Section 8: SEPTIC SYSTEMS AND DECENTRALIZED SYSTEMS

INTRODUCTION

This Section discusses management recommendations for on-site sewage management systems serving a single family residence as well as recommendations to better manage the use of larger private decentralized systems that treat wastewater generated by more than one property or residence. An on-site sewage management system is defined as a system which has been permitted for installation by a local County Board of Health under the rules promulgated by the Georgia Department of Human Resources (Georgia DHR). A private decentralized wastewater system is defined as any privately owned wastewater collection, treatment or disposal system serving more than one residential lot or business, or which has a daily flow in excess of 2,000 gallons per day, or which transfers flows between more than one parcel or tract of land. The most common on-site sewage management systems within the Metro Water District are septic systems; therefore this Wastewater Management Plan uses the term septic system and on-site sewage management system interchangeably.

Decentralized wastewater systems are a viable wastewater treatment option for some communities if the decentralized system is owned and operated by a Responsible Management Entity and incorporated into local wastewater master plans. Responsible Management Entity (RME) is defined as a legal entity that has the technical, managerial, and financial capacity to ensure viable long-term, cost-effective, centralized management, operation, and maintenance of decentralized wastewater systems in accordance with appropriate regulations and generally accepted accounting principles.

Approximately one-fifth of residential wastewater and one-tenth of the all wastewater generated in the Metro Water District is treated by septic systems, however, the percentage of wastewater treated by septic systems is anticipated to decline as population density increases and more sewer service is made available. Septic systems have been proven to be an environmentally sound method for on-site wastewater treatment when properly designed, sited, constructed, and maintained. When they are not, they can become a source of ground and surface water contamination, as well as a public health hazard. Most counties within the Metro Water District have experienced septic system failures; once these systems fail, the result can be damaging to the environment and expensive to correct. Therefore, it is important to avoid future problems by ensuring septic systems are installed, operated, and managed properly. Continued emphasis on planning, management and maintenance of on-site wastewater systems is needed.

Comprehensive Land Use Plans (CLUPs) provide the foundation for septic system and decentralized system planning. CLUPs establish existing and future land use which drives the use of septic systems. As discussed in this Section, CLUPs must carefully consider the long-term impacts of future growth on septic systems and decentralized systems.

In Georgia, Chapter 290-5-26 of the Rules of the Georgia DHR, "On-Site Sewage Management Systems," establishes statewide regulations for septic systems. Georgia DHR's "Manual for On-Site Sewage Management Systems" (Georgia DHR Manual) details requirements for siting, design,

installation, and operation of septic systems. These regulations establish the minimum requirements that are enforced by the local County Boards of Health.

The Rules and Regulations for On-Site Sewage Management Systems, Chapter 290-5-26, defines the design limits for conventional, chamber or alternative systems as no smaller than 1,000 gallons or no larger than 10,000 gallon per day (gpd) of capacity. Although the lower design limit is 1,000 gpd there are many systems that treat less than 1,000 gpd. The majority of residential septic systems fall into this range and are regulated by Georgia DHR and in turn the County Boards of Health. Any septic system larger than 10,000 gallons is permitted by Georgia EPD; these large septic systems are typically used as community-wide treatment systems or for commercial or institutional developments. Georgia EPD regulates these community on-site sewage management systems through a general permit. Non-domestic on-site wastewater systems must be approved by Georgia EPD prior to permitting by the county.

The local County Board of Health is responsible for establishing local requirements that include:

- Specifying locations where septic systems may be installed
- Specifying minimum lot size or land areas which may be served by septic systems
- Specifying the types of residences, buildings, or facilities which may be served
- Issuing permits for installation and repair of septic systems
- Inspecting septic systems prior to completion of installation
- Providing for ongoing maintenance of septic systems (except for non-mechanical residential sewage management systems)

While the County Board of Health is responsible for the siting, design and construction, the Wastewater Management Plan focuses on the planning and policy frameworks to be established by the local governments and local wastewater providers in the Metro Water District in coordination with the County Board of Health.

ACTION ITEM 8.1 – SEPTIC SYSTEM PLANNING

ACTION ITEM

Develop a plan that identifies where and under what conditions septic systems are appropriate considering long-term water quality and quantity concerns.

Responsible Party

☑ Local Government
☐ Local Wastewater Provider
☐ Other: _____

In Coordination With

☑ Site Plan Review Staff
☑ Community Development/ Zoning
☑ Local Stormwater Program
☑ Local Wastewater Providers
☑ Local Water Provider
☑ County Board of Health
☑ Other: neighboring local governments and wastewater providers (where appropriate)

OBJECTIVE

Protect human and environmental health by requiring the proper planning of septic systems.

DESCRIPTION OF MEASURE

Each local government in the Metro Water District must identify appropriate locations and conditions for septic system usage and then identify and plan for future sewered and unsewered areas as part of their Comprehensive Land Use Plan (CLUP) and local wastewater master plan. This planning will include how to handle the wastewater generated in transitional areas that are currently served by septic but in the future will become sewered. This septic system planning will be coordinated with and included in the local wastewater system master plan as described in Section 9 of this Plan, the local water supply master plan as described in the Water Supply and Water Conservation Management Plan, CLUP and coordinated with the County Board of Health. This planning should consider any need for return flows identified in the Water Supply and Water Conservation Management Plan.

Local governments should begin the septic system planning process by identifying the general location of existing septic systems as well as existing sewer lines. The next step is to determine the areas planned for future septic systems as well as the number of anticipated septic systems based on local zoning within their community. Areas that are not intended to be served by sewer in the future should be zoned appropriately for long-term septic system use. For most areas in the Metro Water District, minimum lot sizes of one-acre or greater should be considered to ensure enough suitable soil for the initial septic system as well as a full size replacement drainfield.

Local governments need to identify the areas that are currently undeveloped or served by septic system but are planned for sewer service in the future. Once these transitional areas have been identified the local government will need to determine if development on private decentralized facilities will be allowed or if development will occur on septic systems. If private decentralized systems are used then local wastewater master plans should account for these private systems and create a plan to tie in the areas, including obtaining easements, served by these facilities into the larger collection system once those private facilities are decommissioned. Planning for future wastewater service, septic systems, and decentralized systems will be based on the future land use plan created as part of the CLUP process.

Septic system planning must include necessary policies to address connection to sewer in the near term, (for example, within the next 5 years) and long term, within the next 20 years. This topic is further discussed in Action Item 9.2.

Areas that are planned for septic systems, both short and long-term should consider how the septage generated from regular maintenance of septic systems will be handled. Septage disposal is discussed further in Action Item 8.4 with anticipated flows by county shown in Figure 3-3.

SPECIFIC SUB-TASKS

Sub-Task	Description
Determine future septic system areas and local requirements	Identify areas planned for future sanitary sewer service and areas intended for long-term septic usage.
Develop near term and long-term policies for transitioning unsewered areas to sewered areas.	Develop policies to address the conversion of septic system to sewer as the system extends and the requirements for connection to sewer.

ACTION ITEM 8.2 – SEPTIC SYSTEM CRITICAL AREA MANAGEMENT

ACTION ITEM

Identify septic system critical areas, both existing problem areas and potential problem areas, and assign additional management requirements for septic systems in those areas.

Responsible Party

☑ Local Government
☐ Local Wastewater Provider
☐ Other: _____

In Coordination With

☑ Site Plan Review Staff
☑ Community Development/ Zoning
☑ Local Stormwater Program
☐ Local Water Provider
☑ Local Wastewater Providers
☑ County Board of Health
☑ Other: neighboring local governments and wastewater providers (where appropriate)

OBJECTIVE

Limit the potential negative impact of failing septic systems in areas that are considered sensitive or problematic.

DESCRIPTION OF MEASURE

Critical areas are those areas where the risks and/or potential impacts of septic system failures are higher and areas where failure could readily impact a drinking water supply source. Each local government must identify critical areas that have experienced problems or could possibly experience failures in the future. In determining critical areas for septic systems, the following areas should be considered:

- Septic systems in small drinking water supply watersheds
- Septic systems found around lakes or other water features
- Areas with high failure rates
- Areas with limited soil conditions, rock, steep slopes, or high groundwater levels
- Other problem areas as defined by County Board of Health or local jurisdictions

The local wastewater providers and County Boards of Health are encouraged to participate in local government efforts to identify critical areas. Local wastewater providers may choose to extend sanitary sewer service to some critical areas that are adjacent to current or planned service areas. Local water providers are encouraged to participate in the identification of critical areas, especially if there is the potential to impact drinking water supplies.

Once the critical areas are identified, local governments must determine what additional management options apply to septic systems within these critical areas. Additional management options for consideration are outlined for both existing and new septic systems in critical areas as shown in Table 8-1. Management options may vary within a jurisdiction based on the critical area being protected. For example, critical areas with bedrock or poor soils may require larger minimum lot sizes for septic systems, but critical areas associated with a drinking water supply watershed may require inspections/maintenance of septic systems every 5 years.

TABLE 8-1
Management Options Matrix for Critical Areas

Management Option	New Septic Systems	Existing Septic Systems
Require connection to sanitary sewer when system fails (if available).		X
If sanitary sewer is not available when system fails, then require repairs to be made using current regulations including a soils test to determine the best type of system for the site.		X
Require larger minimum lot size (based on site criteria).	X	
Increase tank size by 50% and increase drain field length.	X	
Track location of septic system in database.	X	X
Require Health Department to be involved in initial site plan review for new developments (before roads and lots are cut).	X	
Make critical areas a priority for sewer service in local wastewater management plans.	X	X
Require inspection and/or maintenance at 5 year intervals.	X	X
Institute or enhance water quality monitoring.	X	X
Require 2 full-size drain fields with a switching valve be installed and alternate flow annually to extend the life of the drain fields.	X	
Special homeowner education program.	X	X

SPECIFIC SUB-TASKS

Sub-Task	Description
Identify critical areas.	Identify critical areas with risk and/or potential impacts for septic system failures.
Conduct additional management of septic systems in those critical areas.	Determine the appropriate conditions for septic systems in certain critical areas.

ACTION ITEM 8.3 – SEPTIC SYSTEM MAINTENANCE EDUCATION

ACTION ITEM

Educate homeowners about the need to properly maintain septic systems.

Responsible Party

☑ Local Government
☐Local Wastewater Provider
☐ Other: _____

In Coordination With

☑ Site Plan Review Staff
☑ Community Development/ Zoning
☑ Local Stormwater Program
☑ Local Wastewater Providers
☐ Local Water Provider
☑ County Board of Health
☑ Other: neighboring wastewater providers (where appropriate)

OBJECTIVE

Protect human and environmental health by educating homeowners on how to maintain their septic systems.

DESCRIPTION OF MEASURE

There are a variety of reasons that septic systems fail including age, poor soils, improper installation practices, and homeowners placing more demand on the septic system than the system was originally designed to handle.

In Georgia, each system owner is responsible for proper operation and maintenance of their septic system. The Georgia DHR Manual provides general guidance for operation and maintenance. Most septic system owners are not aware of this guidance and generally do not think about their septic system unless a major failure has occurred. Local jurisdictions need to focus on educating homeowners about how to properly maintain their septic system and on proper septage disposal practices. Homeowners may be encouraged, through education programs, to ask where septage will be disposed following a pump out. This education may be a component of the local education program discussed in Section 11.

Septic system education should help homeowners determine whether or not they have a septic system and if they have a septic system, how they can determine the location of their septic system drainfield and any other components of their septic system. Once the drainfield is located, homeowners should avoid driving over the drainfield and planting trees around the drainfield to preserve its functionality. Preserving the integrity of the drainfield area should be a priority for all septic system owners. For mechanical systems, homeowners should know the location of the power source for the on-site sewage management system to prevent problems. The Metro Water District has developed tools to educate homeowners on the need for maintenance. These tools are available on the Metro Water District's website.

Per O.C.G.A. § 31-3-5, the Georgia DHR is not allowed to regulate ongoing maintenance of non-mechanical residential sewage management systems, including traditional septic systems. With the large number of septic systems within the Metro Water District that are reaching the end of their useful life this limitation should be removed so Georgia DHR is able to require maintenance on all septic systems.

Preventative maintenance steps can prolong the life of a septic system, such as preventing excessive water from leaky plumbing, directing gutter downspouts away from the drainfield area and not allowing trees or heavy vehicles to be placed over the drainfield area. There are two elements common to all septic systems; a tank to break down solids and an absorption field (also known as a drainfield or leachfield) to distribute the wastewater into the soil.

The two basic categories of septic systems include mechanical and non-mechanical systems. Non-mechanical septic systems are the traditional gravity flow system, most common in the Metro Water District. Ongoing maintenance for non-mechanical systems includes pumping out the solids from the tank to preserve the proper function of the drainfield. Pump out frequency is a result of indoor use including the number of people and the presence or absence of a garbage disposal. Pump out intervals are more regular for septic systems that serve a greater number of people or have a garbage disposal. Mechanical systems require electricity and typically have a pump that aids in either the wastewater treatment process or the distribution of the effluent. More frequent maintenance intervals are suggested for mechanical systems because of the dependence on moving parts to make the system function properly. The maintenance requirements of mechanical systems vary depending on the specific manufacturer.

SPECIFIC SUB-TASKS

Sub-Task	Description
Implement a septic system homeowner education program	Educate homeowners about the need to properly maintain septic systems and about proper septage disposal practices.

ACTION ITEM 8.4 – SEPTIC TANK SEPTAGE DISPOSAL

ACTION ITEM

Local governments must develop a plan for the disposal of septage generated within their jurisdiction at local wastewater treatment plants or alternative disposal locations.

Responsible Party

☑ Local Government
☐Local Wastewater Provider
☐ Other: _____

In Coordination With

☑ Site Plan Review Staff
☑ Community Development/ Zoning
☑ Local Stormwater Program
☑ Local Wastewater Providers
☐ Local Water Provider
☑ County Board of Health
☑ Other: neighboring wastewater providers (where appropriate)

OBJECTIVE

Minimize illegal dumping by providing for proper septage disposal.

DESCRIPTION OF MEASURE

Although proper septage disposal is the responsibility of the septage generator, local jurisdictions must develop a septage disposal plan to facilitate its proper disposal by residents. If a local government accepts septage at a local wastewater facility, that facility must develop acceptable parameters for septage disposal to include at a minimum: the days/times of the week septage is accepted and the volume of septage allowed per day. Septic systems should not be permitted by the County Board of Health if sufficient capacity for septage disposal has not been identified.

Septage haulers are required to submit copies of their hauling manifests to wastewater facilities. Wastewater providers must forward these manifests to the County Board of Health department as a record of proper septic tank maintenance. Monitoring hauling manifests will help to minimize public health and environmental problems associated with illegal septage disposal. Local wastewater providers should plan for future septage disposal demands based on local wastewater master plans, anticipated zoning density, and the average disposal frequency (Action Item 9.1). Local wastewater providers should plan for future septage demands when designing wastewater treatment plant expansions and/or new wastewater facilities. Illegal dumping of septage into local waterways presents a water quality problem and illegal dumping into manholes can disrupt operations at the wastewater treatment facilities.

Currently, the location and condition of septic systems is not consistently tracked and managed throughout the state. Some local governments in the Metro Water District have taken steps to locate and inventory the septic systems in their jurisdiction. To better manage and track septic system permits, repairs and failures, the DHR should create a database for septic systems in Georgia. The County Board of Health should use this database to track septic system permits, repair activities and system failures. Local wastewater providers should support this effort by providing septage manifests and local governments should support this effort by providing available local data to their County Board of Health.

SPECIFIC SUB-TASKS

Sub-Task	Description
Develop a plan and acceptable parameters for septage disposal	Local governments must plan for septage disposal when determining future areas served by septic. Local wastewater providers must determine acceptable parameters for septage disposal at local wastewater treatment facilities.
Collect septage manifests and provide to County Board of Health	Local wastewater providers must collect and provide septage manifests to County Board of Health.
Consider septage disposal needs when upgrading or designing new wastewater treatment facilities	Local wastewater providers should consider future septage needs when designing new or upgrading wastewater facilities.

ACTION ITEM 8.5 – PRIVATE DECENTRALIZED WASTEWATER SYSTEMS ORDINANCE

ACTION ITEM

Adopt a local ordinance to manage the use of private decentralized wastewater systems.

Responsible Party

☑ Local Government
☐ Local Wastewater Provider
☐ Other: _____

In Coordination With

☑ Site Plan Review Staff
☑ Community Development/ Zoning
☑ Local Stormwater Program
☑ Local Wastewater Providers
☐ Local Water Provider
☑ County Board of Health
☑ Other: neighboring wastewater providers (where appropriate)

OBJECTIVE

Establish requirements for the proper design and maintenance of private wastewater systems to protect human and environmental health.

DESCRIPTION OF MEASURE

A private decentralized wastewater system is defined as any privately owned wastewater collection, treatment or disposal system serving more than one residential lot or business, or which has a daily flow in excess of 2,000 gallons per day, or which transfers flows between more than one parcel or tract of land.

Local governments in coordination with local wastewater providers should determine the long-term community impact of decentralized systems and adjust long-term wastewater master plans accordingly (Action Item 9.1). Local governments (those who issue building permits) must either:

- Enact a local ordinance prohibiting private decentralized wastewater systems
- Enact a local ordinance establishing specific conditions for private decentralized wastewater systems

In selecting from these two options, each community should consider the long-term impacts of private decentralized wastewater systems on water quality, assimilative capacity, and on consumptive use. Private decentralized systems share some of the same challenges as septic systems in that if not properly operated and maintained they can impact water quality. When determining whether to allow private decentralized systems, local governments should consider the long-term impacts on existing and planned wastewater operations. Private decentralized systems are often required through the regulatory process to use land application or subsurface disposal methods for treated effluent. Such disposal methods may be considered a consumptive use and their impact on future water supplies should also be factored into the local ordinance decision.

Most of the jurisdictions in the Metro Water District have at one time or another relied upon small private decentralized wastewater treatment systems to establish sewer services. Some communities may view private decentralized systems as building blocks towards the long-term expansion of the wastewater collections system without requiring initial public funding or a community can choose to incorporate decentralized wastewater systems into the permanent portfolio of wastewater collection, treatment, and disposal alternatives.

If communities do allow private systems for this purpose, the local ordinance must reference minimum requirements for design, construction, ownership, and operation to protect public health and water quality. Technical specifications for the installation of private systems may also be included in the guidance document. The ordinance must require private systems to post an Operational Bond and have a Trust Indenture issued by the local jurisdiction issuing the land disturbance permit or the local wastewater provider. The Trust Indenture is an important aspect of the local ordinance, as it establishes the entity responsible for maintenance if the private owner is unable to perform. Several communities within the Metro Water District have inherited private wastewater facilities that were not properly maintained. The ordinance must also specify that the private system must obtain approval from Georgia EPD prior to construction.

Local governments must send a copy of their private wastewater system ordinance to Georgia EPD, Georgia DCA, and incorporate it into local wastewater master plans (Action Item 9.1). With the ordinance, Georgia EPD can evaluate permit requests from private service providers. Local wastewater providers with an ordinance in place as of March 2009 that addresses private wastewater management systems are considered to be in compliance with this action item and are not required to change their existing ordinance.

SPECIFIC SUB-TASKS

Sub-Task	Description
Adopt a private wastewater system ordinance	Adopt a private wastewater system ordinance that either prohibits private systems or provides technical specifications for these systems.
Provide a copy of the ordinance to Georgia EPD and Georgia DCA	Provide the ordinance to Georgia EPD and Georgia DCA and incorporate into local wastewater master plans.

ACTION ITEM 8.6 – SEPTIC SYSTEM COORDINATION

ACTION ITEM

Develop written procedures to involve the County Board of Health in initial site plan review of new developments and annual water quality discussions.

Responsible Party

- ☑ Local Government
- ☐ Local Wastewater Provider
- ☐ Other: _____

In Coordination With

- ☑ Site Plan Review Staff
- ☑ Community Development/ Zoning
- ☑ Local Stormwater Program
- ☑ Local Wastewater Providers
- ☐ Local Water Provider
- ☑ County Board of Health
- ☑ Other: neighboring wastewater providers (where appropriate)

OBJECTIVE

This measure allows the most suitable soils for septic system operation to be identified before the roads and lots are established to ensure the best areas for septic systems are preserved.

DESCRIPTION OF MEASURE

There are two specific opportunities for improved coordination between local governments and County Boards of Health; during the new development permitting process and while addressing local water quality challenges.

Local jurisdictions that issue building permits on lots to be served by septic systems must develop a written procedure that requires the soils inspection and health department permit process be started before any lots are laid out and any land disturbing activities are allowed. Early soil samples are especially important for new developments that will be permanently served by septic systems. The results of the soils analysis should guide the lot configuration to ensure the best soils are preserved for potential septic system locations.

Coordination can also be beneficial in identifying and addressing potential water quality challenges. An annual coordination meeting must be held each year with the County Board of Health, local governments, and the local wastewater providers to discuss water quality concerns. Failed septic systems can have a negative impact on water quality. It is important, but not required, for water quality monitoring programs to consider septic system locations and contributions when evaluating data. Water conditions assessments that include surface water quality monitoring are required in the Metro Water District's Watershed Management Plan (Management Measure 6.G.1). Investigation of possible septic system failures by the County Board of Health staff based on locally collected water quality data and the Georgia EPD 303(d) list of impaired waters is important for the protection of water quality and should be discussed at the annual coordination meeting.

The monitoring process should unfold as follows: water quality monitoring indicates an area with elevated contaminant levels and then the County Board of Health staff checks local records to determine if any septic systems are located upstream or adjacent to the monitoring station. If septic systems are present, then field investigations would be conducted to determine if one or more failed systems exist, and if any untreated wastewater is reaching the adjacent water body.

A major resource in identifying system failures is from public nuisance complaints of odors or foul water run-off. To effectively respond to customer complaints, local governments may elect to establish

a procedure for communicating these complaints with the County Board of Health for further investigation.

SPECIFIC SUB-TASKS

Sub-Task	Description
New development coordination	Develop written procedure that requires the soils inspection and health department permit process be started before land disturbing activities are allowed.
Water quality coordination	Coordinate local water quality challenges with the County Board of Health departments, where appropriate.