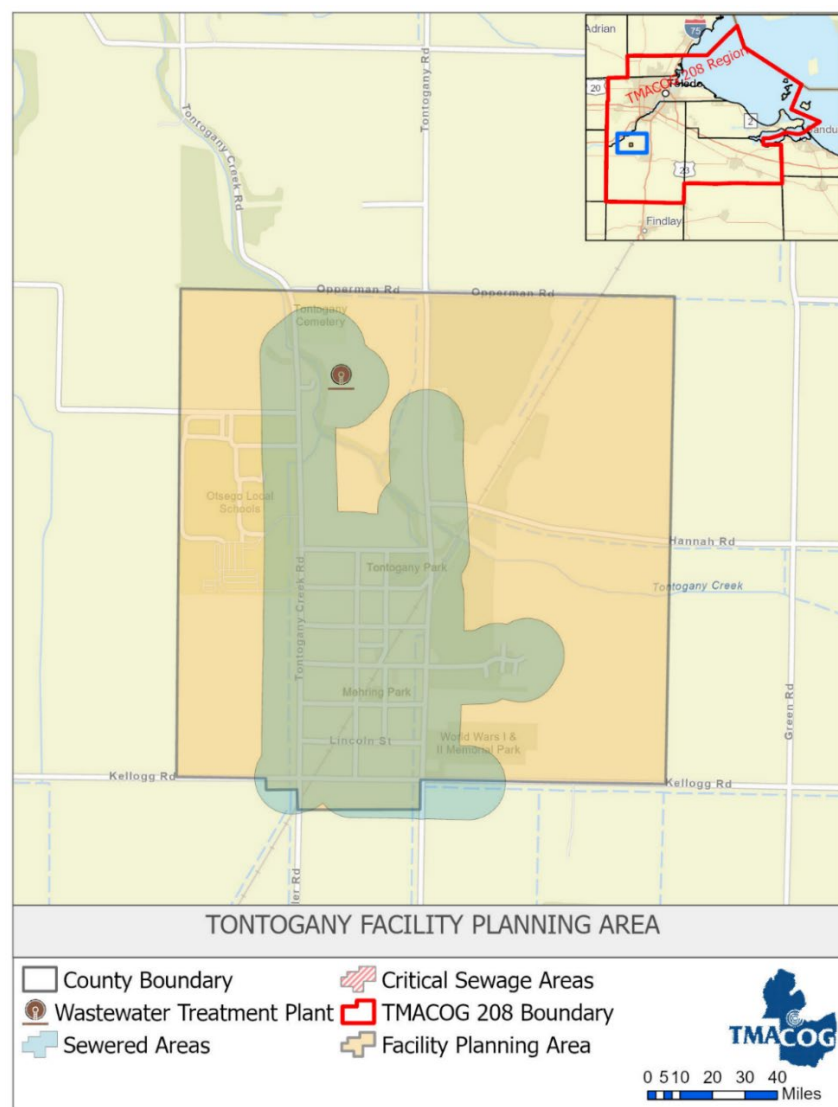


Figure 5-48: Tontogany Facility Planning Area

Table 5-108: Tontogany Area Population

Area	Total Population
Tontogany, entire jurisdiction	387
Washington Township, entire jurisdiction*	1,864
Total	2,251

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Tontogany WWTP is a four-cell aerated lagoon facility with ultraviolet disinfection. The facility was built in 1985, and has an average design capacity of 0.10 mgd and a hydraulic capacity of 0.33 mgd. Ohio EPA data showed an average monthly flow of 0.05~~43~~ mgd- during the period of ~~2020~~2023-202~~41~~. The conventional gravity sewer system was also built at ~~the same time~~1985.

In 2006, Northwestern Water and Sewer District (District) bought approximately 14 acres for potential future expansion of the WWTP. In 2016, rehabilitation work was completed for the existing wastewater pumping station located at North Street.

~~The District is performing maintenance and replacing aeration equipment and evaluating the long term operations of this plant. The lagoon was cleaned in 2020 and a bacterial supplements are being added. The plant performance will be evaluated over the next couple of years to determine the future of this plant.~~

There are no package sewage treatment plants located in the FPA.

Issues

The Tontogany WWTP has had some recent difficulty in maintaining the ammonia limits listed in the current NPDES permit. The District performed a study to determine possible alternatives to improve the ammonia removal process and is reviewing the results. Additionally, during the study process it was determined that the WWTP requires the lagoons to be drained and the sludge removed. In 2020, the sludge was removed and with upgraded aeration equipment, it is anticipated that the lagoons will meet the permit limits.

The Ohio EPA, upon review of the existing permit, determined that the winter ammonia limits could be removed and that the summer ammonia limit could be raised. This has allowed the plant effluent to comply, excepting during brief periods in late winter. The District is planning to install floating hexagonal covers in 2025 in the cells to resolve these issues.

Future Needs

The District plans to continue its evaluation of the plant to determine the best. The capital improvement plan for the Tontogany FPA is shown in Table 5-109.

Table 5-109: Tontogany FPA Capital Improvement Schedule

Project	DMA	Total Cost							
			2025	2026	2027	2028	2029	2030	Future
Tontogany WWTP Improvements	Northwestern Water and Sewer District	\$65 00,000	<u>\$100,000</u>						\$500,000
		\$65 00,000							

WAYNE FACILITY PLANNING AREA

The Wayne Facility Planning Area (FPA) is a designated region within the village of Wayne area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Wayne (Figure 5-49). Wayne FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Village of Wayne Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibility of these agencies are outlined below:

Designated Management Agency Responsibilities:

- **Village of Wayne:** Owns and operates wastewater treatment facilities, and the collection system within the corporate limits.
- **Northwestern Water and Sewer District:** Plans, and will own and operate collection system in unincorporated areas, if and when built, connecting to the Village for treatment services.

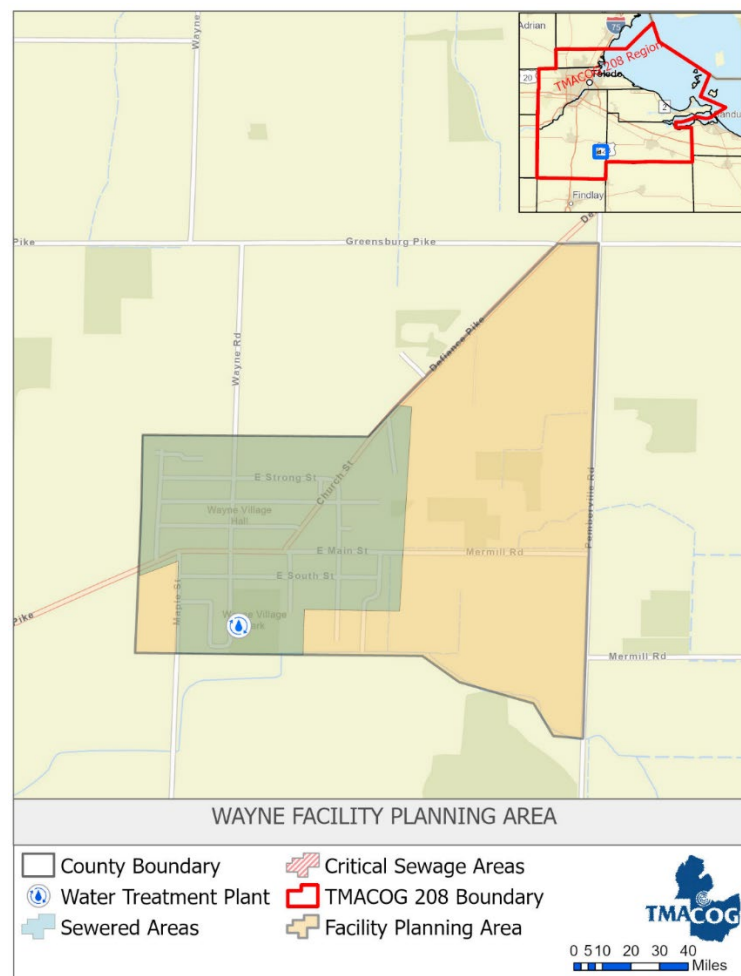


Figure 5-49: Wayne Facility Planning Area

Table 5-110: Wayne Area Population

Area	Total Population
Wayne, entire jurisdiction	841
Montgomery Township, entire jurisdiction*	4,157
Total	4, 998

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Wayne WWTP is a controlled discharge lagoon facility, built in 1997. The system uses conventional gravity sewers. The design capacity is 0.092 mgd. Ohio EPA data showed an average flow of 0.562 mgd when discharging, average flow of 0.020 mgd daily, and a peak flow of 1.361 mgd during the period of 2014-2018. Total discharge over the five-year period was 37.082 mg, with 66 discharge days.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Wayne wastewater treatment plant.

Future Needs

None planned by the DMA.

~~There are no projects planned for the Wayne FPA at the present.~~

~~Please fill this table if you have any ongoing project or planned project for future~~

Project	DMA	Total Cost	Annual Capital Improvement Needs						
-	-	-	2025	2026	2027	2028	2029	2030	Future

WESTON FACILITY PLANNING AREA

The Weston Facility Planning Area (FPA) is a designated region within the village of Weston area where wastewater management, including sewage treatment and disposal, is planned and coordinated. The FPA boundaries define the areas that are expected to be serviced by the wastewater treatment facilities in Weston (Figure 5-50). Weston FPA ensures that wastewater infrastructure is adequately planned to meet the needs of the population within these boundaries, considering factors like population growth, environmental impacts, and regulatory requirements. This FPA is managed by Northwestern Water and Sewer District which is represented by Designated Management Agencies. The responsibility of this agency is outlined below:

Designated Management Agency Responsibilities:

- **Northwestern Water and Sewer District:** Owns and operates wastewater treatment facilities, and collection system.

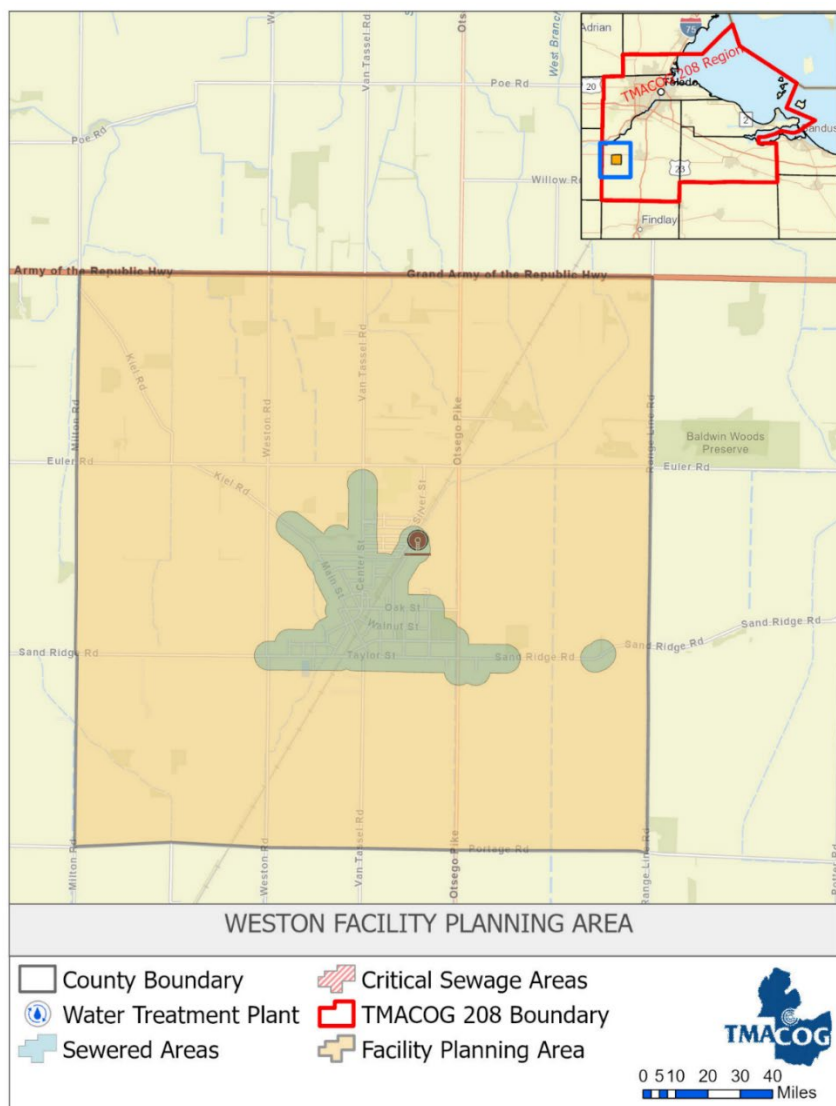


Figure 5-50: Weston Facility Planning Area

Table 5-111: Weston Area Population

Area	Total Population
Weston, entire jurisdiction	1,455
Weston Township, entire jurisdiction*	2,124
Estimates within the FPA boundary	3,579

*only part of this jurisdiction is within the FPA boundary.

Source: U.S. Census 2020 decennial census.

Present Facilities

The Weston WWTP is an extended aeration facility with aerobic sludge digestion, effluent chlorination/dechlorination which was converted to ultraviolet in 2006, and aerated flow equalization ponds. The plant has sludge drying beds, but current practice is not to use them, and liquid sludge is transported to the City of Bowling Green WWTP for processing to Class A sludge. The plant was built in 1967, with an expansion in 1983. The 1983 improvements included separating the sewer system. Average design capacity was 0.21 mgd and hydraulic capacity was 0.70 mgd. In 2004-2005, the average design flow was increased to 0.28 mgd and peak flow to 0.85 mgd. Implementation of a General Plan led to further improvements for the plant to operate effectively and meet permit requirements. The improvements, completed in 2011 at a cost of \$1.3 million, included headworks design, optimized raw wastewater flow to secondary treatment, fine-bubble diffusers, and other secondary process improvements.

Ohio EPA data shows an average flow of 0.29-0.24 mgd during the period of 2020-2024. The Northwestern Water & Sewer District (District) is in the process of removing I & I by enforcing I & I elimination based on the previous studies, and televising the sewers during heavy rains. In 2018, the District completed a rehabilitation project on two pump stations. ~~An analysis of the system in 2022-2023 will determine the need for plant improvements, if any.~~

Issues

~~Two phases of improvements to the Weston WWTP have been completed to adapt new technology and improve efficiency. The NPDES permit, renewed in May 2003, set a compliance schedule that required a General Plan, and compliance with effluent standards by 2007. Subsequently, in 2006 the District took over ownership and operation of the plant and has evaluated the plant's limitations and potential capabilities. Inflow and infiltration continues to be an issue and the District has to rehabilitated a portion of the sewer collection system.~~

Inflow and infiltration continues to be an issue and the District has to rehabilitated a significant portion of the sewer collection system. In 2021, The District completed a \$1.3 million sanitary sewer rehab project. The majority of this project is trenchless, targeting I/I issues, with a small portion of open cut on Ohio Street. Private inflow and infiltration issues will be addressed over the next several years through the private grant program for stormwater removal. The WWTP currently has a peak capacity of 500,000 gpd, however in wet weather the plant experiences flow rates greater than the capacity of the plant. Currently the plant has flow equalization basin capacity of between 1.1 MG and 1.6 MG depending upon the amount of freeboard used within the two existing ponds. The District has recently completed a

project aimed at reducing inflow and infiltration within the sanitary sewers in the Weston WWTP collection system. This project was completed in April 2022.

NPDES Permit issued on July 1, 2024 Compliance Schedule

PART I, C. - SCHEDULE OF COMPLIANCE

Milestone Summary Report

- Discharge Prevention Plan 15099 12 months after the permit effective date
- No Feasible Alternative Analysis Status Report 95999 24 months after the permit effective date
- No Feasible Alternative Analysis Status Report 95999 36 months after the permit effective date

1. Bypassing: No Feasible Alternatives Analysis and Schedule

The Weston WWTP includes a bypass which re-routes a portion of wastewater flow to two-551,000-gallon lagoons during storm events. When the capacity of the lagoons is exceeded, the lagoons will discharge through outfall 002. Bypassed flow does not receive the following treatment: activated sludge aeration, secondary clarification and disinfection. Excessive influent flow rates are caused by inflow, and infiltration which results in plant bypasses. These treatment plant bypasses are not authorized by this permit, including Part I.C., Schedule of Compliance. The permittee shall undertake the following actions:

- a. The permittee shall conduct a comprehensive analysis of all feasible alternatives necessary to eliminate the bypass at the treatment plant and any overflows in the collection system. This analysis shall address and evaluate the following:
 - i. Inflow/infiltration reduction within the collection system;
 - ii. Additional wastewater storage and flow equalization;
 - iii. Providing additional secondary treatment capacity which includes an analysis of constructing additional secondary capacity as well as an analysis of process changes to enhance secondary treatment capacity;
 - iv. The analysis shall also evaluate methods that will enhance the treatment of any bypassed flow;
 - v. Costs associated with the respective alternatives;
 - vi. A proposed schedule for implementation of recommended improvements (if required) in the collection system and/or the treatment plant;
- b. The permittee shall submit a report containing the comprehensive analysis required in Item 1.a as soon as possible, but no later than 12 months from the effective date of this NPDES permit. 12 months after the permit effective date
- c. Ohio EPA will review the report submitted under Item 1.b above and provide any necessary comments
to the permittee. The permittee shall respond to any deficiencies in the analysis as noted by Ohio EPA within 30 days of receiving Ohio EPA comments.
- d. Within 30 days of notification of review and acceptance by Ohio EPA, the permittee shall initiate
implementation of the recommendations of the report, including any revisions necessary to address Ohio EPA comments.

- e. The permittee shall submit annual status reports towards implementation of the evaluation required
under Schedule of Compliance Item 1.d. in accordance with the following schedule:
- i. No later than 24 months after the effective date of the permit; and 24 months after the permit effective date
 - ii. No later than 36 months after the effective date of the permit. 36 months after the permit effective date
 - iii. All work necessary to comply with the implementation schedule of the selected alternative under this Schedule of Compliance Item 1. shall be fully completed by the expiration date of this permit.

New Subdivisions

It is the policy of the Plan that all new residential subdivisions that are required to be platted under Wood County subdivision regulations, septic tanks or individual household sewage treatment systems for platted subdivisions of more than five (5) lots shall not be permitted within the FPA boundary. New platted subdivisions shall connect to public sewers and be served by the Weston wastewater treatment plant.

Future Needs

The District has hired a consultant to perform the evaluation of options for addressing the Compliance Schedule shown above. This effort is underway and includes:

- Collection of the background data regarding the treatment works including reports and technical information.
- Reviewing the performance of the WWTP in terms of capacity of the plant as a whole and each individual treatment process.

~~The current NPDES permits indicates:~~

- ~~• The Village of Weston shall submit a Phosphorus Discharge Optimization Evaluation Plan no later than 12 months from the effective date of the permit. Upon acceptance of the plan by the Ohio EPA, the Village shall implement the recommended measures in accordance with the schedule specified in the plan.~~
- ~~• The Village shall conduct a comprehensive analysis of all feasible alternatives necessary to eliminate the bypass at the treatment plant and any overflows in the collection system. This comprehensive analysis shall be submitted no later than 12 months from the effective date of the permit, and thereafter submit annual status reports towards implementation.~~

The capital improvement plan for the Weston FPA is shown in Table 5-112.

Table 5-112: Weston FPA Capital Improvement Schedule

Project	DMA	Total Cost	Annual Capital Improvement Needs						
			2025	2026	2027	2028	2029	2030	Future
<u>WWTP Improvements</u>	<u>NWWSD</u>	<u>\$2,200,000</u>		<u>\$200,000</u>	<u>\$1,000,000</u>	<u>\$1,000,000</u>			
<u>Sanitary Sewer and Lateral Rehabilitation</u>	<u>NWWSD</u>	<u>\$500,000</u>			<u>\$500,000</u>				
		<u>\$2,700,000</u>							

CHAPTER 9
PUBLIC DRINKING WATER

CHAPTER 9

PUBLIC DRINKING WATER

I. Overview of public drinking water systems

Communities in Ohio began filtering and providing public water in the early 19th century. Through expansions in utility services, and advancements in filtration and treatment technologies, the number of people with access to safe and reliable drinking water has expanded tremendously. Today, many communities and regional water utilities are responsible for providing safe, reliable drinking water to their residents and customers.

The [Ohio Environmental Protection Agency \(OEPA\)](#) defines a public water system as any system that provides water for human consumption to at least 15 service connections or serves an average of at least 25 people for a minimum of 60-days in a year. These systems range in size from large municipalities to smaller privately-owned establishments. Public water systems are required to monitor their water regularly for contaminants.

Public water systems are classified according to the number of people they serve in a year:

- Community water systems serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents. Examples include cities, mobile home parks, and nursing homes.
- Non-transient, non-community systems serve at least 25 of the same people over six months per year. Examples include schools, hospitals, and factories.
- Transient non-community systems serve at least 25 different people over 60 days per year. Examples include campgrounds, restaurants, and gas stations. In addition, drinking water systems associated with agricultural migrant labor camps, as defined by the Ohio Department of Agriculture, are regulated even though they may not meet the minimum number of people or service connections.

In contrast to Public Water systems, private water systems are households and small businesses that serve fewer than 25 people per 60 days in a year (e.g., small bed and breakfasts, small day cares and small churches). Private water systems are regulated by the local health departments in both Ohio and Michigan.

Public Water Systems (PWSs) are protected by the Safe Drinking Water Act (SDWA), which includes source water protection, treatment, distribution system integrity, and public information. These approaches help to provide safe and reliable water through four key steps:

- Risk Prevention: Selecting and protecting the best source of water where possible and protecting the current source of water.
- Risk Management: Using effective treatment technologies, properly designed and constructed facilities, and employing trained and certified operators to properly run system components.
- Monitoring and Compliance: Detecting and fixing problems in the source water and distribution system.
- Individual Action: Providing customers with information on water quality and health effects so they are better informed about their water system.

The goal of drinking water treatment is to ensure that the water meets health-based standards set by the U.S. Environmental Protection Agency (U.S. EPA) and state regulatory agencies, and to protect public health by preventing waterborne diseases and exposure to harmful substances.

Importance of safe and reliable drinking water

The importance of clean drinking water cannot be overstated, as it directly impacts all aspects of life and well-being. Water needs to be clean, free of disease, metals, human and animal waste, and needs to be affordable for everyone. According to a [World Health Organization](#) (2023) report, safe and reliable drinking water is important for public health, whether it is used for drinking, domestic use, food production or recreational purposes. Improved water supply and sanitation, and better management of water resources, can boost economic growth and contribute to poverty reduction ([World Health Organization](#), 2023). Sufficient water treatment facilities and good hygiene are key measures to prevent health complications, particularly in vulnerable populations such as those with chronic health conditions. People with certain chronic medical conditions, compromised immune systems, respiratory diseases, children, and elderly people, can be more at risk of having severe effects from a water-related illness. Access to clean and safe drinking water is a cornerstone of public health. One event that demonstrates the devastating consequences of compromised water quality is the Flint water crisis in Michigan where compromised pipes caused lead exposure that resulted in negative public health impacts. Another example is the 2014 toxic algal bloom in Lake Erie that disrupted water service for over 500,000 people in northwest Ohio. While no one was directly exposed to the toxic algae in their drinking water, water service was discontinued for three days. Contaminants such as lead, per- and polyfluoroalkyl substances (PFAS), nitrates, and microcystin found in harmful algae blooms pose significant risks to human health.

Flint's 2014 water crisis, exposed thousands of residents, especially children, to elevated blood lead levels and associated developmental risks, deepening environmental challenges and eroding public trust in government institutions (Hanna-Attisha et al., 2016; Pulido, 2016). The lead-contaminated water that residents were exposed to resulted in an increased risk of hypertension for pregnant women and may have interfered with their choice of whether to breastfeed. Moreover, the health effects of lead exposure in children increased the risk of impaired cognition, behavioral disorders, hearing problems, and delayed puberty. Analyzing health records from 2008 to 2015, researchers found that fertility rates in Flint dropped by 12 percent, and fetal deaths rose by 58 percent. Additionally, babies who were born full-term in Flint during the water crisis had lower birth weights. The magnitude and long-term health consequences of the Flint crisis, particularly for low-income and marginalized communities, were severe.

The three-day "Do Not Drink" advisory in Toledo event revealed vulnerabilities in water safety monitoring and infrastructure resilience. Despite substantial improvements at the Toledo Water Treatment Plant since the 2014 microcystin event, many Toledo residents remain wary of the public water system due to the initial crisis and its perceived mishandling (Hope & Glauser, 2015; McElmurry et al., 2016). Ensuring reliable drinking water systems is essential not only to reduce the incidence of waterborne diseases but also to protect vulnerable populations and restore public confidence, ultimately enhancing overall community health.

II. Drinking Water Regulatory Frameworks

i. Federal Public Drinking Water Regulations

The Safe Drinking Water Act (SDWA) was enacted by the U.S. Congress in 1974 to protect the quality of drinking water in the U.S. It mandates the U.S. EPA to develop national standards and establish requirements for public water systems concerning treatment, monitoring, and reporting. Its overall goal is to protect public health by setting enforceable standards for specific contaminants in rivers, lakes, reservoirs, springs, and groundwater wells. The SDWA also sets the requirements for treating the contaminants detected in drinking water. For this purpose, it mandates all utilities to assess their water

sources regularly. To implement it successfully, the U.S. EPA is empowered to establish and enforce national health-based standards to protect drinking water from both naturally occurring and human-caused contaminants.

ii. Statewide Public Drinking Water Regulations

In accordance with the federal SDWA, both Ohio and Michigan have developed robust public drinking water programs that meet federal requirements. Each state administers these programs through their respective regulatory agencies to ensure safe and reliable drinking water for residents, businesses, and institutions. Ohio regulates public drinking water primarily through the Ohio Administrative Code (OAC) 3745-81, which aligns with the federal SDWA and sets comprehensive standards for water quality monitoring and reporting. The OAC establishes maximum contaminant levels (MCLs) for a wide range of pollutants and mandates regular water sampling, laboratory analysis, and prompt public notification if standards are exceeded. These rules apply to both community and non-community water systems, supporting a consistent, statewide approach to drinking water protection. Oversight is managed by the OEPA through its Division of Drinking and Ground Waters (DDAGW), which enforces regulations, certifies water system operators, and provides technical and financial assistance, such as the Drinking Water Assistance Fund, to help communities maintain compliance and improve infrastructure. Michigan's drinking water program is administered by the Department of Environment, Great Lakes, and Energy (EGLE), under the authority of the Michigan SDWA. The state's regulatory framework is codified in the Michigan Administrative Code (Rules R 325.10101 to R 325.12820), which, like Ohio's, sets MCLs, requires routine monitoring, and emphasizes operator certification and reporting. Michigan regulates approximately 1,400 community and 9,500 non-community systems. Its Drinking Water and Environmental Health Division (DWEHD) also supports functions such as source water protection, well construction oversight, and coordination with local health departments.

Both Michigan and Ohio have taken significant steps to tackle water quality issues posed by emerging contaminants. In Michigan, the Flint water quality crisis spurred the state into action, leading to stricter rules for lead and copper in drinking water. These changes include replacing service lines and educating the public to prevent similar situations. Ohio, on the other hand, aligns its lead and copper standards with federal requirements and is working to map and replace lead service lines throughout the state. Currently, both states are addressing issues about PFAS chemicals in drinking water. As of 2025, Michigan has set enforceable MCLs for seven PFAS compounds, while Ohio has set action levels for six compounds based in the 2024 federal MCLs. Ohio's PFAS MCLs, reflective of the federal standards, are expected to be final in 2027. Both Ohio and Michigan programs include PFAS sampling requirements guidance to help water systems navigate this issue. In terms of funding, both states offer financial assistance to communities for infrastructure improvements. Ohio's Drinking Water Assistance Fund and Michigan's MI Clean Water Plan both provide grants and low-interest loans to support system upgrades and long-term compliance.

Ohio and Michigan maintain comprehensive and federally compliant drinking water programs; each tailored to their state-specific needs and experiences. While individual policy emphases may differ, such as Michigan's lead response or Ohio's statewide technical assistance network, both programs are grounded in a shared commitment to protecting public health and ensuring high-quality drinking water.

III. Source Water Assessment and Protection

The 1974 SDWA sets enforceable standards for specific contaminants and requires that drinking water be treated. The SDWA also aims to prevent contamination of the drinking water source prior to treatment and requires utilities to assess their source water. Ohio EPA and Michigan EGLE are charged with ensuring that public water supplies comply with the SDWA and evaluate potential threats to source waters. While the CWA and SDWA can work in tandem to protect drinking water sources, regulatory gaps present challenges to local governments charged with providing safe drinking water. Ohio's Source Water Assessment and Protection (SWAP) program, also known as Drinking Water Source Protection or "Wellhead" Protection, focuses on protecting the state's public water systems from contamination. While public systems treat water to meet health-based standards, preventive measures to avoid chemical spills near well fields or surface water intakes are crucial. These actions help communities reduce treatment costs and ensure safe, high-quality drinking water. Public water suppliers drawing from the western basin of Lake Erie face the unique challenges presented by seasonal algal toxins that emerge each year.

Michigan's source water protection program is formulated to protect water sources for local communities that use groundwater and surface water for their municipal drinking water supply systems. This includes management strategies to reduce contamination risk, contingency and new source planning, and public education and outreach. Michigan EGLE's source water protection program includes identification of areas where groundwater is used to supply drinking water to communities.

While source water protection plans offer a planning tool to leverage governmental and private investment to protect source water, public water systems lack the authority to control nutrients and other pollutants that impact their source of water outside of their own political boundaries.

IV. Emerging Issues

High-demand for available water resources, along with pollution of groundwater and surface water resources, has led to water quality issues in recent years. Expansion of tech industries activities such as the construction of data centers in rural areas, and an increase in industrial livestock farming in the region have led to evolving water quality and availability challenges in Ohio and Michigan. In recent years, extreme weather events have exacerbated the issue as some of the facilities available to treat polluted water are older and may struggle to handle the challenges of these weather events.

A report from the Environmental Working Group identifies high levels of more than 100 contaminants like disinfectant byproducts, nitrates and forever chemicals called PFAS in Ohio's drinking water. As a result, Ohio and Michigan have recently accelerated efforts to address issues such as lead pipes and PFAS contamination. In October 2024, the Biden administration announced \$56.2 million in funding to support Ohio's lead pipe replacement initiative, following the U.S. EPA's mandate to remove lead service lines. Meanwhile, Michigan has led efforts to regulate PFAS, establishing state-level maximum contaminant levels to safeguard public health. Beyond PFAS, emerging contaminants, including pharmaceuticals, personal care products, microplastics, and industrial chemicals are increasingly being detected in water supplies. These substances, which are not yet fully regulated, present complex challenges to drinking water systems due to limited treatment technologies and evolving health risk assessments. Compounding these issues is a nationwide shortage of qualified water treatment operators and technical staff, threatening the continuity and resilience of safe water delivery. In response, TMACOG has started a water workforce training program to train more operators and increase the number of operators for the water treatment facilities in the region.

V. Public Drinking Water Infrastructure

i. Drinking Water Treatment Plants

Drinking water treatment involves the process of removing contaminants and impurities from raw water sources to produce safe and potable water for human consumption. The process begins with coagulation and flocculation, where chemicals are added to clump particles together into larger masses, which then settle out in the sedimentation phase. Filtration follows, using materials like sand, gravel, or activated carbon to remove smaller particles, bacteria, and protozoa. Disinfection is the final critical step, where chlorine, chloramine, ozone, or ultraviolet light are used to kill any remaining pathogens. Advanced treatment technologies like activated carbon adsorption, ion exchange, and reverse osmosis may also be used to address specific contaminants (Figure 9-1).

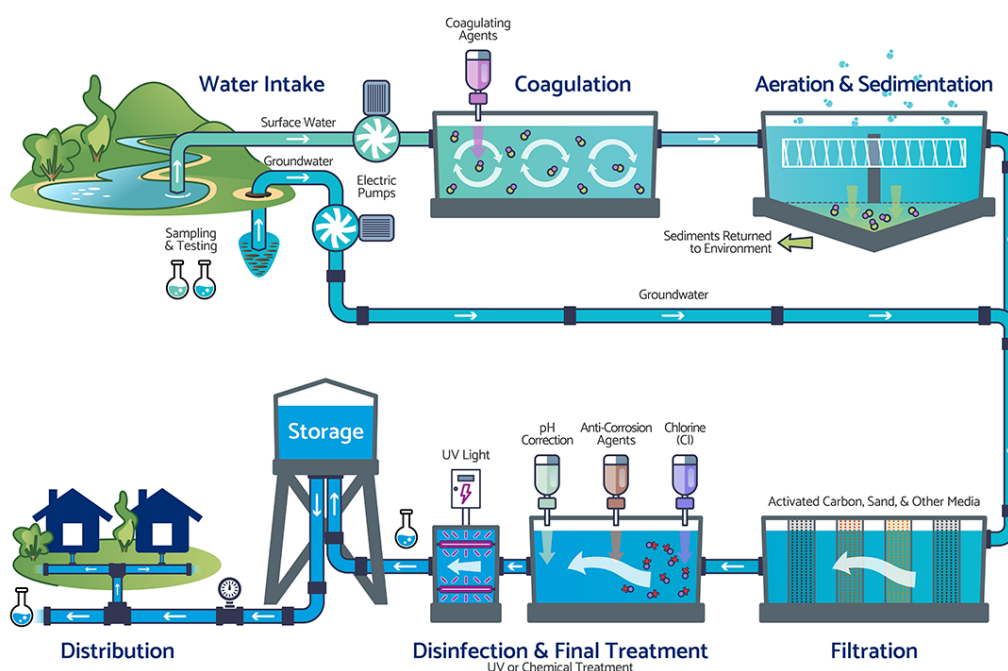


Figure 9-1: Drinking Water Treatment Process.

Source: [Community Utilities of Pennsylvania](#)

ii. Drinking Water Treatment Facilities in TMACOG 208 Planning Area

There are nineteen (19) Drinking Water Treatment Facilities in the TMACOG 208 planning region which serves a population of nearly 600,000 (Figure 9-2). The water treatment facilities in the TMACOG region receive their water from several types of sources. Most of the region's drinking water is sourced from Lake Erie, while several other facilities utilize intakes in nearby rivers or creeks to feed reservoirs. Some facilities utilize ground water wells as their permanent source and as an emergency source. The largest plant in the region is Toledo Collins Park Water Treatment Plant (WTP) in Lucas County, serving approximately 80% of the public drinking water in the region. The smallest plant in the region is in Whiteford Township in Monroe County, Michigan. The Whiteford Township WTP began running in 2018 to deliver drinking water to the surrounding residences and businesses and is planning to expand the service area to meet the township's demands.

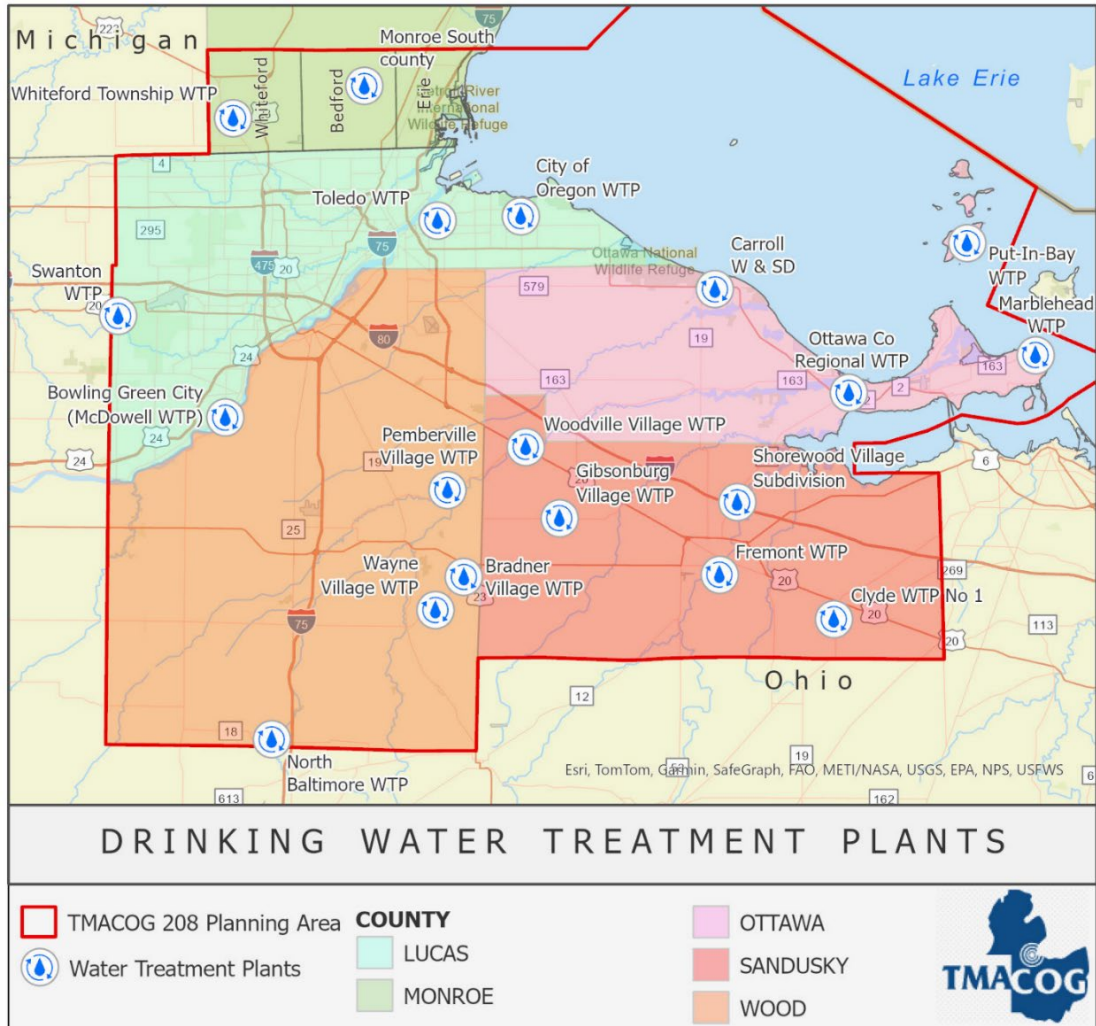


Figure 9-2: Water Treatment Plants in TMACOG 208 Planning Region

a. Lucas County Water Treatment

Three drinking water treatment plants serve Lucas County residents including the City of Toledo WTP, City of Oregon WTP, and Swanton WTP (Figure 9-3).

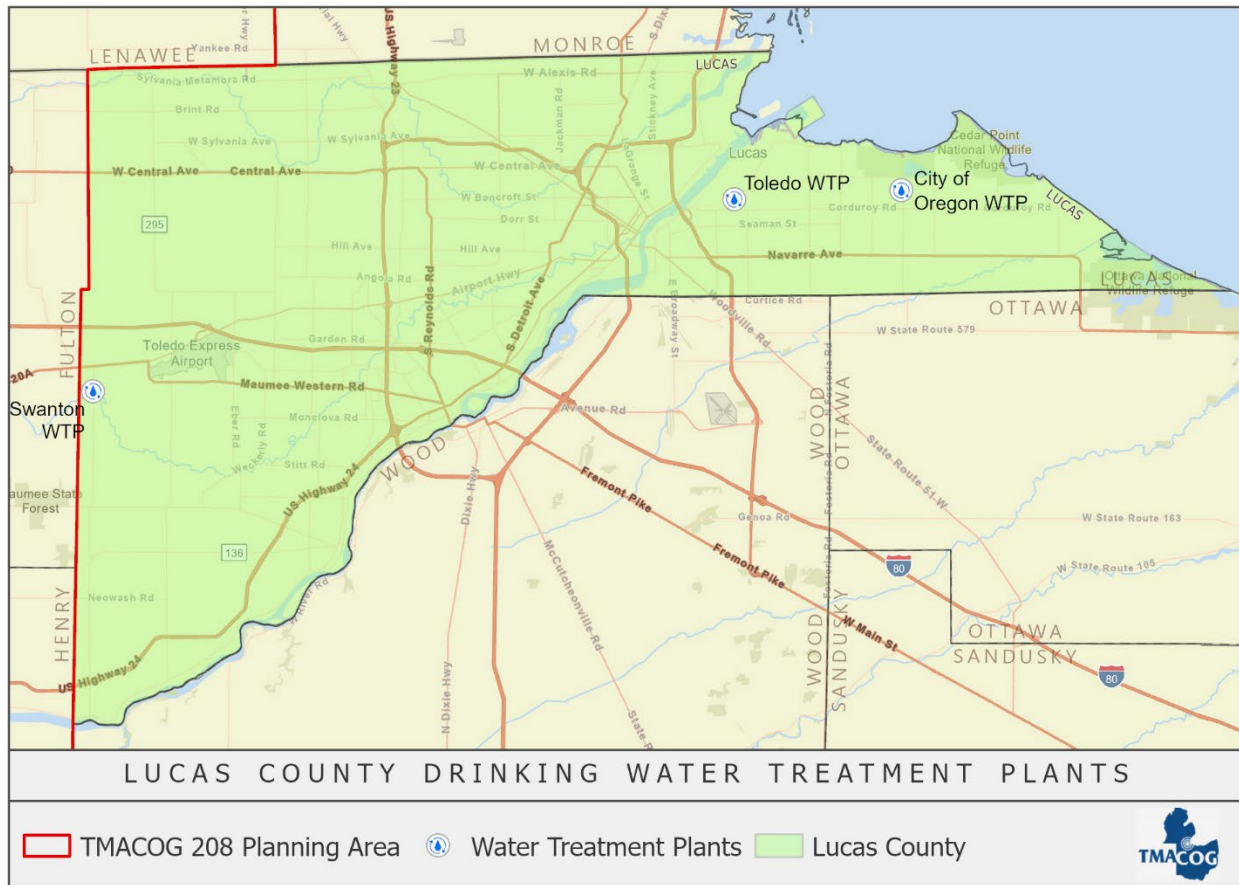


Figure 9-3: Water Treatment Plants in Lucas County

Table 9-1: Summary of Lucas County Drinking Water Treatment Facilities

Facility Name	Toledo WTP
Age of System	1942
Latest Major Upgrade (Year)	NA
Average-day production	65 MGD
Source water	Intake from: Toledo City Lake Erie Intake
Population served	480,000
Communities Served	Lucas County, Fulton County, City of Oregon, Toledo Refining Company along with the City of Oregon, City of Maumee, South County Water Dist. Of Monroe County, City of Perrysburg, City of Sylvania, NWRWSD (Wood County), and The Village of Whitehouse.
Facility Name	City of Oregon WTP
Age of System	1964
Latest Major Upgrade (Year)	2004

Average-day production	10MGD
Source water	Intake: Lake Erie, Toledo Otter CR, Emergency DS Connection
Population served	19,950
Communities Served	City of Oregon, City of Northwood, Lake Township (Wood County), Jerusalem Township (Lucas County), Village of Genoa (Ottawa County), Village of Millbury (Wood County), and the Village of Harborview (Lucas County).
Facility Name	Swanton WTP
Age of System	1974
Latest Major Upgrade (Year)	NA
Average-day production	0.335 MGD
Source water	Intake Reservoir, Intake Swan Creek Reservoir, Well 1, Swan Creek Water, District 2 Emergency
Population served	3,855
Communities Served	Swanton

b. Ottawa County Water Treatment

Four drinking water treatment plants serve the population of Ottawa County. These are: Carroll Water and Sanitary District (W&SD), Ottawa County Regional WTP, and Put-In-Bay WTP (Figure 9-4).

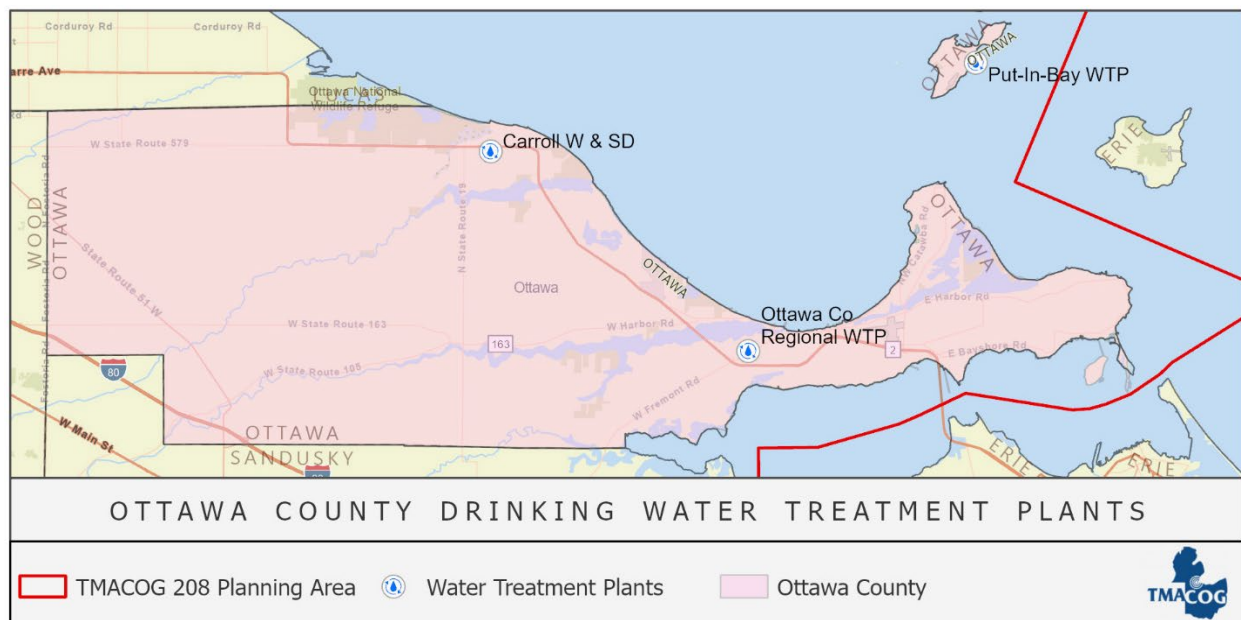


Figure 9-4: Water Treatment Plants in Ottawa County

Table 9-2: Summary of Ottawa County Drinking Water Treatment Facilities

Facility Name	Ottawa Co Regional WTP
Age of System	1999
Latest Major Upgrade (Year)	2005
Average-day production	3.637MGD
Source water	Intake Lake Erie, Intake from Emergency Portage River
Population served	19,556
Communities Served	Ottawa
Facility Name	Carroll W&SD
Age of System	1998
Latest Major Upgrade (Year)	NA
Average-day production	0.40MGD
Source water	Intake Lake Erie, CC Ottawa Regional Emergency Connection
Population served	2,288
Communities Served	Carroll Township
Facility Name	Put-In-Bay WTP
Age of System	1974
Latest Major Upgrade (Year)	NA
Average-day production	0.32MGD
Source water	Intake from Lake Erie
Population served	700
Communities Served	Put-In-Bay Township

c. Sandusky County Water Treatment

Sandusky County currently has five water treatment plants. These are Fremont WTP, Clyde WTP No 1, Gibsonburg Village WTP, Woodville Village WTP, and Shorewood Village Subdivision WTP (Figure 9-5).

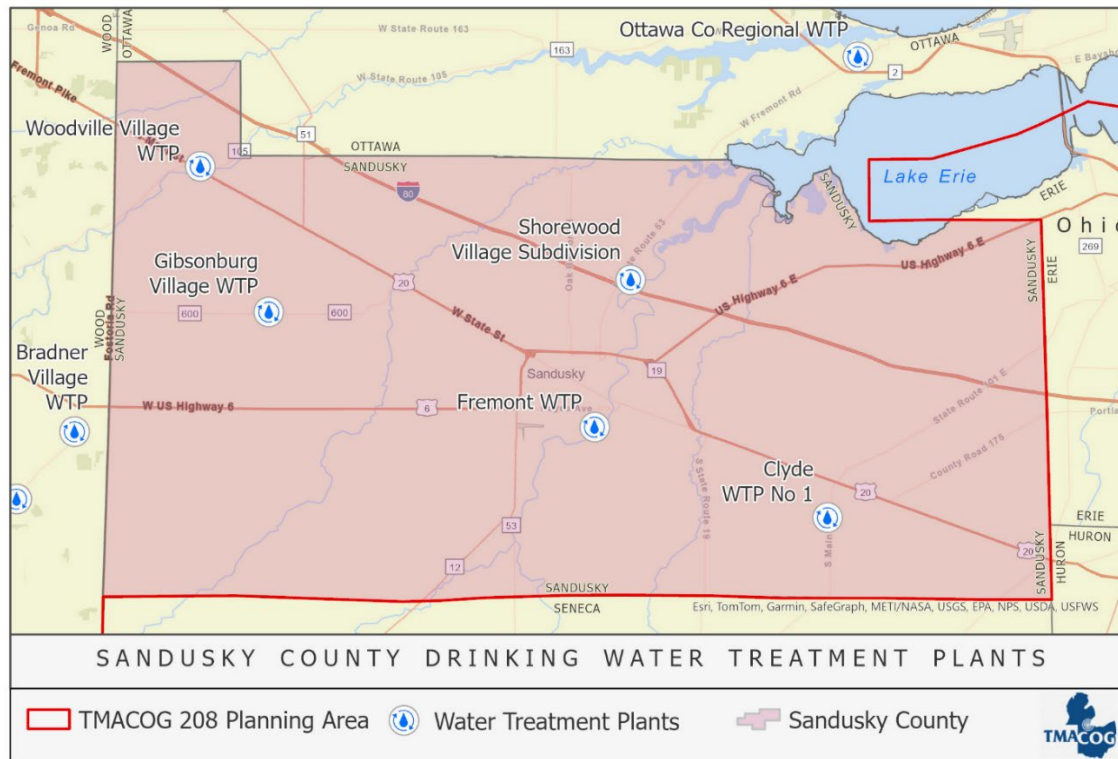


Figure 9-5: Water Treatment Plants in Sandusky County

Table 9-3: Summary of Sandusky County Drinking Water Treatment Facilities

Facility Name	Fremont City
Age of System	1974
Latest Major Upgrade (Year)	NA
Average-day production	6.0 MGD
Source water	Intake Reservoir, Intake Sandusky River, Reservoir, Ballville Dam
Population served	18,319
Communities Served	City of Fremont
Facility Name	Clyde WTP No. 1
Age of System	1997
Latest Major Upgrade (Year)	NA
Average-day production	1.25 MGD
Source water	Intake Beaver Creek, Intake Beaver Creek Reservoir, Intake Raccoon Creek Reservoir, Beaver Creek Reservoir, Raccoon Creek Reservoir
Population served	6,325
Communities Served	Clyde Township
Facility Name	Gibsonburg Village
Age of System	2001

Latest Major Upgrade (Year)	2001
Average-day production	0.31 MGD
Source water	Well 3, Well 4, Well 5, Well 6, Well 7
Population served	2,506
Communities Served	Gibsonburg community
Facility Name	Woodville Village
Age of System	1974
Latest Major Upgrade	Upgrades in March 2020, Phase III Waterline Replacement Project in Fall 2024, Water Tower Replacement 2025-2026, Water St. Waterline Replacement Fall 2025.
Average-day production	0.170 MGD
Source water	Well 2, Well 5, Well 6, Well 7, Well 8, Well 9, Well 10, Well 11
Population served	2,006
Communities Served	Woodville and a few Woodville Township residents
Facility Name	Shorewood Village Subdivision
Age of System	1971
Latest Major Upgrade (Year)	NA
Average-day production	0.015 MGD
Source water	Well 1, Well 2
Population served	359
Communities Served	Village of Shorewood

d. Wood County Water Treatment

Five drinking water treatment plants serve Wood County residents: McDowell WTP (Bowling Green), Bradner WTP, North Baltimore WTP, Pemberville Village WTP, and Wayne Village WTP (Figure 9-6).

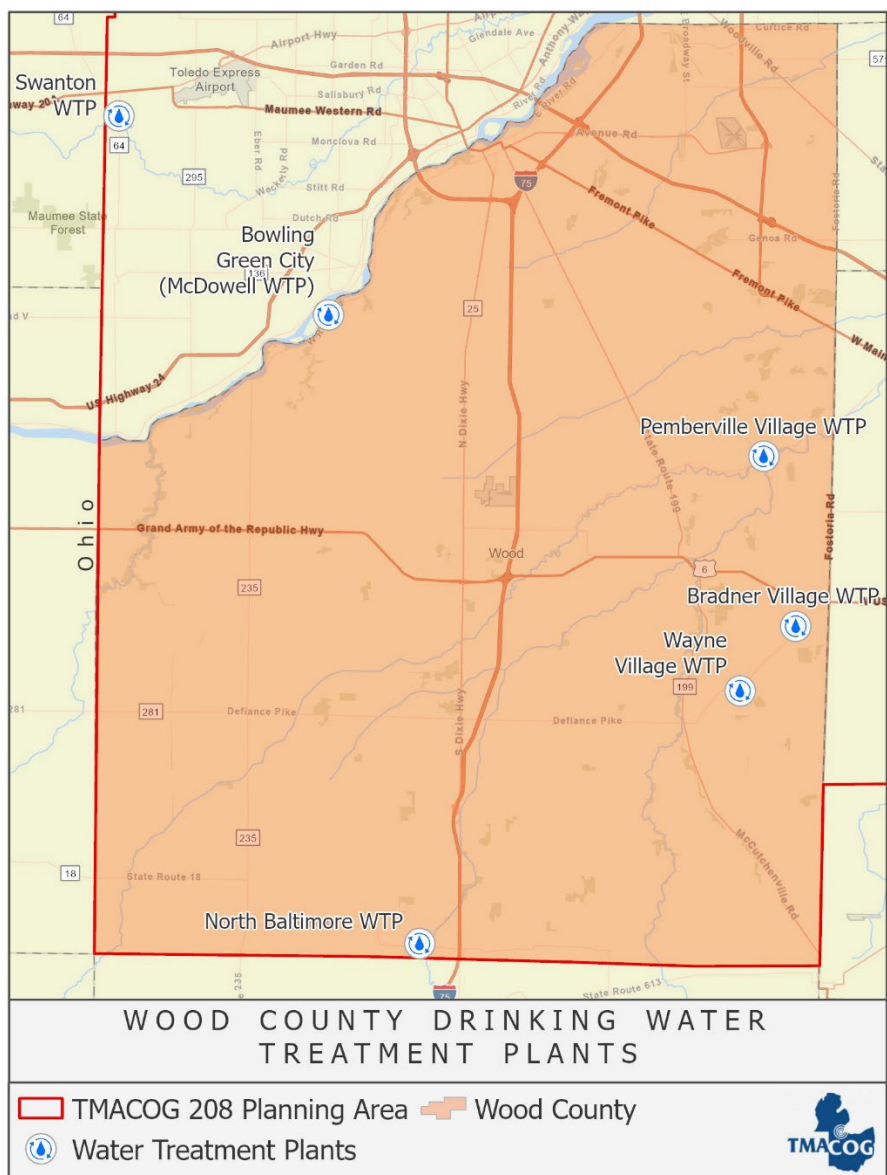


Figure 9-6: Water Treatment Plants in Wood County

Table 9-4: Summary of Wood County Drinking Water Treatment Facilities

Facility Name	Bowling Green City (McDowell WTP)
Age of System	1951
Latest Major Upgrade (Year)	2024
Average-day production	4.767 MGD
Source water	Intake 1 Maumee River, Intake 1 Reservoir, Intake 2 Maumee River, Intake 2 Reservoir, Reservoir

Population served	31,578
Communities Served	Bowling Green, Northwest Water, Waterville, Grand Rapids, Tontogany
Facility Name	North Baltimore WTP
Age of System	1970
Latest Major Upgrade (Year)	Most recent major upgrade-1998 In 2015 TTHM removal was added to the clear wells In 2022-2023 a new 500,000 gallons water tower and water main was added In 2023-2024 water mains were replaced and a loop under interstate I75 was added
Average-day production	0.680 MGD
Source water	Intake Reservoir 1, Intake Reservoir 2, Intake Rocky Ford 2, Reservoir 1, Reservoir 2
Population served	3,432
Communities Served	Also serves the Village of McComb via Northwest water district
Facility Name	Pemberville Village
Age of System	1974
Latest Major Upgrade (Year)	NA
Average-day production	0.100 MGD
Source water	Well 1, Well 3 Well 5, Well 7, Well 8, Well 9, Well 10, Well 11
Population served	1,360
Communities Served	Village of Pemberville
Facility Name	Bradner Village
Age of System	1936
Latest Major Upgrade (Year)	NA
Average-day production	0.054 MGD
Source water	Well 4, Well 5, Well 6, Well 7, Well 8
Population served	985
Communities Served	Village of Bradner
Facility Name	Wayne Village
Age of System	1977
Latest Major Upgrade (Year)	NA
Average-day production	NA
Source water	Well 1, Well 2, Well 3, Well 4
Population served	941
Communities Served	Village of Wayne

e. Monroe County Water Treatment Plants

Two drinking water treatment plants serve the residents of Whiteford and Bedford Townships in Monroe County, Michigan: the Whiteford Township WTP and the Monroe South County plant (Figure 9-7).

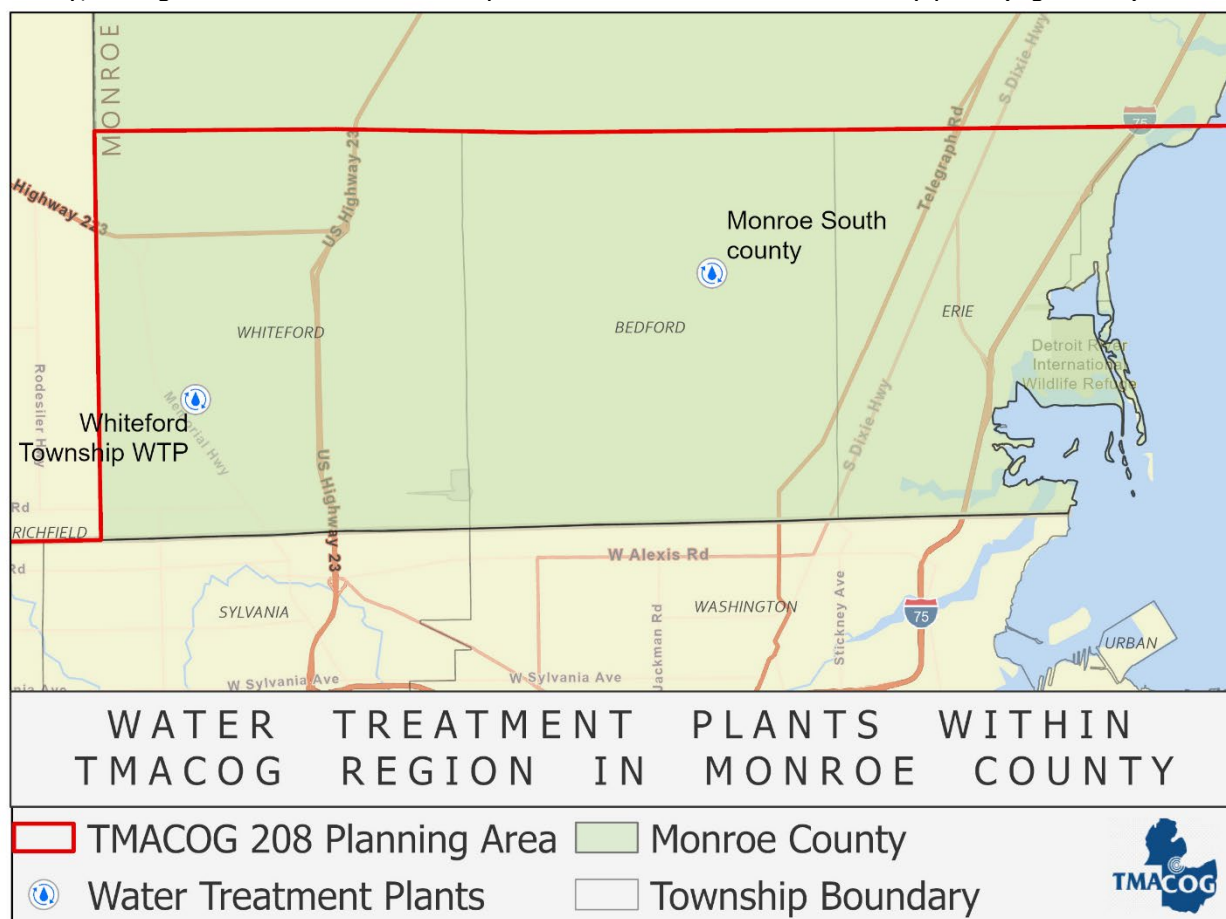


Figure 9-7: Water Treatment Plants within TMACOG 208 Area in Monroe County

Table 9-5: Summary of Monroe County Drinking Water Treatment Facilities

Facility Name	Monroe South County
Age of System	1970
Latest Major Upgrade (Year)	NA
Average-day production	2.32 MGD
Source water	Toledo, Ohio
Population served	42,288
Communities Served	NA
Facility Name	Whiteford Township Water Treatment Plant
Age of System	2018

Latest Major Upgrade (Year)	NA
Average-day production	0.50 MGD
Source water	Well 1
Population served	150 homes 7 businesses
Communities Served	Whiteford Township

vi. Drinking Water Challenges

Ensuring safe drinking water remains a critical challenge due to a range of contaminants and environmental factors. The (SDWA) defines contaminant as any “physical, chemical, biological or radiological substance or matter in water”. Drinking water may be reasonably expected to contain at least small amounts of contaminants. Some contaminants may be harmful if consumed at certain levels in drinking water. This may expose some people to toxic chemicals like lead, phosphorus, and PFAS. Low-income groups disproportionately bear the consequences of potential exposure due to several intersecting factors. These communities are more likely to live in areas with aging or poorly maintained infrastructure, which increases the risk of contamination from lead pipes, failing treatment systems, or industrial runoff. Financial constraints also limit their ability to invest in home-level solutions such as water filters or bottled alternatives.

i. Contaminants

Lead and Copper Contaminants and Public Drinking Water

On October 8, 2024, the EPA finalized a rule that mandates drinking water systems nationwide to identify and replace lead pipes within 10 years. Lead and Copper Rule Improvements introduce strict water testing requirements and a lower action threshold to enhance community protection from lead exposure. Additionally, the rule strengthens public communication by ensuring that families are informed about lead risks, pipe locations, and replacement plans.

Ohio's Lead and Copper Rule aligns with federal regulations to protect public health by minimizing lead and copper levels in drinking water. The rule mandates that all Community and Non-Transient, Non-Community Public Water Systems implement corrosion control treatments to prevent these metals from leaching into the water supply, which applies to all drinking water treatment plants (WTPs). This involves regular monitoring of tap water for these metals and maintaining water quality parameters within specified limits. If action levels are exceeded, specifically, lead concentrations above 15ppb or copper concentrations above 1.3ppm, in more than 10% of tap samples, the WTP must undertake additional corrective actions (see [Drinking Water Standards for Ohio Public Water Systems](#)).

The Lead and Copper Rule sets action levels for these metals which require water systems in TMACOG's 208 planning area to replace lead service lines when exceedances occur. Despite regulatory efforts, lead exposure remains a risk, especially in older homes with lead plumbing components. Compliance with the updated Lead and Copper Rule Improvements will require water systems to enhance monitoring, reduce lead action thresholds, and increase transparency regarding lead service line locations and replacement plans.

Furthermore, WTPs are required to perform routine monitoring and reporting as stipulated by the Ohio Administrative Code. This includes submitting detailed reports on water quality parameters and any instances of action level exceedances to the Ohio Environmental Protection Agency (EPA).

Annual Detected Lead and Copper Water Treatment Facility in TMACOG Region

WTP	Lead (ppb)	Copper (ppm)	Possible Source of Contaminant	Date Measured	Source
	90% of test levels were less than				
LUCAS COUNTY					
Swanton WTP	2.4 No Violation	0.26 No Violation	Erosion of natural deposits; Leaching from wood preservatives (copper only); Corrosion of household plumbing systems.	2023	Ohio EPA
Toledo WTP	4 (4 out of 131 samples exceeded action level)	0.012 No Violation		2022	Water Quality Report
City of Oregon WTP	0 No Violation	0.03 No Violation		2023	Consumer Confidence Report
OTTAWA COUNTY					
Carroll W & SD	0 No Violation	0.641 No Violation	Erosion of natural deposits; Leaching from wood preservatives (copper only); Corrosion of household plumbing	2022	Consumer Confidence Report
Marblehead WTP	1 No Violation	0.198 No Violation		2023	Consumer Confidence Report
Ottawa Co Regional WTP	4 No Violation	0.156 No Violation		2022	Water Quality Report
Put-In-Bay WTP	5.89 No Violation	0.777 No Violation		2022	Consumer Confidence Report
SANDUSKY COUNTY					
Clyde WTP No. 1	4 No Violation	0.039 No Violation	Erosion of natural deposits; Leaching from wood preservatives (copper only); Corrosion of household plumbing.	2022	Consumer Confidence Report
Fremont City	0 No Violation	0.028 No Violation		2023	Consumer Confidence Report
Gibsonburg Village	2.9 No Violation	0.125 No Violation		2022	Consumer Confidence Report
Shorewood Village Subdivision	0.950 No Violation	0.223 No Violation		2023	Consumer Confidence Report
Woodville Village	0 No Violation	0.01 No Violation	Corrosion of household plumbing	2023	Consumer Confidence Report
WOOD COUNTY					
Bowling Green City (McDowell WTP)	4 No Violation	0.03 No Violation		2023	Consumer Confidence Report
Bradner Village	N/A	0.28 No Violation		2022	Drinking Water Report
North Baltimore WTP	N/A	0.025 No Violation	Erosion of natural deposits; Corrosion of household plumbing	2023	Consumer Confidence Report
Pemberville Village	0.6 No Violation	0.366 No Violation	Erosion of natural deposits; Leaching from wood preservatives (copper only); Corrosion of household plumbing.	2023	Consumer Confidence Report
Wayne Village	No Data	No Data			
MONROE COUNTY					

Monroe South county	No Data	No Data			
Whiteford Township WTP	0 No Violation	0.04 No Violation	Lead service line, Erosion of natural deposits; Leaching from wood preservatives (copper only); Corrosion of household plumbing.	2022	Consumer Confidence Report

Nutrient Pollution

Nutrient pollution is one of the most predominant and costly water quality challenges in TMACOG’s 208 planning area. Harmful algal blooms (HABs) fueled by nutrient pollution, primarily from agricultural sources, pose a seasonal threat to drinking water sources (See chapter 7 for details), requiring advanced treatment processes to remove algal toxins. Annual HABs are particularly challenging for drinking water facilities drawing from the western basin of Lake Erie, which can experience blooms beginning in late June and extending into October. A 2022 analysis by the Alliance for the Great Lakes found that the average family of five in Toledo pays an additional \$100 per year to prevent algal toxins from contaminating their drinking water¹. The Maumee Watershed Nutrient TMDL attributes the source of western Lake Erie’s algae blooms largely to agricultural nutrients originating in upstream watersheds that extend past local and state boundaries. Source water protection plans can be a planning tool to leverage governmental and private investment to protect source water; however, these plans are not enforceable by state or federal agencies, and local authority to implement source water protection programs is limited to the jurisdiction of the public water system. This leaves public water systems without the authority to control nutrients and other pollutants that impact their source of water.

In response to the growing threat of harmful algal blooms (HABs), particularly those producing microcystin toxins, both Ohio and Michigan have implemented regulatory and treatment strategies to protect drinking water systems. The Ohio EPA enforces thresholds of 1.6 µg/L for sensitive populations and 3.0 µg/L for the public which requires public water systems to submit Cyanotoxin Management Plans and conduct routine sampling when bloom conditions are likely (Ohio EPA, 2023). Similarly, Michigan’s Department of Environment, Great Lakes, and Energy (EGLE) follows U.S. EPA guidance for microcystin and supports risk-based monitoring, satellite tracking, and public health advisories through coordination with the Michigan Department of Health and Human Services (EGLE, 2022). In terms of treatment, many water utilities in both states have invested in powdered activated carbon (PAC) systems, advanced oxidation processes (AOPs), and membrane filtration to remove toxins from finished water. For example, the City of Toledo has continued to upgrade their system after the 2014 HAB crisis, including PAC feed systems, ozone treatment, and real-time monitoring (City of Toledo, 2020).

Significant changes will need to be made to the way agricultural and urban landscapes are managed to minimize the influx of nutrients to our waterways. Further consideration must be given to the design, construction, and operation of nutrient removal technologies at wastewater treatment facilities. The nature of these changes and the approaches taken by governmental agencies, agri-businesses, farmers, landowners, wastewater treatment service providers and researchers should be constructively debated and quickly implemented.

PFAAs and Public Drinking Water

¹ <https://greatlakes.org/wp-content/uploads/2022/05/FINAL-COI-Report-051622.pdf>

The U.S. EPA issued new PFAS drinking water regulations on April 10, 2024, which set Maximum Contaminant Levels (MCLs) at 4 parts per trillion (ppt) for PFOA and PFOS, and 10 ppt for PFHxS, PFNA, and HFPO-DA (GenX chemicals). In response to growing concerns, Ohio has taken steps to assess and mitigate PFAS contamination. In 2019, Governor DeWine directed Ohio EPA and ODH to launch the PFAS Action Plan 1.0, prioritizing testing in nearly 1,500 public water systems, establishing action levels, and providing resources for both public and private water systems. Recognizing the need for stronger protection, particularly for vulnerable communities, the state upgraded its efforts with PFAS Action Plan 2.0, which expanded sampling, investigations, and funding to support communities at risk. Michigan similarly adopted new PFAS drinking water regulations in August 2020, requiring sampling for seven PFAS compounds across 2,700 water supplies statewide. As PFAS regulations continue to evolve, ensuring that mitigation efforts prioritize the most impacted and underserved populations will be essential in advancing equitable access to safe drinking water.

Table 9-7: PFAS Standards in Ohio and Michigan

PFAS Chemicals* Parts per trillion (ppt)	PFOA	PFOS	GenX	PFBS	PFHxS	PFNA	PFHxA
Ohio New 2024 Action Levels	4.0	4.0	10	2,000**	10	10	
Michigan	8	16	370	420	51	6	400,000
*PFOA (Perfluorooctanoic Acid), PFOS (perfluorooctane Sulfonate), GenX (HFPO dimer acid), PFBS (perfluorobutanesulfonic acid), PFHxS (perfluorohexane sulfonic acid), PFNA (perfluorononanoic acid), and PFHxA (Perfluorohexanoic Acid)							
**Health Based Water Reference Concentration (U.S. EPA 2023)							

VII. Impact of Severe Weather on Water Infrastructure

Though the TMACOG planning region has not had as many severe weather event impacts as compared to other regions in the United States, it is likely that drinking water systems will be impacted by extreme weather events in the future ([USEPA](#)). Changing weather patterns and aging drinking water infrastructure increases their vulnerability. There has been an increase in the rates of severe weather events such as heat waves, extreme winter weather, cold snaps, ice storms, droughts, and floods. Water availability, quality, and distribution could all be impacted. Extreme weather events also increase the risk of pipe failures, treatment inefficiencies, and contamination. Analyzing water treatment facilities' exposure to severe weather will inform policy decisions and provide solutions to ensure safe and sustainable drinking water for communities now and in the future. This section explores the potential of extreme weather events impacting water treatment facilities in the TMACOG region using spatial analysis and treatment facility operators' perspectives collected via a survey.

i. Exposure of Water Treatment Facilities to Severe Weather Events

A GIS-based analysis was conducted to assess the exposure of public drinking water treatment facilities to severe weather events, including high summer temperatures, winter weather events such as snow and cold snaps, drought, and flooding. MODIS satellite data accessed through Google Earth Engine (GEE) was used

to extract summer temperature averages, minimum winter temperatures, average snow cover, and drought indices for the period 2020–2024. All datasets were projected to a common coordinate system, resampled to a 1 km resolution, and normalized using the formula $(\text{Pixels}-\text{Min})/(\text{Max}-\text{Min})$ to convert pixel values for all the data from 0-1 to ensure comparability across variables.

Exposure to Extreme Heat

The map (Figure 9-8) illustrates the varying levels of exposure to extreme heat across the TMACOG region. Areas shaded in red and orange represent zones of very high and high exposure; yellow indicates moderate exposure, and green and blue areas indicate lower levels of exposure. Several water treatment plants such as those in Fremont, Clyde, Wayne Village, and North Baltimore are located in areas of very high heat exposure. This suggests that these facilities may be more vulnerable to the impacts of extreme heat and may require prioritized attention to resilience and adaptation planning for heat-related impacts. In contrast, facilities located in areas shaded green or blue, such as those near the Lake Erie shoreline, face comparatively lower levels of exposure.

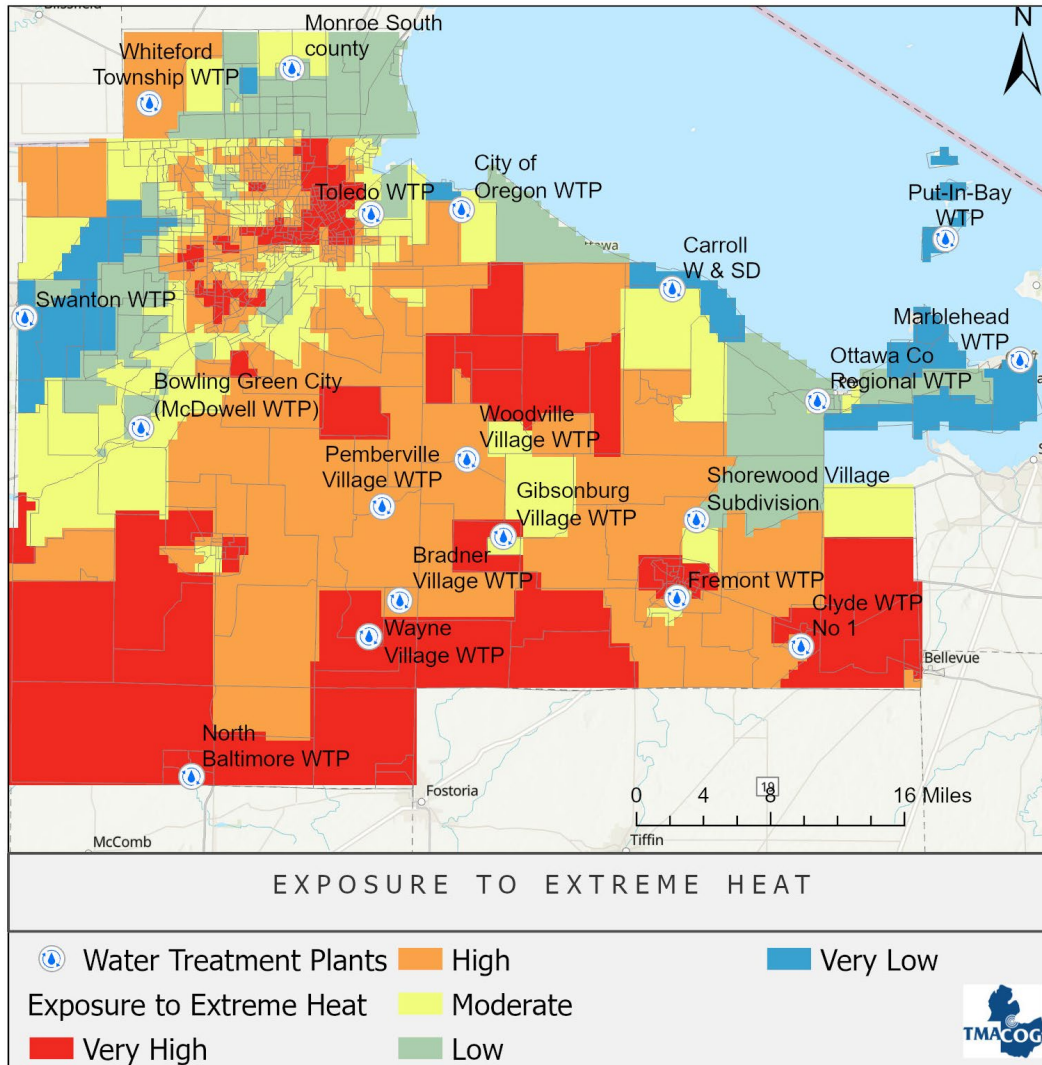


Figure 9-8: Water Treatment Facilities Exposure to Extreme Heat

Exposure to Drought

Figure 9-9 shows the distribution of drought exposure across the TMACOG region. Areas shaded in red and orange represent zones of very high and high exposure; yellow indicates moderate exposure, and light green and dark green areas indicate lower levels of exposure. Several water treatment facilities, including those in Toledo, Pemberville, Swanton, and Bradner are located in high or very high drought exposure zones. This indicates a potential vulnerability of these facilities to prolonged dry conditions. In contrast, many of the plants near the Lake Erie shoreline, such as Ottawa County Regional WTP and Put-In-Bay WTP, are situated in areas of low to very low exposure. This spatial pattern highlights the areas that need targeted mitigation strategies for drought stress.

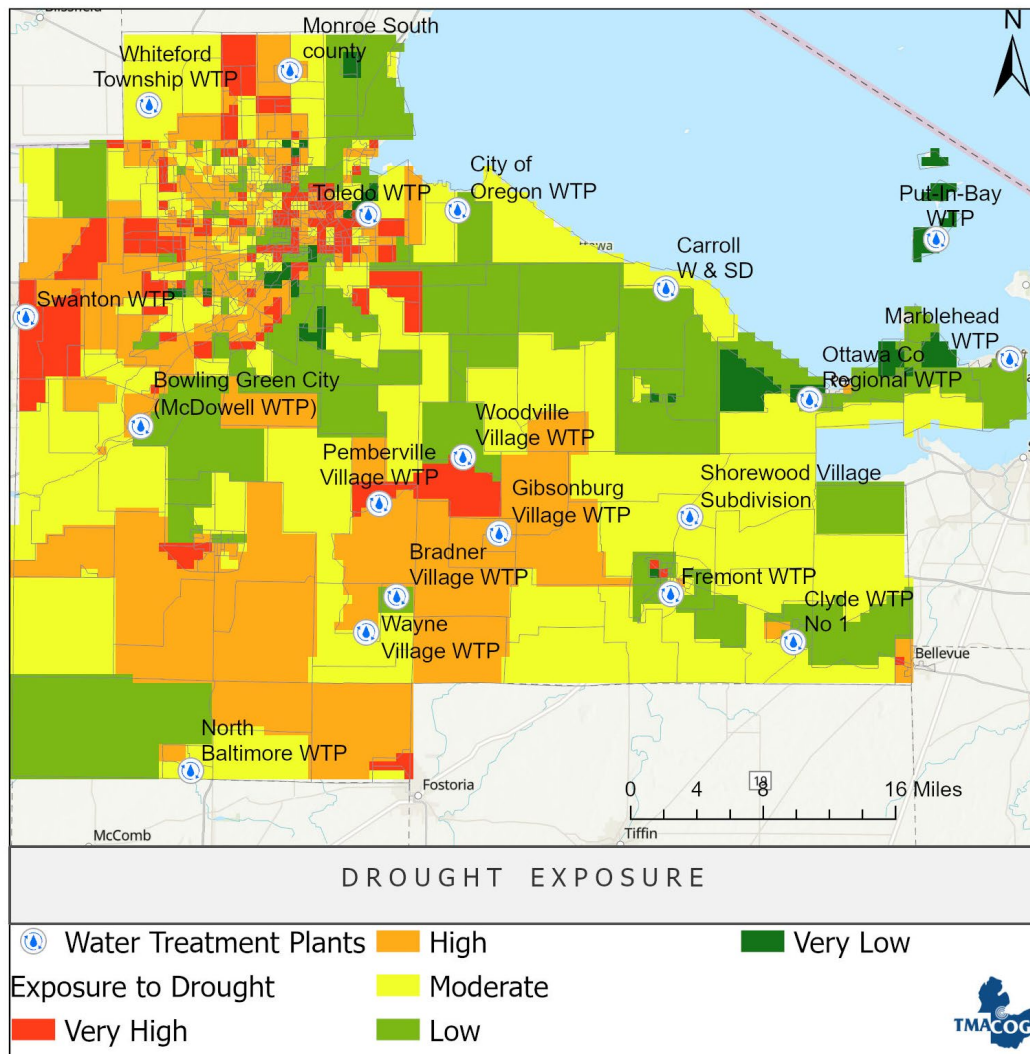


Figure 9-9: Water Treatment Facilities Exposure to Drought

Exposure to Winter Weather

A composite winter weather indicator was created by combining winter temperatures and snow cover. Figure 9-10 illustrates the regional exposure of water treatment facilities to winter weather events within the TMACOG area. The color gradient ranges from very low (lightest green) to very high exposure (dark blue). A significant number of facilities, including Ottawa County Regional WTP, Clyde No. 1, and Gibsonburg Village facilities, are located in areas with high to very high exposure, indicating increased susceptibility to cold temperatures and snow-related disruptions. Conversely, facilities like Swanton WTP and Bowling Green City WTP are located in zones of low to very low exposure.

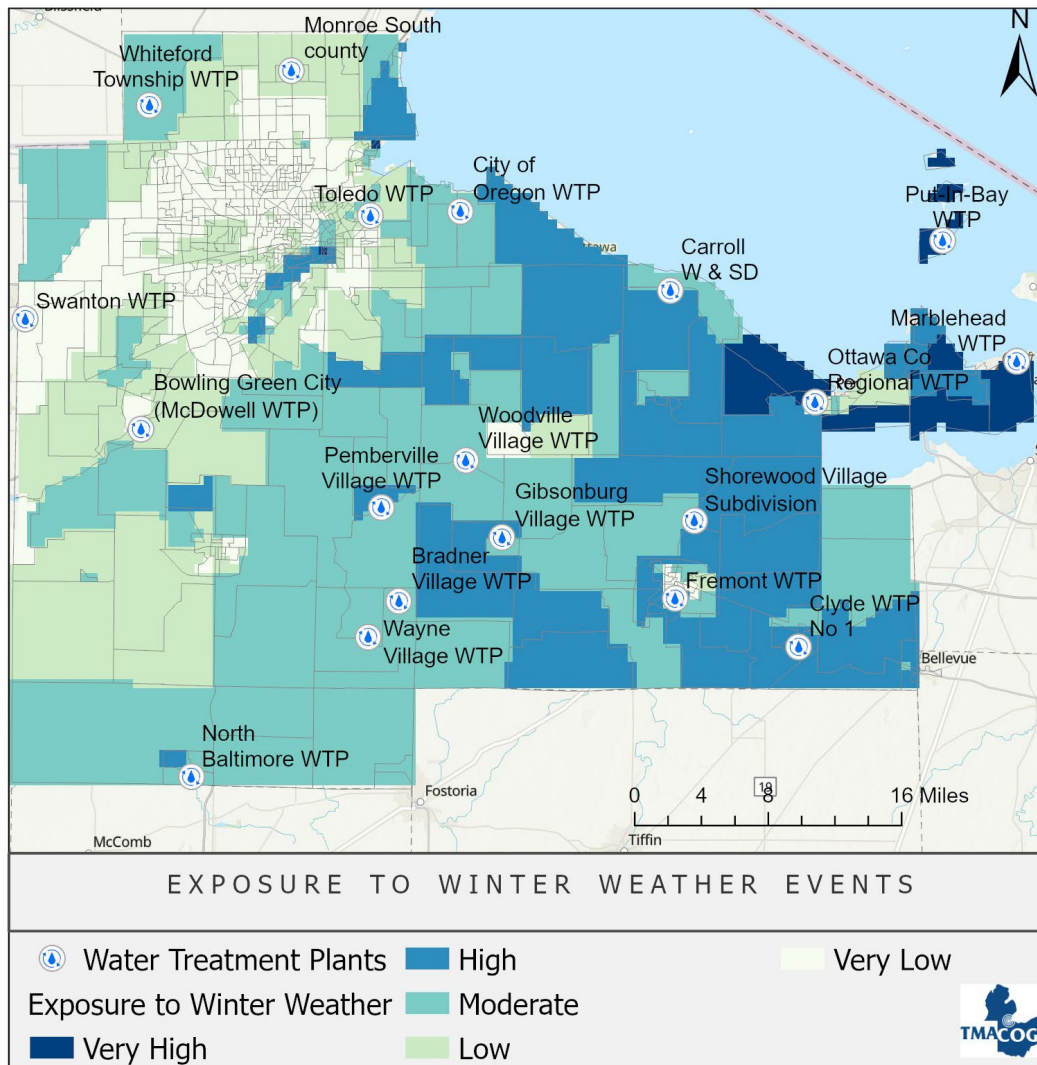


Figure 9-10: Water Treatment Facilities Exposure to Winter Weather Events

Exposure to Flood risk

Flood exposure was modeled using precipitation, land cover, digital elevation models (DEMs), and proximity to rivers and streams. Figure 9-11 shows the distribution of flood risk exposure to public water treatment facilities in the TMACOG planning area. Areas shaded in dark blue represent very high exposure to flood risk, while lighter shades indicate lower levels of risk. A cluster of water treatment plants, including Fremont, Clyde, Shorewood, and Ottawa County Regional WTP are located in areas of high to very high flood exposure, suggesting they may be especially vulnerable to flooding events. In contrast, facilities such as North Baltimore and Wayne Village WTPs are situated in areas with low or very low flood risk. These spatial patterns are critical for guiding infrastructure reinforcement and flood mitigation strategies.

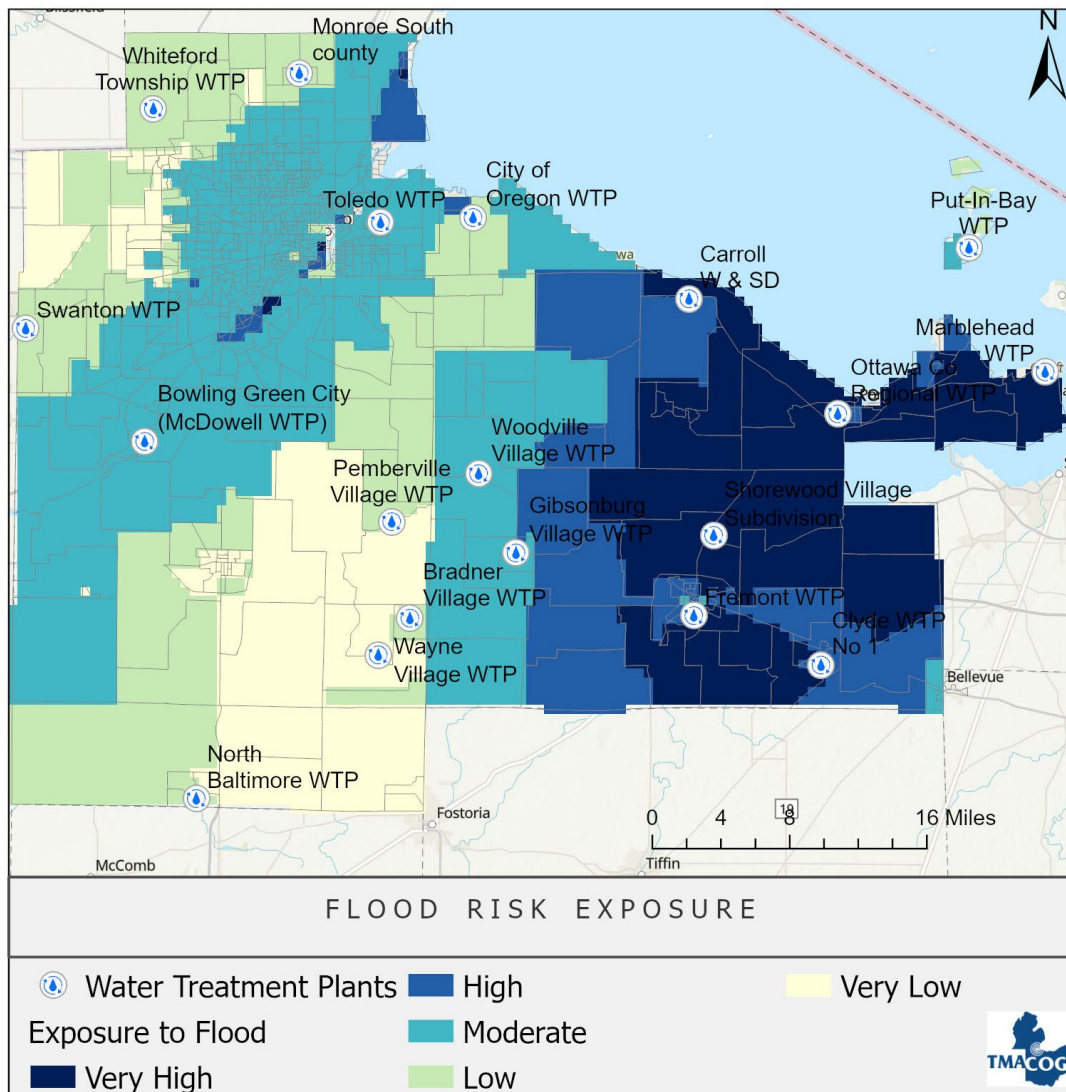


Figure 9-11: Water Treatment Facilities Exposure to Flood Risk

Total Exposure to Weather Events

A survey was conducted to gather perspectives from water treatment operators on which weather events are likely to impact their facilities. The following are the percentages of respondents who claimed that each weather event has an impact on their facility:

- Extreme Heat = 70%
- Drought = 100%
- Winter Weather = 80%
- Wind = 70%
- Flooding = 60%

Based on these responses, weights were applied to each weather event type and a weighted sum overlay analysis was used to generate a total exposure index surface, which was then classified into five categories, Very Low to Very High, using the Natural Breaks (Jenks) method. Water treatment facility locations were overlaid on the exposure maps to identify facilities in high-risk zones. To support decision-making at the census block level, zonal statistics were calculated by aggregating exposure values within census block boundaries containing facilities.

Figure 9-12 shows the total exposure of public water treatment facilities to severe weather events across the TMACOG region. This combines heat, drought, winter weather, and flood risks into a single index. Areas shaded in dark red represent zones of very high total exposure, while lighter shades indicate decreasing levels of exposure. The eastern part of the region has higher total exposure, and the facilities located in this region are exposure and may be vulnerable to these events. Facilities like Fremont, Clyde, Shorewood, and Ottawa County Regional WTPs fall within the very high exposure zone, suggesting they may face significant climate-related operational risks. Conversely, facilities such as North Baltimore and parts of Bowling Green lie within low to moderate exposure zones. This comprehensive view supports prioritizing resilience efforts where the cumulative severe weather threat is greatest.

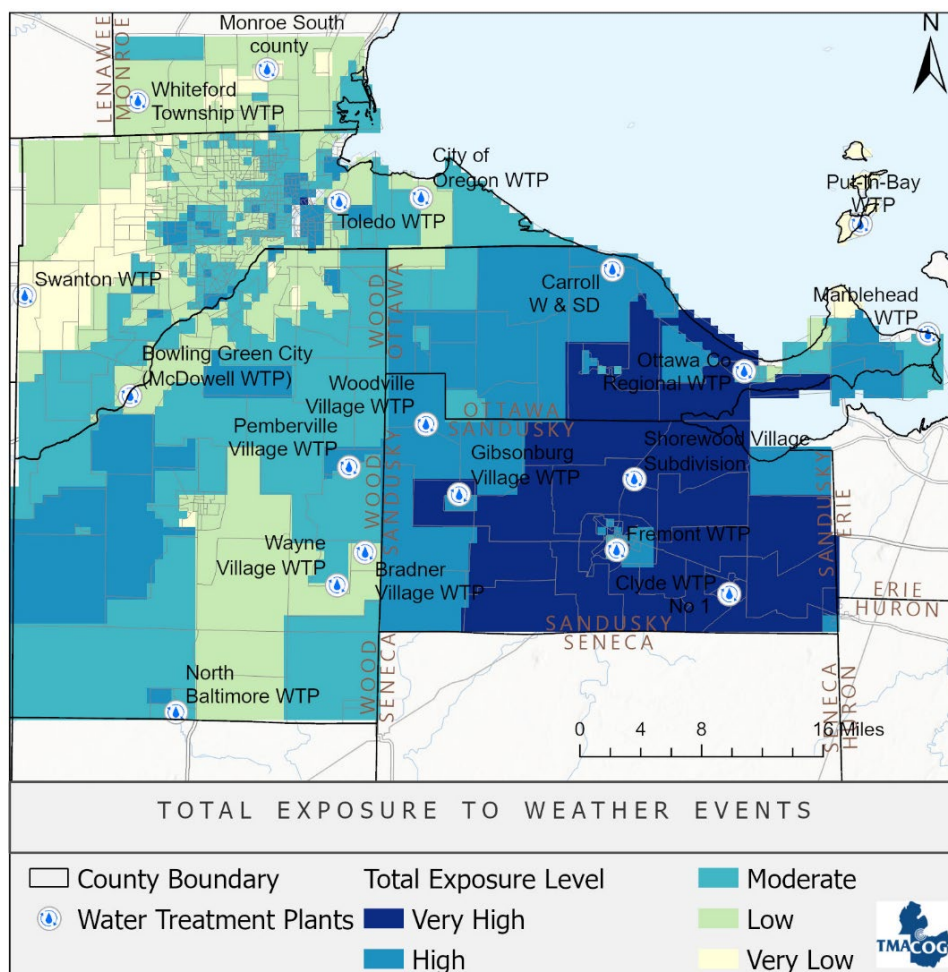


Figure 9-8: Total Exposure of Water Treatment Facilities to Extreme Weather Events

VIII. Resources and Support Needs

Strengthening infrastructure resilience to severe weather-related challenges requires key resources and support mechanisms. The operators who responded to the TMACOG survey identified several of these that would enhance their infrastructure's capacity to adapt to extreme weather-related challenges:

- **Backup Power and Generators:** Reliable backup power systems are critical to preventing service disruptions during extreme weather, yet securing funding for generators remains a challenge. Several facilities, including Toledo Public Utilities, emphasized the need for federal and state grants to support emergency power generators to prevent disruptions from severe weather.
- **Flood Protection Measures:** Flood mitigation efforts, such as barriers and improved drainage, require greater investment to protect vulnerable facilities. Facilities that experience flood-related risks expressed the need for increased investment in flood mitigation infrastructure, such as barriers, elevated structures, and improved drainage systems.
- **Funding for Equipment and Repairs:** Rising equipment and repair costs makes financial assistance essential for maintaining operational capacity. Many facilities reported that equipment costs have risen significantly, and this makes government funding for capital improvements a top priority. Sandusky County, for instance, noted that costs for vehicles and replacement parts have increased due to the reduction of government discounts on procurement.
- **Stormwater Drainage System Maintenance:** Neglected stormwater drainage systems exacerbate flooding and lead to secondary impacts on water infrastructure. The Village of Whitehouse reported that decades of neglected stormwater ditch maintenance have exacerbated stormwater flooding, leading to secondary impacts on water and wastewater infrastructure.

These indicate that financial support, improved infrastructure maintenance, and investment in resilience strategies are essential to reducing vulnerabilities of water treatment facilities that are exposed to severe weather events.

IX. Conclusion

The focus of this plan is the structure, regulation, and challenges of public drinking water systems in the TMACOG 208 planning area. While regulatory frameworks under the Safe Drinking Water Act and corresponding state laws in Ohio and Michigan have provided a strong baseline for water safety, there are still concerns that need to be addressed. These include persistent legacy contaminants like lead and copper, emerging contaminants such as PFAS, and increasing threats from harmful algal blooms (HABs) driven by nutrient pollution. Additionally, weather-induced stressors such as extreme heat, drought, winter events, and flooding pose growing threats to aging infrastructure across the region. The extreme weather exposure analysis confirmed that some of the key water treatment plants, including those in Fremont, Clyde, Ottawa County, and Shorewood, are highly exposed to extreme weather events. Water utilities also face systemic challenges such as rising equipment costs, gaps in stormwater infrastructure, limited authority to manage pollution at the watershed scale, and a shortage of certified water operators. These environmental,

financial, and institutional challenges require coordinated, data-driven, and equity-centered action across local, state, and regional partners to ensure the long-term integrity of drinking water services.

- **Policy Recommendations**

- Local water utilities should prioritize backup power installations at high-weather exposed facilities. The water treatment facility operators should coordinate with state emergency management agencies to install or upgrade backup generators for facilities that are highly exposed to extreme weather events. [VIII]
- Flood mitigation infrastructure development should be prioritized at facilities that are highly exposed to floods.
 - Allocate capital improvement funding to install flood protection barriers, raise critical system components, and upgrade site drainage systems at the above facilities [VII(i), & VIII].
- Targeted Resilience Planning for Facilities in Very High Exposure Zones
 - Require these facilities to develop and submit climate resilience adaptation plans that address site-specific risks (e.g., drought-resistant intakes, cooling for heat)[VII (i)]
- Local governments in the TMACOG region should develop PFAS Response Plans for Systems with Known Detections. [VI (i)]
- Local governments in the TMACOG region should work collaboratively to evaluate all options to create redundancy in the regional water supply and source of water. [V (ii)]
- TMACOG should continue to collaborate to create and maintain an inventory of water supply infrastructure to facilitate emergency water supplies and serve as a resource for asset management planning. [VII]
- Asset management plans should ensure the long-term sustainability of managerial, technical, and financial capability of all drinking water systems in the region and should include emergency preparedness plans and risk and resiliency assessments [VIII]

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