

5.0 Non-Point Source Pollution Management

The programs for management of pollutants in Ohio's surface waters are broadly divided into point source programs and non-point source programs. Per the Clean Water Act, pollutants discharged to surface waters from an identifiable point source (pipe) must discharge under a National Pollution Discharge Elimination System (NPDES) permit. Pollution reaching surface waters from either (or both) diffuse sources or through diffuse discharges (runoff) are considered non-point sources. There are a variety of federal, state, regional and local programs in place in Ohio to manage and reduce non-point source pollution.

Though discharged from a storm water outfall (pipe) the pollution source in urban storm water is diffuse, from across impervious surfaces of the watershed; and so, urban storm water management is included in this non-point source chapter. There are many state and federal laws and programs that address urban runoff. Urban storm water is typically collected in storm water systems and discharged to surface waters through pipes. The Ohio EPA NPDES Program focuses on urban point sources and regulates storm water discharges through the MS4 program and general storm water NPDES permits.

Nonpoint source management programs under Section 319 of the CWA cover urban nonpoint source pollution as well as agricultural runoff management, and hydromodification. The Ohio EPA's TMDL program addresses both point and nonpoint sources of pollution in watersheds listed in the [Integrated Report](#) with degraded water quality.

This chapter provides a brief overview of the non-point source pollution management programs underway in the Miami Valley Region.

5.1 NPDES PERMIT STORM WATER PROGRAM

The Federal CWA prohibits the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by a NPDES permit. Initial efforts to improve water quality under the NPDES program focused on reducing pollutants in industrial process wastewater and discharges from municipal sewage treatment plants (refer to Section **Error! Reference source not found.**).

As pollution control measures for point sources (i.e., municipal and industrial wastewater treatment discharges) were implemented and refined, studies showed that more diffuse sources of water pollution were also significant causes of water quality impairment – specifically, storm water runoff draining large surface areas, such as urbanized land. In 1987, an amendment to the CWA required implementation of a comprehensive national program for addressing non-agricultural sources of storm water discharges. The NPDES Storm water Program was implemented in two phases.

Phase I – US EPA published initial permit application requirements in the *Federal Register* on November 16, 1990 that required NPDES permits for storm water discharges from the following:

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- Medium and large municipal separate storm sewer systems (MS4s) serving populations of 100,000 or greater; (note, large systems with combined storm and sanitary flows were exempted from the Phase I requirements)
- Construction activity disturbing 5 acres of land or greater¹
- Ten categories of industrial activity

Entities regulated under Phase I requirements were required to obtain coverage under an NPDES storm water permit and implement storm water pollution prevention plans (SWPPPs) or storm water management programs that utilize Best Management Practices (BMPs) which effectively reduce or prevent the discharge of pollutants into the receiving waters.

Under the Phase I requirements, any construction activity that disturbs greater than five acres (grading, clearing, excavation, or other earth moving process), requires a separate NPDES storm water permit for construction.

The City of Dayton (Montgomery County) is the only Phase I municipality within the Miami Valley Region 208 Planning Area. There are construction and industrial activities within the planning area that fall under this Phase. Construction activities are handled in accordance with the Ohio EPA Construction Storm water General Permit.

Phase II – on December 8, 1999, the USEPA promulgated the expansion of the NPDES program by requiring permits for small sized MS4s (all municipalities with populations under 100,000 per the US Census and industrial dischargers) in urbanized areas and operators of small construction sites that disturb 1 to 5 acres of land.

Ohio EPA developed two general permits that are issued to Phase II Small MS4 municipalities and a separate one for small construction sites. The Baseline General Permit allows a full 5 years for storm water management plan development and implementation. A list of jurisdictions covered by the Baseline General Permit is provided in **Table 5-1**.

In November 2004, MVRPC released a final Storm water Model Ordinance (**Appendix M**) to assist local jurisdictions in managing storm water and comply with Phase II Storm water regulations. This model addresses both storm water quantity and quality issues. Local jurisdictions were encouraged to adjust the model to fit their own regulatory frameworks and needs to safeguard against the pollution of air, stream and ponds as properties within the planning area are developed.

Operators of small construction activities are required to implement BMPs to prevent pollutant discharge into receiving waters as outlined in a general or individually issued permit. There have been approximately 3,023 Construction Storm Water General Permits issued by Ohio EPA since 2003 within the five MVRPC 208 planning counties. Additionally, there are over 60 facilities in the Region that are covered by the Industrial Storm water General Permit. Lists of

¹ Currently, permits are required for construction activity disturbing 1 acre of land or greater for all Phase 1 and 2 communities.

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general permits issued by Ohio EPA are available from the Ohio EPA website at:
<https://epa.ohio.gov/divisions-and-offices/surface-water/permitting/npdes-general-permits>

Further information on Ohio EPA's Storm Water Program is available at:
<https://epa.ohio.gov/divisions-and-offices/surface-water/permitting/stormwater-program>

The Ohio EPA Public Interest Center provides a variety of ways for the general public to stay informed about pending agency actions and decisions:
<https://epa.ohio.gov/divisions-and-offices/public-interest-center>

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Table 5-1. Jurisdictions Affected by Phase II Storm Water Regulations

County	Jurisdiction	County	Jurisdiction
Darke	City of Greenville	Montgomery	City of Brookville
Greene	City of Beavercreek		City of Carlisle (part)
	City of Bellbrook		City of Centerville (part)
	City of Centerville (part)		City of Clayton
	City of Fairborn		City of Englewood
	City of Kettering (part)		Municipality of Germantown
	City of Xenia		City of Huber Heights (part)
	Bath Township		City of Kettering (part)
	Beavercreek Township		City of Miamisburg
	Miami Township		City of Moraine
	Sugarcreek Township		City of Oakwood
	Xenia Township		Village of Phillipsburg
	Wright Patterson Air Force Base		City of Riverside
	Wright State University		City of Springboro (part)
	Miami		City of Troy
City of Piqua			City of Union (part)
City of Tipp City			City of Vandalia
City of Union (part)			City of West Carrollton
City of Huber Heights (part)			Clay Township
Municipality of West Milton			German Township
Monroe Township			Washington Township
			Wright Patterson Air Force Base
	Miami Conservancy District		

Some county Soil and Water Districts support local communities in meeting some or all of the Minimum Control Measures (MCM) required in the Phase II storm water permit.

5.2 SECTION 319 NONPOINT SOURCE MANAGEMENT PROGRAM

The CWA amendment (1987) established the Section 319 Nonpoint Source Management Program to help focus state and local nonpoint source efforts. The State of Ohio receives grant money to support a wide variety of activities under this program that includes: technical and financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects.

The Ohio grant programs are designed to provide financial assistance to local watershed stakeholders that undertake voluntary actions as opposed to regulatory mandates or permits. The Ohio 319 Program relies on Non-Point Source Implementation Strategies (NPS-IS) plans to address water quality problems. An overview of nonpoint source funding programs is available

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from the Ohio Nonpoint Source Pollution Management Plan: <https://epa.ohio.gov/divisions-and-offices/surface-water/about/ohio-nonpoint-source-pollution-control-program>

NPS-IS plans are developed by local watershed groups, soil and water conservation districts, park districts, and/or local governments. These plans are developed to identify the nature, extent and cause of water quality problems; develop an implementation plan that identifies specific actions and projects; implement BMPs; educate the effected community; and evaluate the impact of the Plan on the affected watershed. Although the majority of the planning work is completed by volunteers, grant funding is available on a competitive basis to fund NPS-IS plan development (or a portion thereof) by professional consultants.

Examples of implementation projects that have been funded through 319 grant monies include: stream restoration, low head dam removal, constructed wetlands, and agricultural best management practices incentives programs.

5.2.1 Watershed Action Plans

A watershed action plan is a stakeholder-driven comprehensive plan for protecting and improving a watershed, including an inventory of the watershed resources, identification of problems within the watershed, goals to protect the high quality waters and resources to address identified problem areas. This comprehensive planning approach was in use for several decades, but has been replaced in Ohio with NPS-IS documents, which are more streamlined and cover smaller watersheds. Below are brief summaries of Watershed Action Plans developed within the MVRPC Areawide counties prior to NPS-IS plans becoming the norm.

5.2.1.1 Stillwater River Protection Project (Darke, Miami, and Montgomery Counties)

Since its inception in 1992, the Stillwater River Watershed Protection Project has been a model for other projects in the development of watershed planning and implementation for the control of agricultural nonpoint source pollution. With the assistance of 604(b) funding², the MVRPC completed a management plan for the project. The project was then launched with the support of a joint board of supervisors drawn from the Darke County and Miami County SWCDs.

The primary source of water quality impairment in the Stillwater River watershed is agriculture. The protection program focuses on reducing the nonpoint pollutants nutrients and sediment through education and outreach efforts, and the implementation of agricultural BMPs such as buffers, fencing, alternate water sources, conservation tillage, and nutrient management.

5.2.1.2 Paint Creek Watershed Management Plan (Greene County)

The Paint Creek Watershed is comprised of 731,168.9 acres located in 9 counties: Madison, Greene, Clinton, Clark, Pickaway, Fayette, Pike, Ross, and Highland. Only a small portion of the

² The State of Ohio receives funds under Section 604(b) of CWA to carry out water quality management planning activities (under Sections 205(j) and 303 (e) of the Act). A portion of this funding is passed through to areawide planning agencies in Ohio for regional level planning work.

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watershed is contained within Greene County. This area is included the Watershed Action Plan for the Upper Half of Rattlesnake Creek, which is part of the overall Paint Creek Watershed Management Plan.

According to the WAP, this portion of the Paint Creek Watershed lacks intact, forested, riparian corridor that was found to be the primary source of water quality impairment. Other contributing factors are erosion, nutrient inputs and channel modification associated with intensive row cropping. Strategies to improve water quality in the Paint Creek Watershed include agriculture, riparian corridors, forestry, education, urban issues, and streamside management.

5.2.1.3 Wabash/Grand Lake St Mary's Watershed Action Plan (Darke County)

The Grand Lake/Wabash watershed consists of nearly 13,500 acres of lake and approximately 193,000 acres of land which primarily drains toward the Ohio River. The Grand Lake/Wabash Watershed Alliance developed a watershed action plan to address existing and potential future issues. The Wabash River begins in northern Darke County near the Mercer-Darke County Line, with only a small portion of the watershed contained in Darke County. Subsequent to this planning process, the watershed has been declared a watershed in distress by the State of Ohio, resulting in additional regulatory requirements on agricultural operations in the watershed.

The primary sources of water quality impairment in the headwaters of the Wabash River are agriculture-crop production, confined AFOs, onsite wastewater treatment systems, channelization, removal of riparian vegetation and streambank destabilization.

5.2.1.4 Twin Creek Watershed Action Plan (Darke, Preble and Montgomery Counties)

The Three Valley Conservation Trust (TVCT), a non-profit land trust, actively works to preserve streams and land in the Twin Creek watershed through permanent conservation easements and stewardship of the properties. The TVCT, in consultation with a Watershed Advisory Group (WAG) comprised of interested and agencies developed the Twin Creek Watershed Action Plan (WAP) in 2007 that addresses the watershed areas in Darke, Preble, Montgomery and Warren Counties. The WAP was updated by the Miami University Institute of Environmental Studies and submitted to Ohio EPA and ODNR in 2010.

Sources of impairment throughout the watershed were found to be caused by channelized ditches, subsurface drainage tiles directly tied to streams, little to no riparian vegetation, failing onsite wastewater treatment systems, and animal feeding operations. The WAP presents goals and strategies to address the sources.

5.2.1.5 Honey Creek/Great Miami River Watershed Action Plan (Miami and Montgomery Counties)

The Honey Creek Watershed Association (HCWA) was a non-profit organization dedicated to protecting and enhancing the quality of the watershed's water resources. In 2007, ODNR endorsed the HCWA's WAP and Inventory. The Honey Creek/Great Miami River WAP includes the entire Honey Creek watershed and a portion of the Great Miami River watershed. The planning area encompasses portions of four counties: Champaign, Clark, Miami and

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Montgomery and the following population centers: Christiansburg, Huber Heights, New Carlisle, North Dayton, Tipp City, and Vandalia.

Sources of impairment throughout the watershed were found to be caused by sediment and nutrients from extensive row-crop agriculture, channelized ditches, subsurface drainage tiles directly tied to streams, little to no riparian vegetation, failing onsite wastewater treatment systems, and animal feeding operations. The WAP presents goals and strategies to address the sources.

5.2.2 Non-Point Source Implementation Strategies (NPS-IS)

NPS-IS plans, also popularly known as 9-Element Plans are a streamlined form of watershed planning adopted by Ohio EPA to encourage more watershed planning and the development of more projects eligible for Section 319 funding. A NPS-IS is a living strategic planning document that summarizes causes and sources of impairment, establishes critical areas, identifies quantifiable objectives to address causes and sources of impairment, and describes projects designed to meet those objectives. NPS-IS plans ensure that potentially funded projects are: rooted in the best science available; located in areas that will address the worst problems; and have the administrative, evaluation, and educational components needed to make sure that the water resource will achieve as much long term benefit as possible.

Each NPS-IS is unique at the HUC-12 Watershed Assessment Unit (WAU) scale. The NPS-IS is designed to evolve as projects come and go. For a project to be eligible for Ohio EPA Section 319 Funding, a proposed project must be described in an approved 9-Element NPS-IS for the HUC-12 watershed in which the project is located. Likewise, every updated version (containing new projects, new data, and or changes to critical areas, goals and objectives) must be reviewed and approved by Ohio EPA.

As of January 2023 there are 12 approved NPS-IS reports in the MVRPC areawide counties, with additional reports in the process of preparation. The table below lists existing approved NPS-IS plans.

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Table 5-2. Approved NPS-IS Reports in MVRPC Counties

County	HUC-12 Number	HUC Name	Sponsor	Date
Darke/ Preble	050800020204	Price's Creek	Preble County SWCD	August 4, 2022
Greene/ Montgomery	050902020202	Little Beaver Creek	Little Miami Watershed Network	January 6, 2023
Greene	050902020205	Beaver Creek	Little Miami Watershed Network	January 6, 2023
	050902020301	Headwaters Anderson Fork	Warren County SWCD	September 16, 2022
	050902020302	Painters Run-Anderson Fork	Warren County SWCD	September 29, 2021
	050902020303	Mouth Anderson Fork	Warren County SWCD	October 1, 2021
	050902020401	North Branch Caesar Creek	Warren County SWCD	September 16, 2022
	050902020402	Upper Caesar Creek	Warren County SWCD	September 16, 2022
	050902020403	South Branch Caesar Creek	Warren County SWCD	September 16, 2022
	050902020404	Middle Caesar Creek	Warren County SWCD	September 16, 2022
Miami	050800010705	Garbry Creek-Great Miami River	Middle Great Miami River Watershed Alliance/ City of Piqua	October 13, 2020
Preble	050800020302	Aukerman Creek	Preble County SWCD	September 10, 2021

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5.3 Total Maximum Daily Load (TMDL) PROGRAM

Ohio's TMDL program, required under Section 303 of the Clean Water Act, develops data to support strategies and projects to improve water quality in Ohio's impaired streams, rivers and lakes. These reports are written by Ohio EPA and typically take years to develop, beginning with in-field monitoring followed by analysis and modelling based on those findings. Final approval of TMDL reports is done by US EPA. TMDL reports typically cover HUC-10 watersheds, or multiple HUC-12 watersheds in a single report. TMDL reports provide the underlying data to support development of goals, objectives and critical areas for NPS-IS plans in HUC-12 sub-watersheds.

There are US EPA-approved TMDL reports for the Upper Great Miami River, the Stillwater River, the Mad River, Twin Creek, and the Upper Little Miami River. These vary in age from the most recent (Upper Great Miami) approved in March of 2012 to the oldest (Upper Little Miami) approved in July of 2002. Ohio EPA reports TMDLs in progress for the Middle Great Miami and Fourmile Creek. Once these two are completed, nearly all areas of the MVRPC areawide counties will be covered by an approved TMDL.

Non-point source reduction measures play a significant role in the implementation of the TMDL recommendations. In urbanized watersheds, reductions in urban runoff nonpoint pollution will play a significant role in meeting the TMDL allowable loadings (refer to Section 3.2). A two tiered approach that prescribes land management practices and promotes natural channel stability are anticipated to be the most effective in obtaining nutrient and sediment load reductions. Traditional best management practices (BMPs) are recommended to be targeted at the stream segments most vulnerable to erosion during high flow events. Restoring stream habitat and maintaining channel stability will increase the nutrient and sediment assimilative capacity of streams during normal and lower flow conditions.

Specific strategies and recommended actions related to nonpoint source pollution identified in Ohio EPA's TMDL reports are presented in Appendices A through E.

5.4 AGRICULTURAL IMPACTS

The agricultural industry is a vital part of the Miami Valley region's economy, lifestyle and character. However, existing Ohio EPA data (TMDLs, 303(d) lists) indicate agricultural processes are having a negative impact on water quality in the Miami Valley Region. Statistics on the farms within each county in the Region are provided in Table 5-3.

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Table 5-3. 2017 Regional Agriculture Statistics³

County	Number of Farms	Average Area Per Farm (acres)	Land in Farms (acres)	Land in County (acres)	Percentage of County Land (%)
Darke	1,658	207	343,774	382,784	90%
Preble	1,055	202	213,476	271,504	79%
Miami	1,037	167	173,159	260,209	67%
Montgomery	781	145	113,109	295,523	38%
Greene	817	205	167,701	264,787	63%
Total	5,348	189	1,011,219	1,474,807	69%
Shelby	947	227	214,966	260,924	82%

Compared with data from 2008 (presented in previous versions of this plan) the region has fewer farm operations, of slightly smaller size, and fewer acres in farming. The most significant drop in terms of percent of land in farming occurred in Miami County (77% to 67%); this is consistent with the rate of urban and suburban development in Miami County.

This section provides an overview of the pollutants associated with the agricultural industry and programs underway to reduce the impact of the industry on the water resources of the Region.

5.4.1 Agricultural Pollutants

Sediment and siltation are significant causes of contamination of the Region's surface waters. Agricultural production practices that disturb the soil through tillage and cultivation and leave it without vegetative cover increase rates of soil erosion. Agricultural runoff is caused by rainfall and snowmelt eroding soils and carrying nutrients, pathogens, pesticides and herbicides away from the point of origin and may eventually reach surface water or groundwater resources.

Nutrients used to promote plant growth, including nitrogen, potassium, and phosphorous, enter surface waters through runoff (overland flow), run-in (directly to groundwater through porous or fractured bedrock, poorly constructed wells, etc.) or leaching (percolation). Nutrients from agriculture can accelerate algal production, which can result in increased biological activity, and lowered oxygen levels that lead to water quality conditions that cannot support life. Nitrates can also pose a human health threat when dangerous levels are exposed in a sole source drinking water supply.

Concentrated Animal Feeding Operations (CAFOs) are operations where animals such as cattle, swine, and poultry are raised in confined areas. These operations generate significant amounts of manure and process wastewater which contain a variety of pollutants, including phosphorus, metals and bacteria. If CAFO operators do not manage these materials properly, pollutants can be released into the environment through spills, overflows or runoff. Additionally, significant damage to riparian corridors results from the movement of livestock through streams.

³ USDA National Agricultural Statistics Service, 2017 Agricultural Census

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All of the TMDLs that have been finalized for watersheds in the Miami Valley Region contain recommended strategies for addressing agricultural pollutants. The TMDLs for the Upper Little Miami and Stillwater River Watersheds also include recommendations for addressing impacts associated with animal feeding operations.

State and Federal agricultural pollution abatement programs available in the Region are described in the following sections.

5.4.2 Agricultural Pollution Abatement Initiatives

5.4.2.1 Organization Support

Soil and Water Conservation Districts

Pursuant to Chapter 1515 of the Ohio Revised Code, the five county Soil and Water Conservation Districts (SWCDs) are responsible for agricultural pollution abatement programs addressing sediment, erosion and animal waste control in the Miami Valley 208 Planning area. The SWCDs offer voluntary programs that promote the use of agricultural BMPs and assist the agricultural community with engineering and structural practices, information management and planning and conservation practices.

Additionally, the SWCDs provide engineering and structural practice related technical assistance to private landowners interested in agricultural conservation practices. Activities include site evaluation and selection, survey, design and construction inspection of conservation structures and facilities. Other technical assistance activities include conservation planning and management consultation and soil survey information. All technical assistance is guided by the U.S. Department of Agriculture - NRCS Standards and Specifications for permanent conservation practices. Technical Assistance is available in the following areas:

- Animal Waste Storage Facilities;
- Erosion Control Structures;
- Filter Strips;
- Grass Waterways;
- Streambank and Shoreline Protection; and
- Subsurface Drainage.

Technical assistance regarding information management and planning is also provided for the following areas:

- Conservation Planning
- Residue Management
- Manure Nutrient Management
- Soil Survey Information

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Each SWCD is also responsible for working with local landowners to implement cost-share programs funded by the Natural Resource Conservation Service (NRCS) and the Farm Service Agency (FSA) within its county along with agriculture-related Ohio EPA TMDL directives.

Ohio State University Extension

The Ohio State University (OSU) Extension system is the world's largest non-formal educational system that offers scientifically based information developed by the faculty and staff of the Ohio Agricultural Research and Development Center, the Ohio State main campus, and other land-grant universities, including Central State University in Greene County. Local OSU Extension Offices located in each of the Region's counties can offer assistance in a variety of areas, including:

- Environmental Quality and Sustainability – topics include cover crops, forest and wildlife management
- Sustainable Food Systems – topics include organic farming, urban agriculture, innovative production methods

5.5 FUNDING PROGRAMS

There are a variety of sources for funding both planning and project implementation for non-point source management in Ohio.

5.5.1 Funding for Watershed Planning

Ohio EPA periodically issues small grants for development of NPS-IS plans at the HUC-12 level. MVRPC's 604(b) funding may also be used to support planning projects within the areawide counties.

Ohio EPA reports increasing funding related to the goals of the Gulf of Mexico Hypoxia Task Force. These funds may from time to time be directed toward projects to perform watershed (NPS-IS) planning. Planning projects in the MVRPC areawide counties would be eligible for these funds.

5.5.2 Funding for Non-Point Source Management Implementation

The principal source of funding for implementation of non-point source management projects is Section 319 grants from the Ohio EPA. These grants are specifically tied to non-point source management projects included in approved NPS-IS plans. Awards have been made primarily for implementation projects restoring Ohio streams and wetlands, reducing nonpoint source pollutants such as nutrients, sediment and bacteria, retaining runoff, improving stream and riparian habitat and improving stream services in channels affected by hydromodification.

Started in 2019, H2Ohio is a multi-agency state-funded program focusing on four priorities: reducing phosphorus, creating wetlands, addressing failing septic systems and lead in drinking water. The first two of those priorities address reducing pollutant loading (particularly in agricultural runoff) and natural infrastructure for managing pollutants that persist in runoff.

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H2Ohio will need regular funding authorization from the Ohio General Assembly, but represents a commitment to significant investment in improving water quality in Ohio. Recent rounds of H2Ohio funding have been eligible in the Ohio River Basin portion of the state for wetland projects, only.

Other funding streams that may be applicable for non-point source pollution management include storm water infrastructure funds that allow or emphasize innovative (“green”) infrastructure for slowing and filtering runoff. One example is Ohio Public Works Commission (OPWC) Infrastructure program which allows storm water management infrastructure to be included as an appurtenance to roadway projects or as part of a storm water solution. Allowed infrastructure includes rain gardens, bio-retention (rain gardens with underdrains), vegetated curb extensions (bump-outs), bio-swales, tree box filters, and permeable sidewalks.

Another example is the Onsite Storm Water Loan program from the Ohio Water Development Authority (OWDA). The Ohio Water Development Authority created the Onsite Storm Water Loan Program to provide financial assistance to development projects for storm water management elements that focus on treating storm water at its source to minimize, avoid, or offset impacts on water resources and reduce flow to sewers or surface waters. Eligible applicants include local governments, who can partner with developers to access these funds for specific projects. OWDA’s Fresh Water Loan Program includes storm water facilities among eligible projects.

5.5.3 Agricultural Educational and Financing Initiatives

Federal farmer and property owner assistance programs are managed through the county agricultural services agencies including the Farm Service Agency, NRCS and SWCDs. The following programs are authorized by the 2018 Farm Bill, formally known as the Agriculture Improvement Act of 2018.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) offers financial incentives to farmers to adopt practices that reduce soil erosion and improve water quality on livestock and grain farms. Examples of these practices include waste storage structures, heavy use pads, livestock watering systems, and prescribed grazing systems. Funding is also available for chemical/fertilizer containment facilities.

Conservation Reserve Program

The Conservation Reserve Program (CRP) is a federal/state natural resource conservation program targeted to address state and nationally significant agricultural related environmental problems. Program participants receive financial incentives from USDA to voluntarily remove highly erodible or environmentally sensitive land from agricultural production through long-term rental agreements.

Agricultural Conservation Easement Program

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Helps landowners, land trusts, and other entities protect, restore, and even enhance wetlands, grasslands, and working farms through conservation easements.

Agricultural Management Assistance Program

Helps agricultural producers manage financial risk through a mix of diversification, marketing, and natural resource conservation programs.

Healthy Forest Reserve Program

Helps landowners restore, enhance, and protect forestland resources on private lands through easements and financial assistance. Through HFRP, landowners promote the recovery of endangered or threatened species, improve plant and animal biodiversity, and enhance carbon sequestration.

State of Ohio programs addressing agricultural impacts to water quality include longstanding and more recent funding efforts.

Agricultural Pollution Abatement Program

Ohio's Agricultural Pollution Abatement Program (APAP) provides farmers with cost share assistance to develop and implement best management practices (BMP) to protect Ohio's streams, creeks, and rivers from runoff pollution from both agricultural and forestry lands. Agricultural pollution abatement BMPs have been designed to meet CWA goals, and include outlet protection structures, subsurface tile drainage, contour farming, diversions and grassed waterways.

The SWCDs offer voluntary programs that promote the use of agricultural BMPs and assist the agricultural community with engineering and structural practices, information management and planning and conservation practices.

H2Ohio

A collaborative approach to the issues facing Ohio's water, H2Ohio was an initiative of the administration of Governor Mike DeWine, launched in 2019. The program is administered jointly by the Ohio Department of Agriculture, the Ohio Department of Natural Resources and Ohio EPA. Through H2Ohio, the state will make a substantial investment in reducing phosphorus runoff from agricultural operations, providing financial incentives to producers who undertake best management practices, starting with developing a voluntary nutrient management plan. H2Ohio identified seven effective and cost-efficient practices that have been proven to reduce agricultural phosphorus runoff. H2Ohio will also fund the creation or restoration of wetland in strategic locations to reduce phosphorus and nitrogen runoff, manage flooding and sequester carbon.

Initial years of the H2Ohio programs were focused on the Lake Erie watershed. However, these programs have been partially expanded to cover the Ohio River watersheds including the Miami

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Valley region for wetland projects, only. Future rounds of funding may also allow agricultural BMPs in the Ohio River basin, but that is pending future decisions.

5.5.4 Conservation and Preservation Programs

A conservation easement is a deed restriction which creates a legally enforceable land preservation agreement between a landowner and a government agency or a qualified land protection group that restricts development, commercial and industrial uses, and other activities on a property. There are a number of funding programs available that encourage landowners to donate conservation easements in the Miami Valley Region, including:

- Local Agricultural Easement Purchase Program (LAEPP), Ohio Department of Agriculture (ODA) – a program of Clean Ohio
- Agricultural Security Areas (ASA), ODA
- Debt for Nature, Farm Service Agency
- Farm and Ranch Lands Protection Program (FRPP), USDA
- Forest Legacy Program, USDA Forest Service and ODNR Division of Forestry
- Ohio Agricultural Easement Donation Program , ODA
- Section 319 Nonpoint Source Conservation Easement Funds, Ohio EPA
- State Water Resource Restoration Sponsorship Program, USEPA and Ohio EPA⁴
- Wetlands Reserve Easements (WRE), NRCS

5.6 MVRPC RECOMMENDATIONS

The following recommendations are made to support nonpoint source pollution prevention and abatement.

- Miami Valley jurisdictions are encouraged to use fully the management tools and components of the storm water management program to minimize urban storm water impacts on surface waters.
- MVRPC will review and, as needed, update the model storm water ordinance in consultation with member communities, water quality stakeholders and the Ohio EPA.
- Watershed management planning is a critical component of the State of Ohio's nonpoint source management strategy. MVRPC will participate in opportunities to collaborate with partners in the development of new or updated NPS-IS plans in the areawide counties. MVRPC can support such projects in a variety of ways, including RFP development, GIS analysis and mapping, steering committee facilitation, and stakeholder engagement.

⁴ WRRSP projects are aquatic habitat preservation or restoration projects funded through interest rate reductions for WPCLF projects. Information about WPCLF and WRRSP projects can be obtained from the Ohio EPA website: <https://epa.ohio.gov/divisions-and-offices/environmental-financial-assistance/financial-assistance>

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- Miami Valley jurisdictions, water resource stakeholders and the general public are encouraged to take advantage of opportunities to participate in Ohio EPA's multi-step process for TMDL development, when such projects are undertaken in the Region. Opportunities for public comment occur in each step of the process.

The following recommendations are made to support agricultural pollution abatement and land conservation and preservation efforts.

- Local government officials are encouraged to support the work performed by the SWCDs to achieve 208 Plan objectives.
- The SWCDs and local OSU Extension Offices should continue to promote available federal and state programs for conservation practices and arrange educational programs for the agricultural community.
- Cooperation between the SWCD, OSU Extension Offices and local grassroots organizations is needed to help Agricultural Producers further reduce nonpoint source pollution.
- All Livestock and Row Crop Producers should be encouraged by the SWCDs and OSU Extension Offices to develop nutrient management plans through the local SWCD office or appropriate private consulting organization.
- All livestock farmers should be encouraged to have manure management, pest management, dead animal disposal plans and emergency response plans. Fencing livestock from the creeks should also be encouraged. Grain farms should also have emergency response and nutrient management plans. Many programs require a conservation plan to be prepared before signing up for government programs, but these plans should be encouraged for all farm operations. Timely response to setting up these plans by the required agency should also be considered. Seminars and articles in local newspapers and newsletters should promote this awareness and encourage voluntary participation.
- Many acres in the Miami Valley Region are not farmed by the landowner. Farmers may not have the ability to implement conservation practices on the ground that they rent as part of their operation. An effort should be made to promote management practices to the absentee landlord. This might be accomplished by ensuring that information is passed to them by the renter or by direct mailing from agricultural agencies to absentee landlords.
- Large animal farms in the Region which qualify for permit to operate, permit to install or general permit to operate are operations over 1,000 animal units and fall under the jurisdiction of the Ohio Department of Agriculture; while Ohio EPA retains authority for NPDES permits when animal units are greater than 1,000 and/or discharge into a stream or ditch. Communication and cooperation between operators, local government officials, SWCDs, OSU Extension, Farm Bureau, ODA and Ohio EPA is important.

1.0 On-Site Sewage Treatment Systems

On-site (or decentralized) sewage treatment systems (OSTS) are used to treat wastewater from a home or business and return treated wastewater back into the environment⁵. Although these systems are generally used to serve areas that are not served by a centralized wastewater collection and treatment system, OSTs are still in operation in sewered areas.

The most common and traditional on-site system consists of a septic tank and gravity fed soil absorption field. Non-traditional systems such as aerobic treatment and mounds are used when location, available space, soil type, or other issues become a limiting factor when designing the type of system that will serve one- to three-family residences and businesses producing less than 1,000 gallons of wastewater per day.

If an OSTs is properly sited, is working properly, and has been maintained regularly, it will effectively and efficiently remove disease-causing bacteria. Existing Ohio EPA data (TMDLs, 303(d) lists) indicate failing OSTs are having a negative impact on water quality in the Miami Valley Region.

This section provides an overview of the pollutants associated with failing OSTs and programs underway to reduce the impact of such systems on the water resources of the Region.

1.1 FAILING ON-SITE SEWAGE TREATMENT SYSTEM POLLUTANTS

Many disease-causing pathogens contained in sewage including bacteria, viruses and other microorganisms make the proper treatment of wastewater and sewage an important issue.

Inadequately treated sewage from failing septic systems poses a significant threat to drinking water and human health because diseases and infections may be transferred to people and animals directly and immediately. Dysentery, hepatitis, typhoid fever, and acute gastrointestinal illness are some of the more serious examples.

Inadequately treated sewage from failing septic systems is the most frequently reported cause of groundwater contamination. Preventing or minimizing any of these organisms from entering the groundwater or any nearby surface water is the primary role of on-site sewage treatment systems.

Failing septic systems may leak excessive nutrients and bacteria to surface waters, destroying aquatic plant and animal habitat. When nutrients such as nitrogen and phosphorus enter coastal waters, they can cause excessive plant growth. Certain types of algae become so abundant they block sunlight in the water. This shade can then kill beneficial plants. As these plants disappear, so do the animals that depend upon them. Too much algae also uses up the oxygen in the water, which may kill fish and other animals. Excessive plant growth also makes boating,

⁵ Onsite treatment systems serving homes are also referred to as Home Sewage Treatment Systems (HSTSs)

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fishing, and swimming less enjoyable. Improperly treated sewage that contaminates nearby surface water, also increases the chance of swimmers contracting a variety of diseases. These may range from eye and ear infections to dysentery or hepatitis.

Areas of concern regarding failing OSTs are discussed by county in Appendices A - E.

1.2 STATE REQUIREMENTS

The Ohio Department of Health (ODH) was tasked by House Bill 231 in 2006 to develop a new set of rules governing HSTs and to regulate Small Flow Onsite Sewage Treatment Systems (SFOSTS) (onsite facilities that treat up to 1,000 gallons per day) in Ohio. Sewage treatment system laws and rules currently in effect follow the provisions of OAC Chapter 3701-29 and Substitute Senate Bill 110 (Sub. SB 110). This bill was passed by the Ohio Senate and House of Representatives and signed into law by Ohio's governor on June 18, 2010.

The Ohio EPA developed the *Interim Onsite Sewage Treatment System Guidance Document* (May 21, 2008) for the design requirements for OSTs in effect until the time the ODH SFOSTS rules and the Ohio EPA OSTs rules are fully developed.

1.3 SEPTAGE DISPOSAL

"Septage" is the liquid and solid material that is removed from onsite treatment systems that receive only domestic sewage. The U.S.EPA, ODH, local health departments and Ohio EPA regulate domestic septage disposal in Ohio.

The three primary options to dispose domestic septage in Ohio are:

1. Haul to a POTW or privately owned and operated waste disposal facility,
2. Dispose in a sanitary landfill, or
3. Apply to the land for agronomic benefit.

Regulations pertaining to the disposal of domestic septage include:

- Title 40 of the Code of Federal Regulations, Part 503 established the minimum requirements for land application of domestic septage in Ohio.
- OAC Chapter 3701-29 provides authority to local health departments to regulate sewage tank cleaners.
- Chapter 6111 provides broad authority to Ohio EPA to regulate disposal of waste in Ohio.

Based on information provided, WWTPs within the Miami Valley Region that accept septage are:

- Beavercreek Water Resource Reclamation Facility, Greene County
- Laura WWTP, Miami County (users within village only)
- New Madison Sewage Treatment Plant, Darke County

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- Southwest Regional WWTP, Clark County
- Sugar Creek Water Resource Reclamation Facility
- Union Sewage Treatment Plant, Miami and Montgomery Counties (users within City only)
- Western Regional Water Reclamation Facility, Montgomery County

1.4 FINANCIAL RESOURCES FOR HSTS MANAGEMENT AND REPLACEMENT

The following funding resources can be utilized for projects related to failing OSTs.

Water Pollution Control Loan Fund

Loan funds are available from the Ohio EPA Division of Environmental and Financial Assistance (DEFA) for projects that address water quality and/or public health problems. Funding opportunities related to OSTs include the following:

- Onsite Management Programs
- Linked Deposit Program
- Nonpoint Source Activities (System Repair and Replacement)

Community Development Block Grant Funds (CDBG)

CDBG funds have been utilized in some Ohio jurisdictions for the abatement of sewage nuisance conditions. Funds are generally limited to repair or replacement of failing systems, but have also been used for system abandonment and access to public sewer.

Community Housing Improvement Program (CHIP)

CHIP funds may be available in eligible jurisdictions. Applicants can apply for funds to address housing problems that will cover improvements to assure a safe and healthy environment, including the repair or replacement of a failing household sewage system.

Housing and Urban Development Program (HUD)

The federal HUD program provides low interest loans to homeowners for the repair and rehabilitation of homes, and these costs may also be included as part of the home purchase depending on the final appraised value.

Rural Housing and Rural Utility Programs

USDA funding is available to property owners seeking grants or low interest loans for the repair or replacement of failing sewage systems through the Rural Housing Service program under 502 Direct Loans and 504 Repair Loans and Grants.

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1.5 UNSEWERED COMMUNITIES PROJECT (2014-2015)

In partnership with the Ohio EPA Southwest District Office and IBI Group, MVRPC developed a set of sewer feasibility studies for five unsewered communities in the Dayton Region. IBI Group was selected for the project team through an open RFP process conducted by MVRPC. Communities were selected for participation based on a priority list of locations provided by Ohio EPA, and the community leadership's willingness to participate. Participation in the planning project did not obligate the community to proceed with a sewer project. Participating communities were as follows (listed alphabetically):

1. Village of Bowersville (Greene County, Upper Little Miami watershed)
2. Glenwood area (unincorporated, Preble County, Twin Creek watershed)
3. Jackson Township (Darke County, Stillwater River and Mississinewa River watersheds)
4. Village of Ludlow Falls (Miami County, Stillwater River watershed)
5. Village of Wayne Lakes (Darke County, Stillwater River watershed)

All participating communities established steering committees of local residents, leaders and business owners; committees met individually with the consulting engineers for the project at least three times. Each community hosted a public participation meeting at which comments and questions from residents were accepted. Actionable comments were incorporated into the final reports. Final reports were developed for each community with tailored recommendations and cost estimates and delivered to the community, Ohio EPA Southwest District Office, and MVRPC. The final reports are of sufficient detail and quality to support applications for grants and loans, should the community decide to proceed with a project.

Copies of the final reports are available from MVRPC for all five communities.

1.6 MVRPC RECOMMENDATIONS

The following recommendations are made to support management of On-Site Treatment Systems.

- Watershed-level prioritization of OSTs areas of concern needs to be developed to maximize effectiveness of resources.
- MVRPC should review existing policies related to any approved statewide OSTs rule revisions that may occur in the future.