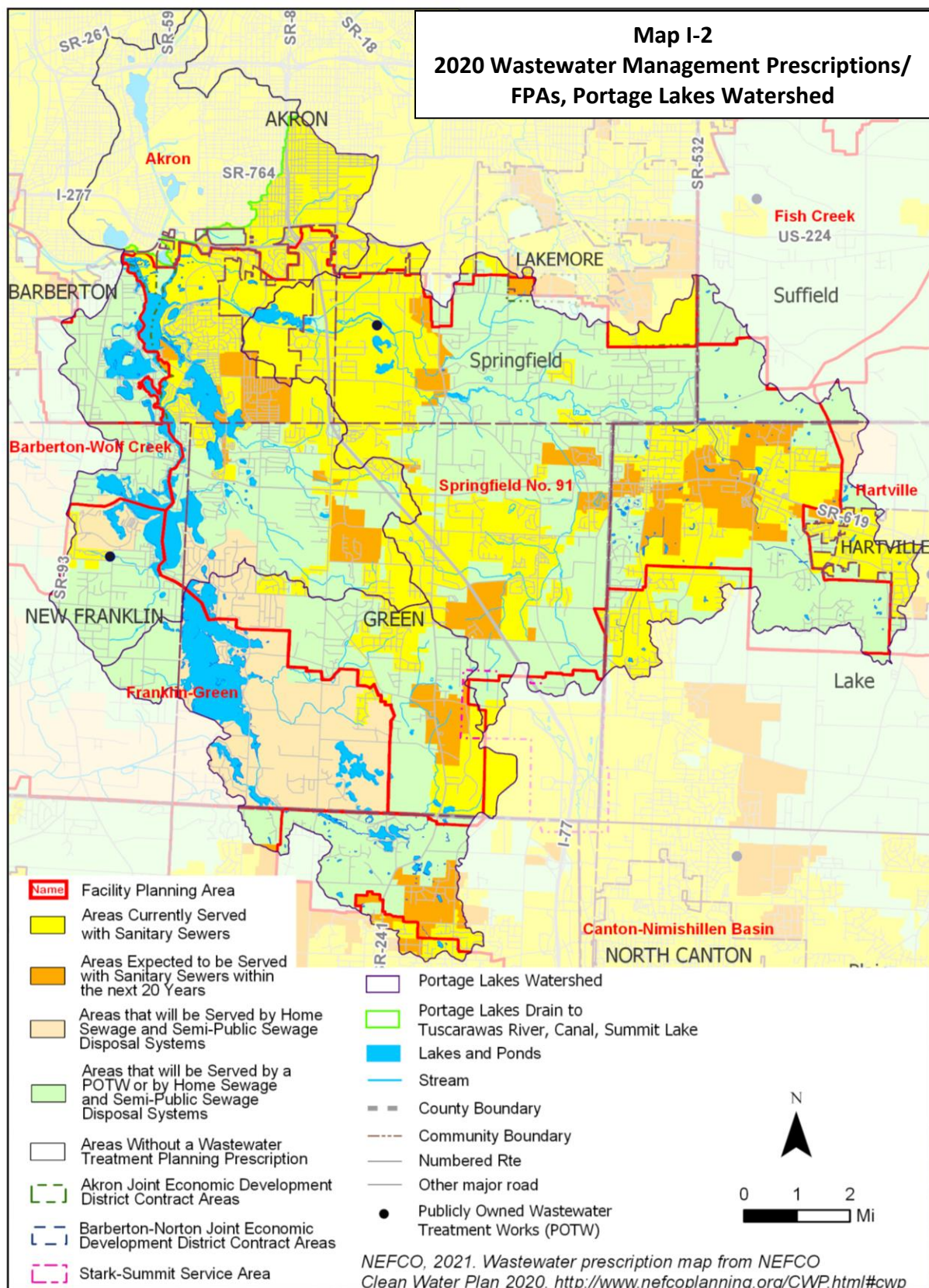


APPENDIX I

Wastewater Management in the Portage Lakes and its Watershed



Wastewater Management and Health of the Portage Lakes

The health of the Lakes and their abundance of aquatic vegetation are heavily influenced by watershed conditions. Wastewater, if not properly managed and treated in the watershed, can be a significant source of nutrients that feed the growth of aquatic vegetation, including harmful algal blooms (HABs), which can cause hypoxia--low or depleted oxygen “dead zones” in the Lakes, which can cause fish kills and can produce toxins, such as microcystins, that are harmful to the health of humans and their pets when touched, swallowed or inhaled. An abundance of aquatic vegetation can be an indicator of good water quality. Besides increasing the dissolved oxygen to help prevent fish kills and being good fish habitat, aquatic vegetation provides an additional wastewater treatment benefit by helping to remove nutrients, but it is important to understand that by reducing nutrient loads from wastewater before they enter the Lakes, the threat of HABs forming in the recreational summer months will be greatly reduced. Other contaminants in untreated wastewater, such as *E.coli*, other fecal coliform bacteria and pathogens, heavy metals, volatile organic compounds, and household hazardous waste, can make primary contact with the Lakes a public health risk and bioaccumulate in fish tissue, thus limiting safe fish consumption. The following discussion presents the role of NEFCO, the Ohio Environmental Protection Agency (EPA), the Ohio Department of Health (ODH), and the local health districts in wastewater management in the study area; and concludes with NEFCO’s recommended best management practices for property owners and actions for stakeholders to take to reduce the negative impacts that wastewater contaminates have on the Lakes.

NEFCO’s Role in Wastewater Management

In 1979, NEFCO was designated by the Ohio Governor under Section 208 of the Clean Water Act to perform areawide water quality management planning for Portage, Stark, Summit and Wayne Counties. Section 208 of the Clean Water Act sets forth requirements for water quality management planning. In the urbanized areas of the state, the responsibilities for water quality management plans (WQMPs) are shared by areawide and state agencies. Both municipal wastewater treatment issues and nonpoint source management and control are addressed in areawide WQMPs, which guide implementation by defining implementation responsibilities of management agencies with municipal wastewater treatment or nonpoint source management responsibilities that are thereby designated to perform specific control recommendations.

Authority to perform the water quality management planning function is provided in state law by ORC 6111.02(A), 41-42.1. The areawide WQMP is one of several tools provided in the Clean Water Act for the state to address water pollution and meet designated water quality standards in lakes, rivers and streams. Other tools include setting water quality standards, water quality assessments, the issuance of National Pollutant Discharge Elimination System (NDPES) permits to control discharges of pollutants, assistance in financing wastewater management facilities, enforcement, and water quality monitoring activities.

Owners/operators of publicly owned wastewater treatment works (POTWs) are designated by NEFCO's Clean Water Plan (208 Plan) to have the lead authority for sewer-related planning in clearly demarcated facilities planning area (FPA) boundaries. The 208 Plan defines these POTW owners/operators as "management agencies" (MAs). The MAs develop wastewater management options and prescriptions that represent current judgements regarding where sewers will be extended, and where areas will remain unsewered over the course of the next twenty years, and map these on FPA maps along with areas where sewers already exist. County metropolitan sewer districts have authority in all unincorporated (township) areas, including within FPA boundaries.

Local health districts (LHDs) are responsible for the management of wastewater treatment in areas that are not serviced by sewers. These areas include designated areas within FPA boundaries and areas that are not part of any existing FPA. In the Portage Lakes region, some of these unsewered areas are in unincorporated (township) areas; and in some cases, they are in incorporated areas where the MA has no plans for sanitary sewer.

NEFCO's role is to compile the wastewater management options and prescriptions within each FPA that were developed by MAs into its 208 Plan. Once the 208 Plan has been adopted by NEFCO's Board, certified and approved by the Ohio EPA then the U.S. EPA, these FPAs and wastewater prescriptions become part of the region's WQMP.

The 208 Plan discusses problems associated with the management of household sewage treatment systems (HSTSs), small flow on-site sewage treatment systems (SFOSTSs), and semi-public sewage disposal systems in Northeast Ohio and outlines the roles of local and state management agencies in the wastewater management system. HSTSs treat domestic wastewater from one, two and three-family dwellings; while SFOSTSs treat domestic wastewater from four-family or greater/multiple dwellings and other-use single or multiple structures that generate no more than 1,000 gallons of sewage per day individually or in aggregate. Semi-public sewage disposal systems treat domestic wastewater from structures, such as four-family or greater dwellings, offices, and restaurants in unsewered areas, that generate less than 25,000 gallons per day. The 208 Plan presents a series of management system recommendations for implementation by local health districts and other management agencies that would improve the performance of these systems and reduce their negative impact on water quality in the region.

Ohio EPA's Role in Wastewater Management

The Ohio EPA regulates all POTWs and semi-public sewage disposal systems. The FPAs and wastewater prescriptions in NEFCO's 208 Plan are used for the Ohio EPA's

decisions concerning its issuance of certain National Pollutant Discharge Elimination System (NPDES) permits, permits to install (PTI) and State Revolving Fund (SRF) loans for wastewater treatment plants, which must not conflict with the 208 Plan. Ohio EPA will not issue a PTI for a proposed project that would be “in conflict” with the 208 Plan. To do so, would be a violation of the federal Clean Water Act. If a proposed PTI or wastewater treatment plant loan is determined to be “in conflict” with the 208 Plan, procedures are described in Chapter 3 of the Plan for amending an FPA and/or prescriptions.

ODH’s Role in Wastewater Management

ODH regulates sewage treatment systems (STSs) across the state by statutory authority established under Ohio Revised Code (ORC) Chapter 3718 and Ohio Administrative Code Chapter 3701-29 (STS Rules). STSs include both HSTSs and SFSTSs.

ODH’s STS Rules became effective on January 1, 2015 and regulate the siting, permitting, installation, alteration, operation and abandonment of STSs. Permit issuance, inspections and enforcement are conducted by the local health districts, who may also adopt more stringent STS rules and standards. No local health district may adopt less stringent STS rules and standards. ODH STS program staff provide technical assistance and training to local health districts, industry and the public on all aspects of STSs; and perform surveys of each local health district’s STS program, at least once every three years, to determine whether there is substantial compliance with the STS Rules.

ORC Chapter 3718 provides authority to ODH to review and approve sewage treatment systems and components. ODH established standards in the STS Rules for the construction and installation of all types of sewage treatment systems, such as leaching tile field systems, Ohio mound systems, low pressure pipe shallow leaching tile systems, drip distribution systems, and spray irrigation systems; as well as a number of approved aerobic treatment units that are capable of meeting Ohio EPA’s NPDES effluent quality standards.

Local Health Districts’ Role in Wastewater Management

There are three local health districts with jurisdiction in portions of the Portage Lakes watershed: Portage County Combined General Health District (Portage County portion); Stark County Health Department (Stark County portion); and Summit County Public Health, which has jurisdiction in the majority of the watershed, the Summit County portion. As mentioned above, local health districts are responsible for issuing permits, performing inspections, and enforcing the STS Rules, which means ensuring that each property needing a new or replacement STS first has a site and soil evaluation conducted at the applicant’s expense to determine whether the site and soils are suitable for a non-discharging soil absorption STS. The STS Rules only allow the local health district to conduct a site evaluation, but they allow either the local health district’s registered sanitarians or a certified soil scientist to perform the soil evaluation. However, a local health district may opt not to offer a soil evaluation service.

Soil evaluation reports include documentation of the soil profile using ODH's soil evaluation form, and a site map showing the location of test pits or soil borings, existing structures, topography, disturbed soil areas, lakes, ponds, wetlands, and all nearby water wells and other pertinent information. The completed soil evaluation form shows detailed soil profile descriptions and characteristics, including soil color, texture, grade, shape, structure, moist consistence, depth of each soil horizon, and depth to any limiting condition, including a perched seasonal water table, apparent water table, restrictive layer, bedrock, or highly permeable material.

If a soil evaluation concludes that the STS Rules' minimum vertical separation distance to a specific limiting condition or minimum depth of unsaturated in situ (naturally deposited) soil can't be met, the property is disapproved for a non-discharging, soil absorption STS, which means if a new construction project was being proposed, that project would be disapproved. An example of this would be soil not meeting the minimum vertical separation distance of 12 inches to a perched seasonal water table or not having a minimum of 8 inches unsaturated in situ soil beneath the infiltrative surface. If, in this example, the site and soil evaluation was being conducted to determine the type of replacement STS that could be allowed, the local health district could help the applicant apply for coverage under Ohio EPA's General NPDES Permit for HSTSs. Once NPDES coverage and an approved design plan have been obtained, the local health district will issue installation permit to a for an off-lot, discharging NPDES replacement HSTS.

If a site and soil evaluation concludes that required horizontal distances can't be met, for example no area exists that is the required 50 feet from a lake and 50 feet from a water well, no type of STS can be approved without a Board of Health variance.

Semi-Public Sewage Disposal Systems and SFOSTS

While semi-public sewage disposal systems are under the Ohio EPA's jurisdiction, the three local health districts with jurisdiction in certain portions of the Portage Lakes watershed have signed a memorandum of understanding with the Ohio EPA that gives them the authority to perform operation inspections of these systems and charge the owners a fee for the inspection service to cover their administrative costs. When semi-public sewage disposal systems are found to be failing and creating a nuisance during these operation inspections, they are referred to the Ohio EPA for enforcement of its surface water regulations. In 1999, NEFCO identified one hundred fifty semi-public sewage disposal systems in the Upper Tuscarawas/Portage Lakes watershed (NEFCO, 1999, p. 24). Some of these have been decommissioned when the structures they served were subsequently connected to sanitary sewer when it became available and accessible. Subwatershed 3, which is the largest of the five subwatersheds and includes the Portage Lakes, contained the highest percentage of these systems with 53 percent being located in that subwatershed.

Since about 2007, Summit County Public Health and Stark County Health Department assumed complete authority of new and replacement SFOSTSs, which prior to this date were considered semi-public sewage disposal systems under the Ohio EPA's jurisdiction. Portage County Health District chose not to assume authority of SFOSTSs.

“Failing HSTS” Versus “Conditions Under Which a HSTS is Creating a Nuisance”

In Phase 1 of this study, mapping of “failing” HSTSs was defined as part of the work scope. ORC Chapter 3718.011 defines “Conditions under which a sewage treatment system causes a public health nuisance.” Sometimes a HSTS may appear to be failing, but only a minor repair or service is needed, such as when a clog in a pipe or a pump malfunction causes sewage to surface in a yard from an otherwise properly functioning HSTS. Therefore, a true HSTS failure can be defined in terms of whether the nuisance can only be abated by total system replacement or incremental repair, or by properly decommissioning the HSTS and connecting the home to a sanitary sewer that is available and accessible.

Replacement Process for Failing HSTSs

The owner of a failing HSTS needs to speak with the local health department regarding its application process and how to have a site and soil evaluation performed. If the site and soil evaluation conclude that the only option for a replacement HSTS is one that requires an NPDES permit, the local health department will provide the owner with the application paperwork to send to the Ohio EPA for it to consider issuing the NPDES permit. The owner must send the results of the site and soil evaluation to a HSTS designer and pay the designer for his or her services. The local health district reviews the submitted design plan and either approves or disapproves it, depending on whether the proposed HSTS design complies with ODH's STS Rules. Once the design plan has been approved, and once the Ohio EPA has issued an NPDES permit for the property address (if the local health department determined one was needed), the owner's chosen registered installer may obtain an installation permit from the local health department, then begin the job.

Sewer Availability and Accessibility

The Ohio EPA's Central Office has indicated to local health districts that cost can be a determining factor of sewer accessibility. That is, if the cost of connecting a home with an HSTS that's creating a nuisance exceeds the cost of the most expensive on-lot soil absorption-type HSTS, which on average costs about \$24,000 in the Portage Lakes region, then connecting that home to sanitary sewer can be considered inaccessible, which in turn means that home would be permitted to have a discharging HSTS under the Ohio EPA's General NPDES permit for HSTSs and discharge to waters of the state, including directly to the Portage Lakes.

HSTS Operation & Maintenance (O & M)

- **Operation Permit, Service Provider Reporting**

Changes to the Ohio Administrative Code in 2015 now mandate that no person in the state of Ohio shall operate a HSTS without a valid operation permit. All three local health districts with jurisdiction in the Portage Lakes watershed, Summit County Public Health, Stark County Health Department, and Portage County Health District, enforce this mandate by requiring the owners of HSTSs to have a valid HSTS operation permit and maintain a service contract with a registered HSTS service provider. Service providers are required to submit service reports to the local health department, which then follow up when a service report indicates that a system is creating a public health nuisance. Septage haulers are required to be registered and must complete a state pumping form that identifies any issues that a health department needs to follow up on, such as a tank being overfull, which constitutes a public health nuisance, as mentioned above.

- **Real Estate Transfer Inspection Requirements**

Beginning in 2008, Summit and Stark Counties have had a mandatory HSTS point-of-sale inspection O & M requirement, under which the owner of every home being sold in each respective county must have his or her HSTS inspected prior to property transfer. In the Summit County portion of the watershed, if an HSTS is found to be creating a nuisance at the time of a point-of-sale inspection, Summit County Public Health makes the buyer and seller aware that the system is creating a nuisance and that it will follow up within 60 days to ensure that the nuisance has been abated. If it is observed during the 60-day inspection that the nuisance has not been abated, the inspecting sanitarian will issue orders to the current owner to connect to sewer, if it's available and accessible, or repair or replace the HSTS. Stark County Health Department also requires that sewage nuisances discovered at point-of-sale be abated. The Portage County Health District does not have mandatory point-of-sale HSTS inspection requirement, but offers voluntary real estate transfer septic inspection as fee-for-service program, and highly recommends the point-of-sale inspection, which most buyers have performed to prevent unforeseen nuisance abatement costs after investing in a house.

- **Pre-Building & Zoning Permit Operation Inspections**

Both Summit County Public Health and the Stark County Health Department require HSTS operation inspections for any proposed project requiring a building and/or zoning permit. If, at the time of inspection, the HSTS is found to be causing a nuisance, the proposed project is disapproved until the owner hires and registered service provider or registered installer to repair or replace the HSTS. If it is determined that the proposed project would negatively impact the existing HSTS or its future replacement area, the proposed project is disapproved. Once it's determined that the HSTS is operating properly and the proposed project would not negatively impact the existing HSTS or its future replacement area, the proposed project is approved and the owner is provided

with documentation to provide to the zoning and building departments when applying for these departments permits.

- **Nuisance Investigations and Abatement**

ORC Chapter 3707.01 requires all local health districts to investigate and abate nuisances. Local health districts use the authority given by this law to issue orders to owners to repair or replace failing HSTSs, and bring non-cooperative owners of polluting HSTSs before their Boards of Health, which can result in Board of Health actions, up to and including the issuance of orders to vacate homes.

- **Public Education and Outreach**

All three local health districts with jurisdiction in the Portage Lakes watershed have educational materials for HSTS owners on their website. Summit County Public Health routinely holds evening HSTS operation and maintenance education classes for homeowners; the location and dates of which are posted on its website and stated in a press release.

- **Recommended O & M Actions and Best Management Practices (BMPs) for Owners of an HSTS to Prevent Premature System Failure and Negative Impacts on the Water Quality of the Portage Lakes**

- Make sure you always have a valid HSTS operation permit from the local health district
- Maintain continuous a service contract with a registered HSTS service provider—since registrations must be renewed annually, check with your local health district or its website every year to verify that your service provider is registered and bonded
- Do not put these solid waste items in a HSTS; put them in a trash can:
 - Food waste (only use kitchen sink garbage grinders sparingly if one has already been installed)
 - Coffee grounds (can be composted, as can other plant-based food waste)
 - Paper towels
 - Rags
 - Bandages
 - Disposable diapers (have been found directly tossed into septic tanks)
 - Hair
 - Feminine hygiene products
 - Condoms
 - Wipes (both “flushable” and disposable varieties)
 - Kitty litter (both “flushable” and disposable varieties)
 - Cigarette butts
 - Match sticks
- Do not put these liquids or solids in a HSTS:
 - Fats, oils, grease (This includes cooking oils and meat grease)

- Pesticides, herbicides, fungicides
- Toxins, including photo-developing solutions and rodenticides
- Prescription and over-the-counter medications (contact your pharmacy for often-free disposal of medications at its counter.)
- Paints, paint thinners and other chemical compound solvents
- Strong disinfectants/cleaners, such as household bleach and ammonia
- Home-brewery or winemaking wastes, which typically contain disinfectants
- Antibacterial soaps and detergents
- Water softener backwash brine
- Commercial septic tank additives (they do more harm than good)
- Have your septic tank(s) pumped when your registered service provider says its needed

Actions for Stakeholders to Take to Reduce the Negative Impacts that Wastewater Contaminates have on the Lakes

- Contact your local health district when you observe a HSTS nuisance, which can be reported anonymously and may be able to be reported on its website
- Disseminate the HSTS O & M actions and BMPs listed above to lakeside property owners
- Gain knowledge about and seek ways to reduce nutrient loads from off-lot discharging NPDES HSTSs, that are a “last resort” type of replacement system and each are legally permitted under the Clean Water Act to discharge the equivalent of a 50-pound bag of 10-10-0 lawn fertilizer directly into the Lakes, spread over 365 days, at an average rate of about a quarter of an ounce per day.
- Work with communities to identify areas where extension of sewer service might be feasible/appropriate; participate in public discussions about sewer service extension.