

CHAPTER 5

ON-SITE SEWAGE TREATMENT

I. Introduction

On-site sewage treatment includes the treatment and disposal of sewage on the same property as a household or commercial structure, rather than at a centralized (off-site) treatment plant. On-site treatment uses individual sewage treatment systems (STS); these systems should provide adequate and cost-effective removal of pollutants and pathogens from wastewater before sewage effluent enters ground or surface waters. On-site sewage treatment should do this in a way that avoids odor and other nuisance conditions.

Public health regulations are enforced at the local level by a Local Health District; all five counties in the TMACOG region have a Health District. Each district has a Board of Health which sets policy, approves its budget, and employs the Health Commissioner.

Septic tanks with soil absorption or leaching tile fields are the most common type of STS. This type of home sewage treatment has been in existence for several decades in both rural and suburban areas. The soil absorption system is not just a means to dispose of sewage effluent, but serve as part of the treatment process. A properly designed soil absorption system prevents discharge of pollutants. Older home sewage treatment systems (HSTS), in use where soil conditions do not permit a soil absorption system, include aerators and septic tanks followed by subsurface sand filters. Both types of systems discharge effluent to a stream or storm sewer. These technologies generally do not meet today's standards for protecting water quality. Newer designs that do meet the current standards include mound, drip, peat, and other technologies.

Effective January 1, 2015, the Ohio Department of Health (ODH) implemented new STS rules. These regulations set statewide standards for the design, operation, and maintenance of STS that include both HSTS and small flow on-site sewage treatment systems (SFOSTS), which provides service to more than one household. These systems do not require an EPA National Pollutant Discharge Elimination System (NPDES) permit because their design includes soil absorption systems as part of the treatment process, and do not discharge off-lot.

This chapter also covers small, privately owned sewage treatment plants also known as “semi-public” systems. This plan uses the colloquial term “package plant” to describe small, private wastewater treatment facilities based on how they are regulated rather than the technology they employ. Most of these systems are extended aeration treatment plants, which treat sewage at a business or development that is too large to be served by a septic system and does not have public sewers available. Generally, package plants are rated from 1,500 gallons per day (gpd) up to about 100,000 gpd. Private wastewater treatment plants include several types of systems — trickling filters, lagoons, or settling tank / surface filter. On-site effluent that has not been properly treated has been identified as a significant water quality issue in the TMACOG area. Sampling data indicate high bacterial counts in many suburban and rural waterways. Failed septic systems have been identified as a source of the contamination.

This chapter addresses several issues related to on-site sewage treatment systems in the TMACOG region:

1. A description of the problems of on-site sewage treatment in the TMACOG region;
2. Areawide policies affecting on-site sewage treatment;
3. Regulatory programs presently in effect or recommended;

4. Recommended improvements for existing programs;
5. Designation of critical sewage areas (CSAs).

II. Water Quality Impacts

Incompletely treated or raw sewage impacts ground and surface water quality in several different ways. Sewage contains high concentrations of three “pollutants”

- **Pathogens** threaten public health causing disease. The region had a history of water-borne typhoid fever and cholera before public sewerage systems came into use. Other waterborne diseases include dysentery, infectious hepatitis, and numerous others.
- **Phosphorus** is credited as the critical nutrient that resulted in eutrophication and algal blooms in Lake Erie in the 1960s and 1970s and drive today’s Harmful Algal Blooms (HABs). Water quality impacts of phosphorus on Lake Erie are discussed in more depth in **Chapter 6** titled “Agriculture, Drainage, and Habitat chapter of this Plan.”
- **Nitrates** may contribute to Lake Erie’s harmful algae blooms. At levels over 10 milligrams per liter (mg/L) nitrates make water unsafe for certain individuals to drink. Such concentrations of nitrates interfere with the body’s ability to transfer oxygen, with a condition called Methemoglobinemia, or “blue baby syndrome.” Infants are the most susceptible to nitrates.

Nitrogen and phosphorus in their various forms are classified as nutrients because they promote plant growth. Municipal and industrial wastewater effluents, urban stormwater runoff, and agricultural runoff all contribute significant nutrient loadings to Lake Erie and its tributaries. Refer to **Chapter 1** for a discussion of nutrients.

In 2013, ODH estimated there were one million HSTS in use statewide, with a failure rate of approximately 39% in northwest Ohio counties (ODH, 2013). A majority of the failures were due to age, lack of maintenance, poor soils, and lack of design standards. A small-scale study (approximately 200 systems) conducted by the Toledo/Lucas and Wood County Health Departments, coordinated by TMACOG in 2004, found test dye for about one-in-four STS (TMACOG, 2004).

On-site treatment system designs by the local health departments in the TMACOG region are required to have the soil analysis of the site that determines the type of HSTS that may be designed for the site. Sites that have suitable soils allow for a traditional soil-based treatment system with primary and secondary components. An example of a primary component would be the septic tank, and an example of a secondary component would be a soil-based system. Sites with limiting conditions, such as shallow soils or high seasonal perched water table require advanced treatment devices for these sites.

The septic tank provides primary treatment by settling out heavy solids (sludge) and trapping floating materials (scum). Solids retained in the septic tank have to be periodically removed by pumping. Limited biological treatment takes place in the tank through anaerobic bacterial action. Septic tank effluent enters the leaching tile field, where microorganisms in the soil provide final biological treatment and destroy pathogens. The leaching tile field is a series of distribution pipes laid in trenches to provide for soil absorption of the effluent from the septic tank.

The effectiveness and longevity of an on-site system depends on its proper design for site and soil conditions. With a preponderance of slow-draining soils and high-water tables in the region, systems can fail because of poor drainage or lack of maintenance. Before system installation, site review and soil evaluation determines the feasibility of a soil absorption treatment system. Feasibility of soil

absorption depends on whether the soil distance between the leaching tile and a limiting layer (e.g., bedrock, hardpan, or water table) is adequate to treat the effluent.

On-site systems should not be permitted on new lots or new subdivisions where soil-based treatments are not feasible. Effluent discharges to surface waters may be permitted only for replacement systems where soil-based treatment is not feasible, and in compliance with NPDES requirements. New home sites require replacement sewage treatment system areas to be identified for onsite disposal.

III. Availability and Accessibility of Public Sewers

STS (including HSTS and SFOSTS) and package plants shall be abandoned and tapped when public sewers become available and accessible. The Ohio Administrative Code (OAC) Section 3701-29-06(I) states, “Whenever a sanitary sewage treatment system becomes accessible to a dwelling or structure served by a STS, the dwelling and/or structures shall be connected to the sanitary sewage system and the STS abandoned in accordance with rule 3701-29-21 of the Administrative Code.”

The designation of an accessible sewer is determined by consultation with the Designated Management Agency (DMA) responsible for sewage collection. It depends on the distance between the sanitary sewer and the house or business that would be served, and whether there are any physical barriers that render connecting it to the sewer impracticable.

The availability of a sanitary sewer system is determined by the DMA and Ohio EPA/Michigan Department of Environmental Quality (DEQ). It depends on:

1. Whether the receiving sanitary sewer system has the capacity to transport and treat the additional sewage, and
 2. Whether the sanitary sewer is a gravity sewer, an interceptor sewer, or a force main. Whether interceptors or force mains are available for tapping is a policy the DMA sets.
- Sewers under the County Commissioners are accessible if within 200 feet of the foundation wall of the structure (Ohio Revised Code [ORC] 6117.51). Ohio Boards of Health may establish more stringent “accessibility” distance rules.
 - Under a Regional Water and Sewer District the rule is to “Require the owner of any premises located within the district to connect his premises to a water resource project determined to be accessible to such premises and found to require such connection so as to prevent or abate pollution or protect the health and property of persons in the district. Such connection shall be made in accordance with procedures established by the board of trustees of such district and pursuant to such orders as the board may find necessary to ensure and enforce compliance with such procedures” (ORC 6119.06).
 - In Michigan, state law authorizes local governments to require connection to a public sewer.

It is the policy of this Areawide Water Quality Management Plan (AWQMP) that,

1. No private sewage treatment system shall be installed, maintained, or operated on any property accessible to a public sanitary sewerage system.
2. For the purposes of this Plan, “accessible to a public sanitary sewage system” means
 - a. The DMA (see **Chapter 3** for definition and list) responsible for public sanitary sewers in the Facility Planning Area (FPA) will grant permission to connect to their system, and

- i. A connecting point to the public sewer from the foundation wall of any structure with plumbing drains along the shortest direct line distance is within a specified distance. That specified distance is 200 feet unless a different figure is given in Table 5-1 of individual criteria for each county, or
- ii. Ohio EPA or Michigan DEQ has determined that a public sanitary sewer is available, considering the distance to the sewer, physical barriers, ability of the sewage system to transport and treat the wastewater, cost effectiveness, overflows from the sewer system, or other environmental or public health issues, or
- iii. The FPA has a policy that new subdivisions shall be required to connect to the public sanitary sewage system, and may not be served by septic systems or package plants. This policy applies only to individual FPAs where the DMAs have requested it. Please see the individual FPA Descriptions in **Chapter 4** of this Plan.

Table 5-1: Locally Established Criteria for “Accessible” Public Sewers

County	Criteria
Lucas County, Ohio	Uses policy of jurisdiction responsible for sewers.
Monroe County, Michigan	State Law authorizes local governments to require connection to a public sewer.
Ottawa County, Ohio	Existing residences must tie into an available gravity or pressure sewers.
Sandusky County, Ohio	Must tap into an available public sanitary sewer that the Board of Health has determined to be accessible. The Board of Health will make a determination on a lot-by-lot basis, depending on DMA’s accessibility assessment, 208 Facility Planning Area, whether the site is in a Critical Sewage Area, density of housing units, and environmentally sensitive areas.
Wood County, Ohio	In its 2015 Supplemental Rule Package, the Wood County Board of Health re-established a more stringent standard of 400 feet for the DMA to determine whether a sanitary sewer is available and accessible.

Availability of Pressure Sewers and Force Mains

While Ohio law on availability is the same for gravity sewers and force mains, there are practical aspects that distinguish them. Whether interceptors or force mains are available for tapping is a policy the DMA sets. This 208 Plan recommends availability of connection to a pressure sewer or force main be based on criteria that include:

1. Whether sewer service is consistent with an adopted land use or comprehensive plan, and may be used to preserve habitat or natural areas, limit sprawl development, or minimize pollution from stormwater runoff. If sewer service is not consistent with a land use plan, the force main should not be included within an FPA. Sewer availability based on land use should result from a consistent policy of where development should or should not occur. It should not be used arbitrarily to favor or disfavor a particular type of business.
2. Pressure sewer systems, designed to receive flow from grinder pumps, should normally be considered available for taps, unless there is a barrier or restriction.
3. Force mains, where the pipe and pumping system were designed to accept flow from grinder pumps, should normally be considered available for taps, unless there is a barrier or restriction.

4. Force mains, where the pipe and pumping system were not designed to accept flow from grinder pumps, may be available up to the flow and head capacity of its pumping station(s). An additional consideration is whether a precedent has been set for accessibility by allowing taps in the past.
5. Force mains may be tapped on a case-by-case basis, subject to approval by the DMA, on an emergency basis, especially to eliminate failed on-site systems where a replacement system is not feasible.
6. Where a force main is outside any FPA, it should be considered available per local health district regulations (e.g., the 200-foot rule), provided the force main has capacity and the DMA approves service connections unless a physical barrier renders tapping infeasible. Contractual or ownership restrictions may also render a force main inaccessible. In such a case where service is extended outside an FPA boundary, the boundary should then be amended to include the served area.

Subdivisions and New Lots

In areas where a sanitary sewage system is accessible, the policy of this Plan is that new on-site systems shall not be permitted. For proposed subdivisions of more than 25 lots, on-site sewage systems may be approved only with written documentation from Ohio EPA that a sanitary sewer is not accessible. A board of health may establish a policy to require this rule to smaller subdivisions. OAC 3701-29-08(B) (6) states:

- (B) Any person proposing a subdivision or new lot(s) for review by the board of health shall submit an application and sufficient information to determine compliance with the requirements of this chapter. Minimum information to be submitted or completed for review shall include the following:*
- (6) When a proposed subdivision includes the creation of at least twenty-five lots, or for any fewer numbers of lots as required by the board of health, the request shall include written consultation from Ohio EPA concerning the subdivision's accessibility to existing sanitary sewerage systems as described in paragraph (I) of rule 3701-29-06 of the Administrative Code, and risks to surface and ground water resources.*

Household sewage systems with off-lot discharges (i.e., requiring NPDES permits) are prohibited on new lots or lots in subdivisions. This Plan recommends siting restrictions for new and replacement sewage systems within:

- Floodways and 100-year floodplains
- Wetlands
- Isolation from public water system wells
- Areas with unsuitable site and soil conditions, such as exposed bedrock, steep slopes and filled/disturbed areas where soil conditions may not be adequate to provide treatment.

It is required in Ohio that boards of health review proposed subdivisions for any restrictions on the use of onsite sewage systems, and consult with appropriate DMAs to determine accessibility of sanitary sewers, and the TMACOG 208 Plan.

IV. Statewide Regulations

Many policies and system design criteria are set by state regulation, in OAC §3701-29 or Michigan Compiled Laws Chapter 3. The county board of health implements state regulations, and may exercise options allotted to it by the regulations. Note the discussion of “semi-public” sewage treatment systems under OAC below. Policies that apply to residential septic systems under OAC do not apply to semi-public septic systems. Many policies that apply to HSTS also apply to SFOSTSs. Statewide policies are outlined in Table 5-2.

Table 5-2: On-site Sewage System Policies and Criteria

Septic System Policy	Ohio	Michigan
	In addition to isolation distances, the lot is required to have room for a complete replacement system.	In addition to isolation distances between septic system and wells, waterways, and structures, the lot is required to have room for a complete replacement septic system
Household sewage treatment design criteria	The local boards of health utilize the Ohio Administrative Code 3701-29 for the review and installation of household sewage treatment systems.	Section 504 of the Monroe County Sanitary Code covers location, accessibility, and size of tank(s), effluent filter, and subsurface disposal system design.
Off-lot effluent discharge	The local boards of health utilize the Ohio Administrative Code 3701-29 for the review and installation of household sewage treatment systems.	Health Department may block off discharges of untreated sewage following posting of at least 5 public notices for at least 30 days.
Home aerators	The local boards of health utilize the Ohio Administrative Code 3701-29 for the review and installation of household sewage treatment systems.	Mechanical sewage treatment systems must be approved before installation. Approval requires a current maintenance contract and a performance bond.
Sewage system operation and maintenance and inspections	The local boards of health utilize the Ohio Administrative Code 3701-29 for the review and installation of household sewage treatment systems.	<p>Inspection and approval by health officer before covering distribution tiles is required before a sewage treatment system may be put into use.</p> <p>Minimum (statewide) program requirements include evaluation of existing onsite sewage systems. Each year the county health department inspects existing systems equal to 10% of the sewage permits issued the previous year.</p> <p>In 1999 evaluations were conducted at home where the property owner requested other services, such as well inspections, FIA evaluations, proposed swimming pools, or additions to the home. Of 56 systems evaluated, 52 were found to be functioning properly at the time of the study (Monroe</p>

Septic System Policy	Ohio	Michigan
		County Health Department, 2000). Monroe County Sanitary Code §501.08 requires private sewage disposal systems to be maintained in satisfactory operating condition at all times. Septic tanks are required to have sludge pumped out as necessary to prevent carry-over of solids into the leaching field.
Abandonment	The local boards of health utilize the Ohio Administrative Code 3701-29 for the review and installation of household sewage treatment systems.	Tank must be emptied and filled to ground surface with suitable material
Variances	The local boards of health utilize the Ohio Administrative Code 3701-29 for the review and installation of household sewage treatment systems.	
Land application of septage	The local boards of health may allow application land application of septage under state criteria per the Ohio Administrative Code 3701-29.	If source of septage is within 15 miles of a public septage waste treatment facility, the septage must go that facility. U.S. EPA “503” regulations apply as well.

Note: OAC regulations apply only to septic systems under the jurisdiction of local health departments and not to septic systems that are classified as “semi-public” because they serve businesses. Refer to Monroe County Sanitary Code: Chapter 5, Sewage Disposal, March 2001.

Types and Regulation of Sewage Systems

Regulation of on-site sewage systems in Ohio is divided among the ODH and Ohio EPA at the state level, and boards of health at the local (county) level. Responsibility for permitting and administering sewage systems depends on the size of the system, and whether it discharges treated effluent (Table 5-3). These rules apply only to sewage systems permitted on or after January 1, 2007.

Table 5-3: On-site Sewage Systems in Ohio: System Types and Regulatory Responsibility

System type	Defining criteria	Size (gallons per day treatment capacity)	Effluent discharge	Regulatory agencies
Home sewage treatment system (HSTS)	Serves a 1-, 2-, or 3-family residential dwelling.	No criterion: determined by capacity of soil to absorb and treat effluent.	None: soil absorbs and treats the effluent.	ODH and local board of health
Discharging HSTS	Serves a 1-, 2-, or 3-family residential dwelling Permissible only (1) where onsite soil absorption is not an option, and (2) replacement systems or new systems on lots created before 1/1/07.	No criterion, but limited to 1-, 2-, or 3-family residential units.	Effluent is discharged off site. New or replacement systems are subject to NPDES requirements. Discharges that existed prior to 2007 are not covered by the Ohio EPA General Permit at this time. Discharging systems may be required to upgrade on property transfer or other inspection, complaint, or in compliance with Stormwater Phase II NPDES “illicit discharge detection & elimination” requirements.	The local health district signs a Memorandum of Understanding with Ohio EPA. The local health district may assist homeowners with access to HSTS General NPDES Permit coverage.
Small Flow On-site Sewage Treatment System (SFOSTS)	On-site sewage system not qualifying as a “household” system because it serves more than a 1-, 2-, or 3-family dwelling or a dwelling with a home business.	Less than 1,000 gallons per day.	None: soil absorbs and treats the effluent.	Local Board of Health may assume authority for SFOSTSs.
Commercial STS (HSTS or SFOSTS)	Non-residential structure.	Less than 1,000 gallons per day.	None: soil absorbs and treats the effluent.	Ohio EPA
Semi-public disposal system (“package sewage treatment plant”)	Sewage treatment system not served by a public sewerage system, and where soils will not accommodate an onsite system. Most are extended aeration treatment plants.	Less than 25,000 gallons per day.	Treated effluent is usually discharged offsite to a stream or storm sewer. Effluent quality is subject to regulation under NPDES requirements.	Ohio EPA; local board of health may contract with Ohio EPA to assume oversight of semi-public systems.
Larger package plants	Same as semi-public package plants, but larger.	25,000 gallons per day or greater.	Treated effluent is usually discharged off-site to a stream or storm sewer. Effluent quality is subject to regulation under NPDES requirements.	Ohio EPA

In Michigan, state law stipulates that the municipality may be required to assume responsibility for managing the system (section 3109 of Part 31 of Michigan Public Act 451 of 1994) (SEMCOG, 1999).

NPDES General Permits for Discharging Sewage Systems

Ohio sewage regulations permit new or replacement discharging of 1, 2, and 3-family residential systems, only subject to the requirements of an NPDES permit. Ohio EPA has issued a General Permit that applies to all such systems. Its provisions include:

- A discharging system is permitted only for replacement sewage systems where soil absorption is not feasible, or for new systems on lots created before January 1, 2007 where soil absorption is not feasible.
- A discharging system is permitted only where public sewers are not available and accessible.
- A discharging system is not permitted where that discharge would conflict with a 208 Plan.
- A sewage system is ineligible for the NPDES General Permit if it is within 400 feet of a public sewer, and that sewer has capacity to accept the sewage system’s flow.
- Effluent sampling and reporting is required annually. Effluent standards are 18 mg/L total suspended solids, 2.0/4.5 mg/L ammonia summer/winter, 15 mg/L CBOD₅, and 126 colonies *Escherichia coli* (summer).
- Local boards of health may administer the permitting and management of NPDES General Permit sewage systems through a Memorandum of Understanding with Ohio EPA.

On-Site System Policies set by Local Boards of Health

Septic systems serving 1, 2, or 3-family residences are regulated by county boards of health. Sewage treatment systems serving commercial establishments or residences with more than three families are regulated by Ohio EPA, described in the next section. Regulatory authorities for different types of sewage systems are given in the table above. Some authority may be assumed by local boards of health following agreements, commitments, or contracts. Table 5-4 summarizes policies established by boards of health in the TMACOG region.

Table 5-4: Sewage System Management Policies of Ohio Boards of Health

County	Memorandum of Understanding (MOU) with Ohio EPA for discharging HSTS	Contract with Ohio EPA for semi-public systems	Letter of commitment to assume authority for SFOSTS systems
Lucas County	Yes	Yes	Yes
Ottawa County	Yes	No	No
Sandusky County	Yes	No	No
Wood County	Yes	No	No

Table 5-5 provides policies for off-lot discharging system designs. Many such systems were approved under Ohio sewage regulations prior to 2007. These systems still exist and continue to be used. Off-lot discharging systems are now allowed in Ohio only as replacement systems where soil absorption is not feasible, and these systems are subject to NPDES permitting requirements.

Policies

- All STSs must be properly operated and maintained in order to protect water quality and public health.
- Conduct research and demonstration projects to determine what designs work the best long term in heavy silt/clay, shallow bedrock, and/or high groundwater soils.
- This Plan supports financial assistance to upgrade on-site systems with either a grant or cost-share basis. Existing programs through U.S. Department of Agriculture (USDA), Housing and Urban Development (HUD) or the U.S. EPA State Revolving Fund (SRF) programs have too little funding and too many qualifying restrictions to meet needs. This Plan supports the development, expansion, and regularization of financial assistance to repair, replace, or upgrade onsite systems. Funding criteria should include financial need and effectiveness in reducing water pollution and public health nuisances.

Sewage System Management Issues

A primary reason why onsite sewage systems are not working properly are not working, especially pre-2007 tanks and aeration systems, is because of lack of maintenance. The 2015 rules require that all new systems to be covered by an operations & maintenance (O/M) program through the local health district. Over time, these programs will be extended to cover all systems. The useful life of a HSTS may be 20 to 30 years if properly maintained. The primary causes of failure are soil clogging and hydraulic overload. Annual maintenance helps prevent HSTS failure and may extend the life of the system. As a broad average, septic tanks should be pumped about every three to five years. Pumping frequencies depend on the number of people in a house, size of tank, and whether or not there is a garbage disposal. A septic tank needs pumping when it has one-third each of scum/grease, liquid, and sludge. Recommendations by The Ohio State University Extension (ODH, 2001) are provided in Table 5-6.

Table 5-5: Sewage System Policies

County	Homeowner servicing HSTS	Homeowner installing HSTS	Vertical separation distance				Greywater recycling systems
					6-18" to limiting layer	Permit required	
Lucas	Waiver subject to registration with county, bond, liability insurance, continuing education	Waiver subject to registration fee, liability insurance, and bond	6 inches	0 inches	No		
Monroe							
Ottawa	Waivers not available	Waivers not available	6 inches	1 inch	Yes		
Sandusky							
Wood	Homeowner must pass certification test and pay fee; CEUs not required	Homeowner must pass certification test and pay fee; CEUs not required	6 inches		Yes	Yes	

Table 5-6: Recommended Septic Tank Pumping Frequencies (Years)

Tank Size (gal)	Household Size (Number of People)							
	1	1	3	4	5	6	7	8
750	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6
1000	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0
1250	15.6	7.5	4.8	3.4	2.6	2.0	1.7	1.4
1500	18.9	9.1	5.9	4.2	3.3	2.6	2.1	1.8
1750	22.1	10.7	6.9	5.0	3.9	3.1	2.6	2.2
2000	25.4	12.4	8.0	5.9	4.5	3.7	3.1	2.6
2500	31.9	15.6	10.2	7.5	5.9	4.8	4.0	4.0

Note: Based on year-round residences. More frequent pumping needed if garbage disposal is used.

Septage Disposal

Septage from domestic septic systems is subject to U.S. EPA “Part 503” sludge regulations. Removal and disposal of solids and liquids (septage) from septic tanks poses a final problem for onsite septic systems. Septage treatment and disposal options include:

- Discharge to a municipal wastewater treatment plant that is designed to treat septage

In limited cases (Table 5-7), apply to agricultural land for agronomic benefit U.S. EPA, some wastewater plants accept septage, but not do not. Because septage is septic, and a high-strength waste, some treatment plants are not able to accept it. There is a lack of plants with septage handling facilities in northwest Ohio. Current septage policies are provided in the following table.

Table 5-7: Septage Handling Facilities in Northwest Ohio

County	Health Department’s Septage Land Application Policies & Practices	Wastewater Plants that Accept Septage
Lucas	Land Application prohibited	Toledo, Oregon
Monroe	Land application acceptable; Michigan DEQ issues permits	None in Bedford, Erie, or Whiteford Townships
Ottawa	Land application is prohibited	None
Sandusky	Land application is prohibited	Bellevue, Fremont
Wood	Land application prohibited	Bowling Green, Fostoria, Perrysburg

Recommendations

More septage receiving capacity is needed at public wastewater treatment plants. POTWs do not have a responsibility to accept septage; therefore, better incentives are needed to encourage them to accept it. One possible source is Ohio EPA’s Division of Environmental & Financial Assistance (DEFA), which offers low-interest loan incentives. Privately owned septage pre-treatment facilities may become available in the area. Please see **Chapter 4**, section on

“Privately-Owned Septage Pretreatment Facilities” and individual FPA descriptions for policy discussion and details.

Installer, Service Providers, and Septage Hauler Registration and Training

Private companies provide onsite sewage system services for installation, operation, and maintenance. The 2015 Ohio sewage rules described in OAC 3701-29-03 set statewide regulations and standards for registration, bonding, and training.

Small Flow On-site Sewage Treatment Systems

In 2015, Ohio sewage regulations established SFOSTS as a category of STS. SFOSTS are similar to HSTS in many ways: they may serve residences or businesses, treat 1,000 gallons of sewage per day, and are regulated by Ohio EPA or the local health district. See OAC 3701-29-01 for the definition of small flow on-site treatment systems.

V. Package Plants

Larger privately-owned sewage treatment devices with discharges of treated effluent are “semi-public” if they treat less than 25,000 gpd. These systems, described below, are colloquially known as “package plants.” Regulation is the responsibility of Ohio EPA. More than half such systems do not have NPDES permits. As a “semi-public” system, a board of health may assume monitoring duties under a “House Bill 110” contract with Ohio EPA.

Ohio EPA has historically given priority to the issuance of NPDES to larger package plants: those discharging more than 25,000 gpd. As of April 2018, 89% (20 of 23 active package plants over 25,000 gpd) had individual NPDES permits in the TMACOG region, while 60% (68 out of 114 active package plants) smaller than 25,000 gpd have NPDES permits. Overall, TMACOG region has 138 active plants, of which 93 (67%) have NPDES permits (Table 5-8). Package plants have become much less common in northwest Ohio over the years. Ohio EPA has permitted far fewer package plants, and DMAs have been very active in extending sewers to eliminate existing plants. For example, in 1984, there were 355 package plants in the same five counties, 36 (10%) with NPDES permits; there were 57 package plants over 25,000 gpd, of which 26 (42%) had NPDES permits (TMACOG, 1984).

Extended aeration is a biological treatment process that grows a culture of aerobic microorganisms (activated sludge) to digest the organic matter in sewage. An extended aeration plant has an aeration chamber where activated sludge and raw sewage are mixed with air to promote digestion. The plant has a settling chamber as well. Clear, treated water flows over a weir and out of the plant; activated sludge settles to the bottom and is pumped back to the aeration tank.

Extended aeration plants—as they have been designed over the last 40 years—come in numerous variants, depending on design requirements at the time. Common facilities include:

- Trash trap — a septic tank preceding the plant to remove settleable and floatable solids
- Chlorination — disinfects treated wastewater; usually a plastic tube that feeds slow-dissolving chlorine tablets as needed.
- Dechlorination — Removes residual chlorine from effluent after disinfection is done. Mechanically, a de-chlorinator is similar to a chlorinator. These devices came into common use in the late 1990s.
- Filter — a sand bed that filters remaining solids out of treated effluent

- Some larger extended aeration plants have an aerobic sludge digestion/sludge holding tank

Table 5-8: Package Plant Statistics

County	Total Package Plants	Package Plants with NPDES Permits	Package Plants in Use
Lucas	24	11	22
Monroe	5	5	5
Ottawa	54	40	51
Sandusky	40	23	35
Wood	25	14	25
Totals	148	93	138

Note: Data are based on current available data as of April 2018. Monroe includes Erie, Bedford, and Whiteford Townships.

Ohio EPA and Michigan DEQ are responsible for permitting package plants. For a new package plant to be permitted, the application must go through the anti-degradation review process and demonstrate that there is no other sewage treatment method available. That means a septic system will not be adequate, and that public sewers are not available. Whether a proposed package plant may be built in an unsewered part of a FPA is determined in **Chapter 4** of this Plan. They may be accepted or denied as a policy of each FPA. Presently all FPAs accept temporary package plants where public sewers are not available. Unless stated otherwise, package plants may be permitted where public sanitary sewers are not available and accessible.

Most small privately-operated wastewater plants are extended aeration systems discharging treated effluent to a stream, ditch, or storm sewer. Some plants, especially those of older design, use other treatment processes. Examples include:

- Settling tank with surface sand filter (Imhoff treatment plant)
- Trickling filter
- Wastewater lagoon

The equipment for these systems is different than extended aeration plants, but the management issues are identical. For that reason, these systems should be considered as “package plants” for the purposes of this Plan’s policies.

Package Plant Constraints and Issues

Modern package plants are fundamentally sound sewage treatment equipment; their problems rise almost entirely out of operation, maintenance, and management issues. Because many package plants are not operated and maintained properly, it is a requirement of this 208 Plan that they be abandoned wherever public sewers are available and accessible.

Package Plants Outside Facility Planning Areas

Package sewage treatment plants located within FPAs are described in **Chapter 4** of this Plan. Package plants not within any FPA boundary are listed in Table 5-9.

Table 5-9: Package Plants Not in Any Facility Planning Area

Package Plant	Township	Status	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Package Plants in no FPA for Lucas County					
Karl's Trading Post	Providence	Inactive	1977		5,000
Pradco	Providence	Inactive	1966		1,000
Butch and Denny's Bait Shop	Jerusalem	Active			1,500
Cooley Canal Yacht Club	Jerusalem	Active	1969	2PR00293	1,000
East Side Auto Sales	Jerusalem	Active	1974		2,000
Lake Erie Lodge	Jerusalem	Active	1988		15,000
Scarlett Route 2	Jerusalem	Inactive		2PR00289	7,000
Wolf Creek Sportsman's Assoc.	Jerusalem	Active	1965		2,000
Package Plants in no FPA for Monroe County					
Pilot Travel Centers	Whiteford	Active		MIG580303	9,863
Package Plants in no FPA for Ottawa County					
Allen Park Mobile Court	Allen	Active	1958		5,000
Wayside Inn	Benton	Inactive, bldg. torn down	1975		3,500
Elmore Ohio Turnpike Maintenance Building	Harris	Active	1989		2,500
Camp Sabroske	Carroll	Active	1966	2PRT00197	4,000
Carroll Elementary School	Carroll	Active	1961		10,000
Happy Hooker	Carroll	Active	1988		5,000
Paradise Acres Camp & Pool	Carroll	Active	2003	2PR00192	31,500
Toussaint River Marina	Carroll	Active	1985	2PR00155	6,000
Porky's Pizza Trough	Carroll	Active	1988	2PR00259	9,000
Materion Brush	Harris	Active		2EI00000	30,000
Green Valley Trailer Park	Harris	Active	1968	2PY00059	9,000
Rattlesnake Island Club Subdivision	Put-in-Bay	Active	1991	2PR00290	15,000
Package Plants in no FPA for Sandusky County					
Misty Meadows Camp	Ballville	Active	1982		6,300
O'Flaherty's, Patrick J.	Ballville	Inactive burned down 2001	1973		9,000
Whirlpool Park Clubhouse	Green Creek	Inactive	1955		4,500
Adam's Acres Subdivision	Jackson	Active	1977	2PG00082	35,000

Package Plant	Township	Status	Install or Upgrade Date	NPDES Permit	Capacity, gpd
Rollersville Tavern	Madison	Active	1990		3,500
Apollo Trailer Park	Rice	Active	1971	2PY00062	15,000
Fremont Plastic Mold	Rice	Active	1982	2PR00186	4,000
Cuyahoga Heights Commerce One	Rice	Active	1970	2IN00252	18,000
Bayshore Country Inn	Riley	Inactive - closed	1990		3,000
Erie Island - Commodore Perry Service Plaza	Riley	Active	Before 1961	2PQ00001	150,000
General Cutlery	Riley	Active	1973		12,500
General Cutlery	Riley	Inactive	1947		3,600
Vickery Environmental	Riley	Inactive		2IN00016	2,500
Lakota Elementary & High School	Scott	Active	2009	2PT00053	15,000
M&M Tavern	Townsend	Active	1972		3,000
Townsend Elementary School	Townsend	Active	1973		7,000
Winding Lakes Trailer Park	Townsend	Active	1971, 1986		5,000
Next Level Auto	Washington	Active	1986		5,000
Roots Poultry	Washington	Active	1993		5,000
Sycamore Hills Golf Course	Washington	Active	1992	2PR00193	7,500
Carmeuse Lime Millersville	Woodville	Active	1957	2IJ00032	3,000
Rockwell Springs Trout Club		Active		2PR00265	8,000
Buckeye Acres Campground	York	Active	2012	2PR00282	
Gibsonburg Travel Truckstop	Washington	Active	1997		1,500
Westwood Subdivision	Ballville	Active	1973	2PG00023	20,000
Package Plants in no FPA for Wood County					
Country Side MHP	Liberty	Active	1988	2PY00071	8,000
South Shore Farm	Montgomery	Inactive	1975, expansion		25,000
Perrysburg Estates MHP, SS #5	Perrysburg	Active	Expanded 1991?	2PY00014	25,00
Village Green Mobile Home Park	Perrysburg	Active		2PY00008	45,000
Elmwood Local Schools	Portage	Active	2003	2PT00038	30,000
Ohio State Patrol Weigh Station	Portage	Active			1,500

Policies

- Package plants shall be required to tap into public sewers when sewers become available and accessible, regardless of the age, condition, or design capacity of the package plant. New package plants shall be permitted only on this condition.
 - Most unincorporated areas are covered by ORC §6117 which defines “available” as 200 feet from the foundation of the building to the edge of the sewer right of way. Wood County regulations use 400 feet, subject to confirmation of availability by the DMA. In areas

covered by Regional Water and Sewer Districts, “...require such connection so as to prevent or abate pollution or protect the health and property of persons...”. In Michigan, State Law authorizes local governments to require connection to a public sewer.

- Package plants should be available as a sewage treatment option for subdivisions where public sewers are not available, except where disallowed by the policy of the FPA (see **Chapter 4**). In such cases, a properly operated and maintained package plant may be better environmentally than individual septic systems. Such a package plant should include two provisos:
 - The package plant is owned and operated by the County Sanitary Engineer (Ohio), Drain Commissioner (Michigan), a municipality with qualified staff, or Regional Water and Sewer District. (Ohio).
 - The plant has an NPDES permit and meets its effluent requirements.

Package Plant Management Issues

Ohio House Bill 110

While HB 110 allows boards of health to inspect semi-public systems, enforcement remains with the State through the Attorney General’s office. Enforcement of fee collection also remained with the State. The board was not able to collect sufficient fees to run the program.

VI. Areawide Policies

This section establishes policies and recommends practices to provide onsite sewage treatment that protects water quality and public health.

1. Boards of Health shall administer local onsite sewage treatment regulations pursuant to the OAC 3701-29. The Monroe County Health Department shall administer the Monroe County Sanitary Code.
2. The TMACOG Water Quality Council shall maintain the On-site Sewage Treatment Chapter with a list of Best Management Practices (BMPs) and recommended policies. Each management agency shall be responsible for its own list of practices to be included in 208 Plan updates.
3. The Boards local boards of health should:
 - a. Coordinate its regulations and policies with the other agencies, including land use planning, capital improvements programming, and public wastewater treatment to prevent the installation of home sewage systems in unsuitable areas.
4. The TMACOG Water Quality Council shall:
 - a. Work to implement the creation of onsite waste management districts responsible for planning, design, installation, operation, and maintenance, and monitoring of onsite systems within sub-county or given problem areas.
 - b. Support the periodic updating of soil surveys.
 - c. Seek new improved legislation from the Ohio Legislature as detailed in the Recommended Implementation Activities section at the end of this chapter.
 - d. Support long-term research on effective and practical STSs for the soil conditions of our region.

5. The Water Quality Council and the management agencies shall work together to improve the programs for home sewage treatment in accordance with the recommendations of this chapter.

This Plan supports the goals and recommendations of Ohio DNR's *Ohio Coastal Nonpoint Pollution Control Program Plan*, submitted to NOAA Regional.

VII. Regulatory Programs

Existing Programs

The State of Ohio requires that all counties enforce HSTS regulations, covered in OAC 3701-29, described earlier in this chapter. The Boards of Health administer the regulations and have the power to abate nuisances. The Boards of Health may petition the Court of Common Pleas for injunctive relief against a nuisance and may also abate the nuisance, with cost charged to the owner, or a lien set against the subject property. Provisions are made for a hearing prior to enforcement action.

Monroe County Sanitary Code regulations are of similar scope and design with a few differences.

Subdivisions, Package Plants, and On-site Systems

Centralized sewage systems shall be given first consideration for sewage treatment in residential subdivisions. Connection to an existing treatment plant is preferred, with construction of a package treatment plant the secondary alternative. If a sewage collection system is not available and accessible, and a package treatment plant is not feasible in the judgment of Ohio EPA, the local Board of Health may allow an on-site treatment system, except as prohibited by individual FPAs. As indicated below, there are variations among the county subdivision regulations pertaining to sewage treatment requirements. According to each county's subdivision regulations, package treatment plants must be constructed by the developer of a subdivision, and then deeded to the respective county.

Some Facilities Planning Areas (**Chapter 4**) require new residential subdivisions to be served by that FPA's public wastewater treatment plant, not package plants, or on-site systems. See the following FPAs for more information:

- Bellevue
- Clyde
- Fremont

Over the past 20 years the practice has been to eliminate package plants wherever possible and resist permitting new ones. Package plants are viewed as maintenance problems by the County Sanitary Engineers and ineffective sewage treatment facilities by Ohio EPA and the health departments because they are generally neglected. New package plants have been installed for rural businesses; they are rarely permitted for suburban or rural subdivisions.

Complaint Procedure for Untreated Sewage in Waters of Ohio

Ohio Revised Code and Administrative Code set procedures for reporting cases where untreated sewage is contaminating public waterways. ORC §6111.05 requires Ohio EPA to investigate when it receives a written complaint. A complaint filed under ORC §6117.34 must include a resolution adopted by the Township Trustees and/or Board of Health.

ORC §6117.34 describes a more rigorous complaint procedure applicable to unincorporated areas, and is recommended for Health Departments. Such a complaint should be sent to the Ohio EPA District Office and follow procedures set in OAC 3745-1-04(F), summarized below:

- Detailed documentation of unsanitary conditions, visual (black water or sludge, gassing or grayish white water, toilet paper), odor (sewage smell), and data (fecal coliform or *E. coli*).
- Bacterial tests conducted under the supervision of Ohio EPA or a registered sanitarian should include at least two sample runs. The samples must be collected at least two hours apart but within 30 days of each other. The samples are to be collected when stream flow is in a steady state dry weather condition. Bacterial standards defining a violation of water quality standards are (OAC 3745-01-04):
 - More than 5,000 fecal coliform/100 ml in two or more samples when five or fewer samples are collected; or in more than 20% of samples when more than five are collected.
 - More than 576 *e. coli*/100 ml in two or more samples when five or fewer samples are collected; or in more than 20% of samples when more than five are collected.

VIII. Financial Assistance

This Plan encourages the use of financial assistance programs to upgrade or replace STSs. This Plan supports funding for these programs through federal, state, regional, and local agencies.

USDA Rural Development

USDA/RD “Section 504” funds may be used for home repairs to remove health and safety hazards. One such use is to upgrade or replace home sewage systems. Section 504 funding may be available as a loan, or a grant/loan combination. Financial need is a requirement in all cases. Grants may be available to those 62 years of age or more, and unable to repay a Section 504 loan. Funding under this program is available only in rural areas. Applications are made through USDA district offices.

HUD Community Development Block Grant

The Community Development Block Grant (CDBG) Community Housing Improvement Program (CHIP) may be used to upgrade or repair housing for low- and moderate-income households. Sewage system upgrades and sewer taps are among the eligible housing improvements. The initial application is made by a local jurisdiction, which then administers grants to residents. Counties are the applicant for unincorporated areas; “non-entitlement” cities and villages under the Block Grant regulations may also apply. Households must qualify as “low to moderate income” under HUD rules.

Ohio EPA Water Pollution Control Loan Fund

Individual residents may qualify for grants, loans, or other financial assistance through the Ohio EPA’s Water Pollution Control Loan Fund for current assistance programs.

Clean Michigan Initiative: Failing Onsite Septic System Grants

Michigan DEQ administers this grant program to identify failing onsite septic systems and/or implement corrective measures. This funding may replace failed septic systems with sewer extensions or treatment facilities. It does not pay for repairing or replacing failed septic systems. Funding is limited to the amount appropriated to it for any given year. The funding source is the Clean Michigan bond fund.

IX. Recommended Implementation Activities

1. Better coordination of planning, design, and installation of STSs among governmental agencies.
2. More consideration and use of technical alternatives to traditional STSs where physical conditions warrant.
3. More specific enabling legislation at the state level to allow improved enforcement of proper maintenance.
4. Better administration at the local health department level of STSs.
5. Improved education and information for homeowners on the proper operation and maintenance of onsite sewage systems.

Coordination of Planning, Design and Installation

- Health regulations for STS should be coordinated with existing county land use policies and controls, including zoning and subdivision regulations. Lot splits should be coordinated with health and home sewage regulations, soils information, drainage and capital improvement plans.
- As part of the lot split review procedure, a recommendation on suitability of the site for sewage disposal from the county health department is required.

On-site System Design Alternatives

Septic tank-soil adsorption systems are just one type of onsite sewage treatment. Other STSs may be used on a site with restrictions due to soil conditions. This plan's recommendation is to use passive sewage systems preferentially over mechanical treatment systems where site conditions allow. Passive systems, where soil adsorption provides the final effluent treatment and disposal, require the least amount of service and maintenance vs. STS with mechanical components. While mechanical systems are not the preferred alternative, they are allowable under state law, and subject to proper operation and maintenance of the mechanical equipment.

Table 5-10: Recommended On-site System Flow Reduction Techniques

Flow Reduction Techniques
Standard plumbing fixtures
Water conservation shower heads
Water conservation toilets

State-Enabling Legislation

- OAC 3701-29 requires all STSs to be covered by o/m permits issued by the local Board of Health for the life of that system.
- Each local health district should charge fees for o/m permits that cover the cost of administering the program. The homeowner and service provider are responsible for providing a copy of the service contract and reports to the Local health district on District an annual basis for STSs requiring a service provider. Local boards of health have the ability to conduct inspections and charge fees for those inspections.
- Clarification is needed between the roles and responsibilities of Ohio EPA and the ODH in responsibility for onsite systems. These two agencies split their enforcement authority with package plant systems depending upon the size of the plant. The capability of one of these state agencies needs to be expanded to ensure that local boards of health effectively manage all facets of their onsite sewage treatment program.

This Plan supports enabling legislation for onsite sewage system management districts by local boards of health.by local operation monitoring.

Administration of On-site Sewage Regulations

- All programs for improving on-site sewage treatment must be adequately financed. Investigate implementation of a fee schedule and charges to make the regulatory system for administering home sewage and package plant programs self-financing.
- Establish stream and septic system monitoring programs to identify failed systems. Areas designated as CSAs should have priority for:
 - Stream monitoring and sanitary surveys.
 - Financial assistance to homeowners for upgrading systems using State Water Pollution Control Revolving Loan Fund programs or other grant/loan programs.
 - Cost share funds through the U.S. EPA §319 non-point source program.

Public Information and Education

- Develop and conduct information and education programs and materials with boards of health through the TMACOG Water Quality Council, its subcommittees, watershed stewardship organizations, and the Northwest Ohio Sewage Consortium. Educational programs should be geared to take advantage of available funding through grant programs, such as the Ohio Environmental Education Fund, the Lake Erie Protection Fund, and the Coastal Zone Management Assistance program.
- Adopt policies requiring site inspections prior to sale or development of a parcel of property.

X. Critical Sewage Areas

County/Local boards of health identify CSAs. These are areas with concentrations of failed or failing onsite sewage systems, based on sampling results, complaints received by the health department; or

areas with suspected failures based on health department observations and best professional judgment. System failures result in known or suspected cases of:

- Surface water contamination, and/or
- Ground water contamination, and/or
- Public health nuisances

County/local health departments identify CSAs as places where existing system upgrades/replacements often will not solve the problem or are not an optimal solution because:

- There is a significant concentration of onsite systems that are known or suspected to have failed.
- Most of the systems are on small lots that do not have room for replacement leaching fields.
- Soil conditions for leaching fields are poor due to shallow bedrock, tight silt/clay soils, and/or seasonally high groundwater.

CSAs are:

- Priority areas for Ohio EPA, Michigan DEQ, and health departments to conduct sanitary surveys.
- Priority areas for inspection and increased maintenance of onsite systems until a central public sanitary sewerage system is in place.
- Priority areas for public sanitary sewers or innovative community STSs to replace concentrations of individual systems. For CSAs where a public sanitary sewerage system is the best alternative, the priority order for construction may be affected by the availability of financial assistance.
- Priority areas for financial assistance to homeowners for installing public sanitary sewers.

CSAs are listed in Table 5-11 by county without prioritization. The code numbers for each CSA correspond to the regional map labels shown below in Figure 5-1.

Table 5-11: Critical Sewage Areas

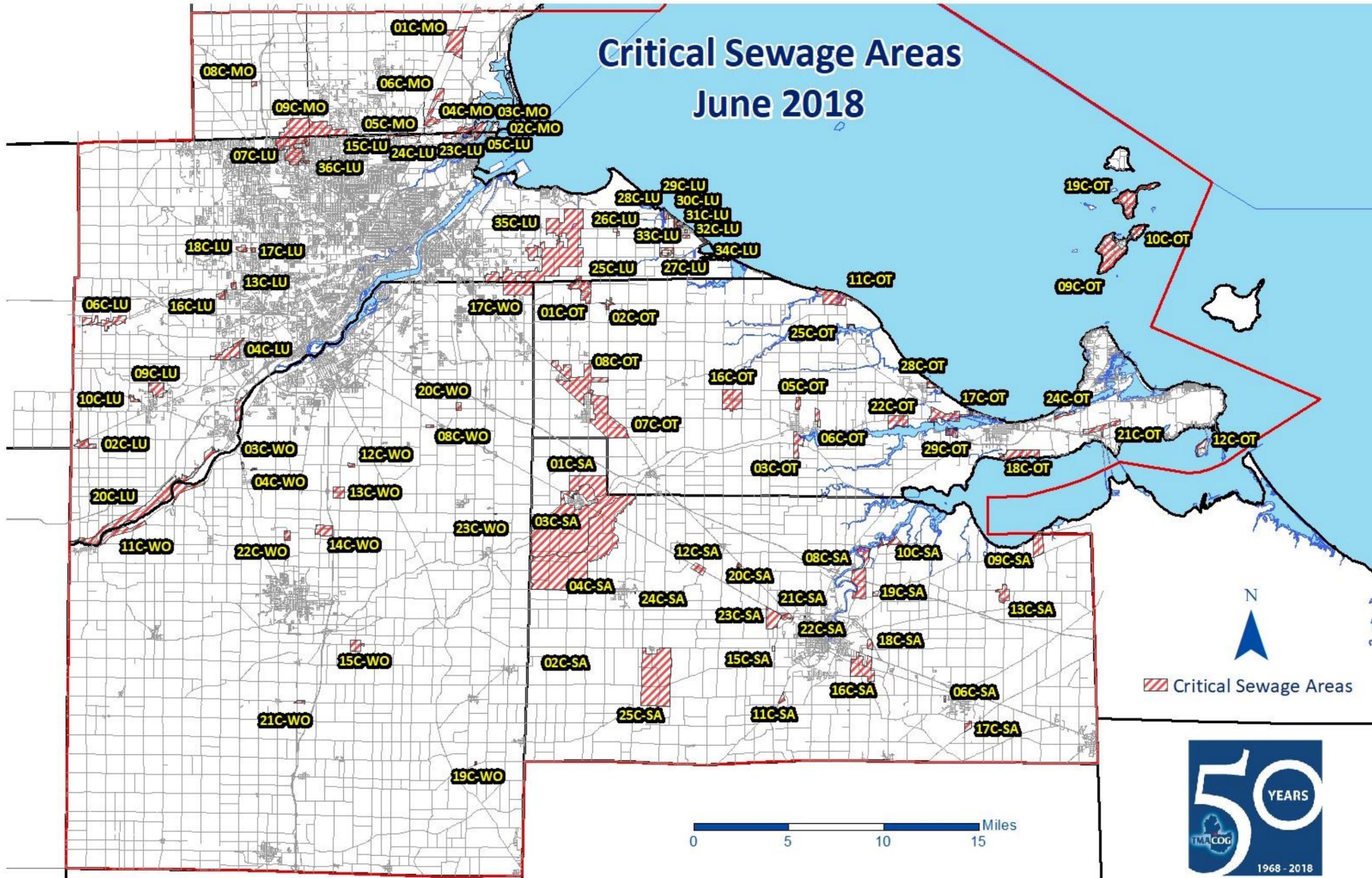
Name	Number
Lucas County	
Neapolis (Prov.)	02C-LU
Monclova/Coder Rd (Mon)	04C-LU
Pt Place/Washington Twp (Tol)	05C-LU
Shoreland Ave (Wash)	05C-LU
Swan Creek Headwaters: Airport Hwy (Swan)	06C-LU
Alexis/Whiteford/Flanders Rd (Sylt)	07C-LU
Springbrook/Davis/Winslow Rd (Wat)	09C-LU
SR 64 NW of Whitehouse (Wat)	10C-LU
Rancamp/Annin Rd (Spr)	13C-LU
West State Line Rd (Tol)	15C-LU
East State Line/Detroit Ave (Tol)	15C-LU

Name	Number
Longworth/Sudbury Rd (Spr)	16C-LU
East Hancock (Spr)	17C-LU
West Hancock (Spr)	18C-LU
River Rd South (Prov/Wat)	20C-LU
North Toledo (Tol)	23C-LU
DeardenPl/Birdsall Rd (Tol)	24C-LU
Curtice (Jer)	25C-LU
Decant Rd (Jer)	26C-LU
Donovan/Yoder/Standart Rd (Jer)	27C-LU
Coolie Rd (Jer)	28C-LU
Beach Park Dr (Jer)	29C-LU
Pavilion/Beach View/Temple Rd (Jer)	30C-LU
Northway/Lakeway/Corduoy Rd (Jer)	31C-LU
North St (Jer)	32C-LU
Rachel Rd (Jer)	33C-LU
Toulon/Lafontaine Rd (Jer)	34C-LU
Wolf Creek Watershed (Ore/Jer)	35C-LU
Secor Rd (Tol)	36C-LU
Monroe County	
Erie	01C-MO
Lost Peninsula	02C-MO
McLeary's Point	03C-MO
Morin Point	04C-MO
State Road	05C-MO
South Dixie	06C-MO
Whiteford Schools	08C-MO
Whiteford / Bedford State Line	09C-MO
Ottawa County	
Curtice	01C-OT
Williston	02C-OT
SR 19 S of Oak Harbor	03C-OT
Waterford Place	04C-OT
SR 19 N of Oak Harbor to Salem-Carroll Road	05C-OT
Behlman	06C-OT
Clay Twp Near Genoa	07C-OT
Clay Twp Near Genoa	08C-OT
South Bass Island	09C-OT
South Bass Island	10C-OT

Name	Number
Locust Point	11C-OT
Johnson's Island	12C-OT
Englebeck Road	15C-OT
Rocky Ridge	16C-OT
Erie Twp: SR 163 and Lakeshore Drive	17C-OT
Portage Twp south shore, sections 7, 8, and 9	18C-OT
Middle Bass Island	19C-OT
Port Clinton Eastern Road	21C-OT
Lacarne	22C-OT
East Harbor Road	24C-OT
Toussaint River Association	25C-OT
Wolf Creek - Berger Ditch	26C-OT
Willow Beach	28C-OT
Nugent's Canal	29C-OT
Sandusky County	
Toussaint Cr	01C-SA
Portage below S. Br	02C-SA
Portage below N. Br	03C-SA
Sugar Cr	04C-SA
Sugar Cr	04C-SA
Woodland Hts.	06C-SA
Muncie Hollow	08C-SA
White's Landing	09C-SA
Wightman's Grove	10C-SA
Rambo Rd	11C-SA
Hessville	12C-SA
Vickery	13C-SA
Hayes/53	15C-SA
Timpe / Twp Line / Cole	16C-SA
Green Cr Limerick Rd	17C-SA
Country Club Estates	18C-SA
Barkshire Hills	19C-SA
Wooded Acres Campgrounds	20C-SA
West State Street	21C-SA
Christina Drive	22C-SA
Four Mile House Road	23C-SA
Rodriguez Street	24C-SA
Millersville	25C-SA

Name	Number
Wood County	
SR 64 N of King	03C-WO
King Road / RR	04C-WO
East Five Point Road	08C-WO
Otsego along river	11C-WO
Dowling	12C-WO
Dunbridge	13C-WO
Sugar Ridge	14C-WO
Kramer/Huffman	15C-WO
Curtice/Bradner	17C-WO
Hatton	19C-WO
Johnson's Subdivision	20C-WO
Mermill	21C-WO
Maurer's MHP	22C-WO
J&T MHP	23C-WO

Critical Sewage Areas June 2018



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