SOURCE WATER ASSESSMENT REPORT
for Piqua City PWS
PWSID: OH5501211

Ohio Environmental Protection Agency

June 2003
Revised June 2025

INTRODUCTION

The 1996 Amendments to the Safe Drinking Water Act established a program for states to assess the drinking water source for all public water systems. The Source Water Assessment and Protection Program is designed to help Ohio's public water systems protect their sources of drinking water from contamination. The purpose of this assessment is to provide information the City of Piqua can use to help protect its source of drinking water from contamination. This report:

- identifies the drinking water source protection areas,
- describes the characteristics of the watersheds,
- inventories the potential contaminant sources in the area,
- evaluates the susceptibility of the source water to contamination, and
- recommends protective strategies.

PUBLIC WATER SYSTEM DESCRIPTION

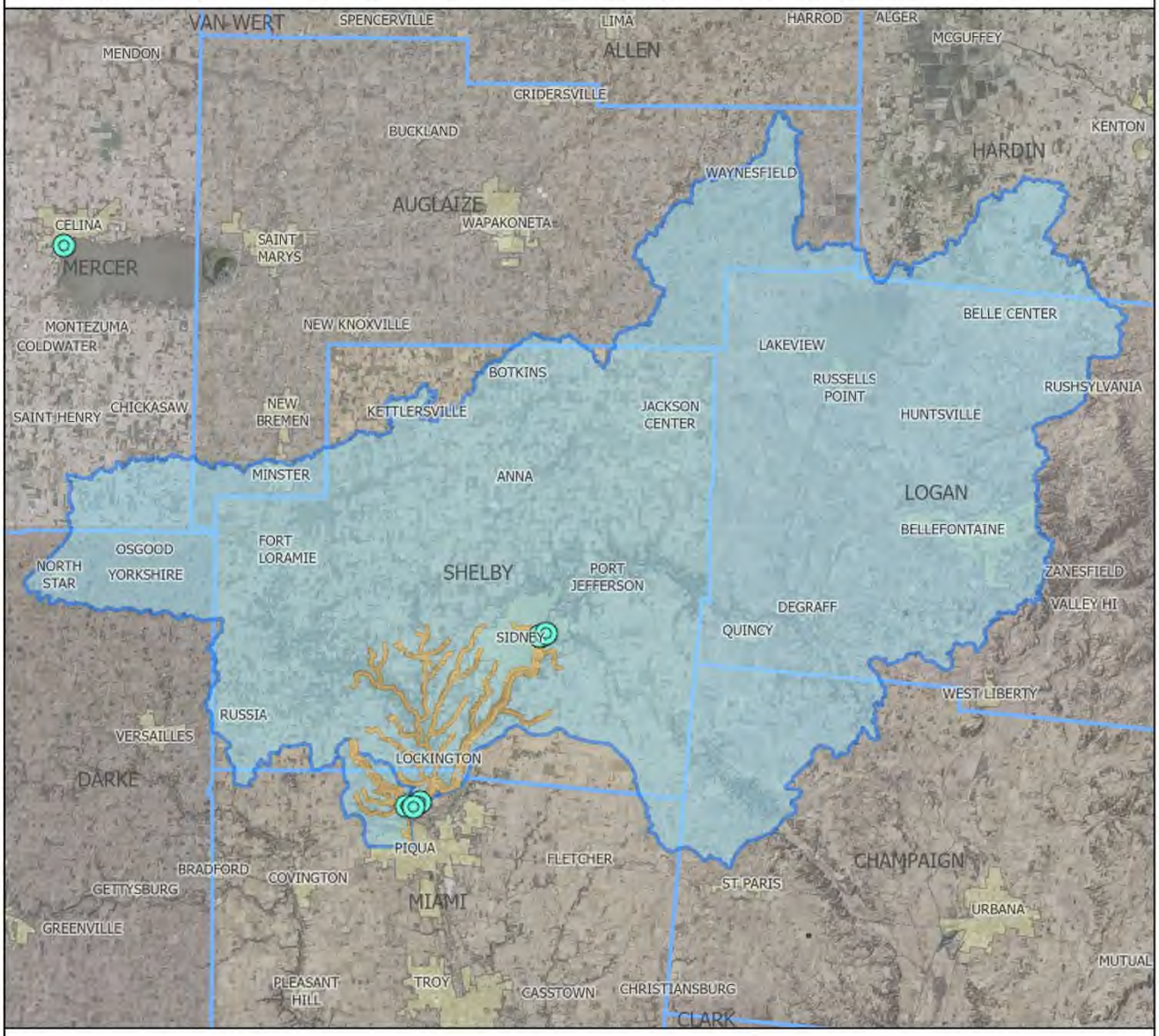
The City of Piqua operates a community water system serving approximately 20,354 people in Miami County. The water treatment plant is designed to treat 6.75 million gallons per day (mgd); however, current average production is approximately 2.29 mgd. The water system utilizes three surface water sources: Piqua's hydraulic system via direct runoff and precipitation into a series of lakes and canals, water contained in the Ernst Gravel Pit, recharged by the Great Miami Buried Valley Aquifer, and surface water from the Great Miami River (Figure 1).

The hydraulic system supplies approximately 10% of Piqua's source water and consists of Swift Run Lake, North Pond, Echo Lake, Frantz Pond, and the connecting canals. An intake for the hydraulic system is located near the dam of Swift Run Lake, next to the old water plant. Water from the river and Ernst Gravel Pit can be pumped to Swift Run Lake to recharge the hydraulic system.

The Ernst Gravel Pit is located across the Great Miami River from the Johnson Farm Museum. It is the preferred source of water to supplement the raw water supply due to its low total organic content. Piqua obtains approximately 40% of its source water from the gravel pit. However, recharge capacity is limited.

Piqua's last source of water is an intake at river mile 118.5 on the Great Miami River. An inflatable dam is installed near the intake to ensure that water level is adequate when Piqua is pumping water from the river. Piqua obtains approximately half of its source water from the Great Miami River, but this can vary seasonally depending on river conditions.

Piqua City PWS, PWSID#: OH5501211
Miami, Darke, Mercer, Auglaize, Hardin, Logan, Champaign, and Shelby Counties



Legend

- Active Intakes for Public Water Systems
- Emergency Management Zone
- Corridor Management Zone
- Source Water Protection Area
- Counties
- Cities and Villages

Ohio Environmental Protection Agency

Figure 1. Drinking Water Source Protection Areas

May 23, 2025

0 1.5 3 6 9
Miles

DELINEATION OF SOURCE WATER PROTECTION AREAS

The source water protection area for an inland stream source is divided into three areas: the Source Water Assessment and Protection Area (SWAP Area), the Corridor Management Zone (CMZ) and the Emergency Management Zone (EMZ). These areas are defined as follows: 1) the SWAP Area is the drainage area upstream of a surface water intake, 2) the CMZ is the area approximately 10 miles upstream of the intake and also includes tributaries that drain to the stream and 3) the EMZ is the area in the immediate vicinity of the surface water intake in which the public water supply operator has little or no time to respond to a spill. The CMZ area extends inland 1,000 feet from the mainstem and 500 feet from the tributaries. Potential contaminant sources in the CMZ have the potential to affect water quality at a public water system's intake and warrant inventory and management. The following sections describe the hydrologic setting and the protection areas for Piqua's intakes.

Hydraulic System, Ernst Gravel Pit, and Great Miami River Hydrologic Setting

The SWAP Areas for the hydraulic system, Ernst Gravel Pit, and Great Miami River intakes are within the Southern Ohio Loamy Till Plain and Central Ohio Clayey Till Plain physiographic regions. The Southern Ohio Loamy Till Plain region's surface features are characterized by glacial deposits with moderate relief. End and recessional moraines, commonly associated with boulder belts, separate relatively flat-lying ground moraine deposits. Large streams form steep walled valleys. These valleys are filled with outwash and alternate between broad floodplains and narrows. The Central Ohio Clayey Till Plain region is characterized by well-defined moraines with intervening flat-lying ground moraine and intermorainal lake basins. There are a few large streams in this region with limited sand and gravel outwash. Soils in the assessment areas range from poorly drained soils formed in loess and glacial till to well drained soils formed in alluvium.

Hydraulic System Protection Areas

The hydraulic system's SWAP area starts approximately 750 feet south of Franz Pond and extends just over 5 miles upstream, following Patterson Run. This area encompasses approximately 10.8 square miles, or just over 1% of the total protection area. The CMZ for the hydraulic system extends to the west for approximately 2 miles along McIntire Run and Levering Run. It also extends 5 miles to the north along Patterson Run.

Gravel Pit and Great Miami River Protection Areas

The SWAP area for the Great Miami River intake encompasses approximately 833 square miles and extends into Darke, Shelby, Auglaize, Hardin, and Logan counties. The Great Miami River CMZ extends upstream approximately 10 miles to Sidney. CMZs were also created for Mckee Creek, Loramie Creek, Turtle Creek, and Mill Creek, which are tributaries of the Great Miami River. Ernst Gravel Pit is located within the Great Miami River watershed, so it does not have its own SWAP Area. The EMZ for the gravel pit intake is a 500-foot circle. The EMZ for the Great Miami River intake extends upstream approximately 2,000 feet, following the CMZ. Piqua requested an extended EMZ to give drinking water plant staff adequate time to respond to emergencies on or near the river.

DRINKING WATER QUALITY MONITORING SUMMARY

Available chemical and biological water quality data were collected from the streams in the protection area, and sampling results from finished water reported to Ohio EPA by the public water supplier were evaluated to characterize water quality within the SWAP Area. See the following sections for summary information.

Treated Water Quality

Tables 1 and 2 includes a summary of the analytical results of samples collected from June 2003 to May 2025. Two tables were used to show the difference in water quality between Piqua's old and new water treatment plants. These samples were collected from treated drinking water as reported by City of Piqua to the Ohio EPA. The table also includes the drinking water standards for contaminants of concern; note that not all contaminants tested have established Maximum Contaminant Levels (MCLs) or Secondary MCLs. The table lists only the contaminants where at least one result was above the level of detection.

Cyanobacteria/Harmful Algal Blooms

Historically, City of Piqua has not had issues with harmful algal blooms in its source water. Microcystin, a common algal toxin, has never been detected in Piqua's raw or finished water. Microcystin and saxitoxin-producing genes have been detected in finished water on three and four occasions, respectively, between 2017 and 2024. However, follow up sampling conducted by the Piqua and Ohio EPA found no toxin in raw or finished water. Piqua proactively applies algicide from May to September throughout its hydraulic system to prevent the formation of harmful algal blooms.

Swift Run Lake and Great Miami River Biological and Chemical Monitoring

The 2008 Biological and Water Quality Assessment for the Middle Great Miami River included sampling for nitrate and atrazine within 500 yards of Piqua's Swift Run and Great Miami River intakes. Sampling conducted near Piqua's intake on Swift Run had an average nitrate concentration of 0.84 mg/L with a maximum concentration of 1.3 mg/L and an average atrazine concentration of 1.32 ug/L and a maximum concentration of 5.99 ug/L. Additional sampling on Swift Run Lake and its tributaries had an average nitrate concentration of 2.6 mg/L and with a maximum concentration of 9.0 mg/L, and an average atrazine concentration of 10.4 ug/L and a maximum concentration of 182 ug/L. Six samples collected near Piqua's Great Miami River intake had an average nitrate concentration of 2.6 mg/L and a maximum concentration of 8.2 mg/L. Atrazine samples were not collected on the Great Miami River. The Garbry Creek-Great Miami River Watershed is currently on the nitrate watch list and is listed as impaired for the PWS beneficial use because of high atrazine concentrations.

POTENTIAL CONTAMINANT SOURCES

A field inventory of the CMZs indicates that several potential contaminant sources exist in the SWAP Areas (Figures 4 through 7 and Table 3). It is important to note that this inventory lists *potential* contaminant sources and includes identified sources that have the *potential* to release a contaminant to surface or ground waters in the protection area. It is beyond the scope of this assessment to determine whether any specific potential source is actually releasing (or has released) a contaminant or to what extent any potential source(s) may be contributing to the overall pollutant load. Also, the inventory is limited to what Ohio EPA staff were able to observe on the day of the site visit. Therefore, City of Piqua staff should be alert to the possible presence of potential sources of contamination that are not on this list.

Figure 8 shows the land use for the protection area. The predominant land use is agriculture (row crops and pasture) which cover approximately 77.4% of the SWAP Areas. Other land uses include 9.2% developed land and developed open space (parks, green spaces, and other open areas). Forests and woodlands cover approximately 10% while wetlands and other natural areas cover less than 1% of the SWAP Areas. Approximately 1.5% of the SWAP areas are open water – lakes, ponds and reservoirs.

The transportation network is a potential source of contamination when accidents on roads and railways can release hazardous materials to the waterways. Approximately 20 miles of rail lines are located in and near Piqua's corridor management zones. Interstate 75, State Route 66, and State Route 47 also traverse Piqua's source water protection area (Figure 9).

Agricultural runoff from row crop agriculture is a potential source of detected contaminants such as atrazine and simazine, which are herbicides commonly used in row crop agriculture. Agricultural sources are also a potential source of nitrates. Fertilizer application and manure application on crop fields can also be potential sources of nitrates. Other potential sources of nitrates in the protection area include discharging or failing septic systems.

Residential and commercial land uses increase the amount of impervious surfaces - roofs, roads and parking lots - in the protection area. Increases in impervious surface can affect the transport of contaminant materials to the stream via direct runoff or storm water collection systems. Contaminants such as polycyclic aromatic hydrocarbons (PAHs), metals, oil and grease, nutrients, and pathogens are commonly transported in urban runoff.

SUSCEPTIBILITY ANALYSIS

For the purposes of source water assessments, all surface waters are considered to be highly susceptible to contamination. By their nature, surface waters are open systems with no confining layer to impede contaminant or pathogen movement and have relatively short travel times from a potential contaminant source to the intake. This source water assessment for the City of Piqua indicates that the source water is susceptible to contamination from agricultural, residential and industrial sources, and from accidental releases and spills.

It is important to note that this assessment is based on available data, and therefore may not reflect current conditions in all cases. Water quality, land uses and other activities that are

potential sources of contamination may change with time. While the source water for the City of Piqua Public Water System is considered susceptible to contamination, historically, the Piqua Public Water System has effectively treated this source water to meet drinking water quality standards.

PROTECTIVE STRATEGIES

Protective strategies are activities that help protect a drinking water source from becoming contaminated. Implementing these activities benefits the community by helping to:

1. Protect the community's investment in its water supply.

2. Protect the health of the community residents by preventing contamination of its drinking water source.

3. Support the continued economic growth of a community by meeting its water supply needs.

4. Preserve the source of drinking water for future generations.

5. Reduce regulatory monitoring costs.

Piqua's Drinking Water Source Protection Plan was endorsed by Ohio EPA in 2012. Ohio EPA encourages the City of Piqua to update their plan using information provided in this Source Water Assessment Report. The potential contaminant source inventory provides a list of facilities or activities to focus and is included in Table 3. Table 4 lists protective strategies that are appropriate for the kinds of facilities/activities listed in the inventory. Finally, a document titled "Developing Source Water Protection Plans for Public Drinking Water Systems Using Inland Surface Waters" is enclosed. This document offers comprehensive guidance for developing and implementing a municipal Drinking Water Source Protection Plan. Ongoing implementation of the plan will help protect their valuable drinking water resources for current and future generations.

For further technical assistance on drinking water source protection, please contact the Ohio EPA Southwest Office at (937)-285-6357 or visit Ohio EPA's Source Water Assessment and Protection Program website at ***epa.ohio.gov/ddagw***.

This report was updated by Samantha Spence, Ohio EPA, Division of Drinking and Ground Waters, from the original 2003 assessment report.

REFERENCES

Ohio EPA public drinking water files.

Ohio Division of Geological Survey, 1998. *Physiographic Regions of Ohio, Ohio Department of Natural Resources, Division of Geological Survey,* page-size map with text, 2 p., scale 1:2,100,000.

United States Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. Available online. Accessed May 9, 2025.

Ohio EPA, 2009. *Biological and Water Quality Study of the Middle Great Miami River and Principal Tributaries, Division of Surface Water Ecological Assessment Section, Ohio Environmental Protection Agency*. Ohio EPA Technical Report EAS/2012-1-2.

Ohio EPA, 2022, *Drinking Water Source Protection Area Delineation Guidelines & Process Manual*.

Ohio EPA, 2024. *Ohio 2024 Integrated Water Quality Monitoring and Assessment Report, Section H Evaluating Beneficial Use: Public Drinking Water Supply.*

Table 1. Piqua Water Plant Monitoring Results June 2003 – December 2017 (Finished/Treated Water). These data were collected while Piqua's original water treatment plant was in use.

Contaminant (units)	Levels Found	Primary MCL[1]	Exceeds Primary MCL	Secondary MCL	Exceeds SMCL[2]
Physical Parameters					
Turbidity (NTU)	4 – 51	None	n/a	None	n/a
Inorganic Contaminants					
Nitrate (mg/L)	0.88 – 4.3	10	No	None	n/a
Organic Contaminants & Disinfection Byproducts					
HAA5 (µg/L)[6]	5.4 – 86.58	60	Yes	None	n/a
• Dibromoacetic acid (µg/L)	1.1 – 4.4				
• Dichloroacetic acid (µg/L)	5.4 – 79.3				
• Monobromoacetic acid (µg/L)	1.1 – 1.3				
• Monochloroacetic acid (µg/L)	2 – 6.4				
• Trichloroacetic acid (µg/L)	1.2 – 9.73				
TTHM (µg/L)[7]	9.5 – 146.9	80	Yes	None	n/a
• Bromodichloromethane (µg/L)	2.94 – 25				
• Bromoform (µg/L)	0.7 – 0.8				
• Chloroform (µg/L)	14 – 109.05				
• Dibromochloromethane (µg/L)	0.6 – 8.1				
Atrazine (µg/L)	0.32 – 11.6	3	Yes	None	n/a
Simazine (µg/L)	0.4 – 1.3	4	No	None	n/a

Table 2. Piqua Water Plant Monitoring Results January 2018 – June 2025 (Finished/Treated Water). These data were collected after Piqua's new water treatment plant was built.

Contaminant (units)	Levels Found	Primary MCL[1]	Exceeds Primary MCL	Secondary MCL	Exceeds SMCL[2]
Physical Parameters					
Turbidity (NTU)	5 – 46	None	n/a	None	n/a
Disinfection Byproducts					
TTHM (µg/L)[7]	17.4 – 42.9	80	No	None	n/a

[1] MCL = Maximum Contaminant Level, set by U.S.EPA. The primary MCLs for Nitrate, Nitrite, and Total Nitrate and Nitrite as N apply to all public water systems. The primary MCLs for the remaining contaminants apply only to community and nontransient noncommunity public water systems (radioactive contaminants only apply to community systems). Note, a sampling result that exceeds the MCL value does not necessarily indicate a violation by the public water system and MCL violations for many contaminants are based on a running annual average instead of individual samples.

[2] SMCL = Secondary Maximum Contaminant Level, means the advisable maximum level of a contaminant in water to avoid aesthetic, cosmetic or technical issues.

[3] There is not an MCL for copper, lead and microcystins, but rather Action Levels beyond which increased monitoring and possibly other actions are required. Copper and lead action levels are based on a running average over the monitoring period, instead of individual sample results, and apply to community and nontransient noncommunity public water systems. Microcystins action levels apply to all public water systems; 0.3 µg/L applies to vulnerable individuals as defined in 3745-90-02, while 1.6 µg/L applies to all individuals.

[4] MCL applies to community public water systems and nontransient noncommunity public water systems that treat source water with ozone.

[5] MCL applies to community public water systems and nontransient noncommunity public water systems that treat source water with chlorine dioxide.

[6] HAA5 = Haloacetic Acids (five), includes the sum of dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloracetic acid and trichloroacetic acid rounded to two significant figures after addition.

[7] TTHM = Total Trihalomethanes, includes the sum of trichloromethane (cholorform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform) rounded to two significant figures after addition.

Table 3. Potential Sources of Contamination within the City of Piqua's Drinking Water Corridor Management Zone

Potential Contaminant Source	Environmental Concerns	# within 100' of the CMZ (Corridor Management Zone)
AGRICULTURAL SOURCES		
Cropland	May be a source of nutrients, ammonia, pesticides and pathogens. See page 5 for additional information.	73.3% land use in full SWAP Area
Pasture	May be a source of nutrients, ammonia, and animal pathogens. See page 5 for additional information.	4.1% land use in full SWAP Area
Other Livestock Operations	May be a source of nutrients, ammonia, and pathogens.	1
Agricultural Chemical/Equipment Facilities.	Facilities associated with agricultural chemicals and/or equipment may be a source of leaks or spills.	1
Wastewater/Biosolid Application	May be a source of nutrients, ammonia, and other contaminants. If not treated/applied properly, may be a source for pathogens.	10
MUNICIPAL SOURCES		
Municipal Garages	May be a source for automotive chemicals and fuel.	1
Storm Water Drainage	Storm drains, storm water basins, etc. may be a source of household and business chemicals, nutrients, ammonia and pathogens.	1
Town Gas Site	May be a source for petroleum products and VOCs.	1
COMMERCIAL SOURCES		
Airport/Abandoned Airfield	Runoff from these facilities may be a source of deicers, metals, petroleum products such as motor oil, and VOCs in source water.	1
Carpet/Tile Stores	Potential contaminants that may be associated with carpet stores include organic compounds, glues and cements.	1
Cemeteries/Funeral Homes/Crematoriums	Cemeteries have been associated with arsenic and formaldehyde contamination in groundwater.	5
INDUSTRIAL SOURCES		
Electrical Substation	May be a source for oil and PCBs.	1

Potential Contaminant Source	Environmental Concerns	# within 100' of the CMZ (Corridor Management Zone)
Gravel Pits & Quarries	These types of facilities may be associated with surface water contaminants and the potential for oil, gasoline, and automotive fluid leaks and spills.	9
Machine and Metalworking Shops	May be associated with leaks and spills of oil and other chemicals. Waste streams may contain metals that could contaminate drinking water sources.	4
Plastics/Synthetics Manufacturer	May be associated with VOCs and other synthetic compounds.	3
WASTE DISPOSAL SOURCES		
Landfills	May be a potential source of leaks and spills for a variety of contaminants, depending on landfill type.	1
Lagoon/Impoundment: Industrial & Non-Industrial Waste	If poorly maintained/operated, municipal wastewater discharge sites can be sources for nutrients, ammonia, and pathogens. Poorly maintained/operated industrial wastewater discharge sites could contribute various chemicals depending on operation.	2
Wastewater Discharge	If poorly maintained/operated, municipal wastewater discharge sites can be sources for nutrients, ammonia, and pathogens. Poorly maintained/operated industrial wastewater discharge sites could contribute various chemicals depending on operation.	9
Composting/Yard Waste Facility	If poorly maintained/operated, composting and yard waste facilities may be a source of nutrients, pesticides and lawn chemicals.	1
Septic Systems	If poorly maintained/operated, may be a source of household and business chemicals and pathogens.	Multiple
INFRASTRUCTURE RELATED SOURCES		
Highway / Transportation Route	Accidents on transportation routes pose the threat of leaks and spills of fuels and chemicals. Weed killers used to control vegetation can elevate levels of pesticides in drinking water sources. Runoff may contain oil, metals, and deicers. See page 5 for more information.	2 State Routes, 1 Interstate, 2 Railroads
Pipelines	Spills and leaks from pipelines the potential to impact drinking water sources, even at small quantities. Condensate in natural	1

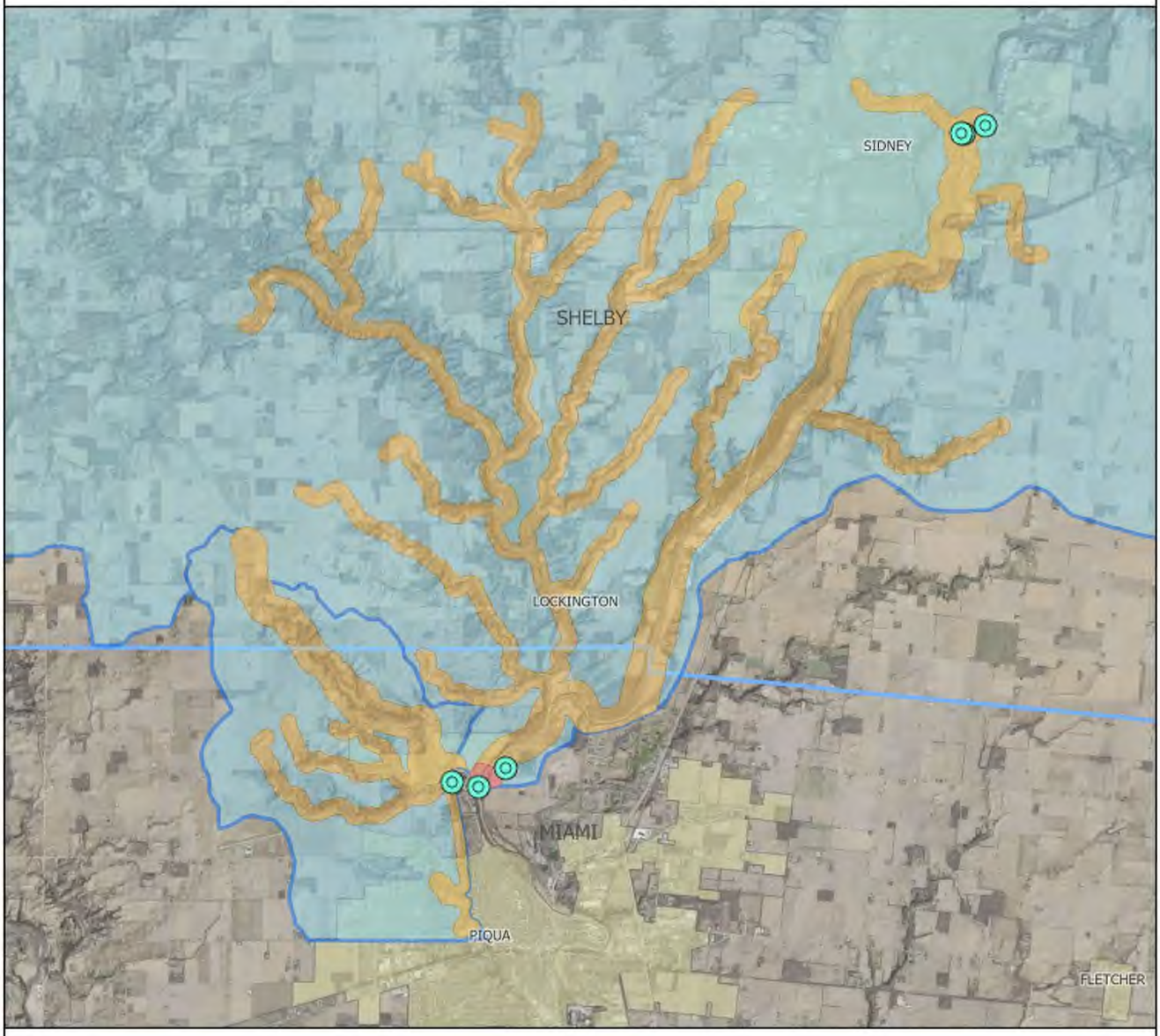
Potential Contaminant Source	Environmental Concerns	# within 100' of the CMZ (Corridor Management Zone)
	gas pipelines may contain PCBs and other chemicals.	
GENERAL POINT SOURCES		
Aboveground Storage Tanks	May present a potential for leaks and spills that could impact surface or groundwater.	5
Underground Storage Tanks	If poorly maintained, may be a potential source of leaks and spills for gasoline and other chemicals.	13

Table 4. Examples of Protective Strategies

Potential Contaminant Source	Protective Strategies To Consider
General	➢ Purchase additional property. ➢ Provide educational material to members of the community on topics regarding the drinking water source protection area. ➢ Include drinking water source protection into the local school curriculum. ➢ Provide education (material/meetings) local businesses and industries on topics relating to drinking water source protection. ➢ Encourage 'groundwater friendly' development. ➢ Form partnerships with neighboring jurisdictions and potential contaminant source owners ➢ Develop/enact/enforce a local ordinance which may include any of the following: changing zoning; illegal waste disposal; requiring registration of existing facilities; banning certain new types of activities; dictating chemical handling procedures; maintaining/filing a chemical inventory; facility spill/contingency planning; engineering controls for existing/new facilities; paralleling existing federal or state requirements.
Agricultural Sources	➢ Assess the use of best management practices and recommend additional practices. ➢ Encourage road safety with agricultural chemicals. ➢ Provide education (material/meetings) to local farmers and agribusinesses on appropriate topics. ➢ Plan/design/implement methods to control impacts to surface water.
Residential Sources	➢ Inventory/remove underground home heating oil tanks in the protection area. ➢ Identify areas used for illegal dumping. ➢ Provide education (material/meetings) to home owners on: drinking water protection; use/maintenance of septic systems; illegal dumping; proper well abandonment (both the reason and the process). ➢ Develop a centralized wastewater collection/treatment system. ➢ Encourage/require (and provide incentives) for sealing unused wells. ➢ Ensure enforcement of existing requirements for closing unused wells. ➢ Ensure the proper construction of new wells.
Municipal Sources	➢ Monitor compliance with existing regulations through inspections and/or contact with regulatory agencies (such as the local fire department, State Fire Marshal, or the Ohio EPA). ➢ Encourage/arrange hazardous materials training or waste and disposal assessments for employees. ➢ Develop an early release notification system for spills and emergency planning; educate emergency responders to be aware of drinking water protection areas; or coordinate facility spill/contingency planning. ➢ Encourage compliance with materials handling procedures/requirements. ➢ Install of engineering controls at municipal facilities ➢ Implement pollution prevention strategies.

	➢ Work with the street department and Ohio DOT to minimize use of road salt. ➢ Evaluate and close fire cisterns or other city owned wells. ➢ Conduct routine sewer inspections, maintenance & upgrades.
Commercial Sources	➢ Monitor compliance with existing regulations through inspections and/or contact with regulatory agencies. ➢ Use routine inspections as an educational opportunity. ➢ Encourage compliance with materials handling procedures/requirements. ➢ Encourage/arrange hazardous materials training or waste and disposal assessments for local businesses (and their employees). ➢ Request installation of engineering controls for existing facilities. ➢ Encourage facility spill/contingency planning in conjunction with the fire department. ➢ Encourage local businesses to implement pollution prevention strategies.
Industrial Sources	➢ Monitor compliance with existing regulations through inspections and/or contact with regulatory agencies. ➢ Use routine inspections as an educational opportunity. ➢ Encourage compliance with materials handling procedures/requirements. ➢ Encourage/arrange hazardous materials training or waste and disposal assessments for local industries (and their employees). ➢ Encourage facility spill/contingency planning in conjunction with the fire department. ➢ Request installation of engineering controls for existing facilities. ➢ Encourage local industries to implement pollution prevention strategies. ➢ Encourage compliance with materials handling procedures/requirements. ➢ Encourage/arrange waste and disposal assessments for local businesses.
Spills	➢ Develop an early release notification system for spills and an emergency response plan. ➢ Include drinking water protection in response planning and training. ➢ Post signs indicating the extent of the protection area.
Transportation	➢ Create hazardous materials routes around the protection area and require/encourage transporters to use them. ➢ Work with local transporters on protection area awareness. ➢ Encourage road safety with chemicals. ➢ Post signs indicating the extent of the protection area.

Piqua City PWS, PWSID#: OH5501211
Miami and Shelby Counties



Legend

- Active Intakes for Public Water Systems
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Ohio Environmental Protection Agency

Figure 2. Corridor Management Zones

May 23, 2025

0 0.38 0.75 1.5 2.25
Miles

Piqua City PWS, PWSID#: OH5501211
Miami County

Legend

- Active Intakes for Public Water Systems
- Emergency Management Zone
- Corridor Management Zone
- Source Water Protection Area

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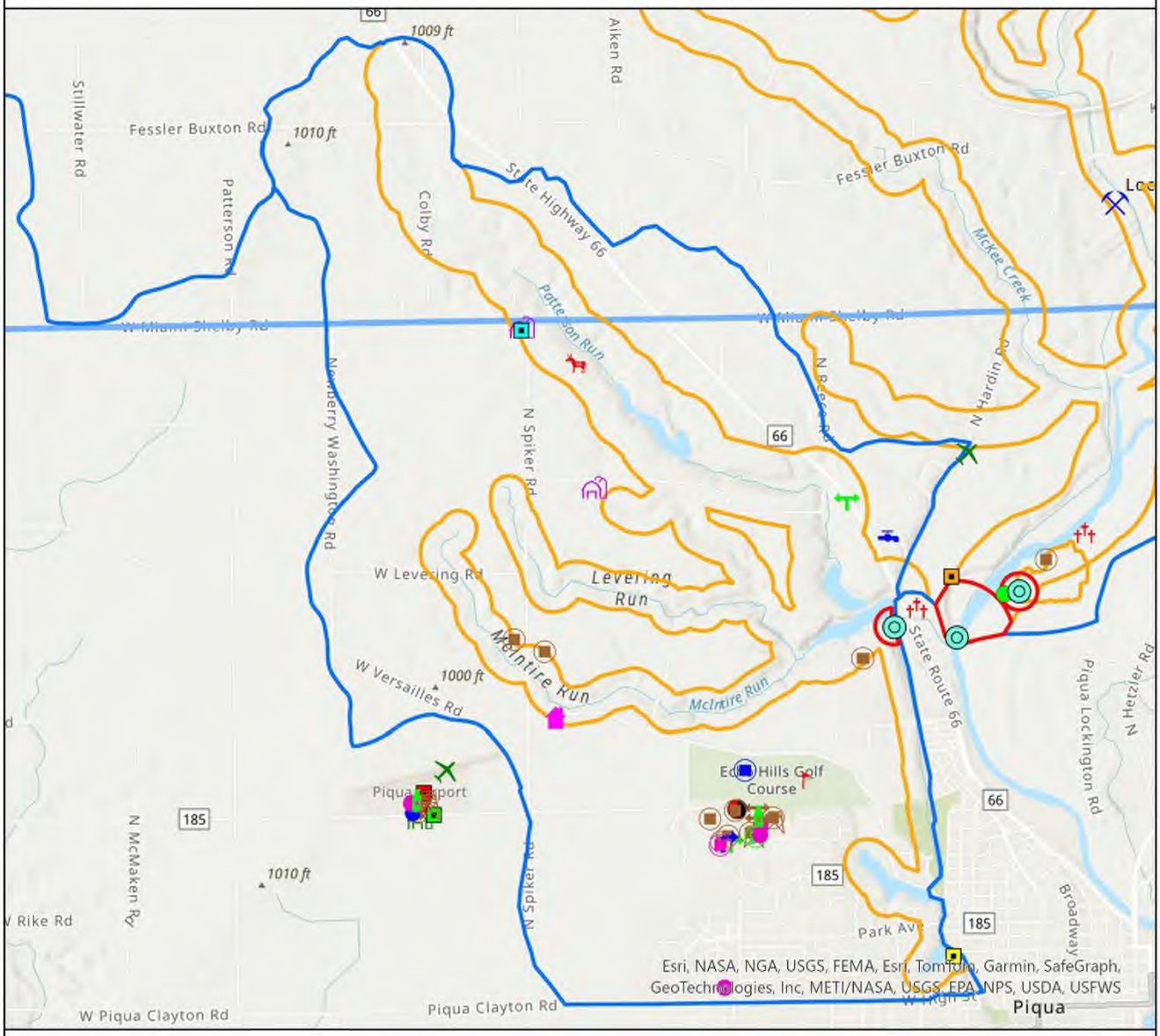
Figure 3. Emergency Management Zones

May 23, 2025

0 0.03 0.05 0.1 0.15
Miles

Piqua City PWS, PWSID#: OH5501211
Miami and Shelby Counties



Legend

- Active Intakes for Public Water Systems
- Above Ground Storage Tank
- Airport/Abandoned Airfield
- Animal Feedlot
- Carpet/Tile/Paint Store
- Cemetery
- Chemical Storage
- Crops: corn, soybean, wheat
- Drainage Canal/Tile
- Drinking Water Treatment Plant
- Fertilizer Application
- Floor Drain (To Septic Tank/Well)
- Golf Course
- Gravel Pit/Quarry
- Lagoon/Impoundment: Industrial Waste
- Lagoon/Impoundment: Non-Industrial Waste/Sewage
- Metalworking/Machine Shop/Plating/Welding Facility
- Other Agricultural Source
- Pipeline: Natural Gas
- Sanitary Sewer Line
- Septic System: Tank/Leachfield/Mound System
- Storm Drain
- Underground Storage Tank: Leaking
- Underground Storage Tank: Non-Leaking
- Underground Storage Tank: Removed
- Underground Storage Tank: Unknown Status
- Utility Shed/Maintenance Building
- Wastewater Treatment Facility
- Wastewater/Biosolids Application
- Well: Other
- Emergency Management Zone
- Corridor Management Zone
- Source Water Protection Area
- Counties

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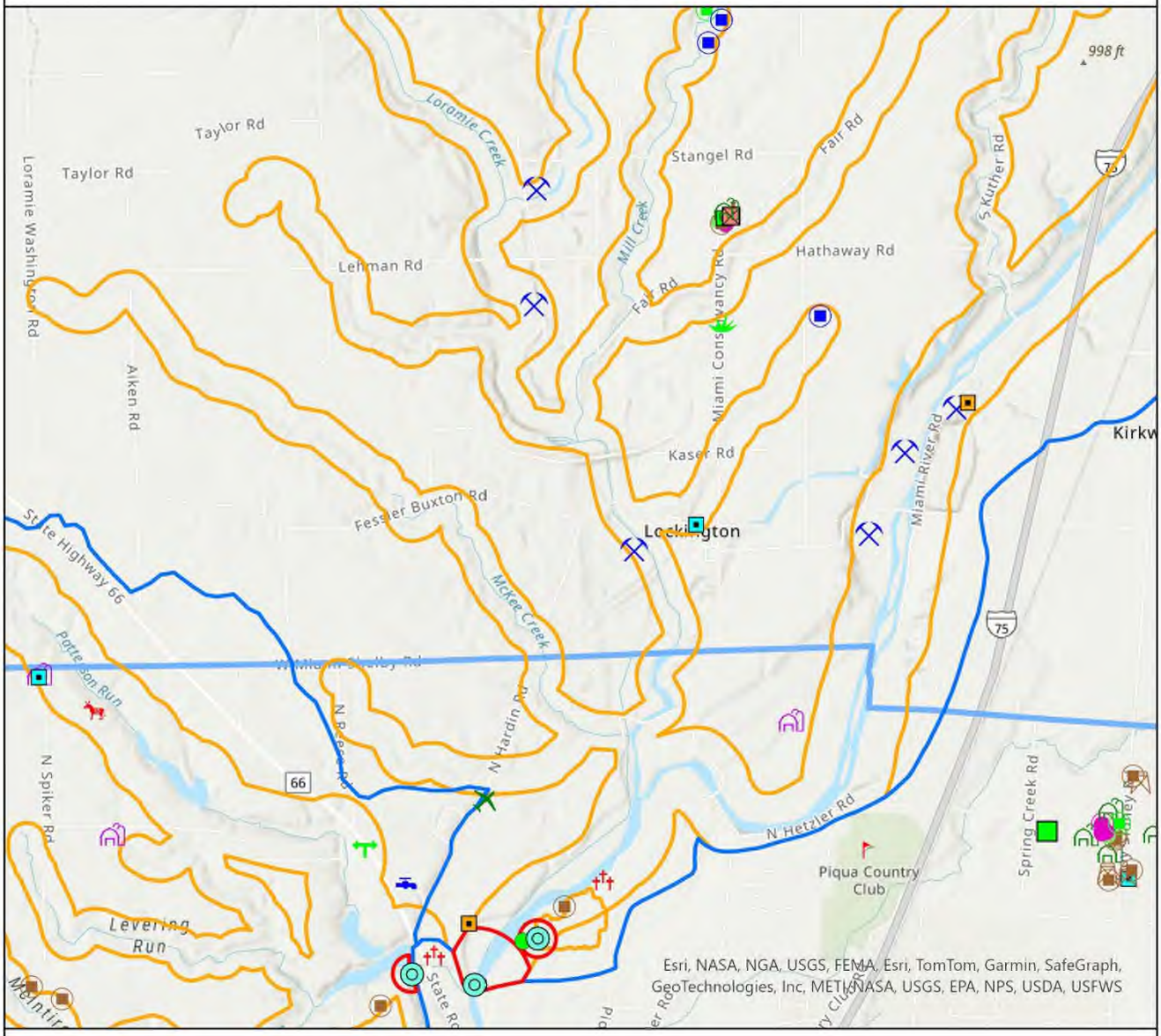
Figure 4. Hydraulic System Potential Contaminant Source Inventory

May 27, 2025

0 0.2 0.4 0.8 1.2
Miles

Piqua City PWS, PWSID#: OH5501211
Miami and Shelby Counties



Legend

- Active Intakes for Public Water Systems
- Above Ground Storage Tank
- Airport/Abandoned Airfield
- Animal Feedlot
- Cemetery
- Crops: corn, soybean, wheat
- Drinking Water Treatment Plant
- Floor Drain (To Septic Tank/Well)
- Golf Course
- Gravel Pit/Quarry
- Herbicide/Pesticide Application
- Lagoon/Impoundment: Non-Industrial Waste/Sewage
- Landfill: Closed/Inactive
- Material Stockpile (not salt)
- Other Agricultural Source
- Other Waste Disposal Source
- Pipeline: Natural Gas
- Septic System: Tank/Leachfield/Mound System
- Storm Drain
- Storm Water Basin
- Underground Storage Tank: Non-Leaking
- Underground Storage Tank: Removed
- Wastewater Treatment Facility
- Wastewater/Biosolids Application
- Well: Other
- Emergency Management Zone
- Corridor Management Zone
- Source Water Protection Area
- Counties

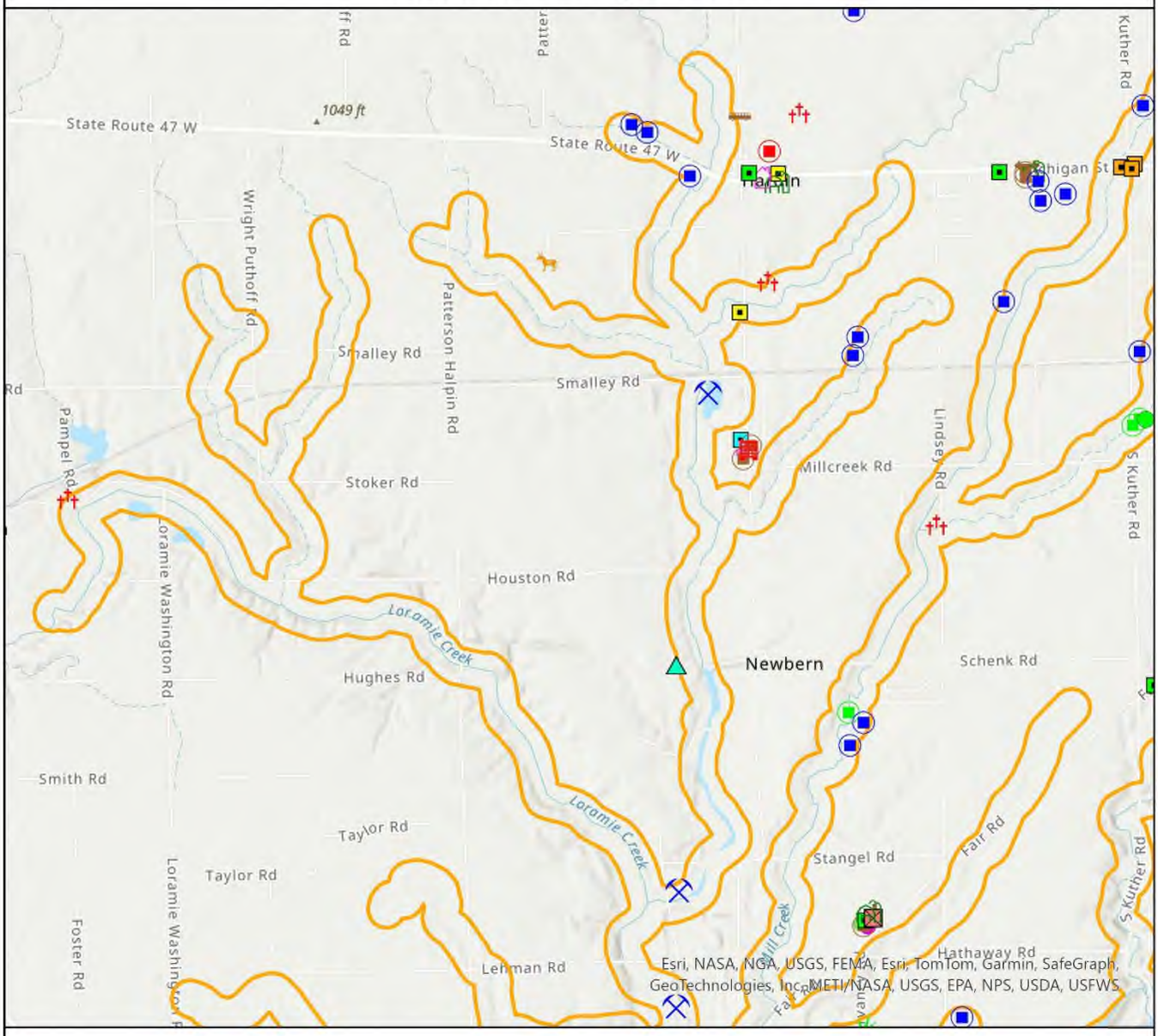
Ohio Environmental Protection Agency

Figure 5. Great Miami River Watershed
Potential Contaminant Source Inventory

May 27, 2025

0 0.2 0.4 0.8 1.2
Miles

Piqua City PWS, PWSID#: OH5501211
Miami and Shelby Counties



Legend

- Above Ground Storage Tank
- Animal Feedlot - CAFO
- Asphalt/Cement/Concrete Plant
- Cemetery
- Crops: corn, soybean, wheat
- Equipment Rental/Repair Shop
- Garage: School Bus
- Gravel Pit/Quarry
- Herbicide/Pesticide Application
- Lagoon/Impoundment: Non-Industrial Waste/Sewage
- Material Stockpile (not salt)
- Metalworking/Machine Shop/Plating/Welding Facility
- Other Waste Disposal Source
- Sanitary Sewer Line
- Septic System: Discharging to Surface Water
- Septic System: Tank/Leachfield/Mound System
- Storm Drain
- Storm Water Basin
- Underground Storage Tank: Leaking
- Underground Storage Tank: Non-Leaking
- Underground Storage Tank: Removed
- Wastewater Discharge: Municipal
- Wastewater Treatment Facility
- Wastewater/Biosolids Application
- Corridor Management Zone
- Source Water Protection Area
- Counties

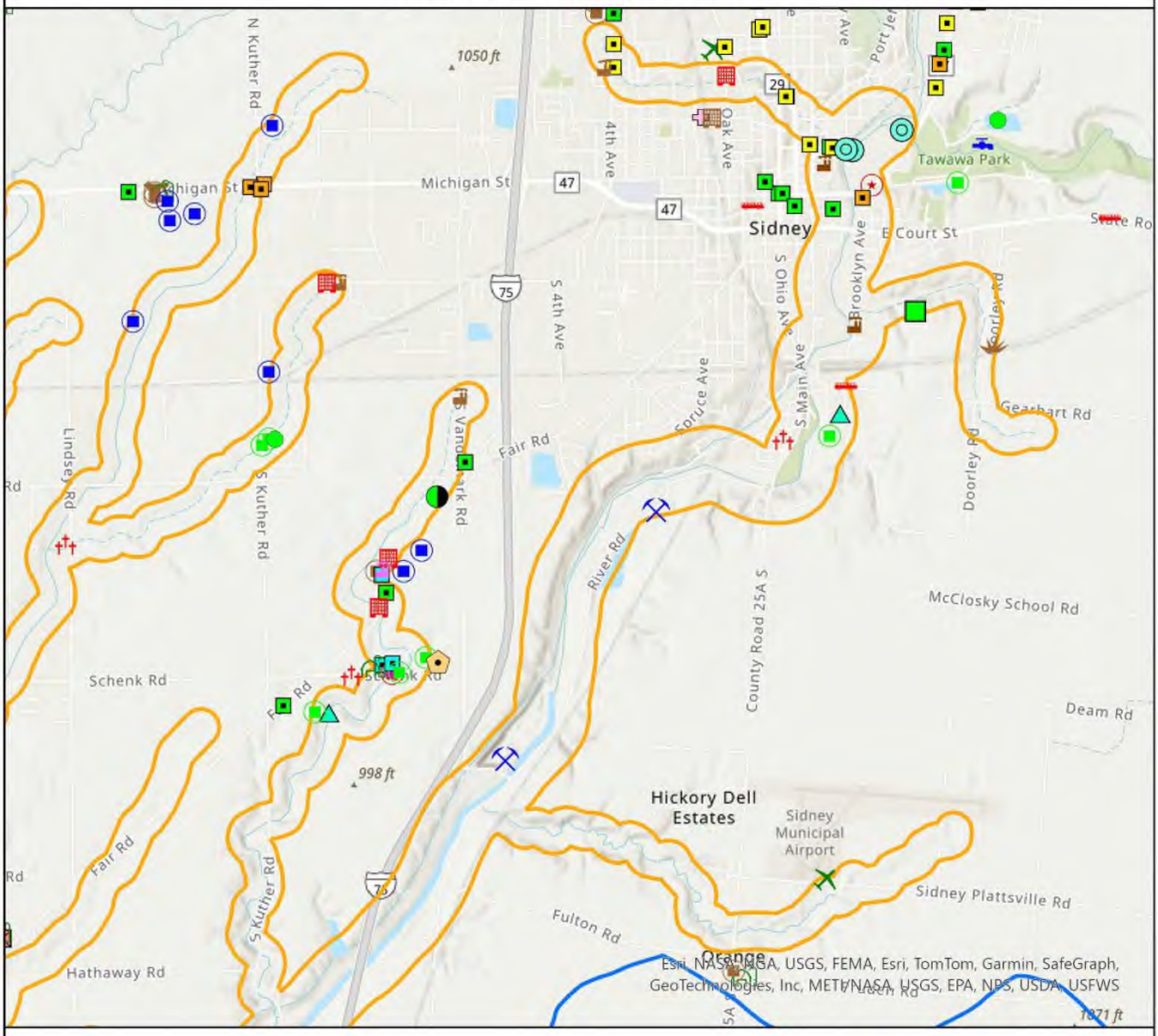
Ohio Environmental Protection Agency

Figure 6. Great Miami River Watershed Potential Contaminant Source Inventory

May 27, 2025

0 0.2 0.4 0.8 1.2
Miles

Piqua City PWS, PWSID#: OH5501211
Miami and Shelby Counties



Legend

- Active Intakes for Public Water Systems
- Above Ground Storage Tank
- Airport/Abandoned Airfield
- Asphalt/Cement/Concrete Plant
- Cemetery
- Composting/Yard Waste Facility
- Crops: corn, soybean, wheat
- Drinking Water Treatment Plant
- Electrical Substation
- Garage: Municipal
- Gravel Pit/Quarry
- Groundwater Impact
- Herbicide/Pesticide Application
- Lagoon/Impoundment: Non-Industrial Waste/Sewage
- Landfill: Closed/Inactive
- Metal Fabricator/Foundry
- Metalworking/Machine Shop/Plating/Welding Facility
- Other Industrial Source
- Other Waste Disposal Source
- Other Onsite
- Plastics/Synthetics Manufacturer
- Sanitary Sewer Line
- Septic System: Discharging to Surface Water
- Septic System: Tank/Leachfield/Mound System
- Storm Drain
- Town Gas Site
- Underground Storage Tank: Leaking
- Underground Storage Tank: Non-Leaking
- Underground Storage Tank: Removed
- Wastewater Discharge: Municipal
- Wastewater Treatment Facility
- Wastewater/Biosolids Application
- Corridor Management Zone
- Source Water Protection Area
- Counties

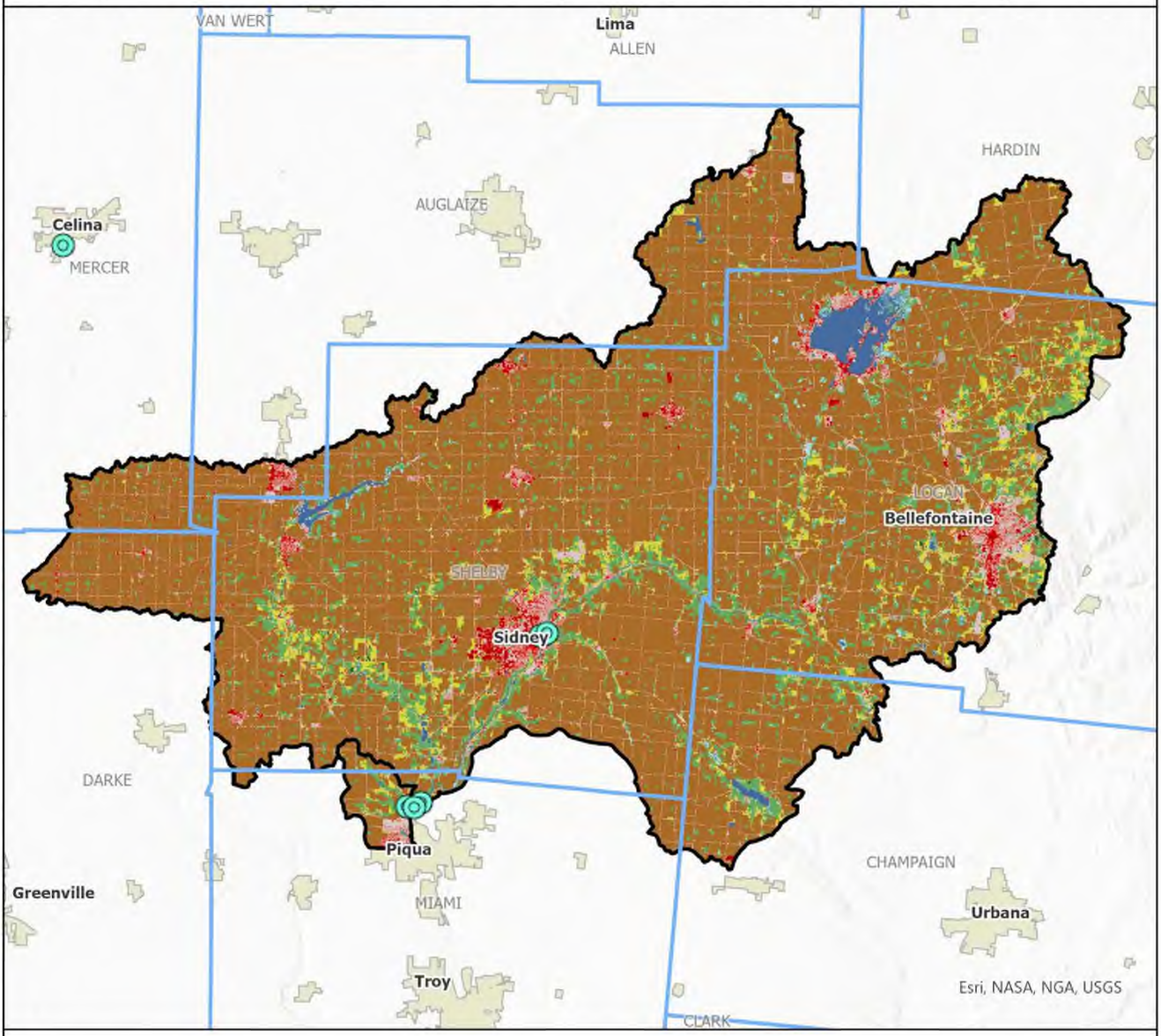
Ohio Environmental Protection Agency

Figure 7. Great Miami River Watershed Potential Contaminant Source Inventory

May 27, 2025

0 0.2 0.4 0.8 1.2 Miles

Piqua City PWS, PWSID#: OH5501211
Miami, Darke, Mercer, Auglaize, Hardin, Logan, Champaign, and Shelby Counties



Legend

- Active Intakes for Public Water Systems
- Counties
- Cities and Villages

Land Use

- 73.3% - Cultivated Crops
- 9.7% - Deciduous Forest
- 5.1% - Developed, Open Space
- 4.1% - Hay/Pasture
- 2.6% - Developed, Low Intensity
- 1.5% - Open Water
- 1.5% - Developed, Medium Intensity
- <1% - Woody Wetlands
- <1% - Shrub/Scrub
- <1% - Mixed Forest
- <1% - Herbaceuous
- <1% - Evergreen Forest
- <1% - Emergent Herbaceuous Wetlands
- <1% - Developed, High Intensity
- <1% - Barren Land

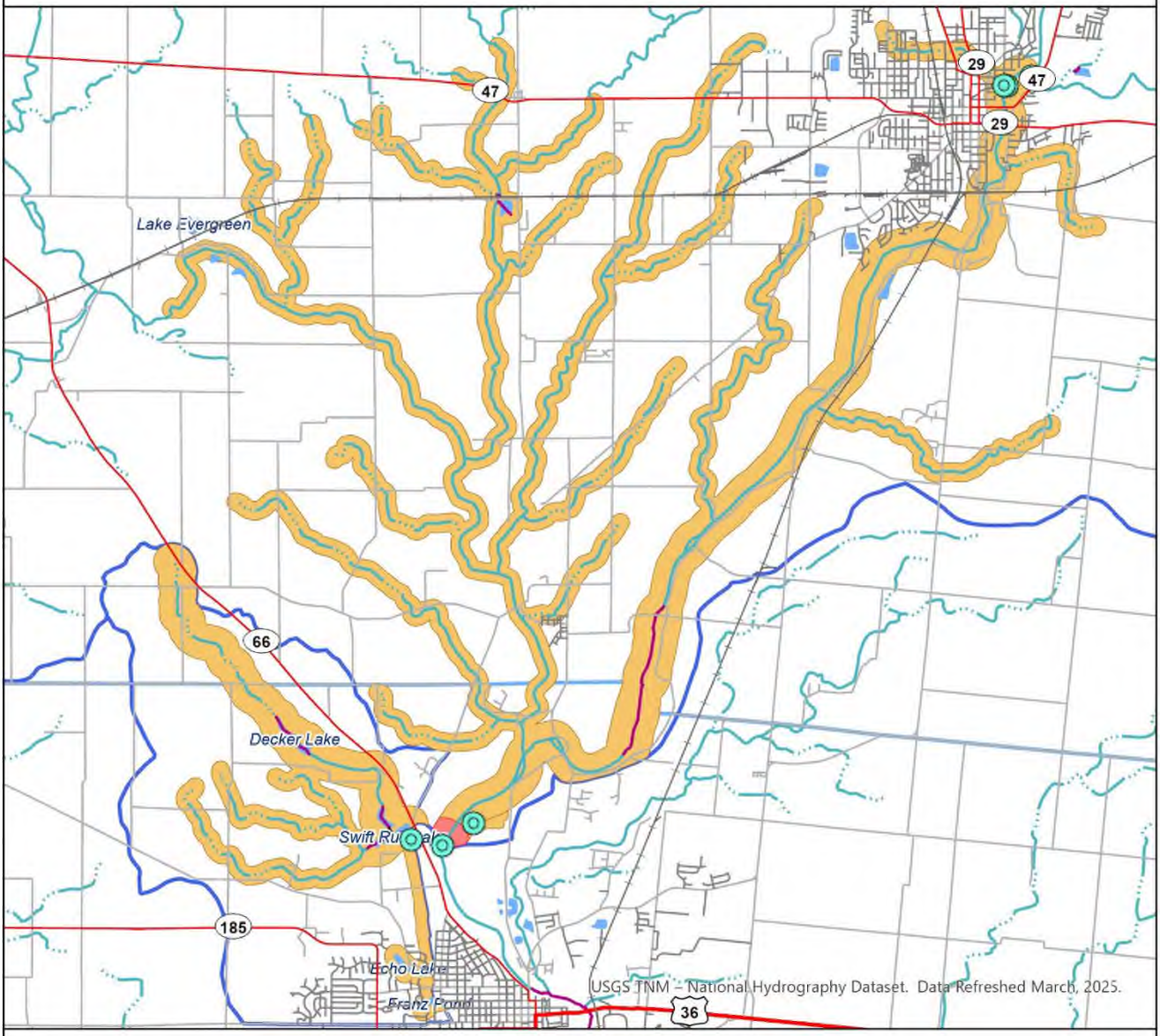
Ohio Environmental Protection Agency

Figure 8. Piqua Source Water Protection Area Land Use

May 28, 2025

0 1.5 3 6 9
Miles

Piqua City PWS, PWSID#: OH5501211
Miami and Shelby Counties



Legend

- Active Intakes for Public Water Systems
- US Highways
- Ohio Highways
- Municipal Roads
- Local Roads
- Ohio Rail Lines
- Inland - Emergency Management Zone
- Inland - Corridor Management Zone
- Inland - Source Water Area Watershed
- Counties

Ohio Environmental Protection Agency

Figure 9. Roads and Highways Near City of Piqua's Corridor Management Zone

May 28, 2025

0 0.33 0.65 1.3 1.95
Miles