

Options for Clean Water Solutions in White Hall, Alabama



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White Hall’s Options for Clean Water Solutions

White Hall is a town in Lowndes County, Alabama, with approximately 800 residents. The town is located between Selma and Montgomery and is part of the southern Black Belt. White Hall’s beautiful natural areas, agricultural spaces, and history are just a few defining features of this community.

Residents of White Hall currently have inadequate wastewater treatment services. For many years, community members have worked to change this situation. With the passage of the Bipartisan Infrastructure Law and new Water Technical Assistance services, there is momentum to bring wastewater treatment solutions to homes in White Hall. This plan describes technical options and financial resources for wastewater treatment. It is the product of the combined efforts of many organizations and individuals and provides options for clean water solutions for the town.

Closing America’s Wastewater Access Gap Community Initiative Pilot: EPA/USDA-RD Partnership

Introduction

The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture Rural Development (USDA-RD) partnered with six states and three Tribes (two federally recognized and one state-recognized) on the Closing America’s Wastewater Access Gap Community Initiative. As a pilot program, this initiative was the first of its kind for EPA and USDA-RD. This initiative provides technical assistance to support capacity to improve wastewater management for the 11 participating communities. EPA and USDA have grant and loan programs to help pay for wastewater system improvements. Recent increases in federal funding offer an opportunity for communities to invest in septic upgrades, connect to nearby treatment systems, or build new sewer and wastewater treatment systems that meet their needs.

EPA offers a range of water technical assistance (WaterTA) for communities to identify water challenges and solutions, build capacity, and develop application materials to access water infrastructure funding. EPA collaborates with states, Tribes, territories, community partners, and other stakeholders to implement WaterTA efforts. The result: more communities apply for federal funding to support quality water infrastructure and reliable water services. Communities can learn more about EPA WaterTA and how to indicate interest in receiving assistance by visiting EPA’s WaterTA website.¹

USDA offers a wide range of water and wastewater assistance for rural communities to obtain the technical assistance and financing necessary to develop drinking water and waste disposal systems. USDA’s Water and Waste Disposal Technical Assistance and Training Grants program helps qualified, private nonprofits provide technical assistance and training to identify and evaluate solutions to water and waste problems. It also helps applicants prepare applications for water and waste disposal loans and grants, and it helps associations improve the operation and maintenance of water and waste facilities in eligible rural areas with populations of 10,000 or fewer. Communities can learn more about USDA Water and Waste Disposal Technical Assistance and Training Grants and how to indicate interest in receiving assistance by visiting USDA’s website.²

Purpose

EPA and USDA-RD pilot program staff members worked with the pilot program team—the Mayor of White Hall, a local engineering consultant, the Kelley Group; the local technical assistance providers Communities Unlimited and Alabama Rural Water Association; the Alabama Department of Environmental Management (ADEM); and the Alabama Department of Public Health (ADPH)—to develop solutions for White Hall’s wastewater issues. This document, *Options for Clean Water Solutions in White Hall, Alabama*, outlines potential solutions to address the needs for improved wastewater treatment approaches in White Hall. Residents and town leadership can use this information to estimate costs and select a wastewater solution that meets today’s challenges and helps the community thrive.

1 <https://www.epa.gov/waterta>

2 <https://www.rd.usda.gov/programs-services/water-environmental-programs/water-waste-disposal-technical-assistance-training-grants>

Over the past year, the pilot program team has:

1. **Conducted a community wastewater assessment.** The pilot program team reviewed existing information on wastewater systems in White Hall and found areas that need improvement. This review did not include collecting site information on soils or existing septic systems.
2. **Identified wastewater solutions.** The team identified wastewater solutions and estimated their costs. They considered the community's long-term needs and outlined a path to apply for funding. State and local officials and community members played a key role in developing these options.
3. **Helped communities find and apply for funding opportunities.** This plan outlines federal funding sources and how to apply for funding. It also shows how to pay for construction and long-term costs. Funding applications to continue with master planning were submitted and awarded during this process.
4. **Developed a plan to pay for ongoing costs.** To install and operate the selected system, the Town of White Hall will have to develop a plan to pay for construction and ongoing costs. These costs could include management, operations, maintenance, and any potential construction loan repayments. This plan offers ideas to get started, such as programs with low-income rate assistance and non-rate revenue programs that other utilities have used.



The Town of White Hall, Alabama

White Hall is in the northwest area of Lowndes County, halfway between Selma and Montgomery on U.S. Highway 80. The Lowndes County Visitors Center memorializes the bravery of residents here during the Civil Rights Movement and their struggle to win equal rights. White Hall is part of an area across the southern United States called the Black Belt, which is known for its fertile soil (Figure 1). White Hall is one of the larger incorporated areas in Lowndes County, with nearly 800 residents. The town serves 430 water customers within the town boundary. The town consists of large lots surrounded by agricultural and natural areas. The Alabama River borders the town to the north. Highway 80, which connects Selma and Montgomery, runs through the southern part of the town. An assessment of the community conditions was conducted, which includes a summary of the economic conditions, physical conditions such as soil analysis and floodplain, and current utility operations for the town.

White Hall, like the rest of Lowndes County and much of the Black Belt, lacks functioning wastewater systems. While some progress has been made in recent years—for example, the community built a “cluster” system to serve 45 homes and the elementary school—community feedback indicates there are continuing challenges with septic systems and access to quality wastewater infrastructure.

Currently, ADPH is taking measures to improve sanitation as part of an interim settlement with the Department of Justice that was approved in May 2023. The Department of Justice and the Department of Health and Human Services launched an investigation into whether ADPH’s conduct had violated Title VI of the Civil Rights Act of 1964 and Section 1557 of the Affordable Care Act in November 2021. ADPH cooperated throughout the investigation and agreed to the interim resolution that put ADPH on a path toward developing equitable and safe wastewater disposal and management systems in Lowndes County.³

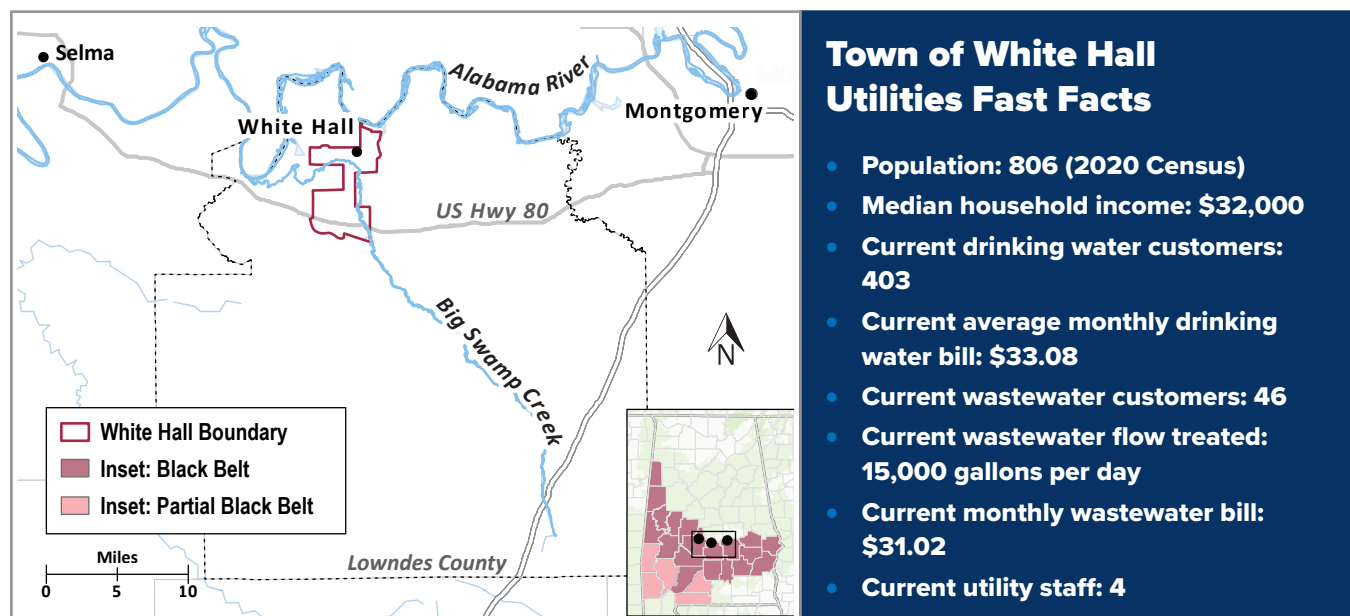


Figure 1. Location of White Hall, Alabama.

³ <https://www.justice.gov/opa/pr/departments-justice-and-health-and-human-services-announce-interim-resolution-agreement>

The Potential of Infrastructure Investment

White Hall residents have expressed support for capital investment in sanitation infrastructure, and they understand that monthly bills are necessary for maintenance of infrastructure. They want a community where their children can safely play in their backyards without risking exposure to untreated wastewater. The ability to do laundry and take a shower at the same time, even during rain, is a basic need. While the primary purpose of improving the wastewater system is to address the challenging sanitation issues that currently exist in the community, community leaders indicate that with proper infrastructure they could attract industry; a grocery store; and potential services such as hotels, gas stations, and restaurants for those who want to explore the natural beauty and historical significance of Lowndes County. An affordable wastewater system is key to maintaining a vibrant, productive community.

Community Engagement Feedback

The White Hall City Council, EPA, and USDA-RD held a listening session in March 2023 to gather feedback from community members on alternatives for a wastewater system. Major points included:

- Rate affordability is key to maintaining and growing community support.
- Education must stress that the entire community will play a part in new system development and ongoing costs, including paying a monthly bill.
- New infrastructure will require system maintenance.
- These solutions are long overdue.
- Residents are encouraged to think about needs for 20 years down the road.
- The community is encouraged to consider its economic goals.

An economic development professional is working with the Mayor to evaluate opportunities for White Hall. They found that a new wastewater system could facilitate industrial development along County Road 40 and commercial or housing development along Highway 80. A gravity sewer is usually most attractive to industry and commercial businesses due to the ease of building and low onsite maintenance needs. Options to allow expansion of service to other communities along Highway 80 and County Road 40 are included in the evaluation to consider a regional approach to wastewater management.



For decades, having a functioning septic system has been a primary concern for many residents of the Town of White Hall. The extreme cost has significantly prevented residents from installing a proper septic system, which leads the residents to seek alternative solutions such as ‘straight piping’ and improper systems. Since the onset of this project, I have heard negative comments that seem to demean the residents of Lowndes County for choosing to live here; but, as a lifelong resident, I can relate to their frustrations because I have suffered from an improper septic system also.

It is time to provide residents of the Town of White Hall with an obtainable solution by replacing and repairing the deteriorating septic system. Improvements and advancements to the current infrastructure will change the lives of Lowndes County’s residents and make businesses more eager and willing to locate here.

—Mayor Delmartre Bethel

Wastewater Treatment Options for White Hall

White Hall has a unique layout that stretches from the Alabama River to Highway 80 without a town center (Figure 2). The town has large lots and clusters of housing that make central wastewater systems such as gravity sewers more costly to construct due to the distance between homes. The USDA Natural Resource Conservation Service's (NRCS's) web-based soil survey is the best available data set for soils in White Hall. It indicates that only 7 percent of the soil in White Hall is suitable for traditional septic systems, but local wastewater professionals report that a much higher percentage of the soil is suitable for traditional septic systems. As such, additional analysis would be needed to develop a more accurate cost estimate for the use of traditional septic systems. NRCS soil information is often updated and refined as projects progress.

In 2015, White Hall and USDA-RD agreed to fund a community treatment system that serves roughly 45 homes and the elementary school. This system uses a septic tank effluent pump (STEP), aeration treatment, and a 20-acre drain-field off Freedom Road. The utility operations staff are pleased with its performance and say it is easy to maintain. They have not received reports of odors from neighbors. This system cannot be expanded due to permit limitations, but adding other community treatment systems is an option for White Hall. Although not common, these types of cluster or community systems can work for commercial and industrial development instead of a sewer system and treatment plant. White Hall can also consider conventional gravity sewers and centralized treatment systems that discharge to either the Alabama River or Big Swamp Creek.

This section explores wastewater system alternatives; estimated capital, operating, and loan repayment costs; and pros and cons for each option. Central treatment systems are sized to serve 450 connections with a flow volume of 150,000 gallons per day. Capital costs are based on several information sources, including recent bid tabs, Preliminary Engineering Reports (PERs), invoices for septic systems that are part of other projects in the Black Belt, and input from local professionals. The range in capital costs reflects incorporation of a 50 percent contingency in costs based upon the American Association of Cost Engineers (AACE) cost estimation classification system. The AACE contingency is the international recommended practice for "Class 5" projects (including water and sewer infrastructure projects) that are very preliminary and considered 0 to 2 percent developed. Conservative cost estimates have been used for this preliminary analysis until the data can be refined.

The analysis includes use of mapping tools, web-based soil surveys, and input from local utility staff and consultants. In the future, White Hall will need to check site conditions, conduct a topographic survey, and analyze soil. Although this study provides a range of cost estimates, White Hall will need to conduct an in-depth analysis to

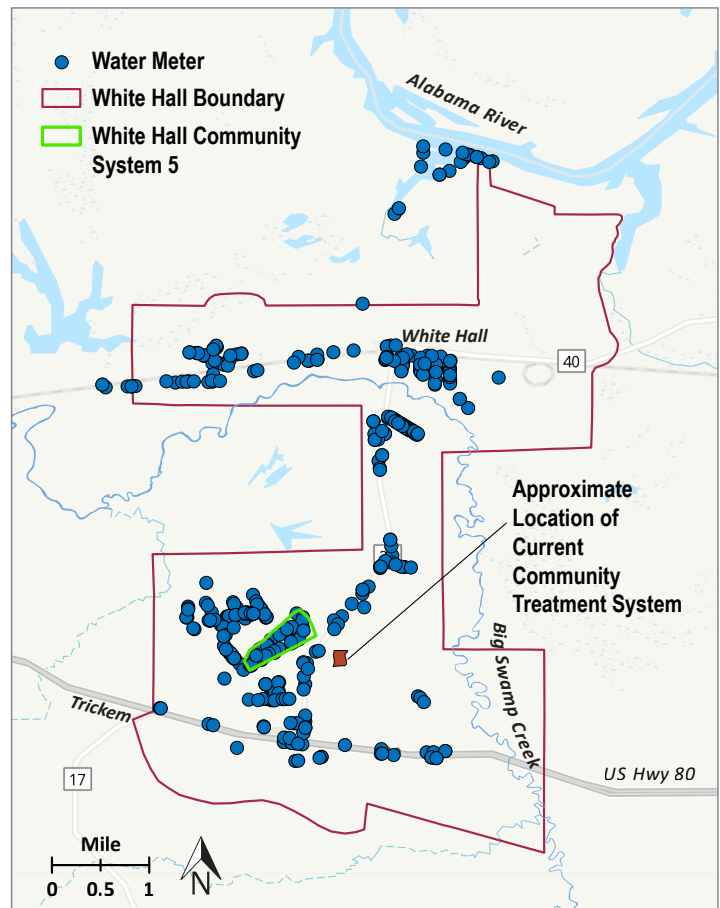


Figure 2. Relevant features of White Hall, Alabama.

fully understand the alternatives and their true costs. White Hall received grant funding from ADEM and USDA-RD to do this analysis through the Feasibility Study for Sanitary Sewer System scheduled to start in early 2024.

Option 1a: Traditional and Engineered Onsite/Septic Systems—Homeowners Responsible for Maintenance and Replacement

This option examines the use of traditional and engineered onsite/septic systems at each residential and commercial building, depending on site-specific soil conditions. Option 1a assumes that each homeowner is responsible for updates, maintenance, and replacement of parts. Replacement of the septic tanks would also be the responsibility of the homeowner and/or potentially facilitated through grants. Operations, maintenance, and replacement costs include pumping out the septic system every 5 years, replacing pumps and motors every 10 years, and replacing drainfields every 20 years.

Expected capital cost range: \$15 million to \$21 million.

Responsibility of individual residents. Costs can range from \$20,000 to \$30,000 based on soil types.

Expected annual operating costs: \$180,000.

Approximate annual costs would range from \$200 to \$500 per household. Homeowner is responsible for paying for periodic pumping of septic tank and for motor, pump, and drainfield replacement; however, there is no monthly bill.

Pros:

- No monthly bill.
- Effective for large lots.
- Should not require the town to purchase land.
- Can be implemented most quickly to address immediate needs.
- Septic systems are effective if installed and maintained correctly.

Cons:

- Might not encourage economic growth, as most businesses want a sewer system.
- Homeowners are responsible for replacing septic tanks.
- If homeowners do not keep up with maintenance needs, the system could fail in 10 years.

Option 1b: Traditional and Engineered Onsite/Septic Systems—Town Forms Responsible Management Entity for Maintenance

This option examines the use of traditional and engineered onsite/septic systems at each residential and commercial building depending on site-specific soil conditions. Option 1b assumes the town develops a Responsible Management Entity program to maintain and replace pumps, motors, and drainfields periodically in septic systems. Replacement of the septic tanks would still be the responsibility of the homeowner and/or potentially facilitated through grants. Operations, maintenance, and replacement costs include pumping out the septic system every 5 years, replacing pumps and motors every 10 years, and replacing drainfields every 20 years. Responsibilities for the town include planning, implementing, and tracking maintenance activities and equipment needs.

Expected capital cost range: \$15 million to \$21 million.

Grant and loan funding is facilitated by the town.

Expected annual operating costs: \$180,000.

Homeowners pay electric cost of \$4 to \$8 per month per household depending on type of septic system, and the rest (\$177,500 average annually) is incurred by the town.

Pros:

- Most affordable initial monthly bill.
- Effective for large lots.
- Should not require the town to purchase land.
- Can be implemented most quickly to address immediate needs.
- Septic systems are effective if installed and maintained correctly.
- Costs include periodic system maintenance.

Cons:

- Might not encourage economic growth, as most businesses want a sewer system.
- Homeowners are responsible for replacing septic tanks.

Option 2: Community System Approach

This option examines the building of 10 community systems throughout the town to provide service to most residents. These systems would be managed by the town utility and would include a STEP sewer and community treatment system with drainfields. Capital costs include renewal of septic tanks and lateral construction. Operations, maintenance, and replacement costs include flow monitoring and reporting, annual maintenance, renewing pumps and motors every 7 years, and renewing the drainfield every 10 years. This approach will also involve maintaining the STEP sewer system: pumping out septic tanks every 5 years, replacing pumps and motors every 7 years, and paying electric costs for homeowners each month.

Expected capital cost range: \$35 million to \$50 million.

Expected annual operating costs: \$230,000.

Pros:

- Consistent service throughout the community.
- Good for larger lots.
- Encourages economic growth along highways.

Cons:

- Operations costs and monthly bills are higher than those for onsite systems.
- Requires the town to buy 20 acres per drainfield (200 acres of land total).
- Parts for treatment systems and STEP systems must be replaced often.

Option 3: Mix of Onsite/Septic Systems and Community Treatment Systems

This option examines the approach of identifying areas that would benefit from a community treatment system, such as the existing community system on Freedom Road. These could include areas along Highway 80 and County Road 40 that could also attract economic growth. The town could use Option 2 for these identified areas and Option 1b (individual onsite systems with the town acting as a Responsible Management Entity) for the rest of the town. Operations, maintenance, and replacement costs include a combination of Options 1 and 2, depending on the systems.

Expected capital cost range: \$28 million to \$40 million.

Expected annual operating costs: \$210,000.

Pros:

- Encourages some economic growth along Highway 80 and County Road 40.
- Lowest overall costs based on town providing maintenance for onsite systems.
- Provides flexibility in the approach to short-term needs and long-term goals.

Cons:

- Replacing parts in a community treatment system can raise costs.
- Allows for some economic growth but might not meet all expectations.
- Requires the town to purchase land.
- May be challenging to set rates for parts of the community because of the combined options.

Option 4a: Gravity Sewer with Centralized Treatment Using a Lagoon System with End Treatment

This option explores the approach of building a gravity sewer for most residents that directs to a wastewater treatment plant. Capital costs include the sewer lateral pipe from the home to the sewer system and decommissioning of the septic tanks. A lagoon system with a recirculating filter end treatment system to improve the water quality of effluent could be a suitable treatment system. This system is relatively straightforward and the least costly to operate. This treatment plant would need to discharge to the Alabama River. Operations, maintenance, and replacement costs include cleaning gravity sewers every 5 years. Staff will need to monitor, maintain, and repair pump stations as needed. A certified wastewater operator will need to operate the treatment plant and monitor quality of the treated water discharge. This option requires the town utility to replace pumps, motors, and controls every 10 years.

Expected capital cost range: \$28 million to \$41 million.

Expected annual operating costs: \$240,000.

Pros:

- Easiest maintenance option for homeowners.
- Can provide economic development and extension to other communities.
- Economic growth can help lower monthly rates.

Cons:

- Requires certified wastewater operators, which can be hard to find.
- Higher operations and maintenance (O&M) burden for the utility.
- Higher monthly rate for customers until economic growth occurs. With additional customers added to the system, rates could potentially decrease due to additional revenue received.
- Requires the town to purchase land.

Option 4b: Gravity Sewer with Centralized Treatment Using an Advanced Tertiary Wastewater Treatment System

This option explores the approach of building a gravity sewer for most residents that directs to a wastewater treatment plant. Capital costs include the sewer lateral pipe from the home to the sewer system and decommissioning of the septic tanks. There are several options for an advanced treatment system, including a conventional activated sludge plant or sequencing batch reactor with a sand filter end treatment to meet more stringent water quality regulations. This treatment plant could discharge to Big Swamp Creek. Operations, maintenance, and replacement costs include cleaning gravity sewers every 5 years. Staff will need to monitor, maintain, and repair pump stations as needed. A certified wastewater operator will need to operate the treatment plant and monitor water quality of the treated water discharge. This option requires the town utility to replace pumps, motors, and controls every 10 years.

Expected capital cost range: \$28 million to \$40 million.

Expected annual operating costs: \$330,000.

Pros:

- Easiest maintenance option for homeowners.
- Can provide economic development and extension to other communities.
- Economic growth can help lower monthly rates.

Cons:

- Requires certified wastewater operators, which can be hard to find.
- Highest O&M burden for the utility.
- Highest monthly rate for customers.
- Requires the town to purchase land.

Financing Options

The financing options evaluated include:

- **CWSRF principal forgiveness loan:** Up to 100 percent principal forgiveness loans through the Clean Water State Revolving Fund (CWSRF) from ADEM.
- **USDA-RD loan/grant:** Rural Development loan/grant that includes a 25 percent loan for a 40-year term at an assumed interest rate of 2.5 percent with 450 customers. The interest rate is adjusted quarterly.
- **30-year bond:** Bond from the Town of White Hall to construct the system on its own, with a 4 percent interest rate for 450 customers.

Table 1, on the next page, shows the estimated monthly rates for O&M for each option, and the monthly rate impact of each financing alternative. These estimates assume 450 customers for each system, including some customers outside the town boundary. Town officials will need to work with the funding agencies throughout the project development process to determine the level of grant and loan funding available. Funding availability can change based on several factors, including legislative appropriations, the project ranking process, and number and type of other applications received.



Table 1. Potential Monthly Bills for White Hall, Alabama

Option	Name	Estimated Capital Cost Range	Estimated O&M Monthly Bill per Customer	Monthly Bill Addition for Financing Options of Capital Costs <i>(CWSRF Principal Forgiveness Loan^a)</i>	Monthly Bill Addition for Financing Options of Capital Costs <i>(USDA-RD 25% Loan 75% Grant)</i>	Monthly Bill Addition for Financing Options of Capital Costs <i>(30-Year Bond)</i>
1a	Onsite/septic systems, maintenance by homeowners ^b	\$15 million–\$21 million	No monthly bill, annual cost of \$200–\$500 ^c	Financing dependent on individual situations	Financing dependent on individual situations	Financing dependent on individual situations
1b	Onsite/septic systems, maintenance by town ^b	\$15 million–\$21 million	\$35	\$0	\$28	\$165
2	Community systems ^b	\$35 million–\$50 million	\$44	\$0	\$64	\$370
3	Mix of onsite and community systems	\$28 million–\$40 million	\$35	\$0	\$48	\$280
4a	Lagoon treatment	\$28 million–\$41 million	\$50	\$0	\$53	\$310
4b	Advanced treatment	\$28 million–\$40 million	\$68	\$0	\$53	\$310

^a Full principal forgiveness is possible but not guaranteed. Funding availability is dependent on several factors. The town will need to engage with ADEM and USDA along the way to determine grant funding availability.

^b Capital and O&M costs for onsite/septic systems and community systems could be reduced based on results of soil testing. Costs are based on unsuitable soils as noted in the USDA Web Soil Survey.

^c Homeowners would pay for periodic pumping of septic tank and replacement of pumps, motors, and drainfields as the system needs maintenance, but would not receive a monthly bill.

Funding Opportunities

The Bipartisan Infrastructure Law provides additional funding to the CWSRF for loans and grants to small, rural, and disadvantaged communities that can be leveraged with USDA-RD funds to address inadequate water and wastewater systems. There are multiple potential funding sources for White Hall, including USDA-RD and the CWSRF administered by ADEM.

Overview of the CWSRF Program Administered by ADEM

- The Alabama CWSRF is a low-interest loan program intended to finance public infrastructure improvements.
- Eligibility is based on ADEM's affordability criteria, which include population trends, unemployment rate, poverty rate, and location of the project on the environmental justice Justice40 map. Based on current data, ADEM staff have indicated that the Town of White Hall would qualify for subsidy through principal forgiveness loans. This will need to be confirmed at time of application(s).
- Communities that qualify for subsidy generally receive additional subsidy in the form of principal forgiveness in their assistance agreements.
- Three years of financial audits are required for the application process.
- Alabama establishes its Intended Use Plan (IUP) and current year priorities for this program at the end of March each year. The state accepts applications year-round, but to receive funding for State Revolving Fund (SRF)-eligible projects and be placed on the IUP for the current year, communities should submit applications before February 28 of that year.
- The loan term is generally 20 years, and the interest rate is below market. The interest rate is adjusted annually.
- As a result of an SRF application, ADEM allotted the Town of White Hall \$450,000 from the American Rescue Plan Act (ARPA) for conducting a sewer system feasibility analysis in White Hall.

Overview of USDA's Rural Development Water and Environmental Programs: Water and Waste Disposal Loans and Grants

- Through Rural Utilities Service Water and Environmental Programs, rural communities obtain the technical assistance and financing necessary to develop drinking water and waste disposal systems.
- USDA-RD has long-term, low-interest loan financing programs to assist communities with infrastructure costs. There are opportunities for grants combined with loans for communities that qualify.
- Eligibility for funding is based on median household income (MHI) and population of the community.
- White Hall would be considered for other USDA-RD programs, such as Persistent Poverty assistance, which can provide a higher percentage of grant funds.
- USDA-RD loans and grants require financial audits, as well as a commitment to revenue collection during the life of the loan.
- For communities receiving loans, the loan term can be up to 40 years based on the expected life of the system.
- The interest rate is adjusted quarterly.
- Special Evaluation Assistance for Rural Communities and Household (SEARCH) grants can assist with funding. White Hall was awarded a SEARCH grant for \$70,000 on August 31, 2023.
 - The SEARCH program helps very small, financially distressed rural communities with predevelopment feasibility studies, design, and technical assistance on proposed water and waste disposal projects.
 - State and local government entities, nonprofits, and federally recognized Tribes may apply.
 - The area to be served must be rural, have a population of 2,500 or fewer, and have an MHI that is below the poverty line or less than 80 percent of the statewide MHI.
- USDA-RD accepts applications year-round on a rolling basis through RD Apply.⁴
- More information is available on USDA's website.⁵

4 <https://www.rd.usda.gov/programs-services/rd-apply>

5 <https://www.rd.usda.gov/programs-services/water-environmental-programs>

Current Funding Programs for Septic System Upgrades

- ADEM is actively developing a program to make loans to an organization such as the town (but not individuals) for septic system upgrades. It expects to have that program established in approximately 1 year. Conversations with ADEM staff indicated that they are considering having a Responsible Management Entity that would be responsible for maintenance of onsite/septic systems that are part of this program. This program is included as a current funding program since it is under development and expected to be available within a year.
- ADPH established a program for individuals in Lowndes County prior to an interim agreement with the Department of Justice that meets the requirements of that settlement. Currently, ADPH is collecting information through an online survey of Lowndes County residents about the needs for their septic systems. ADPH will use the information collected to work with contractors for installation of septic systems. More information can be found on ADPH's website.⁶
- The Black Belt Unincorporated Wastewater Program (BBUWP) is a nonprofit program focused on onsite wastewater management needs in Lowndes County. Various funding agencies support the program in providing new septic systems at a very reduced cost. The upfront costs are currently \$500 to \$1,000 based on soil type at household, plus an ongoing cost of \$20 per month for maintenance.
- USDA-RD's Single Family Housing Repair Loans and Grants program (also known as the Section 504 Home Repair Program) provides loans to very-low-income homeowners to repair, improve, or modernize their homes. It also provides grants to elderly, very-low-income homeowners to remove health and safety hazards.
- The USDA Rural Decentralized Water Systems Grant program helps qualified nonprofits create a revolving loan fund for eligible individuals who own and occupy a home in an eligible rural area (one with a population of 50,000 or fewer). These revolving loan funds come in the form of low-interest loans. The maximum loan amount is \$15,000 at a 1 percent fixed interest rate, repaid over a 20-year period. The fund may be used to construct, refurbish, or service individually owned septic systems.

Benefits of Investing in Adequate Wastewater Infrastructure

Public and Community Health Improvement

Exposure to sewage can have negative health impacts and spread diseases such as salmonellosis, shigellosis, cholera, giardiasis, amoebiasis, hepatitis A, viral enteritis, and other diarrheal diseases.⁷ There are many different types of microbes in wastewater, which makes it challenging to determine specific causes of illness. Detecting and identifying microbes in wastewater takes time and resources. However, it is well known that exposure to untreated waste negatively affects residents' health and well-being. These issues are concern in White Hall, with studies⁸ noting evidence of fecal coliform in the groundwater aquifer and potential exposure of residents to pathogens and viruses due to contact with raw sewage from failed septic systems.

6 <https://www.alabamapublichealth.gov/environmental/septic-system-program.html>

7 World Health Organization. (2006). *WHO guidelines for the safe use of wastewater, excreta and greywater* (Vol. 2). <https://www.who.int/publications/i/item/9241546832>

8 Kaushal, S., & Singh, J. S. (2017). Wastewater impact on human health and microorganism-mediated remediation and treatment through technologies. In J. Singh & G. Seneviratne (Eds.), *Agro-environmental sustainability*. Springer. https://doi.org/10.1007/978-3-319-49727-3_12

Investing in adequate wastewater infrastructure creates a healthier environment for the residents in White Hall. Children can play outdoors, residents do not have to worry about their families and pets encountering raw sewage, household plumbing is more functional, and odors of sewage are not persistently present. Well-maintained and properly built wastewater treatment systems protect residents from viruses and bacteria. They also reduce environmental pollution, function during rain and storms, and provide a foundation for economic development.

Economic Impact of Wastewater Infrastructure Investment

Although the primary purpose of any wastewater system improvements is to address the sanitation conditions in White Hall, developing wastewater systems can bring economic benefits and jobs for communities. The *Economic Benefits of Investing in Water Infrastructure* study, commissioned by the Value of Water Campaign and completed by the U.S. Water Alliance in 2017, found that for every \$1 million spent on infrastructure construction, over 15 jobs are generated. Town leaders in White Hall will want to consider school apprenticeship programs and other local workforce development programs, including construction-related skills, to create local employment opportunities for residents once construction-related activities begin.

Infrastructure can provide a strong foundation for the community through improved wastewater treatment and health services for existing residents. The Town of White Hall's location between Montgomery and Selma could make an attractive location for commercial and industrial businesses. New businesses can bring jobs to reduce the number of residents who have to commute out of Lowndes County for work. Gravity sewers and centralized treatment are the most flexible wastewater systems for economic development. However, they are also the most expensive to build and maintain at first. Community systems can also be attractive to prospective businesses if the design accounts for the expected flow.

Options 2, 3, and 4 in this document account for additional flow of 25,000 gallons per day, which is approximately an additional 15 percent of capacity above existing needs. That flow would support an additional 80 homes or limited commercial development and industrial facilities with offices on County Road 40 or Highway 80. A gravity system with central treatment would allow service to neighboring communities in the future. It is important to choose a system that reflects the community's current and future needs and goals. This choice will require thoughtful consideration by town officials and community members.

Impact of Economic Growth on Monthly Rates

In Options 2, 3, and 4, an additional 25,000 gallons per day is included in the projected flows. This could accommodate about 80 more residential connections, and monthly bills per customer would be about \$8 to \$10 lower per month than shown in Table 1 because more people would pay into the shared system. Once the town has more information on economic growth options, a more detailed estimate of monthly costs can be developed.

Sustaining the Investment Through Operations and Maintenance

White Hall Utilities will most likely maintain the wastewater infrastructure selected for the community, as they already maintain the water system and the existing community wastewater treatment system on Freedom Road.

Potential Approaches for O&M

White Hall has options for providing O&M services to the community. These include:

- Partnering with the BBUWP for onsite system management.
- Hiring a lead wastewater operator through a consulting firm to provide certification until the town can hire or train a staff member for the appropriate certification level.

Other ways to streamline O&M of potential systems include:

- Using technology, such as remote monitoring and reporting, in community systems or a wastewater treatment plant to help with O&M.
- Financing purchase of equipment such as pumper trucks and sewer jetters through USDA-RD and ADEM CWSRF programs.

Paying for O&M and the Affordability Challenge

Across the United States, utilities use sewer bills to pay for management, operations, maintenance, and loan repayments for wastewater systems. The Town of White Hall will need to keep rates affordable for low-income customers but high enough to collect funds to operate and maintain the system. This challenge is a key obstacle for utilities across the United States. Traditionally, wastewater-only projects are considered “affordable” if the sewer bill is 2 percent of MHI or less. However, using MHI as an indicator can make it challenging to understand the community’s affordability needs, since low-income residents struggle more with paying utility bills than higher-income residents do. This analysis incorporates both household income quintile upper limits from the U.S. Census Bureau and MHI into the affordability analysis to better reflect the impact for low-income residents. Even with assistance from federal and state funding programs, all options will have a high financial impact on the lowest-income residents of White Hall.

Table 2 and Table 3 give an overview of impact on White Hall households at various incomes. The highest income level was not included since affordability needs focus on the lower income brackets. Option 1a is not included because there would not be a monthly bill from the utility. In theory, Option 1a would have the similar costs as 1b for the homeowners. Table 2 evaluates the percent of income that would be spent on different wastewater infrastructure systems for only O&M costs in White Hall. Table 3 evaluates the percent of income that would be spent on the wastewater system if there was a loan component, as in the options in Table 1. The lower the percentage of income spent on sewer rates, the more affordable the system is to the customer.

Table 2. Percent of Household Income Spent on Sewer Rates in White Hall, Alabama (Considering O&M Costs, 100 Percent Principal Forgiveness for Capital Costs)

Income Bracket	Estimated Monthly Bill	First Income Upper Limits	Second Income Upper Limits	Third Income Upper Limits	Fourth Income Upper Limits	MHI	Poverty Level
Percent of White Hall Households in Income Bracket		0%–20%	20%–40%	40%–60%	60%–80%		31%
Annual Household Income		\$12,122	\$26,608	\$40,308	\$46,760	\$32,000	\$35,801
1b. Onsite systems	\$35	3.5%	1.6%	1.0%	0.9%	1.3%	1.2%
2. Community systems	\$44	4.4%	2.0%	1.3%	1.1%	1.7%	1.5%
3. Onsite and community systems	\$35	3.5%	1.6%	1.0%	0.9%	1.3%	1.2%
4a. Sewer and lagoon treatment	\$50	4.9%	2.3%	1.5%	1.3%	1.9%	1.7%
4b. Sewer and advanced treatment	\$68	6.7%	3.1%	2.0%	1.7%	2.5%	2.3%



 Greater than 2% of MHI considered “high impact” to households based on the 2023 EPA *Clean Water Act Financial Capability Assessment Guidance* focused on Clean Water Act compliance cases.

Table 3. Percent of Household Income Spent on Sewer Rates in White Hall, Alabama (Considering O&M Costs and Potential USDA-RD Loan Repayment Costs)

Income Bracket	Estimated Monthly Bill	First Income Upper Limits	Second Income Upper Limits	Third Income Upper Limits	Fourth Income Upper Limits	MHI	Poverty Level
Percent of White Hall Households in Income Bracket		0%–20%	20%–40%	40%–60%	60%–80%		31%
Annual Household Income		\$12,122	\$26,608	\$40,308	\$46,760	\$32,000	\$35,801
1b. Onsite systems	\$63	6.2%	2.8%	1.9%	1.6%	2.4%	2.1%
2. Community systems	\$108	10.7%	4.9%	3.2%	2.8%	4.1%	3.6%
3. Onsite and community systems	\$83	8.2%	3.7%	2.5%	2.1%	3.1%	2.8%
4a. Sewer and lagoon treatment	\$103	10.2%	4.6%	3.1%	2.6%	3.9%	3.5%
4b. Sewer and advanced treatment	\$121	12.0%	5.5%	3.6%	3.1%	4.5%	4.1%

 Greater than 2% of MHI considered “high impact” to households based on the 2023 EPA *Clean Water Act Financial Capability Assessment Guidance* focused on Clean Water Act compliance cases.

Addressing the Affordability Challenge

It is possible to lower the financial burden of these investments, especially for low-income households. Some local communities and states are developing affordability programs to provide rate assistance to low-income customers. The Low Income Household Water Assistance Program, created in response to the COVID-19 pandemic, was the first program of its kind in the United States, but it is only authorized by Congress through 2024. It is unclear whether Congress or the state of Alabama will continue this program.

White Hall, like other local governments and utilities, can build local affordability programs by charging different rates on commercial accounts, new customers, or other customer bases that incorporate funding for a local affordability program. This creates a pot of money to help other customers during times of need. Customers who have a temporary medical issue or qualify for assistance based on income guidelines can take advantage of this rate structure to pay for water and wastewater service. However, this solution might not work if White Hall does not have many commercial or industrial accounts to pay extra to fund it.

The Town of White Hall will need multiple approaches to address the financial burden of water utilities for low-income residents, beyond just the programs discussed above. For example, White Hall could consider non-rate revenue opportunities such as leasing space on water towers or offering non-traditional services. These could include providing construction services to new projects related to the utilities connections and charging for the time, although this would require contract documents with the private sector.

Key Takeaways on Affordability

All wastewater treatment options have a high financial impact on the lowest-income residents of White Hall. **Rate assistance programs may be necessary for some households in White Hall.**

Loan repayments will cause any option to have a high financial impact on residents of White Hall. White Hall will need to work with the funding agencies to **maximize the amount of grants** for construction of their system.

Economic growth can lower monthly costs of central treatment systems; therefore, **the community should carefully weigh multiple factors in deciding on a system.**

Partners and Roles

The path to clean water is not an easy one. The Town of White Hall has many options to choose from when it comes to new wastewater systems. Many partners in this pilot program will continue to support White Hall along this journey (Figure 3), including:

- **U.S. Department of Agriculture Rural Development (USDA-RD):** Lead agency (with EPA) providing jointly leveraged technical assistance resources in this pilot program. Funding partner.
- **U.S. Environmental Protection Agency (EPA) Headquarters and Region 4:** Lead agency (with USDA) providing jointly leveraged technical assistance resources in this pilot program.
- **Alabama Department of Environmental Management (ADEM):** Agency providing funds through the Clean Water State Revolving Fund (CWSRF) and the environmental permitting authority.
- **Alabama Department of Public Health (ADPH):** Permitting authority for onsite and community systems.
- **Alabama Rural Water Association (ARWA) and Communities Unlimited:** Association providing technical assistance.
- **The Kelley Group:** Local engineering consultant that will conduct the Sewer Feasibility Study.

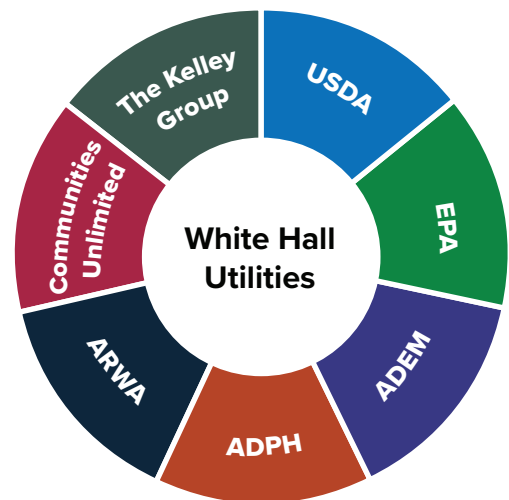


Figure 3. Partners to White Hall.

Technical Assistance and Support for White Hall Moving Forward

Both EPA and USDA-RD fund technical assistance programs that support small, rural, and disadvantaged communities and help them navigate the CWSRF, Drinking Water State Revolving Fund (DWSRF), and USDA-RD funding programs. The ultimate goals of the technical assistance (WaterTA) programs are to help communities identify water challenges and solutions, build capacity to address those needs, and develop application materials to access water infrastructure funding. Technical assistance providers can help the Town of White Hall understand the funding available through the SRF and USDA-RD programs, as well as deadlines and application requirements. **EPA WaterTA and USDA-RD TA can also assist with preparing and submitting funding applications.** These providers can offer advice as communities consider infrastructure options, financing, and rate structures. Their connections with EPA and USDA-RD can help communities successfully complete projects and programs. Other technical assistance support for White Hall can include:

- **Developing a wastewater rate program to build a local “affordability assistance” and asset management program.** White Hall could establish a rate program where new, commercial, or industrial customers contribute to an affordability assistance program for low-income residents. EPA’s network of Environmental Finance Centers partners with technical assistance providers that specialize in these type of rate programs.
- **Supporting workforce development and staff training.** White Hall Utilities will need operations staff for a new system. The technical assistance providers have staff training programs available.
- **Engaging residents in the needs and benefits of a wastewater treatment system.** Customers play a large part in the success of a wastewater treatment system. Technical assistance providers can help with engagement and education for residents on topics such as “What Not to Flush,” “Management of Fats, Oils, and Greases (FOG),” why having a wastewater system is important, and how to maintain a septic system. Educational materials are available for residents.

More information can be found at EPA’s WaterTA website.⁹

Road Map for Implementation

The Mayor of White Hall and local utility staff are considering how to address White Hall’s wastewater treatment needs, but this is just the beginning of the process. Developing wastewater infrastructure takes time. Creating a holistic program to address septic system needs could take 2 or more years. These issues are not easy to resolve, but the effort is worthwhile for the future of the community. Now is the best time in decades to act, as the Bipartisan Infrastructure Law funds add a boost to water infrastructure across the United States. Over the next year, the White Hall community will need to consider options and determine the best path for their future.

Immediate Next Steps Ongoing Through 2024

The Town of White Hall has applied for funding from ADEM and USDA-RD to complete a master plan for wastewater needs in the community. The Kelley Group will complete the master plan process and assist the community with selecting an alternative. ADEM has allotted a \$450,000 grant and USDA-RD has awarded a \$70,000 SEARCH grant to develop the master plan, PER, and Environmental Information Document over the next 6 to 12 months. Plan activities include:

- Collecting site-specific soil data for onsite/septic and community systems and conducting a topographic survey to determine gravity sewer options and lift station needs.

⁹ <https://www.epa.gov/waterta>

- Evaluating site criteria for any treatment system and real estate needs for the treatment system and sewers, if those options are selected.
- Addressing permit requirements and submitting a waste load allocation to ADEM, if appropriate, for a National Pollutant Discharge Elimination System permit for a treatment facility.
- Developing cost estimates and modifying options based on site-specific data and wastewater flow projections.
- Engaging with the community and town council to select a system option. Topics to consider include:
 - The future: how can this investment shape the next 20 years for the community?
 - Monthly bills:
 - » Do the grants and low-interest loans in the Bipartisan Infrastructure Law make monthly bills affordable enough for the community?
 - » If not, are there programs like the Low Income Household Water Assistance Program that could make them affordable?
 - If the town does not act now with the current funding, will it ever be able to act? How can the community encourage action?
- To be part of ADEM’s 2024 SRF IUP that allocates the 2024 CWSRF proceeds, White Hall would need to submit a competitive application of the selected alternative to ADEM by February 28, 2024.

Activities After Alternative Selection

Once White Hall decides on a wastewater option through the master planning process, the town will have to design the system, acquire property, and get the necessary permits. Both USDA-RD and ADEM have funding sources for design and construction through a competitive application process as described above. The amount of funding from grants versus loans will need to be determined at the time of application(s).

Figure 4 shows two paths that White Hall can follow based on the alternative selected. In general, an onsite systems approach should take less time to implement. With the implementation of an onsite system, there is more than one opportunity for customers to connect, as indicated by the blue and red icons. A central treatment system can take up to 5 years to implement, as detailed below.

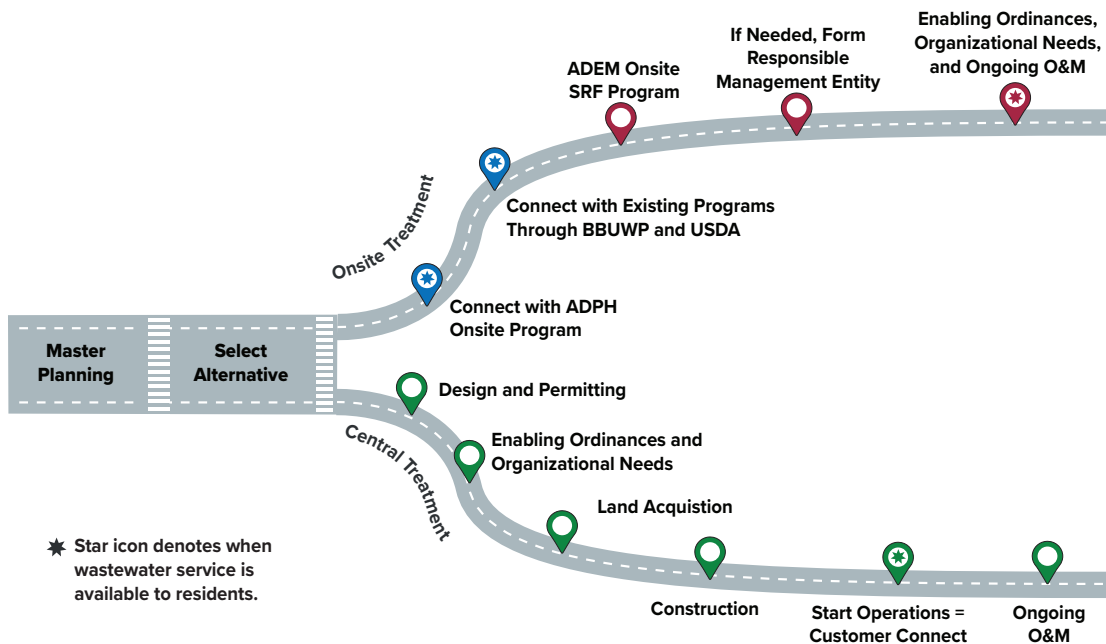


Figure 4. Roadmap for wastewater infrastructure options in White Hall.

Potential Timeline for Onsite/Septic System (Options 1 and 3)

If the community selects an onsite/septic component, it has several options to help residents purchase and install systems, including:

- Evaluate ADPH and BBUWP for applicability to meeting residents’ needs and partner with either or both of those programs to support residents’ needs for new systems.
- Seek support from ADEM for future funding through the CWSRF program.
- Seek low-interest loans through USDA-RD’s Decentralized Water Systems Program.
- Evaluate USDA-RD’s Section 504 Home Repair Program loans and grants to address health and safety hazards for homeowners who qualify based on income requirements.

The ADPH and USDA-RD programs are set up to assist individual homeowners. ADEM is working on a program that could include funding for a Responsible Management Entity that provides O&M, similar to the BBUWP (Figure 5). ADEM has not established these guidelines yet. EPA has guidance on its Septic System Management Program and outreach material available on the SepticSmart webpage.¹⁰

1. Evaluate ADPH and BBUWP for applicability to meeting residents’ needs. If the programs are applicable, connect residents with these programs so they can get new septic systems in place in a timely manner.
2. Decide if additional support to residents is needed. If so,
 - a. Develop a Responsible Management Entity to actively manage septic systems for residents. This entity will need to develop ordinances and a financing program for the system.
 - b. Establish ordinances and rate structures in the first part of 2024.
 - c. Submit funding applications and arrange funding options for residents in early 2024.
 - d. Determine staffing needs and hiring staff in mid-2024.
 - e. Complete the system so customers can sign up for service in late 2024.

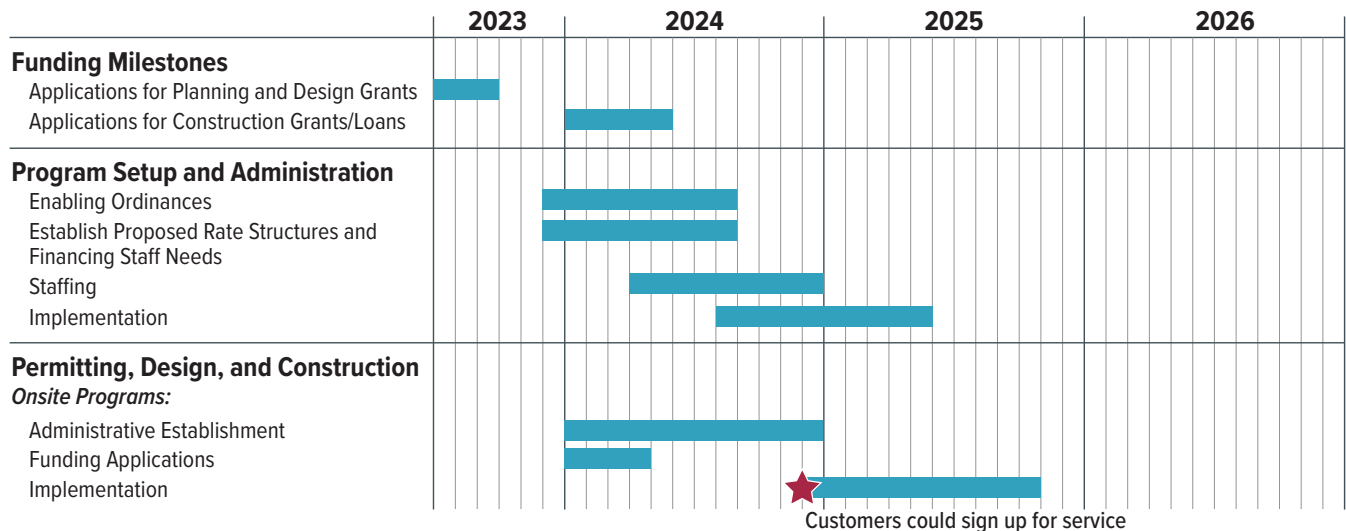


Figure 5. Potential timeline to set up a Responsible Management Entity for onsite/septic systems.

¹⁰ <https://www.epa.gov/septic/septicmart>

Potential Timeline for Sewers and Treatment Systems (Options 2, 3, and 4)

If White Hall chooses a central sewer or community sewer system, the project could take 3 to 5 years, depending on the size of the system. Figure 6 shows a plan of action, which would include:

1. Applying for design and construction funding from ADEM and USDA-RD in early 2024.
2. Developing ordinances and rate structures and determining financial needs in early 2024.
3. Designing and permitting the system. This will usually take 1.5 to 2 years, depending on size:
 - a. Systems less than 15,000 gallons per day are permitted through ADPH.
 - b. Systems greater than 15,000 gallons per day are permitted through ADEM and will require a waste load allocation for a surface water discharge.
 - c. Other permitting agencies for construction activities may include the Army Corps of Engineers, ADEM for stormwater and dewatering activities, and the Alabama Department of Transportation if construction occurs in state highways. The design engineer usually obtains these permits.
4. Acquiring land for treatment systems and sewer easements. This usually happens at the same time as design and permitting. It is important to note that the funding agencies will only fund acquisition from willing sellers.
5. Applying for construction funding through ADEM and USDA-RD, once design is 90 percent complete and the system is permitted.

Residents could expect to connect to the system for service in late 2027 or early 2028, depending on the system.

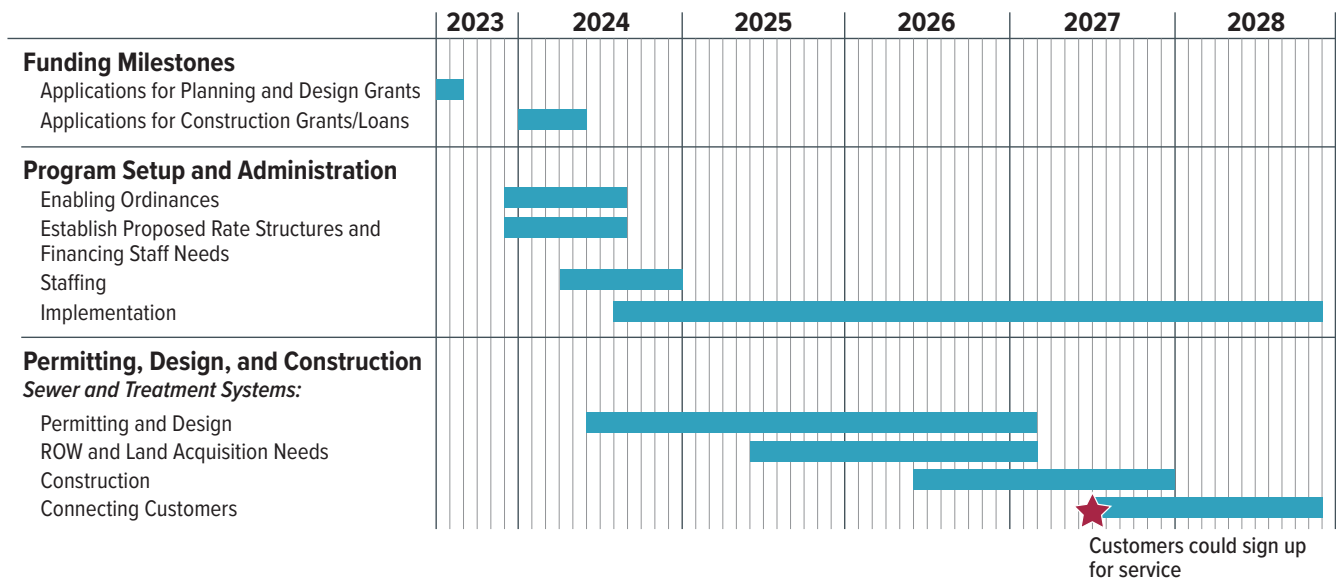


Figure 6. Potential timeline for construction of sewer and treatment systems.

Concluding Thoughts

As the Town of White Hall moves forward with an in-depth analysis of its options for wastewater service, EPA and USDA-RD staff and technical assistance providers are ready to support the community with funding opportunities through the Bipartisan Infrastructure Law. This is a historic time for water infrastructure funding for small, rural communities such as White Hall, Alabama. New funding can help the White Hall community address their current and persistent health challenges, honor their heritage, protect their beautiful natural resources, and build a prosperous future.

Definitions

Onsite/septic system. A traditional system includes a settling (septic) tank and drainfield. Advanced or engineered systems can include aeration systems, chemical dosing, and a sand filtration system for the drainfield.

Community or cluster treatment system. A small wastewater treatment system of less than 15,000 gallons per day with a drainfield for subsurface discharge. These systems are permitted through the ADPH. The treatment system on Freedom Road is a community/cluster treatment system.

Responsible Management Entity (RME). Used as an overarching management approach to septic system maintenance. The RME is responsible for installation, operations, and management of septic systems at individual buildings, and replaces management by the property owner. The RME model is designed to provide a greater level of assurance of septic system long-term performance. The RME usually collects a monthly or annual fee for periodic maintenance of the septic system.

Gravity sewer system. A system that includes a sewer lateral connected to the house and sewer lines that flow by gravity to pump station(s) that pump the flow to a treatment plant.

Septic tank effluent pump (STEP) sewer system (low-pressure sewer system). A sewer system with a septic tank and pump at the customer's building. Effluent from the septic tank is pumped into a low-pressure sewer system to a treatment facility. Septic tanks need to be pumped out periodically. This is usually the responsibility of the utility.

Central wastewater treatment facility. A wastewater treatment system that is larger than 15,000 gallons per day and permitted through ADEM. It usually has a surface water discharge permit to discharge treated water into a river. Certified operating staff and monitoring is required for these systems.

Advanced wastewater treatment system. A treatment system using advanced technology to address nutrient reduction or other water quality parameters prior to discharge to sensitive waterways. This can include a sand filter treatment after secondary treatment or various side stream process to reduce nutrient levels in the effluent.



Limitations

Any systems and associated cost estimates discussed in this draft analysis are preliminary and not intended to serve in lieu of a PER prepared by a professional engineer licensed in the relevant jurisdiction.

Alternatives have been developed at a high level with desktop tools and have not been informed with survey data or field reconnaissance work. Further field evaluation is needed to verify these alternatives in subsequent work following this assessment and solutions plan.

Treatment and dispersal systems designed by licensed design professionals are based on soil evaluations, flood elevation evaluations and variances, permitted discharge limit determinations, and unforeseen factors that cannot be determined without onsite field surveys and evaluations beyond the scope of this draft assessment.