Appendix A. Darke County

A.1 DESCRIPTION AND LOCATION

Darke County is located in the northwest portion of the Miami Valley Region as shown in **Figure A-1** and encompasses approximately 600 square miles, or 26% of the planning area.

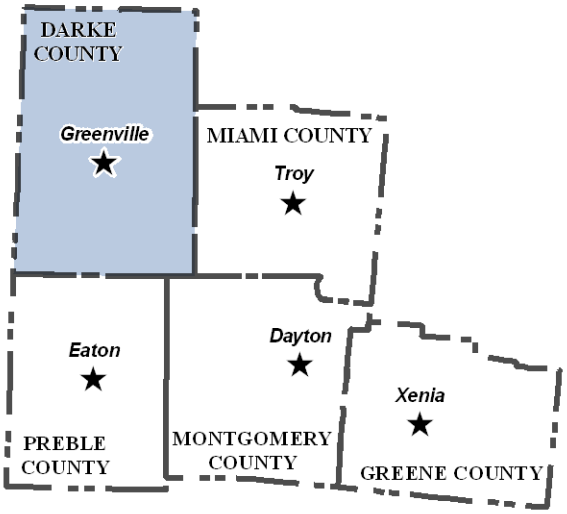

Figure A-1. Darke County Location Map

Land use within Darke County is predominately rural, with over 80% of the land used for agricultural production. Darke County has the second highest concentration of animal feeding operations (AFOs) in Ohio. The County is characterized by small villages and wide open spaces. There are also several natural open spaces along stream corridors designated for recreational use and wildlife preservation.

A.1.1 Communities in Darke County

Although Darke County includes several communities, it is not heavily populated. The most recent 20-year projections indicate that the population in Darke is expected to remain constant. Although the population projections indicate overall growth in Darke County over the next 20 years, the population within the Stillwater River watershed in the county is not anticipated to change significantly. The administrative boundaries within this area are listed in **Table A-1**.

Table A-1. Administrative Boundaries within Darke County

Townships			Incorporated Communities		
Adams	Neave	Liberty	Ansonia	Greenville	Versailles
Allen	Patterson	Mississinawa	Arcanum	North Star	Wayne Lakes
Brown	Richland	Wayne	Bradford (portion)	Osgood	Yorkshire
Franklin	Van Buren	York	Burkettsville/New Weston	Rossburg	
Greenville	Wabash	Washington	Gettysburg	Union City	
Jackson					

Watershed groups that are active in Darke County are listed in **Table A-2**.

Table A-2. Watershed Groups in Darke County[32]

Watershed Group	Watershed(s)
Grand Lake/Wabash Watershed Alliance	Grand Lake and Wabash River
Loramie Valley Alliance	Loramie Creek Watershed
Miami Conservancy District	Great Miami River Watershed
Stillwater Watershed Project	Stillwater River
Three Valley Conservation Trust	Fourmile, Sevenmile, Twin and Indian Creek Valleys
Twin Creek WAP	Twin Creek

A.1.2 Other Watershed-Related Groups in Darke County

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

- Darke County Parks: Alice Bish Park, Coppess Nature Sanctuary, Preserve, Eidson Woods Preserve, Prairie Ridge Park, Routzong Preserve, Shawnee Prairie Preserve, Tecumseh Point, Turkeyfoot Preserve, Winterrowd Wetland, Worth Family Preserve
- ODNR Drew Woods State Nature Preserve
- Miami University Institute of Environmental Sciences
- Ohio State University Extension Service
- Darke County Soil and Water Conservation District (SWCD)
- Darke County General Health District (GHD)
- Miami Valley Regional Planning Commission
- Miami Conservancy District

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

A.2 WATER RESOURCES

Major streams in Darke County include the Stillwater River that flows from its headwaters in Indiana and northern Darke County to a confluence with the Great Miami River in Dayton. The Stillwater River flows in a generally eastward direction through Darke County into western Miami County where it turns southward to Montgomery County. The major tributaries to the Stillwater River include Greenville Creek, Ludlow Creek, Painter Creek, Swamp Creek and North Fork Stillwater Creek. [33] The northwest corner of Darke County is drained by the Wabash River and Mississinawa River. **Figure A-2** provides an overview of the water resources in Darke County. Lakes in Darke County include the Wabash Conservancy District Structure Reservoir and Sugar Valley Lake.

[32] http://ohiowatersheds.osu.edu/groups/wgp_county.php?county=Darke
[33] OEPA Stillwater River Watershed TMDL 2010

A.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 that better septic system management was recommended in the Stillwater River, Twin Creek and Wabash River watersheds in Darke County.

In 2008, the Darke County GHD received a 3-year U.S.EPA Section 319 grant to develop a detailed inventory of the location and performance of on-site systems in the county and to upgrade some failing systems. An HSTS plan for the county was developed to make the county eligible for the linked deposit program. **Figure A-3** shows the location of HSTSs in Darke County.

As reported in Ohio EPA's 2009 Stillwater River TMDL Report, septic systems impact water quality in the Stillwater River watershed (which includes a significant amount of area in Darke County) through failed, faulty, or discharging systems and improper disposal of septage from septic systems. Implementation actions to address these sources of pollution would include oversight of septic tank waste haulers, identification of faulty septic systems, elimination of on-site septic systems through extension of municipal sanitary sewers, and public education about septic system maintenance.

Localized areas of concern as noted by the Darke County General Health District, Darke County SWCD and Ohio EPA are briefly described in the following sections.

A.3.1 Village of Castine

While 2000 Census data indicated that there were 46 households in the Village of Castine, Darke County GHD records indicate that only 38 permits were issued for the area. Of those permits, two were for churches (leachfields) and the remaining permits were issued to individuals. It is assumed that there are at least 10 homes without permits that are likely tank to tile systems with no secondary treatment of waste.

Existing subsurface sand filters, tank to tile systems, aerators and drywells do not meet Ohio EPA discharge standards. There are approximately 25 homes that are not meeting Ohio EPA discharge standards, equating to approximately 10,000 gallons per day of untreated sewage entering Twin Creek. Most of the leach beds are older systems with very small tanks and small leach beds. It is not known how well these systems are working or whether they have been illegally tied into the storm sewer. The majority of these homes are on very small lots that do not have adequate space for septic system installation or replacement.

Figure A-2. Water Resources in Darke County

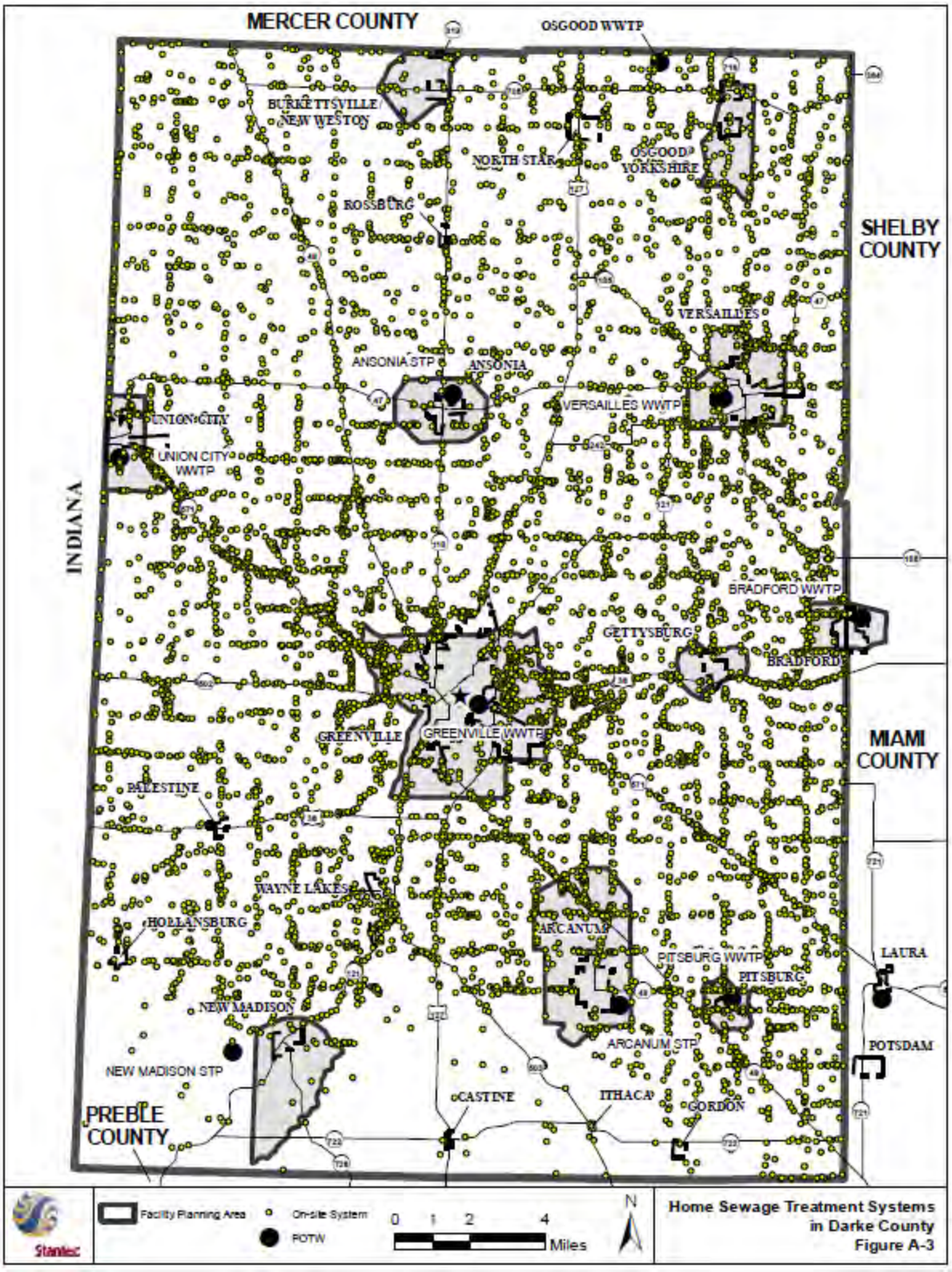

Figure A-3. Home Sewage Treatment Systems in Darke County

A.3.2 Harrison and Liberty Township

There are 92 homes along the force main route including Hollansburg Arcanum Road, Richmond Palestine Road, and Mills Road. The Darke County GHD records show there are 72 permits for HSTS for these homes. There are at least 20 homes without permitted HSTS that are likely tank to tile systems with no secondary treatment of waste.

Existing subsurface sand filters, tank to tile systems, aerators and drywells do not meet Ohio EPA discharge standards. Consequently, there are approximately 47 homes that are not meeting Ohio EPA discharge standards. This equates to approximately 18,800 gallons per day of untreated sewage based upon an estimate of 400 gallons per day per home into Lake and West Branch, which flow to Greenville Creek. Several of the leach beds are older systems with very small tanks and small leach beds. It is not known how well these systems are working or whether they have been illegally tied into field tile.

Twenty-seven (27) properties along the proposed force main routes encompass less than 2.5 acres and 62 properties encompass less than 10 acres each.

A.3.3 Glen Karn Area

Census data from the year 2000 indicated that there are 27 households in the Glen Karn area. Darke County GHD records show that 18 HSTS permits were issued for this area. Of the permits, one was issued to a local business (1 leach bed), and the remaining permits were issued to individuals. Therefore, it is assumed that there are at least 9 homes without permits that are likely tank to tile systems with no secondary treatment of waste.

Existing subsurface sand filters, tank to tile systems, aerators and drywells do not meet Ohio EPA discharge standards. Consequently, there are approximately 17 homes that are not meeting Ohio EPA discharge standards. This equates to approximately 6,800 gallons per day of untreated sewage based upon an estimate of 400 gallons per day per home into East Fork of the Whitewater River. Most of the leach beds are older systems with very small tanks and small leach beds. It is not known how well these systems are working or whether they have been illegally tied into the storm sewer. Most of these homes are on very small lots that do not have adequate room for septic system installation or replacement.

A.3.4 Village of Palestine

Census data from 2000 indicated that there were 73 households within the Village of Palestine. Darke County GHD records indicate that there are 40 permits for the area. Of these permits, three are for the Palestine Recreation Park (2 privies and 1 leach bed), one was issued to the Church of Palestine (subsurface sand filter), and one to the Liberty Township Fire House (subsurface sand filter), and the remainders were issued to individuals.

Existing subsurface sand filters, tank to tile systems, aerators and drywells do not meet Ohio EPA discharge standards. Consequently, there are approximately 45 homes that are not meeting Ohio EPA discharge standards. This equates to approximately 18,000 gallons per day of untreated sewage based upon an estimate of 400 gallons per day per home into Spring

Branch, which flows to West Branch of Greenville Creek. Most of the leach beds are older systems with very small tanks and small leach beds. It is not known how well these systems are working or whether they have been illegally tied into the storm sewer.

Palestine and Hollansburg have formed a joint sewer district to develop a regional solution, including sanitary sewers and a shared wastewater treatment facility.

A.3.5 Village of Wayne Lakes

In 2000, U.S. Census data indicated that there were 307 households within the Village of Wayne Lakes. Darke County GHD records indicate that 324 HSTS permits were issued for the Village. Many of the systems were initially holding tanks, but now discharge directly to the Lakes. There are many small septic tanks with approximately 200 lineal feet of leaching trench or small septic tanks followed by drywells. As Wayne Lakes was formally a gravel pit, the effluent passes through the soil too quickly for adequate treatment and leaches to the Lakes. The Lakes flow into Mud Creek, which then flows into Greenville Creek. Water quality impacts have been observed in the Lakes.

Existing subsurface sand filters, tank to tile systems, aerators and drywells do not meet Ohio EPA discharge standards. According to the GHD, there are approximately 136 homes that are not meeting Ohio EPA discharge standards. This equates to approximately 54,400 gallons per day of untreated sewage based upon an estimate of 400 gallons per day per home into Mud Creek. Most of the leach beds are older systems with very small tanks and small leach beds. It is not known how well these systems are working or whether they have been illegally tied into the lakes. Most of the homes in the area are located on very small lots that do not have adequate space for septic system installation or replacement.

In 2020 and 2021 the Village of Wayne Lakes worked with Darke County, Village of New Madison and other funding partners to plan and design a sanitary sewer system for the village. The plan includes a septic tank effluent pump (STEP) sanitary sewer collection system, force main and treatment service agreement with the Village of New Madison. By the fourth quarter of 2021 financing applications were submitted as well as the permit to install application to Ohio EPA. The system is expected to be fully implemented by 2025.

A.3.6 Villages of Gordon and Ithaca

As reported in 2000 Census data, there were 78 households in the Village of Gordon and 28 households in the Village of Ithaca. Darke County GHD records indicate that 59 permits were issued for the Village of Gordon and 38 in the Village of Ithaca. Of those permits, two were issued for commercial properties (1 aerator with upflow filter, 1 leachfield), three were issued to churches (2 subsurface sand filters, 1 leachfield), one for the cemetery (1 subsurface sand filter) and the remainder of permits were issued to individuals. Therefore, it is assumed that there are at least 25 homes without permits that are likely tank to tile systems with no secondary treatment of waste.

Existing subsurface sand filters, tank to tile systems, aerators and drywells do not meet Ohio EPA discharge standards. According to the GHD, there are approximately 57 homes that are

not meeting Ohio EPA discharge standards. This equates to approximately 22,800 gallons per day of untreated sewage based upon an estimate of 400 gallons per day per home into Millers Fork. Most of the leach beds are older systems with very small tanks and small leach beds. It is not known how well these systems are working or whether they have been illegally tied into the storm sewer. The majority of these homes are on very small lots that do not have adequate space for septic system installation or replacement.

Gordon and Ithaca are working together to develop a regional solution.

A.3.7 Villages of Yorkshire, Osgood and North Star

Currently, the villages of Yorkshire, Osgood and North Star in northern Darke County have no central sewer service. Due to the age of most of the properties, most of the sewage systems will not meet current health department standards. Replacing failing systems with new systems is not an option in most cases, as most of the lot sizes are not large enough to allow for a modern on-site wastewater disposal system configuration.

All three villages are currently developing plans to install central sewer systems, and are working together to construct a lagoon-type WWTP. The proposed treatment plant would receive the wastewater from the three villages, along with a portion of the surrounding areas outside of village limits. The proposed facilities are depicted in **Figure A-5**. The proposed collection system and WWTP projects are needed to abate a long standing environmental hazard, where inadequately-treated wastewater is ultimately discharged to an unnamed tributary in the Upper Loramie Creek Watershed.

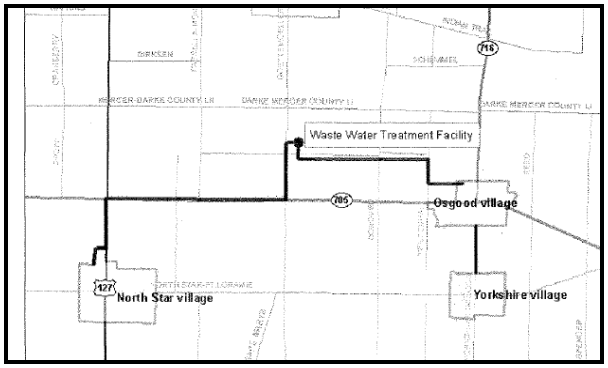

Figure A-5. Proposed Regional Wastewater Facilities to Serve North Star, Osgood and Yorkshire Villages in Darke County [34]

A.4 PUBLIC WASTEWATER TREATMENT MANAGEMENT AGENCIES

A listing of the FPAs, DMAs and municipal WWTPs within Darke County is presented in **Table A-3**. The locations of FPAs, existing municipal point sources, sensitive groundwater aquifer, and other unique features of Darke County are shown in **Figure A-6**.

[34] Ohio EPA, Draft Finding of No Significant Impact, Village of Yorkshire Sanitary Sewer System, August 27, 2010.

Table A-3. Summary of FPAs, DMAs, and WWTPs in Darke 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					
Ansonia/Rossburg	Village of Ansonia	Ansonia Sewage Treatment Plant	Village of Rossburg	Village of Ansonia, Village of Rossburg	0.35	.047	Stillwater River
Arcanum	Village of Arcanum	Arcanum Sewage Treatment Plant		Village of Arcanum	0.4	x	Sycamore Ditch to Painter Creek
Burkettsville/New Weston	Village of Burkettsville	n/a					
Darke County Unincorporated	Darke County	Stillwater Golf Estates Wastewater Treatment Works			x	x	Unnamed Tributary of the Stillwater River
		Rolin Acres Subdivision			x	x	Boyd Creek
	Darke County General Health District						
	Darke County SWCD						
Gettysburg	Village of Gettysburg						
Greeneville	City of Greeneville	Greeneville WWTP		City of Greeneville	3.5	2.2	Greeneville Creek
New Madison	Village of New Madison	New Madison Sewage Treatment Plant	Village of Wayne Lakes	Village of New Madison	0.13	x	East Fork of the Whitewater River
Osgood, Yorkshire, North Star	Village of Osgood	Osgood WWTP	Village of North Star Village of Yorkshire	Villages of Osgood, North Star, Yorkshire	0.122	x	Brandewie Ditch
Palestine-Hollansburg	Palestine-Hollansburg Sewer District		Village of Palestine Village of Hollansburg	Villages of Paletine and Hollansburg, Glen Karn			
Pitsburg	Village of Pitsburg	Pitsburg Wastewater Treatment Works		Village of Pitsburg	0.095	x	Ludlow Creek
Union City	Village of Union City	Union City Wastewater Treatment Works		Village of Union City	x	x	Unnamed Tributary of Gray Branch
Wayne Lakes	Village of Wayne Lakes	New Madison Sewage Treatment Plant		Village of Wayne Lakes (collection only)	n/a		East Fork of the Whitewater River
Versailles	Village of Versailles	Versailles Sewage Treatment Plant		Village of Versailles	3.5	0.75	Swamp Creek

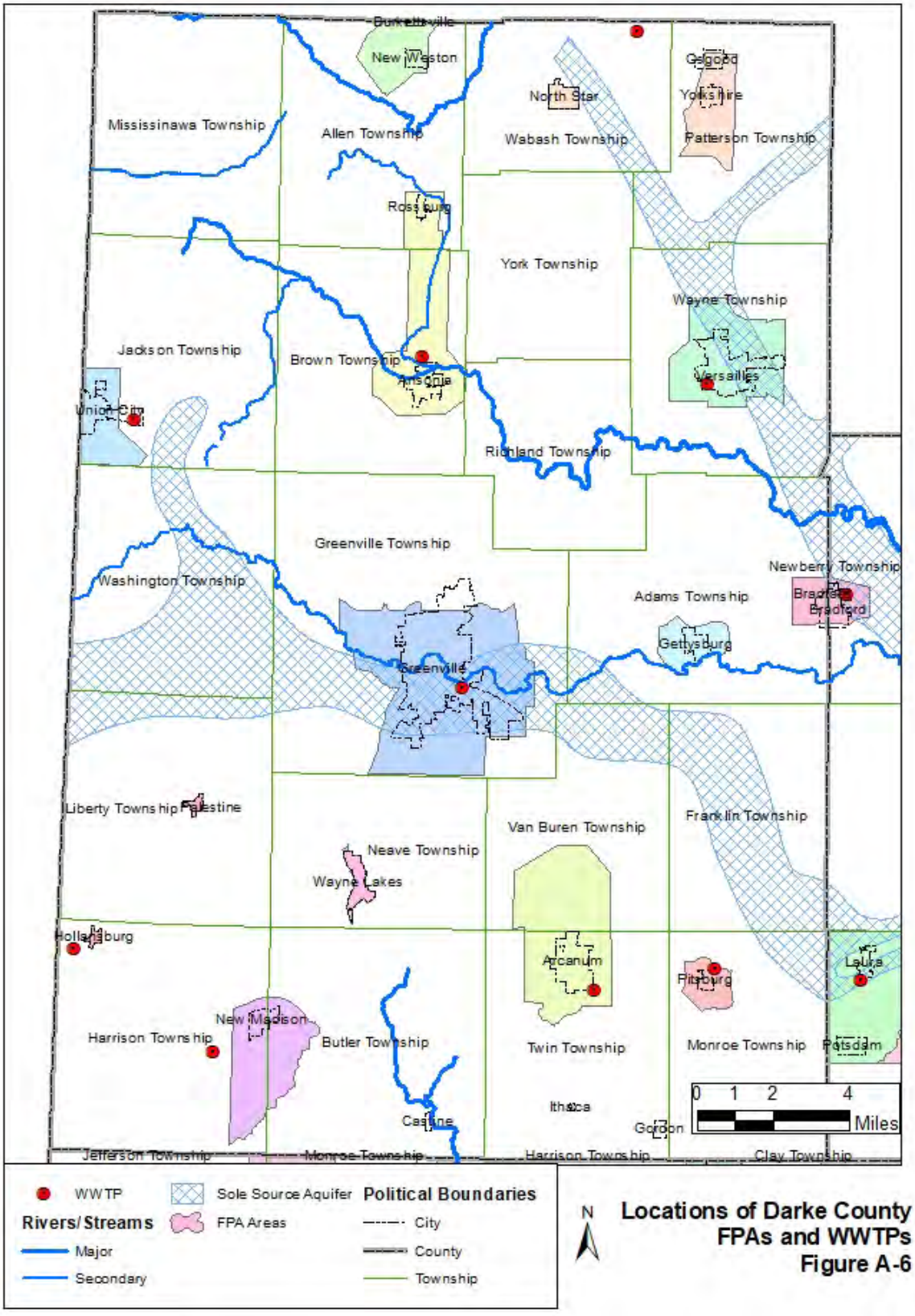

Figure A-6. Locations of Darke County FPAs and WWTPs

A.5 OTHER PERMITTED POINT SOURCES

The facilities listed in **Table A-4** have been issued NPDES permits to discharge wastewater in Darke County.

Table A-4. Industrial and Minor Wastewater Dischargers in Darke County

Type of Discharge	Facility
Minor	Arrowhead Campground
Industrial	Shamrock Materials Ft Jefferson Limestone
Minor	Sherwood Forest MHP
Minor	Darke Co Home
Minor	Darke Co Criminal Justice Center
Industrial	Markwith Tool Co Inc.
Minor	Greenville Country Club
Industrial	Foureman Sand & Gravel Inc.
Minor	Wildcat Woods Campground
Minor	Northtowne Apartments
Minor	Woodland Heights Elem School
Minor	Stillwater Golf Estates
Minor	Mississinawa Valley Local School District Office
Minor	Cottonwood Lakes Campground
Minor	Midwest Poultry Service Sunny Side Farms

A.6 DARKE COUNTY PRESCRIPTIONS

This section summarizes specific actions prescribed by Ohio EPA that are applicable in Darke County.

A.6.1 Ohio EPA Prescribed Actions (Twin Creek TMDL)

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

Manage nutrients in agricultural areas to reduce runoff

- Develop and improve nutrient management plans to address site-specific resource concerns
- Implement NRCS 633 standards for winter application of manure
- Plant winter cover crops to provide manure application sites
- Install tile drainage control structures
- Restore and use wetlands to filter runoff, remove nutrients

Improve erosion and sediment control in all areas

- Practice conservation tillage on row crop farms
- Install filter strips along all agricultural tributaries

- Restore and utilize wetlands to filter runoff and remove sediments
- Establish and protect riparian buffers on streams
- Utilize bank erosion control structures where appropriate

Eliminate bacteria problems

- Improve planning for environmentally sustainable manure management at livestock and poultry production facilities
- Reduce home sewage treatment system failures
- Educate citizens about proper maintenance of home sewage treatment systems

A.7 DARKE COUNTY RECOMMENDATIONS

This section summarizes the specific actions that are recommended by Ohio EPA in Darke County.

A.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

A.7.2 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 (HSTSs) 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 B. Preble County

B.1 DESCRIPTION AND LOCATION

Preble County is located in the southwest portion of the Miami Valley Region as shown in **Figure B-1** and encompasses approximately 427 square miles, or 18% of the planning area.

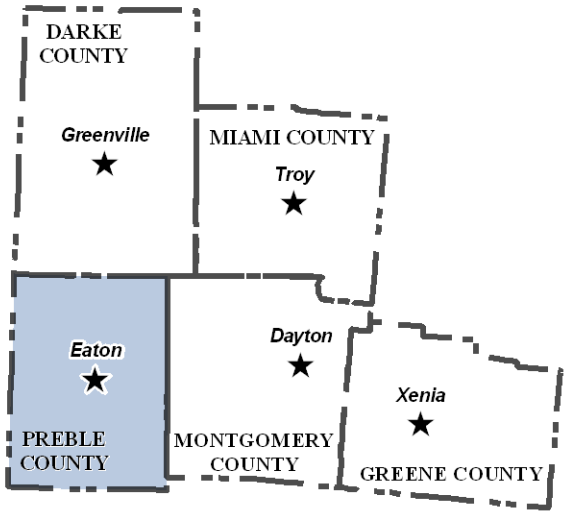

Figure B-1. Preble County Location Map

Land use within Preble County is predominately row crop agriculture for corn, soybeans, and winter wheat with some livestock production. The county is characterized by small villages and wide open spaces. There are also several natural open spaces along stream corridors designated for recreational use and wildlife preservation.

B.1.1 Communities in Preble County

There are many communities within Preble County, although it is not heavily populated and the most recent 20-year population projections for the area show no net growth. The largest town in the county is Eaton, the county seat. The administrative boundaries within this area are listed in **Table B-1**.

Table B-1. Administrative Boundaries within Preble County

Townships		Incorporated Communities	
Dixon	Israel	Camden	New Paris
Jackson	Lanier	College Corner	West Manchester
Jefferson	Monroe	Eaton	West Alexandria
Gasper	Sommers	Eldorado	West Elkton
Gratis	Twin	Gratis	West Manchester
Harrison	Washington	Lewisburg	Verona

Watershed groups that area active in Preble County are listed in **Table B-2**.

Table B-2. Watershed Groups in Preble County[35]

Watershed Group	Watershed(s)
Miami Conservancy District	Great Miami River Watershed
Three Valley Conservation Trust	Fourmile, Sevenmile, Twin and Indian Creek Valleys
Twin Creek WAP	Twin Creek

B.1.2 Other Watershed-Related Groups in Preble County

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

- Preble County Park District's Allen & Adaline Garber Nature Center
- Ohio Department of Natural Resources Hueston Woods State Nature Preserve
- Miami University Institute of Environmental Sciences
- Ohio State University Extension Service
- Preble County Soil and Water Conservation District
- Preble County Health Districts
- Miami Valley Regional Planning Commission
- Lake Lakengren, a private lake community

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

B.2 WATER RESOURCES

Major streams that flow through Preble County include Four Mile Creek, Sevenmile Creek and Twin Creek which are tributary to the Great Miami River, and the East and North Fork headwaters of the Whitewater River which flows west from the region into Indiana as shown in **Figure B-2**.

Acton Lake is partially located within the southwest corner of the county near College Corner and serves as a recreational water body for the Hueston Woods State Park. Lakengren Lake is also located in Preble County.

The Preble County SWCD identified severe stream bank erosion along Twin Creek (main stem), Bantas Fork (main stem) and Aukerman Creek. The SWCD has also identified a potential stormwater related issue with a rest stop along Interstate 70 that has a significant impervious surface area.

[35] http://ohiowatersheds.osu.edu/groups/wgp_county.php?county=Preble

Figure B-2. Water Resources within Preble County

B.3 LOCAL ON-SITE SEWAGE TREATMENT SYSTEM ISSUES

The Preble County Health District reported that the number of sewage permits issued in Preble County through July 2, 2010 is 10,767. The number of aeration systems with off-lot discharges permitted in the County is 373.

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 that better septic system management was recommended in the Sevenmile Creek, Twin Creek headwaters to above Bantas Fork and Twin Creek above Bantas Fork to the Great Miami River. As reported in Ohio EPA's 2010 TMDL Report, the predominant pathogen load to studied streams in the Twin Creek basin is coming from failing home sewage treatment systems (HSTS).

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

- West Sonora (Harrison Township)
- New Lexington (Twin Township)
- Glenwood (Twin/Lanier Township)
- New Hope (Jackson Township)
- New Westville (Jackson Township)
- Fairhaven (Israel Township)
- Morning Sun (Israel Township)

Additionally, it was noted that many older rural housing plats in Twin Township may have potentially failing HSTS.

B.4 PUBLIC WASTEWATER TREATMENT MANAGEMENT AGENCIES

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

Table B-3. Summary of FPAs, DMAs, and WWTPs in Preble 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					
Camden	Village of Camden	Camden Sewage Treatment Plant		Village of Camden	0.25	x	Fleisch Run
College Corner		<drains to State of Indiana>					Paint Creek
Eaton	City of Eaton	Eaton WWTP		City of Eaton	1.9	1.4	Four Mile Creek
Eldorado	Village of Eldorado	Eldorado WWTP		Village of Eldorado	0.10		Price Creek
Gratis	Village of Gratis	Gratis WWTP		Village of Gratis	0.119	0.083	Twin Creek
Lakengren	Lakengren Water Authority	Lakengren Wastewater Treatment Works		Gasper Township – Lakengren Subdivision	0.60	0.30	Seven Mile Creek
Lewisburg	Village of Lewisburg	Lewisburg WWTP		Village of Lewisburg	0.261	0.10	Twin Creek
New Paris	Village of New Paris	New Paris Sewage Treatment Plant		Village of New Madison	0.26	0.13	Elkhorn Creek
Preble County Unincorporated	Preble County	Preble Co. Sanitation District #2			x	x	Unnamed Tributary to Twin Creek
	Preble County	Preble Co. Sanitation District #3			x	x	Unnamed Tributary of Elk Creek
	Preble County Health Department						
	Preble County SWCD						
Verona	Village of Verona	Verona WWTP		Village of Verona	0.085	0.03	Swamp Creek
West Alexandria	Village of West Alexandria	West Alexandria WWTP		Village of West Alexandria, Lanier Township	0.03	0.015	Twin Creek
West Elkton	Village of West Elkton						
	Village of West Manchester	West Manchester Wastewater Treatment Works		Village of West Manchester	x	x	Twin Creek

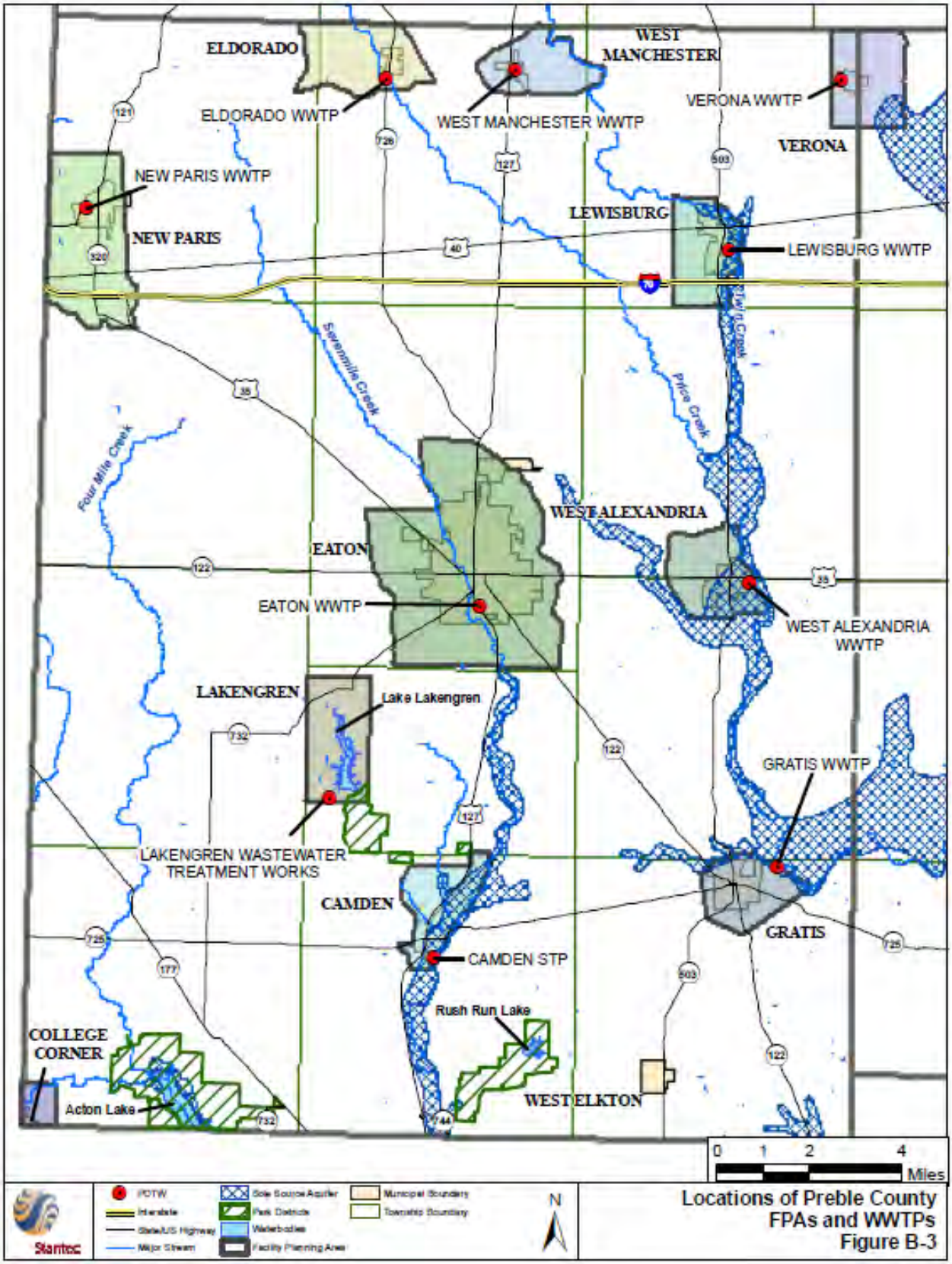

Figure B-3. Locations of Preble County FPAs and WWTPs

Localized issues of concern as noted by the Preble County Health District, Preble County Soil and Water Conservation District and/or the Ohio EPA Southwest District Office are as follow:

- Small package plant in area near Cedarwood and Pinewood Drive (Twin Township)
- Failing wastewater systems at Deer Run Campground
- I-70/ State Route 127 interchange: 2 truck stops with package plants

B.5 OTHER PERMITTED POINT SOURCES

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

Table B-4. Industrial and Minor Wastewater Dischargers in Preble County

Type of Discharge	Facility
Industrial	Preble County Sanitary Landfill
Industrial	Eaton PWS Black Plant
Industrial	North American Nutrition Co Inc
Industrial	P&G Pet Care - Lewisburg Prod Supply
Industrial	Dayton Travel Center
Minor	Creekside Village MHP
Minor	Hueston Woods State Park Beach & Marina
Minor	Hueston Woods State Park Lodge & Cabins WWTP
Minor	National Trail High School
Minor	New Paris Convenient Foods
Minor	ODOT Parks 8-39 and 8-40 WWTP
Minor	Pilot Travel Center LLC 286

Localized issues of concern as noted by the Preble County Health District, Preble County Soil and Water Conservation District and/or the Ohio EPA Southwest District Office are as follow:

- Small package plant in area near Cedarwood and Pinewood Drive (Twin Township)
- Failing wastewater systems at Deer Run Campground
- I-70/ State Route 127 interchange: 2 truck stops with package plants

B.6 PREBLE COUNTY PRESCRIPTIONS

This section summarizes specific Ohio EPA prescribed actions for Preble County.

B.6.1 Ohio EPA Prescribed Actions (Twin Creek TMDL)

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

Manage nutrients in agricultural areas to reduce runoff

- Develop and improve nutrient management plans to address site-specific resource concerns
- Implement NRCS 633 standards for winter application of manure
- Plant winter cover crops to provide manure application sites
- Install tile drainage control structures
- Restore and use wetlands to filter runoff, remove nutrients

Improve erosion and sediment control in all areas

- Practice conservation tillage on row crop farms
- Install filter strips along all agricultural tributaries
- Restore and utilize wetlands to filter runoff and remove sediments
- Establish and protect riparian buffers on streams
- Utilize bank erosion control structures where appropriate

Eliminate bacteria problems

- Improve planning for environmentally sustainable manure management at livestock and poultry production facilities
- Improve treatment at Lewisburg WWTP
- Reduce home sewage treatment system failures
- Educate citizens about proper maintenance of home sewage treatment systems

B.7 PREBLE COUNTY RECOMMENDATIONS

This section summarizes the specific Ohio EPA recommended actions in Preble County.

B.7.1 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 (HSTSs) 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.