

Appendix C. Miami County

C.1 DESCRIPTION AND LOCATION

Miami County is located in the north central portion of the Miami Valley Region as shown in **Figure C-1** and encompasses approximately 410 square miles, or 18% of the planning area.

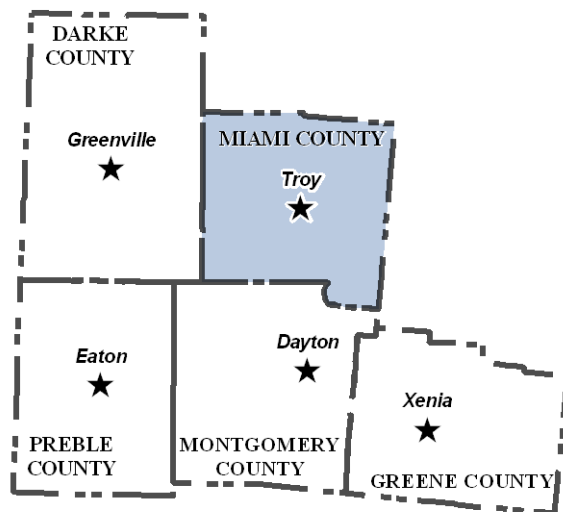


Figure C-1. Miami County Location Map

Land use within Miami County is predominately row crop agriculture for corn and soybeans with some livestock production. The county is characterized by cities along the I-75 corridor (Tipp City, Troy and Piqua), small villages, farmland and wide open spaces. There are also several natural open spaces along stream corridors designed for recreational use and wildlife preservation.

C.1.1 Communities in Miami County

Although there are many communities within Miami County, it is not heavily populated and the most recent 20-year population projections for the area show some growth. The largest town in Miami County is Troy, the county seat. The political boundaries within this area are listed in **Table C-1**.

Table C-1. Administrative Boundaries within Miami County

Townships			Incorporated Communities		
Bethel	Lost Creek	Spring Creek	Bradford	Huber Heights	Potsdam
Brown	Monroe	Staunton	Casstown	Laura	Tipp City
Concord	Newberry	Union	Clayton	Ludlow Falls	Troy
Elizabeth	Newton	Washington	Covington	Piqua	Union
			Fletcher	Pleasant Hill	West Milton

Watershed groups that area active in Miami County are listed in **Table C-2**.

Table C-2. Watershed Groups in Miami County³⁶

Watershed Group	Watershed(s)
Honey Creek Watershed Association	Honey Creek
Miami Conservancy District	Great Miami River Watershed
Middle Great Miami Watershed Alliance	Upper Great Miami River, Lost Creek, and Spring Creek
Stillwater River Association	Stillwater
Stillwater Watershed Project	Stillwater River

C.1.2 Other Watershed-Related Groups in Miami County

The following communities and special districts are located and/or operate within Miami County:

- Miami County Park District: Charleston Falls Preserve, Ft. Blankenship Riverside Sanctuary, Garbry Bid Woods Reserve & Sanctuary, Great Miami River Recreational Trail, Honey Creek Preserve, Hobart Urban Nature Preserve, Lost Creek Reserve & Knoop Agricultural Center, Stillwater Prairie Reserve, Twin Arch Reserve, and John A. Wannemacher Nature Reserve
- ODNR Nature Preserves: Greenville Falls State Natural Area and Goode Prairie Preserve
- Miami University Institute of Environmental Sciences
- Ohio State University Extension Service
- Miami County Soil and Water Conservation District (SWCD)
- Miami County Health District
- Miami Valley Regional Planning Commission
- Miami Conservancy District

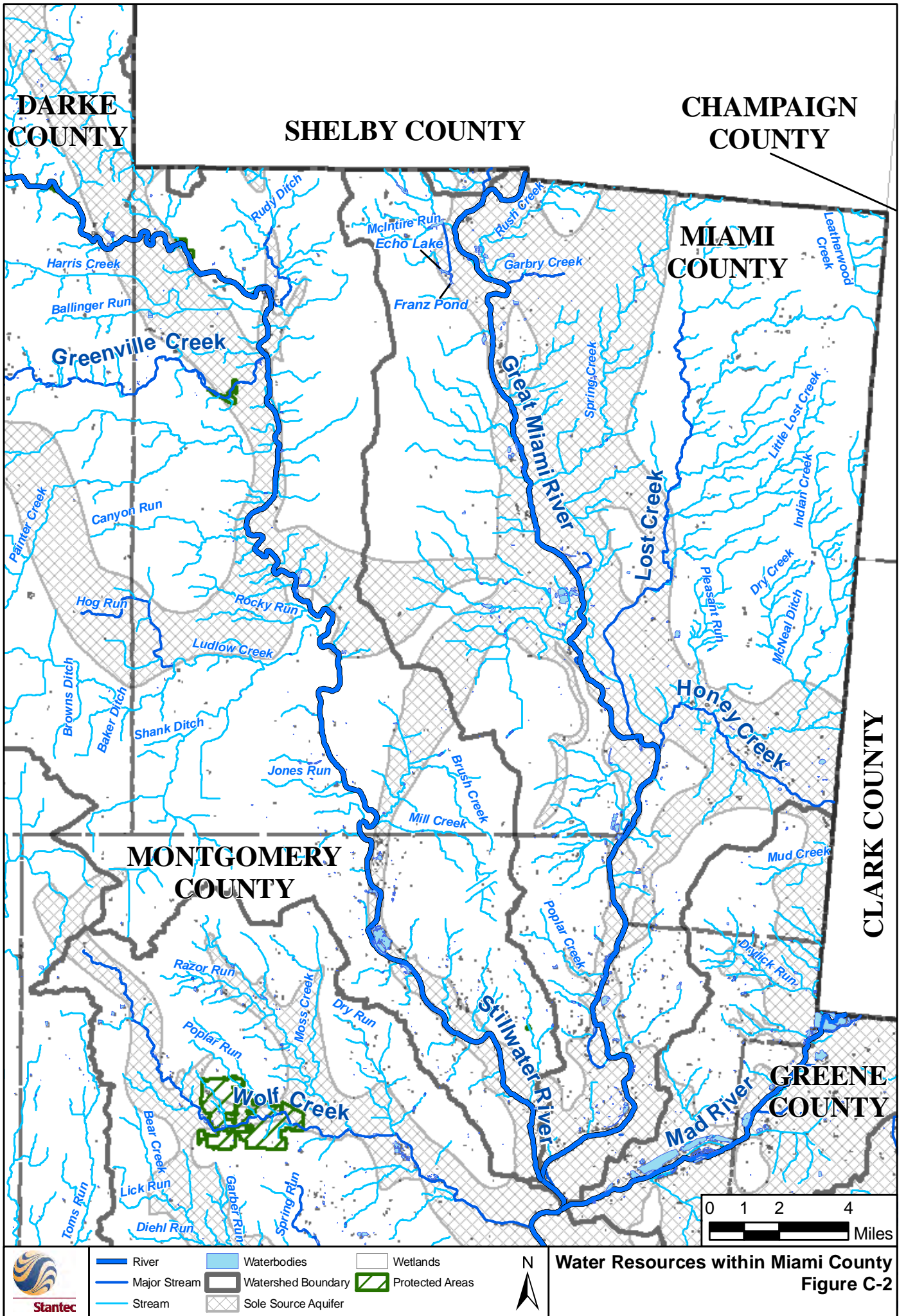
The Miami Conservancy District's trading program operates within Miami County and focuses on reducing nitrogen and phosphorous.

C.2 WATER RESOURCES

All of Miami County is included in the watershed of the Great Miami River. The two major streams that flow through Miami County include the Upper Great Miami River and Stillwater River. These streams flow parallel to each other in a south-southeasterly direction across the county. Additional streams in Miami County include the Mad River, which drains the south east corner of Bethel Township along with Harris Creek, Greenville Creek, Painter Creek, and Ludlow Creek that all enter the Stillwater River from the west. In addition, Spring Creek, Lost Creek and Honey Creek tributaries enter the Miami River from the east. Lakes in Miami County include Echo Lake, Franz Pond, Troy Low Head Dam pool and Swift Run Lake.

The water resources in Miami County are depicted in **Figure C-2**.

³⁶ http://ohiowatersheds.osu.edu/groups/wgp_county.php?county=Miami



The City of Piqua has established a committee to focus on sedimentation and run-off into Swift Run Lake, which is one source of the city's drinking water supply. The advisory committee is looking at different practices to reduce algae, phosphorous, and nitrogen.

The Ohio River Coalition, ODNR Scenic Rivers, and the Ohio EPA are working with the Village of West Milton to remove a 12-foot tall, 200-foot wide low head dam that was built in 1917.

C.3 LOCAL ON-SITE SEWAGE TREATMENT SYSTEM ISSUES

The Miami County Health Department has an approved HSTS plan, is implementing a Section 319 grant, and is instituting an Ohio EPA DEFA linked deposit low interest loan program.

In the Ohio Department of Health report "Survey of Household Sewage Treatment Systems Operation and Failure Rates in Ohio" published in 2008, it was noted that better septic system management was recommended in the Stillwater River watershed.

Localized areas of concern as noted by the Miami County Health District, Miami County Soil and Water Conservation District and Ohio EPA are as follows:

- Alcony
- Barnhart Road/Lakeshore area
- Bethelville
- Brandt (Bethel Township)
- Conover (Brown/Elizabeth Township)
- Dixie Terra and West Main St. (Tipp City)
- Frederick
- Haskett Lane (Bethel Township)
- Hilltop Subdivision
- Hoke Platt (Union Township)
- Lena (Brown Township)
- Ludlow Falls (Union Township)
- McKaig Road, near Junction with State Route 718 (Concord Township)
- Meadow Lane (Monroe Township)
- Oak Leaf/Pinehurst Drive
- Peters Road at Troy
- Phoneton (Bethel Township)
- Pinebrook Estates
- Potsdam (Union Township)
- Ross Road
- Shaggybark (Elizabeth Township)
- Subdivisions south of Swailes Rd. off State Route 25 A/Tipp Cowlesville Rd.
- Tecumseh/Shawnee Trail
- West Charleston (Bethel Township)
- West Covington (Newberry Township)

It was noted that the Village of Casstown has recently been sewered and is being pumped to Troy. Village of Fletcher is in the process of being sewered and the new wastewater flows will be pumped to Piqua.

The Miami SWCD reported that since 2005, the Village of Potsdam has experienced moderate flooding and septic system problems. An "Issue 2" grant has allowed the village to install a new

30-inch plastic tile from the outlet to State Route 721. The village is still in need of more drainage improvement to improve the area’s septic systems ability to treat wastewater.

C.4 PUBLIC WASTEWATER TREATMENT MANAGEMENT AGENCIES

A listing of the FPAs, DMAs and municipal WWTPs within Miami County is presented in **Table C-3**. The locations of FPAs, existing municipal point sources, sensitive groundwater aquifer, and other unique features of Miami County are shown in **Figure C-3**.

C.5 OTHER PERMITTED POINT SOURCES

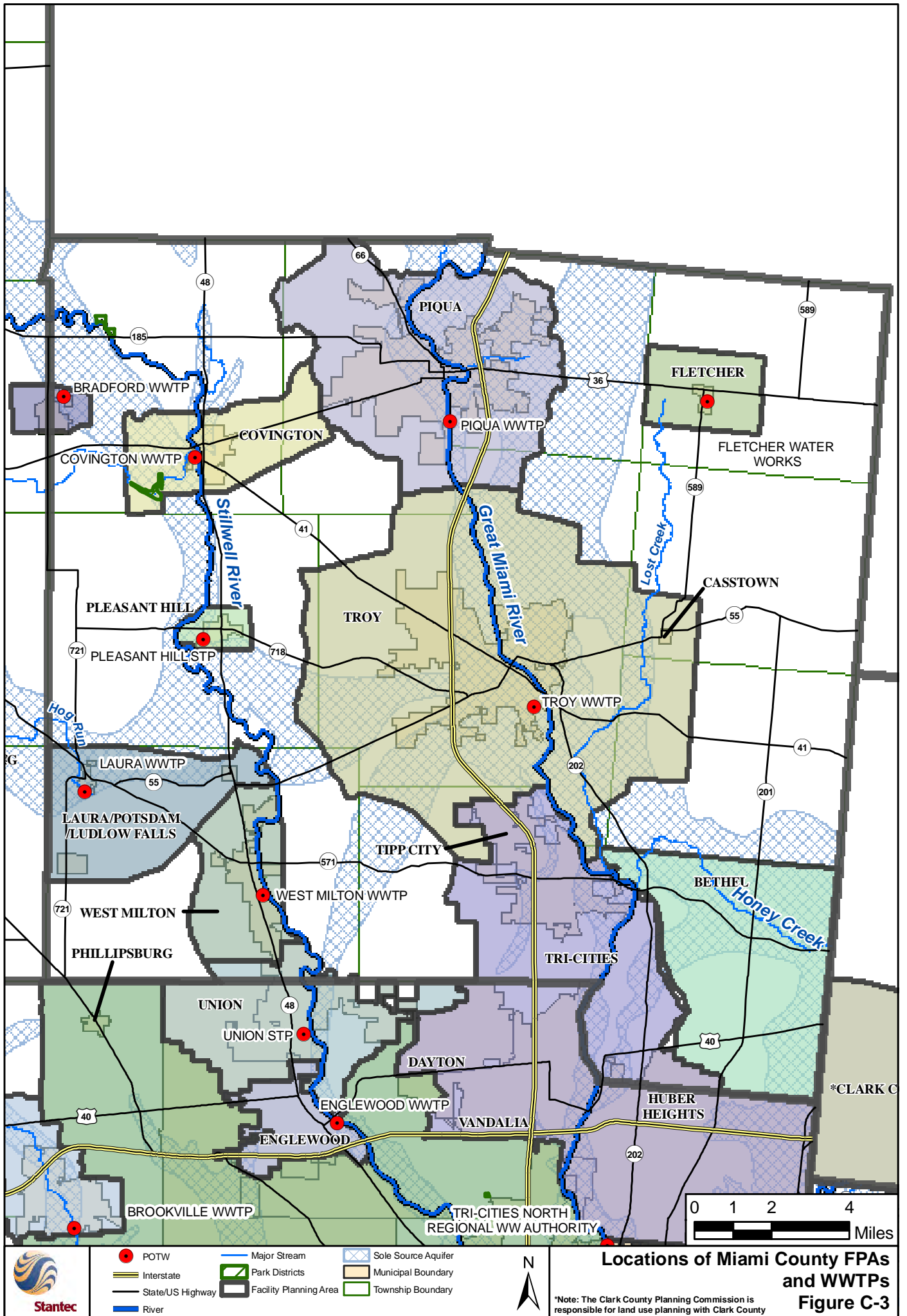
The facilities listed in **Table C-4** have been issued NPDES permits for discharging wastewater in Miami County.

Table C-4. Industrial and Minor Wastewater Dischargers in Miami County

Type of Discharge	Facility
Minor	A&R Reck MHP
Minor	JGR Properties Inc. Sunshine MHP
Minor	Bethel Local School District WWTP
Minor	Sugar Grove Bible Church
Industrial	NAWA WTP
Industrial	Barrett Paving Materials Inc.
Minor	Le-O-Na Falls MHP
Industrial	Troy Sand & Gravel
Industrial	Milton Materials LLC
Industrial	Kimberly-Clark
Minor	Western Ohio Japanese Language School
Minor	Miami East High School
Industrial	CF Poeppelman Inc.
Minor	Birdless Ltd
Industrial	Piqua Materials Inc. Piqua Minerals Division
Industrial	Fletcher Water Works
Industrial	Bradford WTP
Minor	Piqua Springcreek Elementary School
Minor	Country Meadows Condo Association
Industrial	Hartzell Propeller Inc. Service Center
Minor	Paris Court MHP

Table C-3. Summary of FPAs, DMAs, and WWTPs in Miami County

Facilities Planning Area (FPA)	Primary DMA		Satellite DMA(s)	Area(s) Serviced (p = portion)	Design Flow (mgd)	Ave. Daily Flow (mgd)	Receiving Waterway
	Owner / Operator	Wastewater Designation					
Bradford	Village of Bradford	Bradford WWTP		Village of Bradford	x	x	Ballinger Run
Covington	Village of Covington	Covington WWTP		Village of Covington	x	x	Stillwater River
Laura/Potsdam/Ludlow Falls	Village of Laura	Laura WWTP		Village of Laura, Village of Ludlow Falls, Village of Potsdam	0.060	0.031	Hog Run
Miami County Unincorporated	Miami County						
	Miami County Health District						
	Miami County SWCD						
Piqua	City of Piqua	Piqua WWTP	Miami County	Village of Fletcher, Miami County (p), City of Piqua	4.5	3.47	Great Miami River
Pleasant Hill	Village of Pleasant Hill	Pleasant Hill Sewage Treatment Plant		Village of Pleasant Hill	x	x	Stillwater River
Tipp City	City of Tipp City	n/a					
Troy	City of Troy	Troy WWTP	Miami County	Miami County (p), City of Troy	9.8	3.8	Great Miami River
Union	City of Union	Union Sewage Treatment Plant	Miami County Montgomery County	City of Union, Butler Township (p)	1.0	0.755	x
West Milton	Village of West Milton	West Milton WWTP		Village of West Milton	x	x	Unnamed Tributary of the Stillwater River



Locations of Miami County FPAs and WWTPs
Figure C-3

*Note: The Clark County Planning Commission is responsible for land use planning with Clark County

C.6 MIAMI COUNTY PRESCRIPTIONS

Other than the generic prescriptions that applicable to all counties, there are no specific actions prescribed by Ohio EPA that are applicable in Miami County.

C.7 MIAMI COUNTY RECOMMENDATIONS

This section summarizes the specific Ohio EPA recommended actions for Miami County.

C.7.1 Ohio EPA Recommendations (Stillwater River TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2010 Stillwater River Watershed TDML Report.

Regulatory

- Phosphorus limits for specific NPDES dischargers where aquatic life use attainment downstream of the effluent is impaired
- Any new requirements that may be developed for household sewage treatment systems (statewide)
- Sewage sludge disposal standards to regulate sludge application rates (statewide)
- Phase I and II stormwater requirements

Non-Regulatory

- Incorporation of the recommendations of the Stillwater River Watershed TMDL into the watershed action plan
- The Stillwater Watershed Joint Board of Supervisors to promote the watershed action plan and other activities contributing to the goals of the TMDL project
- Periodic stream monitoring to measure progress
- Removal of the low head dam at Englewood

Incentive-Based

- 319-funded projects for the entire Stillwater watershed which support the goals of the TMDL
- 319-funded (in part) watershed coordinator to promote watershed improvement activities
- various loan opportunities for WWTP, septic system, agriculture practices and riparian/habitat improvements
- A pilot program to test tying conservation payments to performance standards for reducing loads in impaired stream segments with 10-15 farmers

C.7.2 Ohio EPA Recommendations (Mad River TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2010 Mad River Watershed TDML Report.

Regulatory

- Recommended effluent limits are applied to the appropriate NPDES permit holders
- Implement Combined Sewer Overflow (CSO) controls through provisions included in NPDES permits and by using orders and consent agreements when appropriate
- Storm Water Program
- 401 Water Quality Certification Program
- Wetland Protection Program
- Enforcement Program
- 208 Program (State Water Quality Management Plans)
- Nonpoint Source Program

Non-Regulatory

- Work with watershed groups active in the Mad River Basin

Incentive-Based

- Section 319(h) grants for projects that eliminate or reduce water quality impairments caused by nonpoint sources of pollution
- 319 funding to implement statewide nonpoint source program to address nonpoint sources of pollution

Appendix D. Montgomery County

D.1 DESCRIPTION AND LOCATION

Montgomery County is located in the south central portion of the Miami Valley Region as shown in **Figure D-1** and encompasses approximately 464 square miles, or 20% of the planning area.

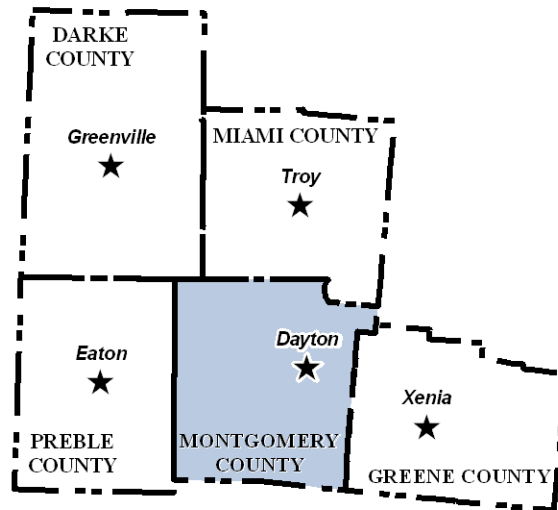


Figure D-1. Montgomery County Location Map

Montgomery County includes industrial areas along the river corridors and Interstates 70 and 75, the central business districts of Dayton and numerous other communities along with their suburban and neighborhood commercial areas, several medical facilities and other institutions, and governmental agencies, including Wright-Patterson Air Force Base. In addition to these urbanized areas, rural/agricultural land uses dominate in the western section of the County.

D.1.1 Communities in Montgomery County

There are many communities within Montgomery County, it is heavily populated and the most recent 20-year population projections from 2000 to 2020 for the area show a population decrease. The largest city in the County is Dayton, the county seat. The political boundaries within this area are listed in **Table D-1**.

Table D-1. Administrative Boundaries within Montgomery County

Townships		Incorporated Communities			
Butler	Jefferson	Brookville	Farmersville	New Lebanon	Trotwood
Clay	Miami	Carlisle (portion)	Germantown	Oakwood	Union
German	Perry	Centerville	Huber Heights	Philipsburg	Vandalia
Harrison	Washington	Clayton	Kettering	Riverside	Verona (portion)
Jackson		Dayton	Miamisburg	Springboro (portion)	West Carrollton
		Englewood	Moraine		

Watershed groups active in Montgomery County are listed in **Table D-2**.

Table D-2. Watershed Groups in Montgomery County³⁷

Watershed Group	Watershed(s)
Great Miami Watershed Enrichment Program	Great Miami River in Montgomery County
Greenacres Water Quality Project	Little Miami, Mill Creek, Great Miami, Ohio
Honey Creek Watershed Association	Honey Creek
Little Miami River Partnership	Little Miami River
Miami Conservancy District	Great Miami River Watershed
Stillwater River Association	Stillwater
Stillwater Watershed Project	Stillwater River
Three Valley Conservation Trust	Fourmile, Sevenmile, Twin and Indian Creek Valleys
Twin Creek WAP	Twin Creek
Upper Little Miami and Caesars Creek 319	Caesar Creek, Little Miami
Wolf Creek Stream Team and Watershed Partnership	Wolf Creek in the Great Miami Watershed

D.1.2 Other Watershed-Related Groups in Montgomery County

The following organizations and special districts are located and/or operate within Montgomery County:

- Montgomery County Parks: Art Van Atta Park, Arthur O. Fisher Park, and Madison Lakes Park
- Germantown and Twin Creek Five River MetroPark District
- Five Rivers MetroParks: Aullwood Gardens, Carriage Hill, Cox Arboretum, Deeds Point, Eastwood, Englewood, Hills and Dales, Huffman, Island, Possum Creek, RiverScape, Sunrise, Taylorsville, and Weselyan
- Sycamore State Park
- Miami University Institute of Environmental Sciences
- Ohio State University Extension Service
- Montgomery County Soil and Water Conservation District (SWCD)
- Dayton & Montgomery County General Health District (GHD)
- Miami Valley Regional Planning Commission
- Miami Conservancy District

The Miami Conservancy District’s trading program operates within Montgomery County and focuses on reducing nitrogen and phosphorous.

³⁷ http://ohiowatersheds.osu.edu/groups/wgp_county.php?county=Montgomery

D.2 WATER RESOURCES

Figure D-2 provides an overview of the water resources in Montgomery County. Major streams in Montgomery County include the Stillwater and Mad Rivers that confluence with the Great Miami River in downtown Dayton.

Other major tributaries in this area include Wolf Creek, Bear Creek, Twin Creek and Holes Creek. Lakes in Montgomery County include the Englewood Recreation Lake and numerous smaller ponds.

The Montgomery County Soil and Water Conservation District noted streambank erosion problems in the following areas:

- Tom's Run (Jackson Township)
- Twin Creek (Jackson/German Township)
- Little Twin Creek (German Township)
- Poplar Creek (Vandalia)

D.3 LOCAL ON-SITE SEWAGE TREATMENT SYSTEM ISSUES

In the Ohio Department of Health report "Survey of Household Sewage Treatment Systems Operation and Failure Rates in Ohio" published in 2008, it was noted that better septic system management was recommended in the Upper Little Miami River watershed. As reported in Ohio EPA's 2010 TMDL Report, the predominant pathogen load to studied streams in the Twin Creek and Stillwater River basin is coming from failing home sewage treatment systems (HSTS).

Areas of concern noted by Dayton and Montgomery County Health District are briefly described in the following sections.

D.3.1 Village of Phillipsburg

This village is characterized by small lots with very old onsite systems, many of which are presumed or known to be discharging to storm sewers that eventually discharge to Brush Creek. The village has completed a preliminary engineering report in 2010 that identifies the cost effective means of conveyance and discharge is to the Montgomery County Sanitary Sewer System and the City of Dayton Advance WWTP.

D.3.2 City of Clayton

The historic village center within Clayton is characterized by small lots with very old onsite systems, many of which are presumed or known to be discharging to storm sewers that eventually discharge to Wolf Creek.

D.3.3 Pymont Area (Perry Township)

This area has homes with failing onsite systems, many of which are presumed or known to be discharging to storm sewers that eventually discharge to Tom's Run.

D.3.4 Liberty Area (Jefferson Township)

This area has homes with failing onsite systems, many of which are presumed or known to be discharging to storm sewers that eventually discharge to Bear Creek.

D.3.5 Lindbergh Plat (City of West Carrollton)

This subdivision's small lots are underlain with sand and gravel. Many of the original systems are dry well/leaching pits that present a potential groundwater contamination risk. The majority of the lots are too small to upgrade to standard onsite systems. An available sanitary sewer is located nearby that may or may not have available capacity to provide sewer service to this area.

D.3.6 Morningside Plat (City of Riverside)

The lots in this subdivision are underlain with sand and gravel. Most of the original systems are dry well/leaching pits that present a potential groundwater contamination risk. Some of the lots in the area are large enough to upgrade to standard onsite systems. An available sanitary sewer is located nearby that may or may not have available capacity to provide sewer service to this area.

D.3.7 Hyland Avenue Area (City of Riverside)

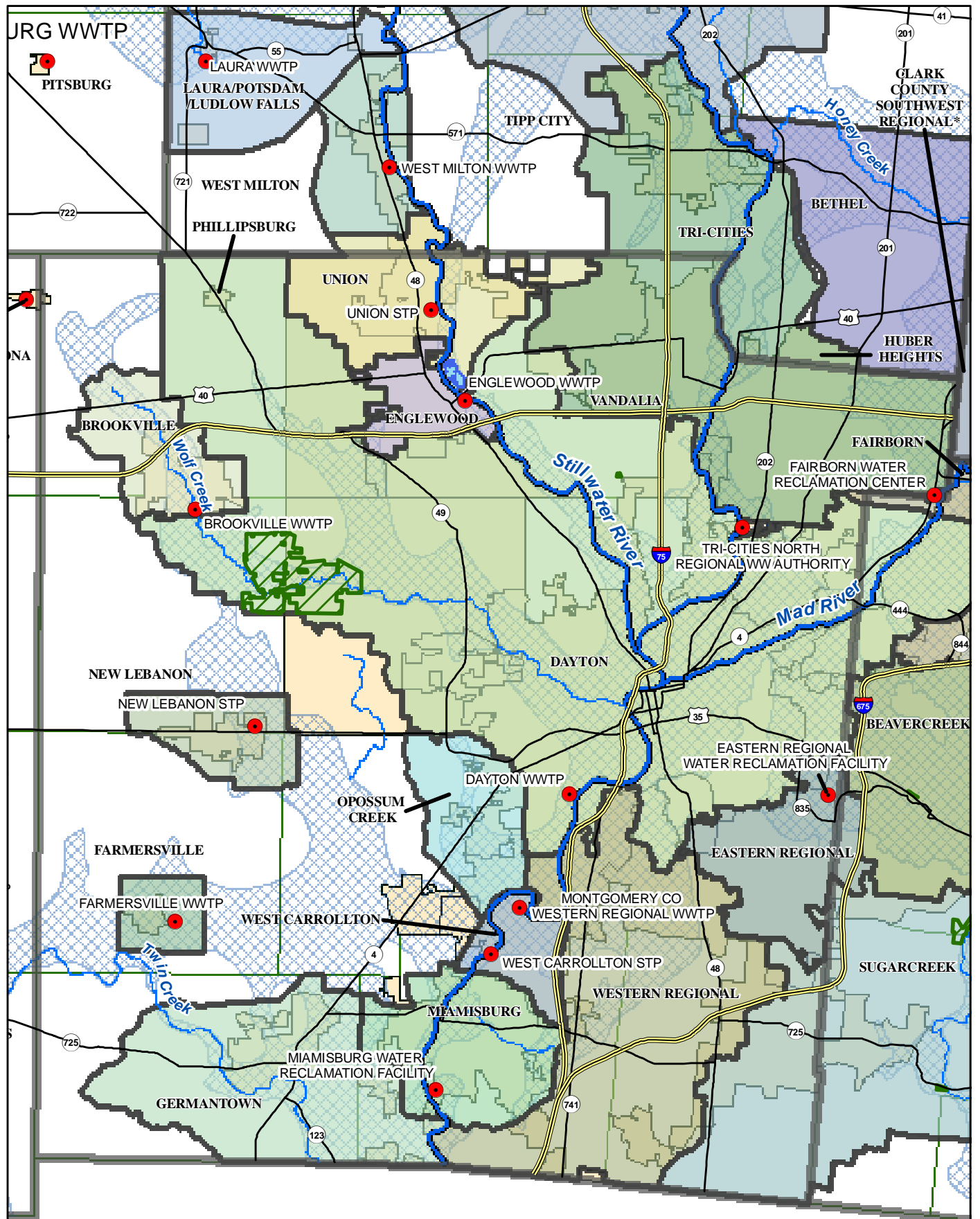
This area with wet soils and shallow bedrock conditions is known to have failing onsite systems. The sanitary sewer trunk line located nearby may or may not have available capacity to serve this area.

D.4 PUBLIC WASTEWATER TREATMENT MANAGEMENT AGENCIES

A listing of the FPAs, DMAs and municipal WWTPs within Montgomery County is presented in **Table D-3**. The locations of FPAs, existing municipal point sources, sensitive groundwater aquifer, and other unique features of Montgomery County are shown in **Figure D-3**.

Table D-3. Summary of FPAs, DMAs, and WWTPs in Montgomery County

Facilities Planning Area (FPA)	Primary DMA		Secondary DMA(s)	Area(s) Serviced (p = portion)	Design Capacity (mgd)	Ave. Daily Flow (mgd)	Receiving Waterway
	Owner / Operator	Wastewater Designation					
Brookville	City of Brookville	Brookville Wastewater Treatment Facility		City of Brookville	1.2	.65	Wolf Creek
Dayton	City of Dayton	Dayton Wastewater Treatment Works	Village of Philipsburg	City of Dayton, Village of Philipsburg	x	x	Great Miami River
Eastern Regional, Montgomery County	Montgomery County	Eastern Regional Water Reclamation Facility	City of Kettering City of Dayton Greene County	City of Kettering (p), City of Dayton (p), Greene County (p)	13	7.69	Little Beaver Creek
Englewood	City of Englewood	Englewood WWTP		City of Englewood	2.5	1.46	Stillwater River
Farmersville	Village of Farmersville	Farmersville WWTP		Village of Farmersville	.225	.11	Unnamed Tributary of Little Twin Creek
Franklin	Village of Carlisle						
Germantown	City of Germantown						
Miamisburg	City of Miamisburg	Miamisburg Water Reclamation Facility		City of Miamisburg, Miami Township (p)	4.9	2.52	Great Miami River
Montgomery County, Unincorporated	Board of Health – Dayton and Montgomery County						
	Montgomery County SWCD						
New Lebanon	Village of New Lebanon	New Lebanon Sewage Treatment Plant		Village of New Lebanon	0.8	0.3	Bear Creek
Tri-Cities	Tri-Cities North Regional Wastewater Authority	Tri-Cities North Regional Wastewater Treatment Works	City of Huber Heights City of Tipp City City of Vandalia	City of Huber Heights, Miami County (p), City of Tipp City, City of Vandalia	11.2	8.37	Great Miami River
Union	City of Union	City of Union WWTP		City of Union	x	x	Unnamed Tributary of Stillwater River
Vandalia	City of Vandalia						
West Carrollton	City of West Carrollton	West Carrollton Sewage Treatment Plant		City of West Carrollton	1.4	13	Great Miami River
Western Regional, Montgomery County	Montgomery County	Western Regional Water Reclamation Facility	City of Dayton City of Kettering City of Oakwood City of Springboro City of West Carrollton	City of Dayton (p), City of Kettering (p), Montgomery County (p), City of Oakwood (p), City of Springboro	20	14.1	Great Miami River
Clark County Southwest Regional	Clark County						



- POTW
- Major Stream
- Waterbodies
- Sole Source Aquifer
- Interstate
- State/US Highway
- River
- Park Districts
- Township Boundary
- Facility Planning Area
- Municipal Boundary



Locations of Montgomery County FPAs and WWTPs
Figure D-3

*Note: The Clark County Planning Commission is responsible for land use planning with Clark County

D.5 OTHER PERMITTED POINT SOURCES

The facilities listed in **Table D-4** have been issued NPDES permits for discharging wastewater in Montgomery County.

Table D-4. Industrial and Minor Wastewater Dischargers in Montgomery Co.

Type of Discharge	Facility
Industrial	Dayton Power & Light Co OH Hutchings Station
Industrial	US DOE Mound Site
Industrial	Appleton Papers Inc. West Carrollton Mill
Industrial	W Carrollton Parchment Co
Industrial	General Motors Corp Moraine Utility Services
Minor	Jefferson Township Junior High Elementary
Industrial	Tenneco Automotive Operating Co Inc.
Industrial	Stony Hollow Landfill Inc.
Industrial	Dayton History-Kettering Family Education Center
Industrial	Oakwood Water Softening Plant No 1
Industrial	Oakwood Water Softening Plant No 2
Industrial	Miami Valley Hospital
Minor	Voyager Village MHP
Industrial	DP & L Co Office Building
Minor	Dayton City
Minor	Historic Montgomery Co Courthouse
Minor	Schuster Performing Arts Center
Minor	Westminster Presbyterian Church
Minor	Performance Place
Industrial	Creative Technology Accelerator
Industrial	Flowserve Corp Service and Repair Division
Industrial	Home City Ice Co
Industrial	Behr Dayton Thermal Products
Industrial	BP Products North America Dayton Terminal
Industrial	Gem City Chemicals Inc.
Industrial	Gayston Corp
Industrial	DAP Inc Wassall USA Holdings Inc.
Industrial	APS Materials Inc.
Industrial	Cargill Inc. Dayton
Industrial	Tate & Lyle Citric Acid
Minor	Brookville Lake Estates MHP
Minor	Jacks Lane Subdivision WWTP
Minor	Dominion Ministries International
Industrial	Timber Lanes

Industrial	Anchor Fabricators Inc.
Industrial	Martin Marietta Materials - Phillipsburg Limestone
Industrial	Electrical Power Systems - Vandalia
Industrial	Wright Bros Aero Inc.
Industrial	Delphi Thermal Systems Vandalia Operations
Industrial	Stevens Aviation Co
Industrial	Dayton International Airport Terminal
Industrial	UPS-Cartage Services Dayton Hub
Industrial	Miller Bros Gravel Inc.

D.6 MONTGOMERY COUNTY PRESCRIPTIONS

Other than the generic prescriptions that applicable to all counties, there are no specific actions prescribed by Ohio EPA that are applicable in Montgomery County.

D.7 MONTGOMERY COUNTY RECOMMENDATIONS

This section summarizes the specific Ohio EPA recommended actions for Montgomery County.

D.7.1 Ohio EPA Recommendations (Stillwater River TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2010 Stillwater River Watershed TDML Report.

Regulatory

- Phosphorus limits for specific NPDES dischargers where aquatic life use attainment downstream of the effluent is impaired
- Any new requirements that may be developed for household sewage treatment systems (statewide)
- Sewage sludge disposal standards to regulate sludge application rates (statewide)
- Phase I and II stormwater requirements

Non-Regulatory

- Incorporation of the recommendations of the Stillwater River Watershed TMDL into the watershed action plan
- The Stillwater Watershed Joint Board of Supervisors to promote the watershed action plan and other activities contributing to the goals of the TMDL project
- Periodic stream monitoring to measure progress

Incentive-Based

- 319-funded projects for the entire Stillwater watershed which support the goals of the TMDL
- 319-funded (in part) watershed coordinator to promote watershed improvement activities
- various loan opportunities for WWTP, septic system, agriculture practices and riparian/habitat improvements
- A pilot program to test tying conservation payments to performance standards for reducing loads in impaired stream segments with 10-15 farmers

D.7.2 Ohio EPA Recommendations (Upper Little Miami TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2002 Upper Little Miami River Watershed TDML Report.

Regulatory

- Basin wide phosphorus limit of 1 mg/l for NPDES dischargers
- Basin wide ammonia nitrogen, dissolved oxygen and CBOD limits for NPDES dischargers

Non-Regulatory

- Finalization of a proposed implementation plan
- The upper LMR Watershed Improvement Group and other non profit groups to promote implementation plan and other activities contributing to the goals of the TMDL project
- Periodic stream monitoring to measure progress

Incentive-Based

- 319-funded projects for the entire LMR basin which support the TMDL goals
- 319 funded (in part) watershed coordinator to promote watershed improvement activities
- Various loan opportunities for WWTP, septic system and riparian/habitat improvements

D.7.3 Ohio EPA Recommendations (Mad River TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2010 Mad River Watershed TDML Report.

Regulatory

- Recommended effluent limits are applied to the appropriate NPDES permit holders
- Implement Combined Sewer Overflow (CSO) controls through provisions included in NPDES permits and by using orders and consent agreements when appropriate
- Storm Water Program
- 401 Water Quality Certification Program

- Wetland Protection Program
- Enforcement Program
- 208 Program (State Water Quality Management Plans)
- Nonpoint Source Program

Non-Regulatory

- Work with watershed groups active in the Mad River Basin

Incentive-Based

- Section 319(h) grants for projects that eliminate or reduce water quality impairments caused by nonpoint sources of pollution
- 319 funding to implement statewide nonpoint source program to address nonpoint sources of pollution

D.7.4 Ohio EPA Recommendations (Twin Creek TMDL)

The following recommendations were included in Ohio EPA's 2010 Twin Creek TDML Report:

- Failing or poorly operating home sewage treatment systems (HSTs) should be inspected and improved in rural, urban and developing areas by the county health departments.
- Sediment flowing into streams is a concern in both agricultural and developing areas. Controls include reducing erosion with cover crops or conservation tillage; providing buffers along stream banks; identifying concentrated flow paths from agricultural fields and implementing site-specific practices to reduce sources of sediment and nutrient load; and adopting measures that maintain stream stability during land disturbance activities such as stream drainage maintenance.
- Nutrient loading from livestock operations and agriculture chemicals would be abated by conservation and management practices promoted by the USDA Natural Resource Conservation Service. Suggestions include adoption of phosphorus index and nitrogen index strategies to address nitrogen leaching and phosphorus concentration buildup on agricultural land.
- Agricultural producers are encouraged to buffer streams near crop land using filter strips and streamside vegetation. This will help to filter sediment and nutrients out of runoff and will provide instream shade and habitat to reduce temperatures, thereby increasing dissolved oxygen content and reducing algae blooms.
- Agricultural producers are encouraged to participate in wetland restoration in areas of land that consistently retain water. Wetlands are a natural filtering mechanism for nutrients and sediment.
- Residential, commercial and other urban areas can reduce overland loading of nutrients by practicing better timing and rate of fertilizer application.

Appendix E. Greene County

E.1 DESCRIPTION AND LOCATION

Greene County is located in the southeastern portion of the Miami Valley Region as shown in **Figure E-1** and encompasses approximately 426 square miles, or 18% of the planning area.

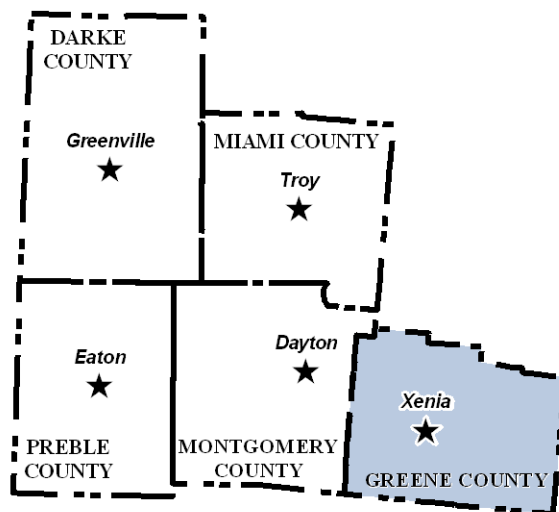


Figure E-1. Greene County Location Map

Greene County is a county in transition experiencing considerable population and physical growth, particularly in the western half of the county, within the Dayton Metropolitan Statistical Area. The City of Beavercreek is the largest municipality in terms of size and population. The City of Xenia is the county seat and is the third largest municipality in terms of population. Areas in the County to the north, south and east of the City of Xenia are rural in character with a majority of land used for farming. Wright Patterson Air Force Base is in the northwestern corner of the county. Greene County also has several natural open space areas located along river and stream corridors designed for recreational use and preservation.

E.1.1 Communities within the County

Although there are many communities within Greene County, it is not heavily populated and the most recent 20-year population projections for the area show some growth. The largest town in Greene County is Beavercreek. The county seat is Xenia. The administrative boundaries within this area are listed in **Table E-1**. Watershed groups active in Greene County are listed in **Table E-2**.

Table E-1. Administrative Boundaries within Greene County

Townships		Incorporated Communities	
Bath	New Jasper	Beavercreek	Huber Heights (part)
Beavercreek	Ross	Bellbrook	Jamestown
Caesarscreek	Silvercreek	Bowersville	Kettering (part)
Cedarville	Spring Valley	Cedarville	Spring Valley
Jefferson	Sugarcreek	Centerville (part)	Xenia
Miami	Xenia	Clifton (part)	Yellow Springs
		Fairborn	

Table E-2. Watershed Groups in Greene County³⁸

Watershed Group	Watershed(s)
B-W Greenway Community Land Trust	Upper Little Miami and Lower Mad River
Beaver Creek Wetlands Association	Beaver Creek
Greenacres Water Quality Project	Little Miami, Mill Creek, Great Miami, Ohio
Little Miami Incorporated	Little Miami
Little Miami River Partnership	Little Miami River
Miami Conservancy District	Great Miami River Watershed
Paint Creek Watershed Project	Paint Creek
Upper Little Miami and Caesars Creek 319	Caesar Creek, Little Miami

E.1.2 Other Watershed-Related Groups in Greene County

The following communities and special districts are located and/or operate within Greene County:

- Greene County Parks: Beaver Creek Wetlands, Cedar Cliff Falls, Cemex Reserve, Clifton Reserve, Constitution Park, Creekside Reserve, Creekside Trail, Crooked Creek Nature Sanctuary, Frank Seaman Park, Gladys Run Reserve, Hobson Freedom Park, Indian Mound Reserve, Jacob’s Landing, James Ranch Park, Karohl Park, Kinsey Road Mound Preserve, Little Miami Scenic Trail, Massie Creek Park, Morris Bean Reserve, Narrows Reserve, Old Town Reserve, Peterson Park, Pierce Park, Sara Lee Arnovitz Nature Preserve, Spring Lakes Park, and Twin Tower’s Park
- Five Rivers Metroparks: Huffman Reserve, Sugarcreek Metropark
- Clifton Gorge State Nature Preserve
- John Bryan State Park
- Miami University Institute of Environmental Sciences
- Ohio State University Extension Service
- Greene County Soil and Water Conservation District (SWCD)

³⁸ http://ohiowatersheds.osu.edu/groups/wgp_county.php?county=Greene

- Greene County Combined Health District
- Miami Valley Regional Planning Commission
- Miami Conservancy District

E.2 WATER RESOURCES

Most of Greene County is included in the Little Miami River Basin. Major streams in this watershed include the Little Miami River, Massies Creek and the Mad River located in the northwestern portion of the County. Beaver Creek, Ludlow Creek and Jacoby Branch enter the Little Miami River from the north. The water resources in Greene County are depicted in **Figure E-2**.

E.3 LOCAL ON-SITE SEWAGE TREATMENT SYSTEM ISSUES

In the Ohio Department of Health report “Survey of Household Sewage Treatment Systems Operation and Failure Rates in Ohio” published in 2008, it was noted that better septic system management was recommended in the Upper Little Miami River watershed.

Localized areas of concern as noted by the Greene County Combined Health District, Greene County Soil and Water Conservation District and Ohio EPA are as follows:

- Bowersville Village
- Terry Acres Subdivision
- Country Acres Subdivision
- Adams Road, Castle Drive, Bath Road, Kitridge Road, Skyros Drive, Baker Road, etc.
- Old Town-US RT 68 North
- Byron and Yellow Springs-Fairfield Road
- W. Enon-Hyde Road
- Timothy Lane Subdivision, Washington and Bell Roads
- Carol-Lamont Drive
- Paintersville

E.4 PUBLIC WASTEWATER TREATMENT MANAGEMENT AGENCIES

A listing of the FPAs, DMAs and municipal WWTPs within Greene County is presented in **Table E-3**. The locations of FPAs, existing municipal point sources, sensitive groundwater aquifer, and other unique features of Greene County are shown in **Figure E-3**.

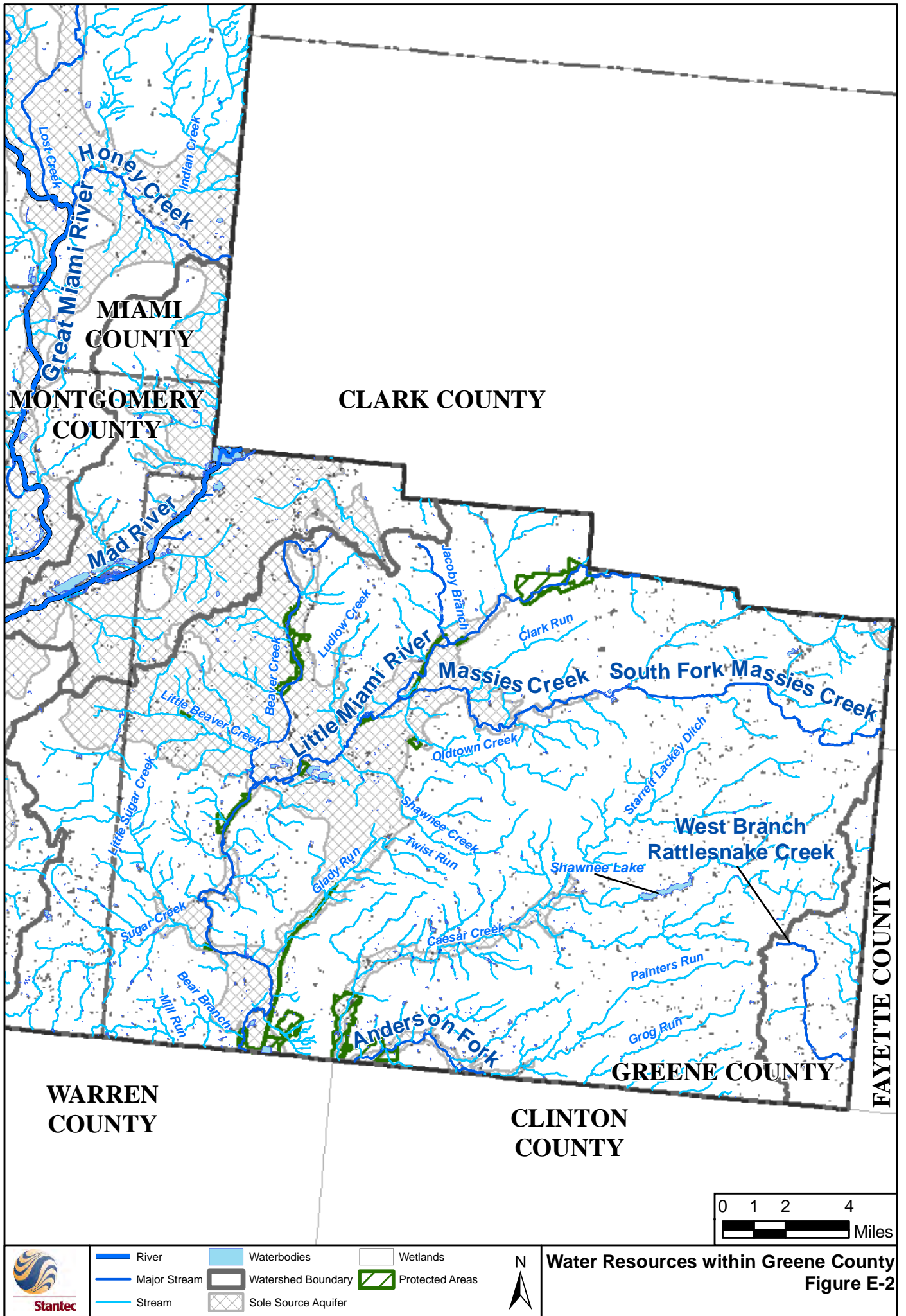
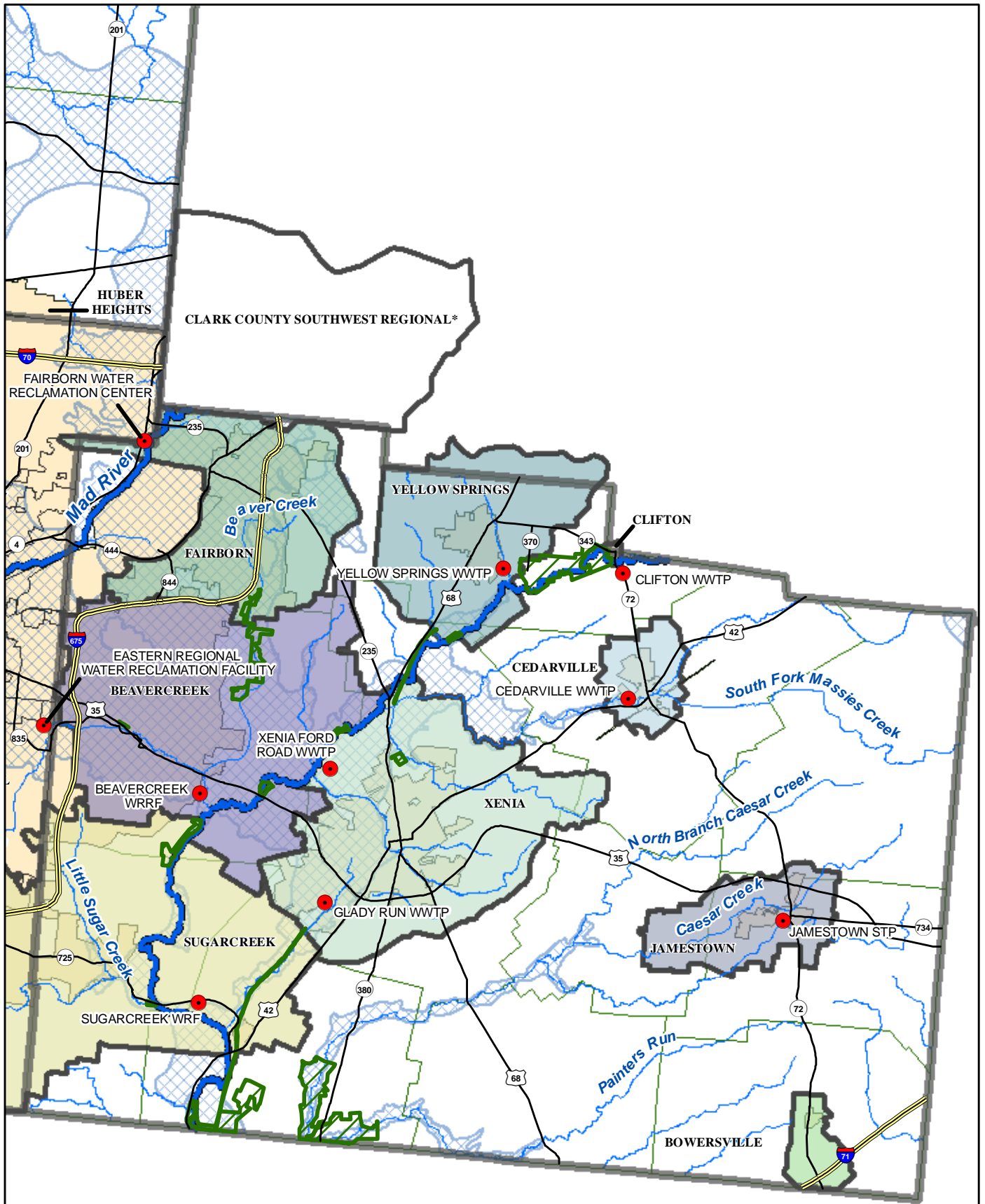
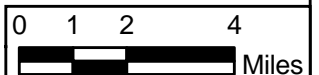


Table E-3. Summary of FPAs, DMAs, and WWTPs in Greene County

Facilities Planning Area (FPA)	Primary DMA		Secondary DMA(s)	Area(s) Served (p = portion)	Design Capacity (mgd)	Ave. Daily Flow (mgd)	Receiving Waterway
	Owner / Operator	Wastewater Designation					
Beavercreek	Greene County	Beavercreek Water Resource Reclamation Facility	City of Beavercreek City of Kettering	City of Beavercreek (p), Beavercreek Township, City of Kettering (p)	8.5	6.141	Little Miami River
Bowersville	Village of Bowersville						
Cedarville	Greene County	Cedarville Water Resource Reclamation Facility	Village of Cedarville	Village of Cedarville, Cedarville Township (p)	0.56	0.367	Little Miami River
Clark County Southwest Regional	Clark County	Southwest Regional WWTP	Miami County Greene County	Clark County (p), Greene County (p) Miami County (p), Village of Donnelville, Village of Enon (p)	2.0	1.3	xx
Clifton	Greene County	Clifton WWTP	Village of Clifton Clark County	Village of Clifton, Miami Township (p), Clark County (p)	0.029	0.013	Little Miami River
Fairborn	City of Fairborn	Fairborn Water Reclamation Center		Bath Township (p), City of Fairborn, City of Huber Heights (p), Wright State University, Wright Patterson AFB (p)	6.0	4.2	Mad River
Greene County Unincorporated	Greene County						
	Greene County Combined Health District						
	Greene County SWCD						
Jamestown	Village of Jamestown	Jamestown WWTP		Village of Jamestown, Shawnee Hills Area	0.9	0.33	Caesars Creek
Sugarcreek	Greene County	Sugarcreek Water Resource Reclamation Facility	Montgomery County	City of Bellbrook, Sugarcreek Township, City of Beavercreek (p), City of Kettering (p), City of Centerville (p), Village of Spring Valley, Spring Valley Township (p), Montgomery County (p)	9.5	5.101	Little Miami River
Xenia	City of Xenia	Ford Road WWTP		City of Xenia, Central State University	4.0	2.27	Little Miami River
		Glady Run WWTP		City of Xenia, Xenia Township	4.0	1.79	Glady Run
Yellow Springs	Village of Yellow Springs	Yellow Springs WWTP		Village of Yellow Springs	X	X	Unnamed Tributary of Yellow Springs Creek



- POTW
- Major Stream
- Park Districts
- Interstate
- State/US Highway
- River
- Sole Source Aquifer
- Municipal Boundary
- Township Boundary
- Facility Planning Area



**Locations of Greene County
FPAs and WWTPs**
Figure E-3

*Note: The Clark County Planning Commission is responsible for land use planning with Clark County

E.5 OTHER PERMITTED POINT SOURCES

The facilities listed in **Table E-4** have been issued NPDES permits for discharging wastewater in Greene County.

Table E-4. Industrial and Minor Wastewater Dischargers in Greene County

Type of Discharge	Facility
Industrial	Melvin Stone Co LLC
Industrial	Spring Valley Waterworks
Industrial	Martin Marietta - Xenia Gravel
Industrial	Unison Industries LLC Plant 2
Industrial	Unison Industries LLC Plant 1
Industrial	Central State University WTP
Industrial	Martin Marietta Aggregates Cedarville Limestone Plant
Industrial	Xenia WTP
Industrial	Cedarville University
Industrial	Morris Bean & Co Yellow Springs Plant
Industrial	Morris Bean & Co Yellow Springs Plant
Industrial	Wright Patterson Air Force Base
Industrial	Wright Patterson Air Force Base
Industrial	CEMEX Inc.
Minor	Huber Mobile Home Court

E.6 GREENE COUNTY PRESCRIPTIONS

This section summarizes specific actions that have been prescribed for Greene County.

E.6.1 Greene County Prescriptions

Greene-P1: New sewer connections or treatment capacity are permitted only in areas both within the defined Facility Planning Area and the Urban Service Boundary as depicted on the associated map. Facility Planning Area (FPA) boundaries are maintained by the Miami Valley Regional Planning Commission (MVRPC), and are updated according to a process defined in the Areawide Wastewater Facility Planning Policies, passed by the Board of Directors of MVRPC on September 1, 2005. The Greene County Urban Service Boundary (USB) is maintained by the Greene County Regional Planning and Coordinating Commission (RPCC), and is updated by a resolution of the Commission members. MVRPC will maintain the maps resulting from the overlay of the FPA and USB, as listed in this table. The presence of unsanitary conditions, as indicated by an Ohio EPA order under ORC § 6117.34 and/or an order of a Board of Health under ORC § 3707.01, is the single exception to this rule.

Greene-P2:

- Within the Urban Service Boundary (USB): The construction of new, or the replacement of existing, sewage treatment systems or non-discharging on-lot sewage treatment systems for semi-public, private, or industrial entities inside the USB shall not be permitted where a public sewer is available. Such facilities may be permitted where sewers are not available, on the condition that they will be required to tap in when public sewers become available.
- Outside of the USB: This plan presumes sewers are not available outside the USB. The construction of new, or the replacement of existing, sewage treatment systems or non-discharging on-lot sewage treatment systems for semi-public, private, or industrial entities may be permitted where sewers are not available, subject to applicable sanitary codes administered by the County Board of Health and the following condition: In the event of an USB expansion and subsequent sewer availability, such facilities may be required to tap in. Property owners are advised to assess the likelihood of such events when evaluating wastewater infrastructure investments.

Greene-P3:

- Within the Urban Service Boundary (USB): New or replacement household sewage treatment systems (HSTS) inside the USB shall not be permitted where a public sewer is available. Where sewers are not available new or replacement HSTS may be permitted if applicable sanitary codes administered by the County health department or local health department are followed, on the condition that the HSTS will be required to tap in when public sewers become available.
- Outside of the USB: This plan presumes sewers are not available outside the USB. New or replacement household sewage treatment systems (HSTS) may be permitted where sewers are not available subject to applicable sanitary codes administered by the County Board of Health and the following condition: In the event of an USB expansion and subsequent sewer availability, such facilities may be required to tap in. Property owners are advised to assess the likelihood of such events when evaluating wastewater infrastructure investments.

Greene-P4: The Greater Greene Little Miami Sewer District, organized under ORC Chapter 6117 in 1964, includes all unincorporated areas of Greene County plus the incorporated areas of Beavercreek, Bellbrook, Cedarville, Clifton, Kettering (Greene County portion) and Spring Valley. These incorporated communities have ceded their wastewater authority to the Greater Greene Little Miami Sewer District.

Greene-P5: The Village of Clifton has a package treatment facility that was put in place in 1994, and acquired by Greene County in 1998. The facility serves wastewater connections in both Greene and Clark Counties, within and outside the corporate boundary of the Village. On or about December 31, 1996 Clark and Greene Counties entered into a sewer service agreement under which the Greater Greene Little Miami Sewer District is the responsible authority for

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wastewater planning, operation and maintenance. The Greene County portion of the Village of Clifton does not lie within the Urban Service Boundary established under *Perspectives 2020*; wastewater services were established in response to a localized public health concern. This Greene County 208 Update hereby recognizes the above-referenced 1996 agreement between Clark and Greene Counties and the terms therein regarding operation, maintenance, repair and enlargement of the Clifton sewerage system (Section 1). New sewer connections or treatment capacity are permitted only in areas within the defined Facility Planning Area for Clifton, as depicted in the associated FPA map (MVRPC-25c).

Greene-P6: The Village of Bowersville has an established Facility Planning Area (FPA) from the original Areawide Water Quality Management Plan from 1982; however, to date the Village has not provided centralized wastewater treatment services. As of this plan update no area within the Bowersville FPA lies within the Greene County Urban Service Boundary. Any future plan to begin centralized wastewater collection and/or treatment within the Bowersville FPA for any reason other than unsanitary conditions as indicated by an Ohio EPA order under ORC § 6117.34 or an order of a Board of Health under ORC § 3707.01 would require revision of the USB to add the affected areas within the Bowersville FPA.

E.7 GREENE COUNTY RECOMMENDATIONS

This section summarizes the specific Ohio EPA recommended actions for Greene County.

E.7.1 Ohio EPA Recommendations (Upper Little Miami TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2002 Upper Little Miami River Watershed TMDL Report.

Regulatory

- Basin wide phosphorus limit of 1 mg/l for NPDES dischargers
- Basin wide ammonia nitrogen, dissolved oxygen and CBOD limits for NPDES dischargers

Non-Regulatory

- Finalization of a proposed implementation plan
- The upper LMR Watershed Improvement Group and other nonprofit groups to promote implementation plan and other activities contributing to the goals of the TMDL project
- Periodic stream monitoring to measure progress

Incentive-Based

- 319-funded projects for the entire LMR basin which support the TMDL goals
- 319 funded (in part) watershed coordinator to promote watershed improvement activities
- Various loan opportunities for WWTP, septic system and riparian/habitat improvements

E.7.2 Ohio EPA Recommendations (Mad River TMDL)

The following is a summary of the regulatory, non-regulatory, and incentive based actions that were included in Ohio EPA's 2010 Mad River Watershed TDML Report.

Regulatory

- Recommended effluent limits are applied to the appropriate NPDES permit holders
- Implement Combined Sewer Overflow (CSO) controls through provisions included in NPDES permits and by using orders and consent agreements when appropriate
- Storm Water Program
- 401 Water Quality Certification Program
- Wetland Protection Program
- Enforcement Program
- 208 Program (State Water Quality Management Plans)
- Nonpoint Source Program

Non-Regulatory

- Work with watershed groups active in the Mad River Basin

Incentive-Based

- Section 319(h) grants for projects that eliminate or reduce water quality impairments caused by nonpoint sources of pollution
- 319 funding to implement statewide nonpoint source program to address nonpoint sources of pollution

E.7.3 Ohio EPA Recommendations (Upper Little Miami River TMDL)

The following is a summary of the regulatory, non-regulatory and incentive based actions applicable to or recommended that were included in Ohio EPA's 2002 Upper Little Miami River TDML Report.

Regulatory:

- Basin wide phosphorus limit of 1 mg/l for NPDES dischargers
- Basin wide ammonia nitrogen, dissolved oxygen, and CBOD limits for NPDES dischargers
- New requirements for household sewage treatment systems (statewide requirement)
- Sewage sludge disposal standards to regulate sludge application rates (statewide)
- Phase I and II stormwater requirements

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Non-regulatory:

- Finalization of a proposed implementation plan
- The upper LMR Watershed Improvement Group and other non-profit groups to promote the implementation plan and other activities contributing to the goals of the TMDL project
- Periodic stream monitoring to measure progress

Incentive-based:

- 319-funded projects for the entire upper LMR basin which support the goals of this TMDL
- 319-funded (in part) watershed coordinator to promote watershed improvement activities
- Various loan opportunities for WWTP, septic system, and riparian/habitat improvements