Financing Septic Systems
This guide is intended for homeowners who are seeking information to support the operations and maintenance, repair, or new construction of septic systems.

START

Financing Septic Systems

Chapter 1: Septic System Basics

Chapter 2: Septic System Maintenance

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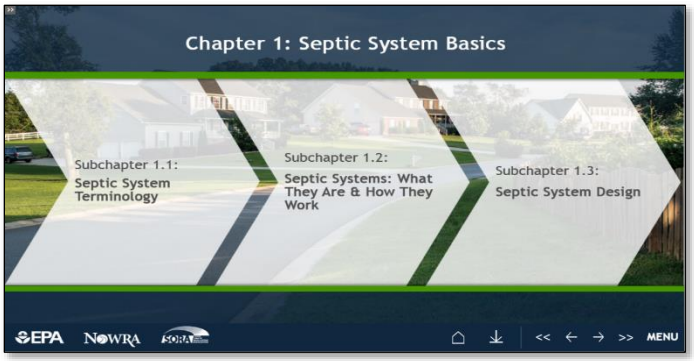


Chapter 1: Septic System Basics

Subchapter 1.1: Septic System Terminology

Key terminology for the discussion of septic systems.

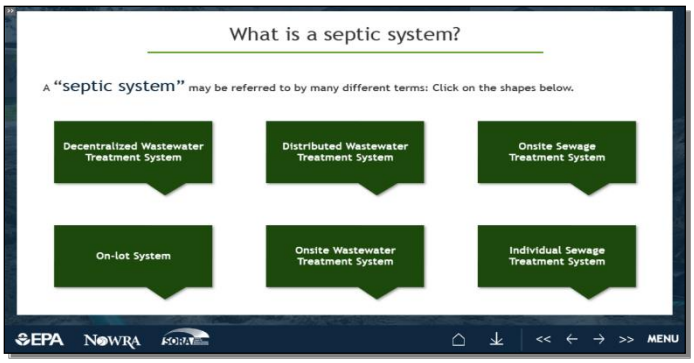
Subchapter 1.2: Septic Systems: What They Are & How They Work

Background information on septic systems for homeowners or managers of small cluster systems.

Subchapter 1.3: Septic System Design

Overview of conventional septic systems and alternative systems.

Subchapter 1.1: Septic System Terminology



What is a septic system?

A “septic system” may be referred to by many different terms: Click on the shapes below.

Decentralized Wastewater Treatment System

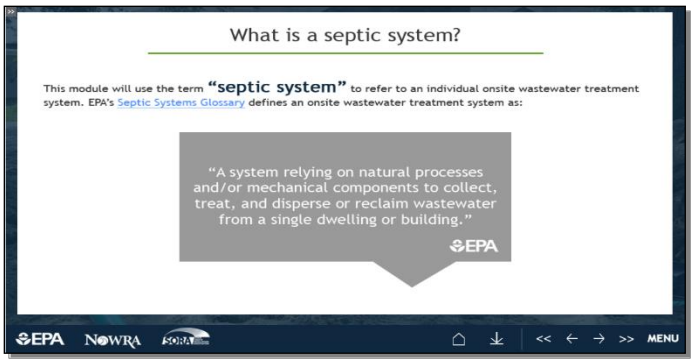
Distributed Wastewater Treatment System

Onsite Sewage Treatment System

On-lot System

Onsite Wastewater Treatment System

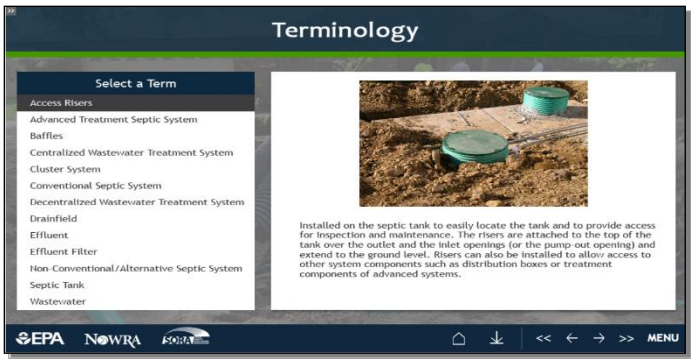
Individual Sewage Treatment System



What is a septic system?

This module will use the term “septic system” to refer to an individual onsite wastewater treatment system. EPA’s Septic Systems Glossary (https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=Septic%20Systems%20Glossary) defines an onsite wastewater treatment system as:

“A system relying on natural processes and/or mechanical components to collect, treat, and disperse or reclaim wastewater from a single dwelling or building.”



Terminology

Select a Term

Access Risers

Installed on the septic tank to easily locate the tank and to provide access for inspection and maintenance. The risers are attached to the top of the tank over the outlet and the inlet openings (or the pump-out opening) and extend to the ground level. Risers can also be installed to allow access to other system components such as distribution boxes or treatment components of advanced systems.

Advanced Treatment Septic System

Systems that include additional wastewater treatment technology to reduce nutrient, pathogen, and other types of pollution.

Baffles

Direct flow of the wastewater to prevent solids from clogging the system. The inlet baffle reduces effluent agitation as sewage enters the septic tank; the outlet baffle prevents solids and the scum layer from flowing out of the septic tank, avoiding damage to the drainfield. In some cases, an effluent filter is installed in addition to the outlet baffle.

Centralized Wastewater Treatment System

A managed system consisting of collection sewers and a single treatment plant used to collect and treat wastewater from a designated service area. It is a large pipe collection system and treats large volumes of domestic wastewater. A municipal wastewater plant located in a city is an example of a centralized wastewater treatment system.

Cluster System

A decentralized wastewater treatment system under some form of common ownership that collects wastewater from two or more dwellings or buildings and conveys it to a treatment and dispersal system located on a suitable site near the dwellings or buildings.

It’s common to find cluster systems in places like rural subdivisions.

Conventional Septic System

A decentralized wastewater treatment system consisting of a septic tank and a trench or bed subsurface wastewater infiltration system (drainfield). A conventional septic system is typically installed at a single-family home or small business.

Decentralized Wastewater Treatment System

A broad term to describe an onsite or clustered system used to collect, treat, and disperse or reclaim wastewater from a single residence, multiple residences, small community, or service area.

Compared to a centralized system, a decentralized system uses small pipes and treats small volumes of domestic wastewater.

Drainfield

A shallow, underground area in dry soil where treatment occurs. Pipes distribute wastewater into the soil through porous media or constructed components. The soil and soil microbes accept, treat, and disperse wastewater as it soaks through the soil, ultimately discharging to groundwater.

Effluent

Partially or completely treated liquid wastewater flowing out of a septic tank, drainfield, aerobic treatment unit, or other treatment system or system component.

Effluent Filter

A plastic screening device designed to fit into the outlet end of a septic tank. The filter prevents solids from leaving the tank and clogging the drainfield.

Non-Conventional/Alternative Septic System

System using technologies or combinations of technologies that are used where conventional septic systems cannot meet established design, construction, performance, or other prescriptive requirements because of limiting site conditions or location in a nutrient or pathogen-sensitive environment.

Septic Tank

A buried, watertight tank designated and constructed to receive and partially treat raw domestic sanitary wastewater. Heavy solids settle to the bottom of the tank while greases and lighter solids float to the top. The solids stay in the tank while the wastewater is discharged to the drainfield for further treatment and dispersal.

Wastewater

Includes all toilet (black) water and bathing, dish washing, cleaning, and laundry (gray) water. Other commonly used terms for this water are “sewage,” “sanitary,” and/or “domestic wastewater.”

Subchapter 1.2: Septic Systems: What They Are & How They Work

What is a septic system?

A septic system is a self-contained subsurface wastewater treatment system. Septic systems are often used when a home or building is not connected to a municipal wastewater collection system.

Septic systems are relatively simple in design, making them a cost-effective way to deal with wastewater from sources not connected or located far from a municipal collection system.

How Do Septic Systems Work?

A conventional septic system collects wastewater from a home or building in a septic tank where the solids settle at the bottom to form sludge and the scum rises to the water surface inside the tank. The remaining liquid effluent flows out of the septic tank via gravity to a drainfield and ultimately percolates through the soil, allowing pathogens and other contaminants to be treated through natural processes.

Most often, homeowners have a conventionally designed septic system. However, some situations may require an alternative septic system design due to site conditions at the home. More information on this topic is provided in the Septic System Design section.

Drainage Pipe

All wastewater from sinks, toilets, showers, washing machines, and dishwashers runs out of your house from one main drainage pipe through the inlet baffle and into the septic tank.

Septic Tank

The septic tank is a buried, water-tight container. Its job is to hold the wastewater long enough for solids to settle to the bottom (sludge) while the fats, oil and grease float to the top (scum).

Distribution Box

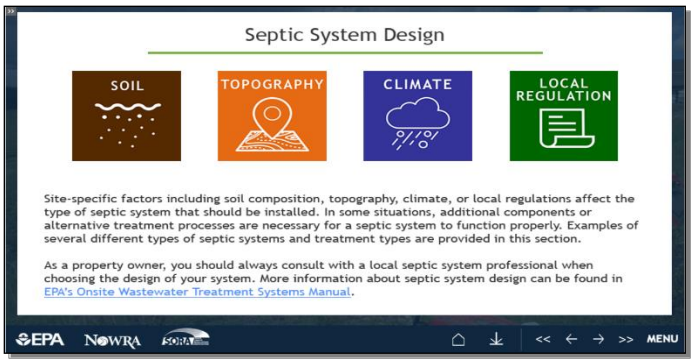
Liquid wastewater effluent exits the tank through the outlet baffle (which is often equipped with an effluent filter). The wastewater is then spread evenly throughout the drainfield, usually through a distribution box.

Systems with more advanced treatment may have an additional treatment unit component between the septic tank and drainfield.

Drainfield

Once in the drainfield, the wastewater percolates into the soil, which recharges groundwater and possibly reclaims freshwater for future reuse by naturally removing harmful bacteria, viruses, and some nutrients.

Subchapter 1.3: Septic System Design



Septic System Design

Site-specific factors including soil composition, topography, climate, or local regulations affect the type of septic system that should be installed. In some situations, additional components or alternative treatment processes are necessary for a septic system to function properly. Examples of several different types of septic systems and treatment types are provided in this section.

As a property owner, you should always consult with a local septic system professional when choosing the design of your system. More information about septic system design can be found in EPA's Onsite Wastewater Treatment Systems Manual (https://www.epa.gov/sites/production/files/2015-06/documents/2004_07_07_septics_septic_2002_osdm_all.pdf).

Soil

Soil can impact the type of drainfield needed or how well it functions.

Topography

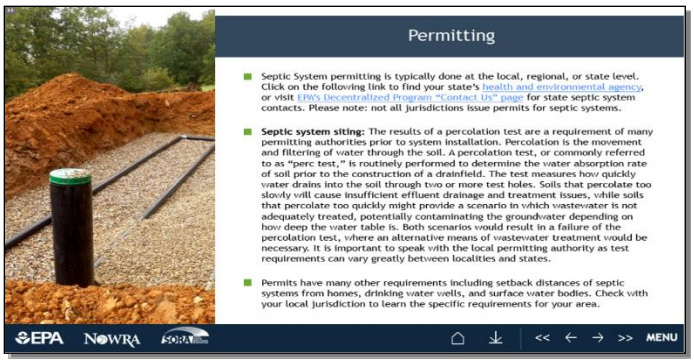
Depending on the landscape, a pump may be required.

Climate

Climate plays an important part in the selection and installation of a septic system - freezing temperatures should be accounted for.

Local Regulation

Local county or state septic system permit requirements may vary and affect your septic system design.



Permitting

Septic System permitting is typically done at the local, regional, or state level. Click on the following link to find your state's health and environmental agency, (https://www.epa.gov/home/health-and-environmental-agencies-us-states-and-territories) or visit EPA's Decentralized Program "Contact Us" page (https://www.epa.gov/septic/forms/contact-us-about-septic-systems) for state septic system contacts. Please note: not all jurisdictions issue permits for septic systems.

Septic system siting: The results of a percolation test are a requirement of many permitting authorities prior to system installation. Percolation is the movement and filtering of water through the soil. A percolation test, or commonly referred to as "perc test," is routinely performed to determine the water absorption rate of soil prior to the construction of a drainfield. The test measures how quickly water drains into the soil through two or more test holes. Soils that percolate too slowly will cause insufficient effluent drainage and treatment issues, while soils that percolate too quickly might provide a scenario in which wastewater is not adequately treated, potentially contaminating the groundwater depending on how deep the water table is. Both scenarios would result in a failure of the percolation test, where an alternative means of wastewater treatment would be necessary. It is important to speak with the local permitting authority as test requirements can vary greatly between localities and states.

Permits have many other requirements including setback distances of septic systems from homes, drinking water wells, and surface water bodies. Check with your local jurisdiction to learn the specific requirements for your area.

Septic System Design

Conventional Systems

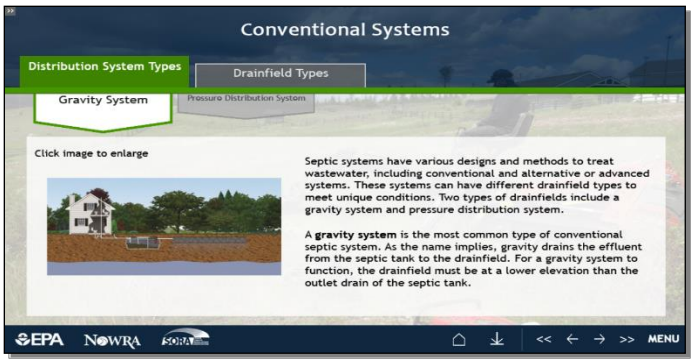
The majority of homeowners with septic systems have a conventional septic system, where effluent flows out of the septic tank via gravity to a drainfield and is further treated through natural processes.

EXPLORE

Alternative/Advanced Systems

In some situations, a conventional septic system might not provide adequate wastewater treatment. In these cases, an alternative, or advanced treatment septic system design is necessary.

EXPLORE



Conventional Systems

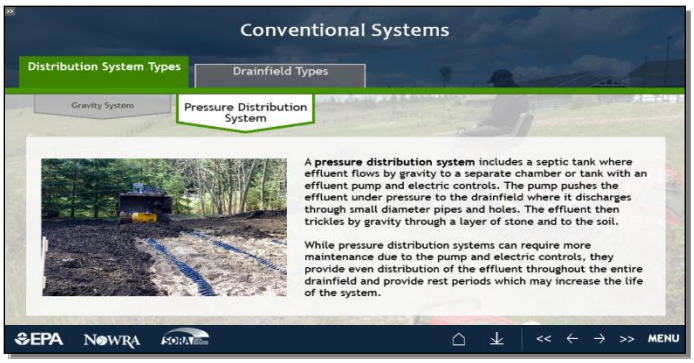
Distribution System Types

Gravity System

Click image to enlarge

Septic systems have various designs and methods to treat wastewater, including conventional and alternative or advanced systems. These systems can have different drainfield types to meet unique conditions. Two types of drainfields include a gravity system and pressure distribution system.

A gravity system is the most common type of conventional septic system. As the name implies, gravity drains the effluent from the septic tank to the drainfield. For a gravity system to function, the drainfield must be at a lower elevation than the outlet drain of the septic tank.



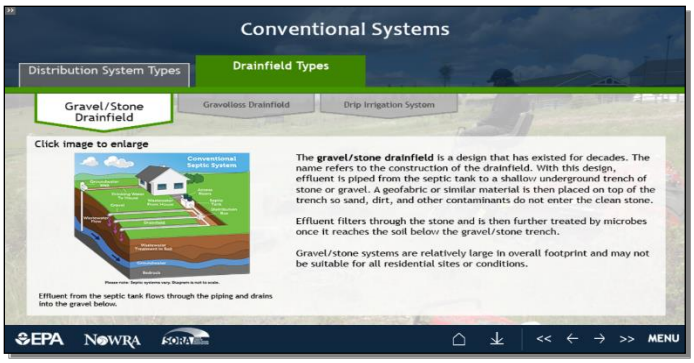
Conventional Systems

Distribution System Types

Pressure Distribution System

A pressure distribution system includes a septic tank where effluent flows by gravity to a separate chamber or tank with an effluent pump and electric controls. The pump pushes the effluent under pressure to the drainfield where it discharges through small diameter pipes and holes. The effluent then trickles by gravity through a layer of stone and to the soil.

While pressure distribution systems can require more maintenance due to the pump and electric controls, they provide even distribution of the effluent throughout the entire drainfield and provide rest periods which may increase the life of the system.



Conventional Systems

Drainfield Types

Gravel/Stone Drainfield

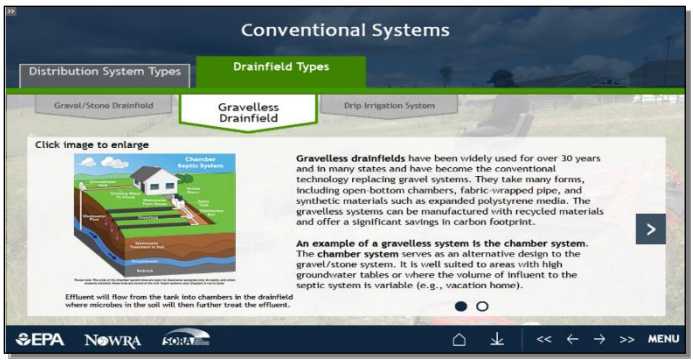
Click image to enlarge

The gravel/stone drainfield is a design that has existed for decades. The name refers to the construction of the drainfield. With this design, effluent is piped from the septic tank to a shallow underground trench of stone or gravel. A geofabric or similar material is then placed on top of the trench so sand, dirt, and other contaminants do not enter the clean stone.

Effluent filters through the stone and is then further treated by microbes once it reaches the soil below the gravel/stone trench.

Gravel/stone systems are relatively large in overall footprint and may not be suitable for all residential sites or conditions.

Effluent from the septic tank flows through the piping and drains into the gravel below.



Conventional Systems

Drainfield Types

Gravelless Drainfield

Click image to enlarge

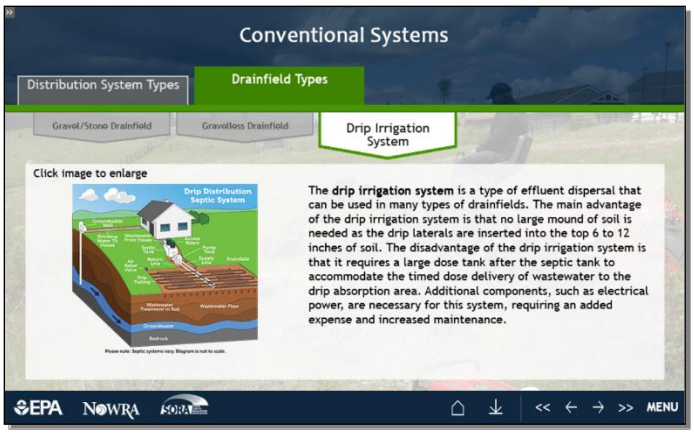
Gravelless drainfields have been widely used for over 30 years and in many states and have become the conventional technology replacing gravel systems. They take many forms, including open-bottom chambers, fabric-wrapped pipe, and synthetic materials such as expanded polystyrene media. The gravelless systems can be manufactured with recycled materials and offer a significant savings in carbon footprint.

An example of a gravelless system is the chamber system. The chamber system serves as an alternative design to the gravel/stone system. It is well suited to areas with high groundwater tables or where the volume of influent to the septic system is variable (e.g., vacation home).

This type of system consists of a series of connected chambers. The area around and above the chambers is filled with soil. Pipes carry wastewater from the septic tank to the chambers. In the chambers, the wastewater comes into contact with the soil. Microbes on or near the soil treat the effluent.

The primary advantage of the chambered system is increased ease of delivery and construction. They are also well suited to areas with high groundwater tables, where the volume of influent to the septic system is variable (e.g., at a seasonal inn), in an area where gravel is scarce, or in areas where other technologies such as plastic chambers are readily available.

Effluent will flow from the tank into chambers in the drainfield where microbes in the soil will then further treat the effluent.



Conventional Systems

Dranfield Types

Drip Irrigation System

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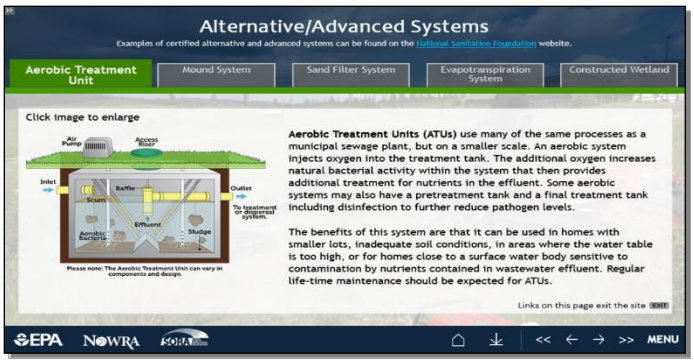
The drip irrigation system is a type of effluent dispersal that can be used in many types of drainfields. The main advantage of the drip irrigation system is that no large mound of soil is needed as the drip laterals are inserted into the top 6 to 12 inches of soil. The disadvantage of the drip irrigation system is that it requires a large dose tank after the septic tank to accommodate the timed dose delivery of wastewater to the drip absorption area. Additional components, such as electrical power, are necessary for this system, requiring an added expense and increased maintenance.



Alternative/Advanced Systems

Examples of certified alternative and advanced systems can be found on the National Sanitation Foundation website (http://www.nsf.org/services/by-industry/water-wastewater/onsite-wastewater/nitrogen-reduction).

Aerobic Treatment Unit

Click image to enlarge

Aerobic Treatment Units (ATUs) use many of the same processes as a municipal sewage plant, but on a smaller scale. An aerobic system injects oxygen into the treatment tank. The additional oxygen increases natural bacterial activity within the system that then provides additional treatment for nutrients in the effluent. Some aerobic systems may also have a pretreatment tank and a final treatment tank including disinfection to further reduce pathogen levels.

The benefits of this system are that it can be used in homes with smaller lots, inadequate soil conditions, in areas where the water table is too high, or for homes close to a surface water body sensitive to contamination by nutrients contained in wastewater effluent. Regular life-time maintenance should be expected for ATUs.

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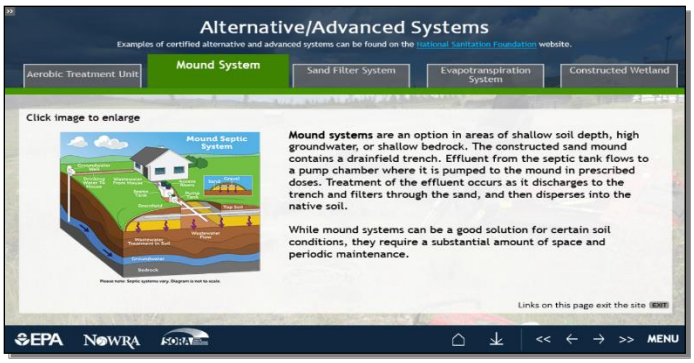

Alternative/Advanced Systems

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Mound System

Click image to enlarge

Mound systems are an option in areas of shallow soil depth, high groundwater, or shallow bedrock. The constructed sand mound contains a drainfield trench. Effluent from the septic tank flows to a pump chamber where it is pumped to the mound in prescribed doses. Treatment of the effluent occurs as it discharges to the trench and filters through the sand, and then disperses into the native soil.

While mound systems can be a good solution for certain soil conditions, they require a substantial amount of space and periodic maintenance.

Links on this page exit the site

Alternative/Advanced Systems

Examples of certified alternative and advanced systems can be found on the National Sanitation Foundation website (http://www.nsf.org/services/by-industry/water-wastewater/onsite-wastewater/nitrogen-reduction).

Sand Filter System

Click image to enlarge

Sand filter systems can be constructed above or below ground. Effluent flows from the septic tank to a pump chamber. It is then pumped to the sand filter. The sand filter is often PVC-lined or a concrete box filled with a sand material. Effluent is pumped under low pressure through the pipes at the top of the filter. The effluent leaves the pipes and is treated as it filters through the sand. The treated wastewater is then discharged to the drainfield.

Sand filters provide a high level of treatment for nutrients and are good for sites with high water tables or that are close to water bodies, but they are more expensive than a conventional septic system.

Effluent from the septic tank flows into the sand filter vessel. The water is treated as it flows through the sand and gravel and then disperses to the soil.

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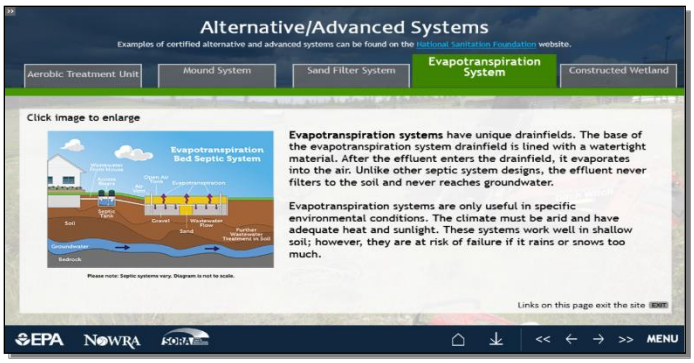

Alternative/Advanced Systems

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Evapotranspiration System

Click image to enlarge

Evapotranspiration systems have unique drainfields. The base of the evapotranspiration system drainfield is lined with a watertight material. After the effluent enters the drainfield, it evaporates into the air. Unlike other septic system designs, the effluent never filters to the soil and never reaches groundwater.

Evapotranspiration systems are only useful in specific environmental conditions. The climate must be arid and have adequate heat and sunlight. These systems work well in shallow soil; however, they are at risk of failure if it rains or snows too much.

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Alternative/Advanced Systems

Examples of certified alternative and advanced systems can be found on the National Sanitation Foundation website (http://www.nsf.org/services/by-industry/water-wastewater/onsite-wastewater/nitrogen-reduction).

Constructed Wetland

Click image to enlarge

A constructed wetland mimics the treatment processes that occur in natural wetlands. Wastewater flows from the septic tank and enters the wetland cell. The wastewater then passes through the media and is treated by microbes, plants, and other media that remove pathogens and nutrients. The wetland cell typically consists of an impermeable liner, and gravel and sand fill, along with the appropriate wetland plants, which must be able to survive in a perpetually saturated environment.

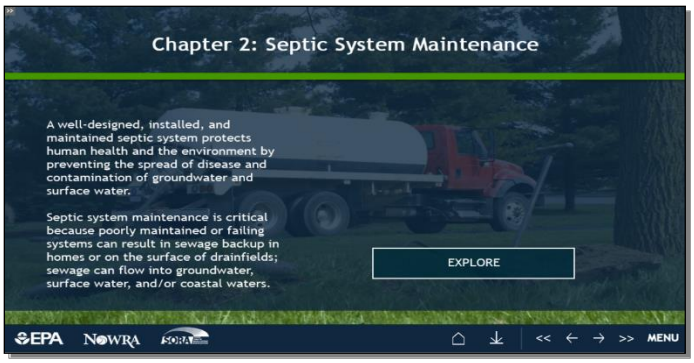
A wetland system can work via either gravity flow or pressure distribution. As wastewater flows through the wetland, it may exit the wetland and flow into a drainfield for further wastewater treatment into the soil.

Links on this page exit the site

Septic System Design

Regardless of the design type, all properly maintained septic systems effectively treat domestic wastewater before dispersing and recharging the groundwater. Advanced systems further treat wastewater to reduce pollution, such as nitrogen reduction.

The next chapter will discuss maintenance and repair of septic systems, followed by the final chapter on financing septic systems.



Chapter 2: Septic System Maintenance

A well-designed, installed, and maintained septic system protects human health and the environment by preventing the spread of disease and contamination of groundwater and surface water.

Septic system maintenance is critical because poorly maintained or failing systems can result in sewage backup in homes or on the surface of drainfields; sewage can flow into groundwater, surface water, and/or coastal waters.

EXPLORE

Who are the Players?

Septic systems are the responsibility of the homeowner. There are several professionals that can provide services and advice to homeowners about their septic systems. Click on the icons to learn more.

System Designer

A regulator or private professional may be involved with system siting, soil testing, and determining system design. They may inspect your current system, evaluate your property, and recommend improvements.

System Service Provider

If your system requires regular maintenance by a service provider, they may be a good source of information on your current system and future needs.

Permit Regulator

Your local, county, regional, or state departments of health might provide guidance, technical specifications, regulations, and/or permits for septic systems in your area.

Septic Tank Pumper

The pumper is the company you hire to inspect and pump your septic tank.

Septic Installer

System installers are private professionals that install septic systems that conform to and meet local requirements.

Why is Maintenance Important?

Maintaining your septic system saves you money, protects your property value, keeps you and your neighbors healthy and protects the environment.

When a system is not maintained, the drainfield may clog, causing surface ponding of untreated sanitary waste and the potential for direct exposure and contact by people and pets.

For more information on how to care for your septic system visit EPA's SepticSmart page (https://www.epa.gov/septic).

1. Save money. Regular maintenance fees cost $250-$500 every three to five years. This is a bargain compared to the cost of repairing or replacing a malfunctioning system, which can cost thousands of dollars.
2. Protect your property value. A septic system that does not work lowers your property value and can pose costly environmental, public health, and/or legal liability.
3. Stay healthy. A well-maintained functional septic system treats wastewater and removes pollutants that can contaminate groundwater and nearby surface waters.
4. Protect the environment. A malfunctioning septic system releases bacteria, viruses, and nutrients that can pollute drinking water and waterways.

Best Practices for Homeowners

Do you know these septic system maintenance best practices?

Know where the components of your system are located.

Damage to system components often occurs during home maintenance or yard work. Keep the site plan of your system or sketch one yourself showing the top of the septic tank, distribution box, and any other key components in relation to your home.

Avoid flushing or using strong chemicals and bacteria-destroying products.

Drain cleaners, solvents, paint, paint thinners, floor cleaners, sink cleaners, motor oil, antifreeze, pesticides, pharmaceuticals, and photochemicals are products that may disrupt the balance of microbes in the septic tank or drainfield.

Avoid using garbage disposals.

Garbage disposals can substantially increase the rate of accumulation of solids in the septic tank.

Implement water conservation measures.

Efficient water use means less water enters your system, reducing risk of failures.

See EPA’s SepticSmart Resources (https://www.epa.gov/septic/septicsmart-homeowners) for more information on proper care and maintenance of your septic system.

Why do Septic Systems Fail?

Most septic systems fail because of inappropriate design or poor maintenance.

Some soil-based systems (those with a drainfield) are installed at sites with inadequate or inappropriate soils, excessive slopes, or high groundwater tables. These conditions can cause hydraulic failures and contamination of nearby water sources.

Failure to perform routine maintenance, such as pumping the septic tank generally at least every three to five years, can cause solids in the tank to migrate into the drainfield and clog the system.

Signs of septic system failure include:

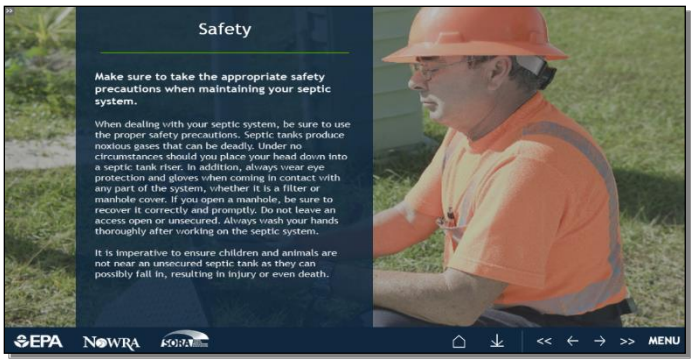
Lush green, spongy, or wet grass over your septic tank or drainfield

Surface ponding over your septic tank or drainfield

Slow drainage of toilets or sinks

Strong odors

Backup of sewage in home

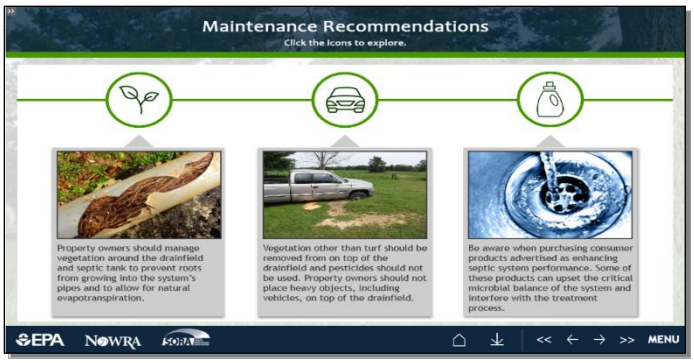


Safety

Make sure to take the appropriate safety precautions when maintaining your septic system.

When dealing with your septic system, be sure to use the proper safety precautions. Septic tanks produce noxious gases that can be deadly. Under no circumstances should you place your head down into a septic tank riser. In addition, always wear eye protection and gloves when coming in contact with any part of the system, whether it is a filter or manhole cover. If you open a manhole, be sure to recover it correctly and promptly. Do not leave an access open or unsecured. Always wash your hands thoroughly after working on the septic system.

It is imperative to ensure children and animals are not near an unsecured septic tank as they can possibly fall in, resulting in injury or even death.



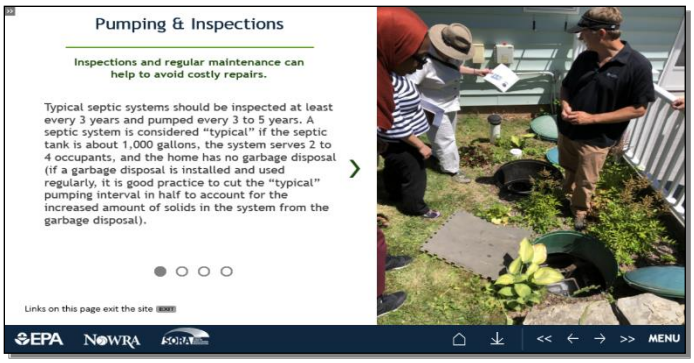
Maintenance Recommendations

Click the icons to explore.

Property owners should manage vegetation around the drainfield and septic tank to prevent roots from growing into the system’s pipes and to allow for natural evapotranspiration.

Vegetation other than turf should be removed from on top of the drainfield and pesticides should not be used. Property owners should not place heavy objects, including vehicles, on top of the drainfield.

Be aware when purchasing consumer products advertised as enhancing septic system performance. Some of these products can upset the critical microbial balance of the system and interfere with the treatment process.



Pumping & Inspections

Inspections and regular maintenance can help to avoid costly repairs.

Typical septic systems should be inspected at least every 3 years and pumped every 3 to 5 years. A septic system is considered “typical” if the septic tank is about 1,000 gallons, the system serves 2 to 4 occupants, and the home has no garbage disposal (if a garbage disposal is installed and used regularly, it is good practice to cut the “typical” pumping interval in half to account for the increased amount of solids in the system from the garbage disposal).

Systems with advanced treatment should be serviced on an annual basis.

Small tanks should be inspected and pumped more often than large tanks. More information on septic system maintenance and septic tank pumping frequencies can be found in the Fall 2004 Pipeline Newsletter from the National Environmental Services Center (https://www.epa.gov/septic/septicsmart-homeowners).

Always use a licensed contractor for septic system maintenance. Septic tank access and maintenance can present serious hazards due to the buildup of harmful gases.

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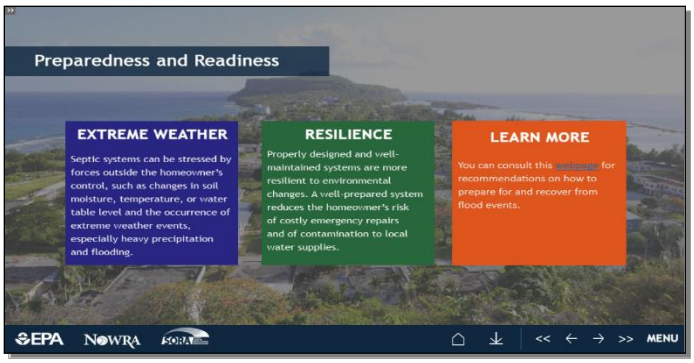


Preparedness and Readiness

EXTREME WEATHER

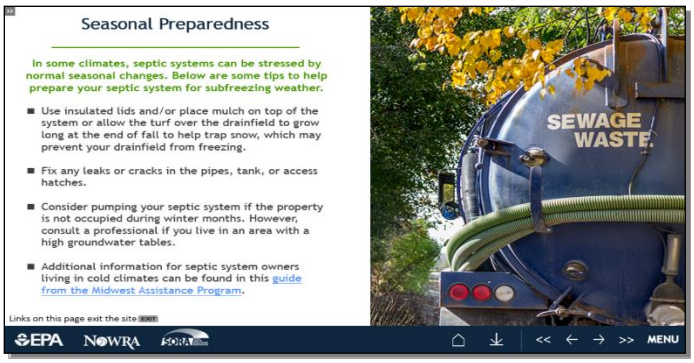
Septic systems can be stressed by forces outside the homeowner's control, such as changes in soil moisture, temperature, or water table level and the occurrence of extreme weather events, especially heavy precipitation and flooding.

RESILIENCE

Properly designed and well-maintained systems are more resilient to environmental changes. A well-prepared system reduces the homeowner's risk of costly emergency repairs and of contamination to local water supplies.

LEARN MORE

You can consult this webpage (https://www.epa.gov/ground-water-and-drinking-water/septic-systems-what-do-after-flood) for recommendations on how to prepare for and recover from flood events.



Seasonal Preparedness

In some climates, septic systems can be stressed by normal seasonal changes. Below are some tips to help prepare your septic system for subfreezing weather.

Use insulated lids and/or place mulch on top of the system or allow the turf over the drainfield to grow long at the end of fall to help trap snow, which may prevent your drainfield from freezing.

Fix any leaks or cracks in the pipes, tank, or access hatches.

Consider pumping your septic system if the property is not occupied during winter months. However, consult a professional if you live in an area with a high groundwater tables.

Additional information for septic system owners living in cold climates can be found in this guide from the Midwest Assistance Program (https://www.epa.gov/ground-water-and-drinking-water/septic-systems-what-do-after-flood).

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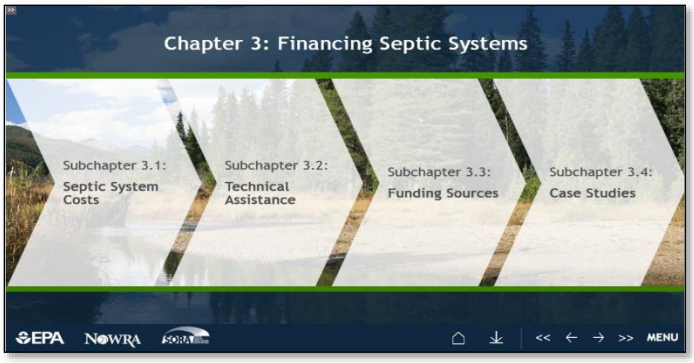


Chapter 3: Financing Septic Systems

Subchapter 3.1: Septic System Costs

Information on costs associated with septic systems.

Subchapter 3.2: Technical Assistance

Information and examples of technical assistance resources that are available to homeowners to address their septic system needs.

Subchapter 3.3: Funding Sources

Information on funding resources available for septic system costs.

Subchapter 3.4: Case Studies

Case study examples demonstrating septic system projects and funding.

Subchapter 3.1: Septic System Costs

Septic System Costs

Estimated Septic System Costs

Costs for septic system installation, repair, and maintenance can vary significantly based on the system size and design, as well as the region of the country. Characteristics of individual property sites can also significantly affect septic system-related costs.

The cost information presented in this section is based on national averages and may vary substantially in different locations. Homeowners should always contact local authorities or industry professionals to get an estimate on services in their area.

New Installation

Maintenance & Repair

Replacement

New Installation

The cost of new installation is highly variable depending on site conditions, local regulations, and the type of system installed. The estimated costs below include materials, labor, and permits.

An average cost range for a conventional septic system installation is approximately $3,000 to $15,000.

Alternative and advanced treatment systems are typically the most expensive and often cost $10,000 to $30,000.

In some areas, design costs can be separate from construction costs. It is important to factor in potential design and permitting costs, which can vary depending on location and type/size of system.

Average Costs By State

Estimated Conventional Septic System Installation Costs by Location:

Colorado $12,000 – $18,000

Kansas $8,000

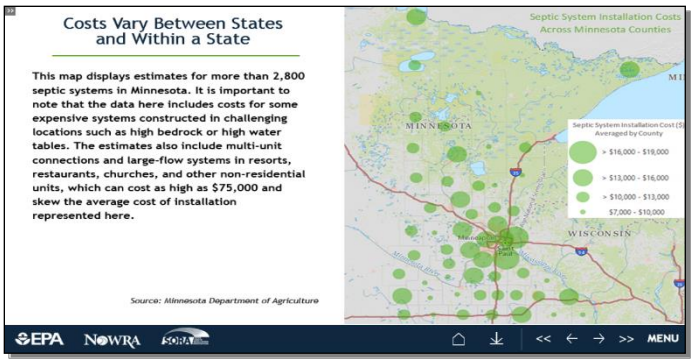
Minnesota $12,000

Ohio $7,500 - $12,000

Vermont $8,000 - $15,000

Virginia $5,000 - $7,500

Washington $4,000 - $7,000



Costs Vary Between States and Within a State

This map displays estimates for more than 2,800 septic systems in Minnesota. It is important to note that the data here includes costs for some expensive systems constructed in challenging locations such as high bedrock or high water tables. The estimates also include multi-unit connections and large-flow systems in resorts, restaurants, churches, and other non-residential units, which can cost as high as $75,000 and skew the average cost of installation represented here.

Septic system installation costs across Minnesota counties

Source: Minnesota Department of Agriculture

Maintenance & Repair Cost Estimates

Maintenance

Most septic systems should be inspected every 3 years and pumped every 3-5 years. See the Pumping and Inspections section for more information.

An inspection often costs between $100 and $200.

Getting a septic system pumped generally costs between $200 and $400.

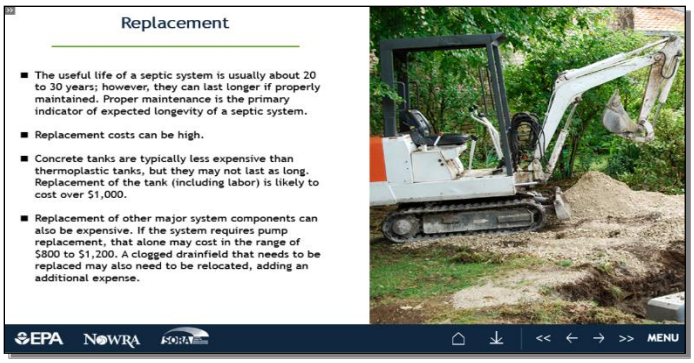
Other preventive maintenance, such as clearing the septic system area of vegetation, can be done by homeowners themselves.

For more information on maintenance concepts, see the Maintenance and Repair section.

Repair

During its lifespan, a septic system may require replacement of individual parts such as the tank lid or effluent filter (often $30 to $70) and the inlet or outlet baffles (often $250 to $500 each).

Repair is also required if a break or leak occurs in either the inlet piping bringing wastewater to the septic tank or the outlet piping discharging effluent from the tank. Costs for pipe repair will vary substantially depending on the location and the severity of the issue, but may be in the range of $1,000.



Replacement

The useful life of a septic system is usually about 20 to 30 years; however, they can last longer if properly maintained. Proper maintenance is the primary indicator of expected longevity of a septic system.

Replacement costs of a full septic system can be high.

Concrete tanks are typically less expensive than thermoplastic tanks, but they may not last as long. Replacement of the tank (including labor) is likely to cost over $1,000.

Replacement of other major system components can also be expensive. If the system requires pump replacement, that alone may cost in the range of $800 to $1,200. A clogged drainfield that needs to be replaced may also need to be relocated, adding an additional expense.

Subchapter 3.2: Technical Assistance

Technical Assistance Providers

Click below to learn more.

Many organizations provide consultations, training, or other non-financial resources instead of (or in addition to) funding. Above are just a few examples of national and regional technical assistance providers homeowners can work with.

The Rural Community Assistance Partnership (RCAP) (https://rcap.org/) is a non-profit organization that works in rural communities across the states, territories, and tribal lands to enable communities to provide safe drinking water and sanitary wastewater disposal systems.

RCAP offers technical assistance to individuals and communities, including training events (https://rcap.org/training/).

The National Onsite Wastewater Recycling Association (NOWRA) (http://www.nowra.org/) is the largest organization within the U.S. dedicated to educating and representing members within the onsite and decentralized wastewater industry. NOWRA members include educators, regulators, engineers, contractors, manufacturers, suppliers, service providers, and other parties in the protection of North America's water resources and environment.

For homeowners, NOWRA provides a helpful System Guide and Record Keeping Folder (http://www.nowra.org/files/Homeowner%20Onsite%20Systems%20folder.pdf).

The National Association of Wastewater Technicians' (NAWT's) (http://www.nawt.org/) mission is to unify the voice of the sanitary liquid waste management industry, while increasing its professionalism and public image through education of industry members and the public, and the development and national representation of individual, state, and regional chapters.

NAWT offers multiple training courses (http://www.nawt.org/training.html) for inspectors, operations and maintenance technicians, soil scientists, and installers.

The National Rural Water Association (NRWA) (https://nrwa.org/), through its State Rural Water affiliates is the nation's largest water and wastewater utility membership association with over 31,000 members.

NRWA offers training and technical assistance (https://nrwa.azurewebsites.net/initiatives/training-and-technical-assistance/) to small and rural water and wastewater utilities.

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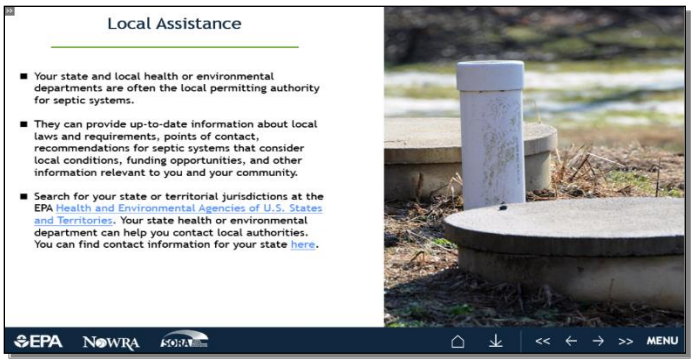
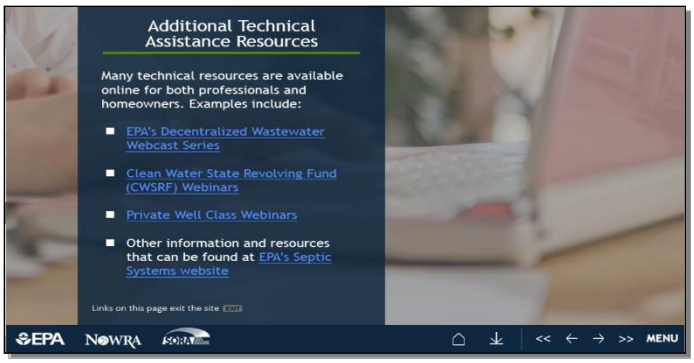


Local Assistance

Your state and local health or environmental departments are often the local permitting authority for septic systems.

They can provide up-to-date information about local laws and requirements, points of contact, recommendations for septic systems that consider local conditions, funding opportunities, and other information relevant to you and your community.

Search for your state or territorial jurisdictions at the EPA Health and Environmental Agencies of U.S. States and Territories (https://www.epa.gov/home/health-and-environmental-agencies-us-states-and-territories). Your state health or environmental department can help you contact local authorities. You can find contact information for your state here. (https://www.epa.gov/septic/forms/contact-us-about-septic-systems)



Additional Technical Assistance Resources

Many technical resources are available online for both professionals and homeowners. Examples include:

EPA's Decentralized Wastewater Webcast Series (https://www.epa.gov/septic/webcasts-about-onsite-wastewater-treatment)

Clean Water State Revolving Fund (CWSRF) Webinars (https://www.epa.gov/cwsrf/cwsrf-webinars)

Private Well Class Webinars(http://privatewellclass.org/calendar)

Other information and resources that can be found at EPA's Septic Systems website (https://www.epa.gov/septic)

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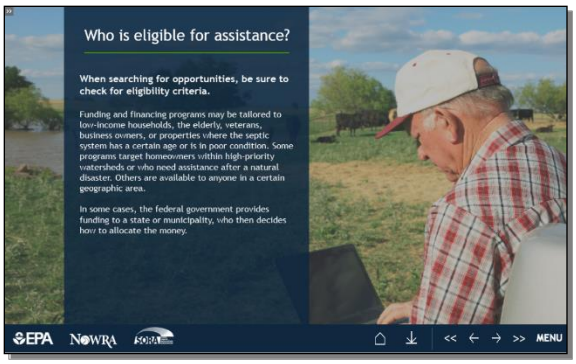
Subchapter 3.3: Funding Sources

Funding Sources

Direct financial assistance may be available to homeowners for the construction and repair of septic systems.

Assistance may be in the form of loans (which must be paid back) or grants (which do not need to be paid back). Note that the terms and conditions will vary by location and program.

Check EPA's Water Finance Clearinghouse (https://ofmpub.epa.gov/apex/wfc/f?p=165:1::::::) for the most up-to-date information on water financing topics. Click on "Search Funds," then select the "Sectors" filter and check the box next to "Septic/Decentralized" to search specifically for septic system assistance.

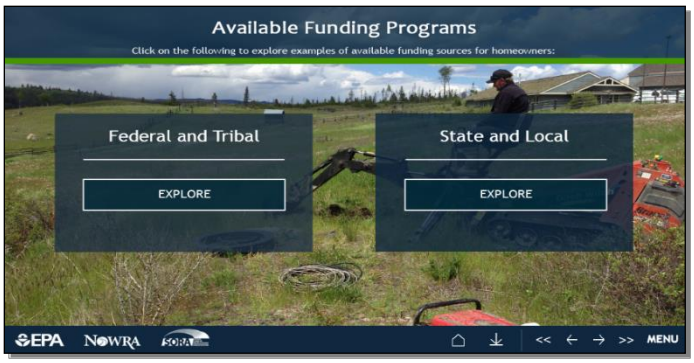


Who is eligible for assistance?

When searching for opportunities, be sure to check for eligibility criteria.

Funding and financing programs may be tailored to low-income households, the elderly, veterans, business owners, or properties where the septic system has a certain age or is in poor condition. Some programs target homeowners within high-priority watersheds or who need assistance after a natural disaster. Others are available to anyone in a certain geographic area.

In some cases, the federal government provides funding to a state or municipality, who then decides how to allocate the money.



Available Funding Programs

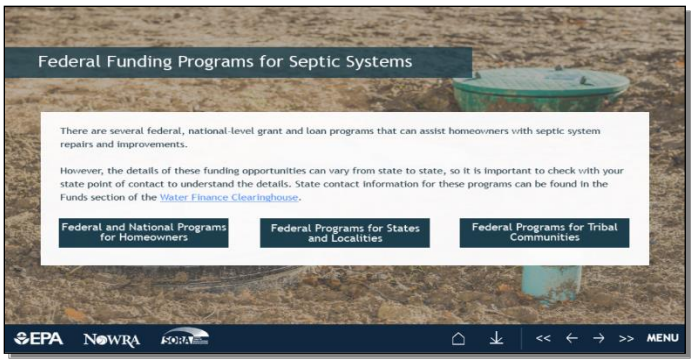
Click on the following to explore examples of available funding sources for homeowners:

Federal and Tribal

EXPLORE

State and Local

EXPLORE



Federal Funding Programs for Septic Systems

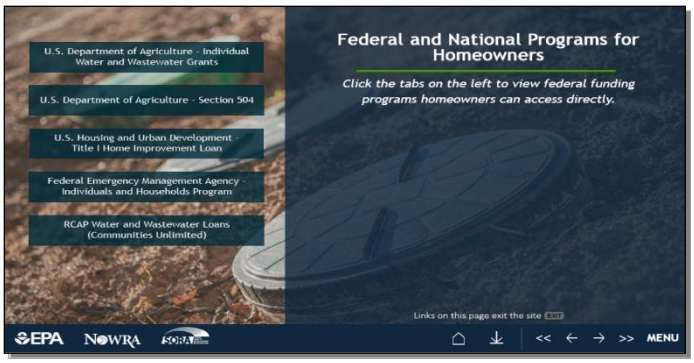
There are several federal, national-level grant and loan programs that can assist homeowners with septic system repairs and improvements.

However, the details of these funding opportunities can vary from state to state, so it is important to check with your state point of contact to understand the details. State contact information for these programs can be found in the Funds section of the Water Finance Clearinghouse. (https://ofmpub.epa.gov/apex/wfc/f?p=165:1::::::)

Federal and National Programs for Homeowners

Federal Programs for States and Localities

Federal Programs for Tribal Communities



Federal & National Programs for Homeowners

Click the tabs on the left to view federal funding programs homeowners can access directly.

U.S. Department of Agriculture - Individual Water and Wastewater Grants

Description

The U.S. Department of Agriculture (USDA) Rural Development Individual Water & Wastewater Grants (https://www.rd.usda.gov/programs-services/individual-water-wastewater-grants) are available to eligible households in state-designated colonias in Arizona, California, New Mexico, or Texas). Households can receive funding to connect service lines to a residence, pay utility hook-up fees, or install plumbing and related fixtures to facilitate wastewater disposal. Funding can also cover reasonable costs for closing abandoned septic tanks and water wells.

Who is Eligible?

Homeowners in colonias with a total taxable income at or below the most recent poverty income guidelines are eligible for $3,500 (water), $4,000 (wastewater), or $5,000 (combined) grant amounts. Applicants must currently own and occupy the residence, and may not be delinquent on any federal debts.

To learn more visit USDA RD Individual Water and Wastewater Grants. (https://www.rd.usda.gov/programs-services/individual-water-wastewater-grants)

U.S. Department of Agriculture Section 504

Description

USDA Rural Development's Single Family Housing Repair Loans & Grants Program (also known as Section 504 Home Repair Program) allows eligible homeowners to receive funding to repair, improve, or modernize homes, or remove health and safety hazards, including funding for septic system projects.

Who is Eligible?

Homeowners in rural communities, age 62 or older, and at or below 50% of the area median income, may qualify for up to $7,500 in grant funds to address a health concern, safety hazard, or accessibility modification to their home. Loans up to $20,000 at a 1% interest rate loan are also available at any age. Applicants must currently own and occupy the residence, and may not be delinquent on any federal debts.

To learn more visit USDA Rural Development Section 504 (https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants)

U.S. Housing and Urban Development - Title I Home Improvement Loan

Description

Homeowners can get the U.S. Department of Housing and Urban Development (HUD) Title I Home Improvement Loans(https://www.hud.gov/program_offices/housing/sfh/title/ti_abou) of up to $25,000 from participating financial institutions (https://www.hud.gov/program_offices/housing/sfh/lender/lenderlist). HUD insures private lenders against losses on property loans and thus homeowners can get lower interest rates than at conventional banks.

Who is Eligible?

The applicant must be able to repay the loan in regular monthly payments. Any loan over $7,500 must be secured by a mortgage or deed of trust on the property. New homes must have been occupied for 90 days.

Federal Emergency Management Agency - Individuals and Households Program

Description

When a disaster has been declared, assistance from the Federal Emergency Management Agency (FEMA) Individuals and Households Program (https://www.fema.gov/individual-disaster-assistance) can be used to cover septic system repairs after extreme events like flooding (https://www.fema.gov/news-release/2016/10/19/damaged-wells-and-septic-systems-may-be-eligible-fema-assistance) or extreme storms (https://www.fema.gov/news-release/2012/04/12/storm-damaged-septic-system-may-be-covered-federal-funds).

Who is Eligible?

Residents of declared disaster areas who have severe damage to their primary residence that is not covered by insurance.

RCAP Water and Wastewater Loans (Communities Unlimited)

Description

Rural Community Assistance Partnership's (RCAP's) Water and Wastewater Revolving Loan Fund (RLF) (https://www.communitiesu.org/index.php/How-We-Help/water-waste-water-loans.html), which provides loans for rural community water and/or wastewater projects, is available and managed through the Southern regional partner in the RCAP network, Communities Unlimited.

Who is Eligible?

Nonprofits or local governments who:

Serve a significant number of low-income customers;

Are in qualifying rural communities;

Can repay the loan with system revenues; and

Can provide evidence of permanent take-out financing.

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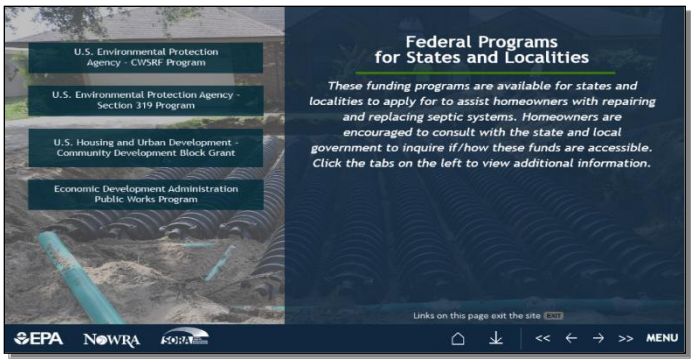

Federal Programs for States & Localities

These funding programs are available for states and localities to apply for to assist homeowners with repairing and replacing septic systems. Homeowners are encouraged to consult with the state and local government to inquire if/how these funds are accessible.

Click the tabs on the left to view additional information.

U.S. Environmental Protection Agency - CWSRF Program

Description

EPA's Clean Water State Revolving Fund (CWSRF) (https://www.epa.gov/cwsrf) also provides funding at a state level for septic system projects; see EPA's Funding Decentralized Wastewater Systems Using the Clean Water State Revolving Fund (https://www3.epa.gov/npdes/pubs/srf_for_decentralized_systems.pdf) and EPA CWSRF's Financing Options for Nontraditional Eligibilities in the Clean Water State Revolving Fund Programs Report (https://www3.epa.gov/npdes/pubs/srf_for_decentralized_systems.pdf) for more information.

Who is Eligible?

EPA provides CWSRF Grants to all 50 states and Puerto Rico. The program also provides direct funding to other territories and the District of Columbia. To contact representatives from your state of interest and to determine local eligibilities, see EPA's List of State Contacts for the CWSRF (https://www.epa.gov/cwsrf/list-state-contacts-clean-water-state-revolving-fund-cwsrf).

U.S. Environmental Protection Agency Section 319 Program

Description

The EPA Clean Water Act Section 319 Grant Program (https://www.epa.gov/nps/319-grant-program-states-and-territories) provides funding to states, territories, and tribes to construct, repair, or improve private septic systems in states where septic systems have been identified as a significant source of nonpoint source pollution.

Who is Eligible?

States, territories, and tribal agencies are eligible for 319 Grant Program funding to implement approved nonpoint source management programs.

U.S. Housing and Urban Development - Community Development Block Grant

Description

States can use U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant Program (https://www.hud.gov/program_offices/comm_planning/communitydevelopment/programs) funding to support septic system projects, such as in Benton County, AR,

(https://www.epa.gov/sites/production/files/2015-06/documents/2013-septic-grant-sora.pdf) which received a $128,700 grant to address failing systems on individual homeowners' properties.

Who is Eligible?

Community Development Block Grants are awarded to state and local jurisdictions. At least 70% of the funds must be used for programs that benefit low- and moderate-income individuals.

Economic Development Administration Public Works Program

Description

Under the U.S. Economic Development Administration (EDA) Public Works Program (https://www.eda.gov/archives/2016/programs/eda-programs/), communities can receive funding to address septic system issues; for example, Lee County, FL (https://www.eda.gov/archives/2016/news/press-releases/2012/07/02/lee_county_fl.htm) received a $551,000 grant to plan a new wastewater treatment plant that will replace failing septic systems.

Who is Eligible?

EDA solicits applications from both rural and urban communities for construction, non-construction, and revolving loan fund investments.

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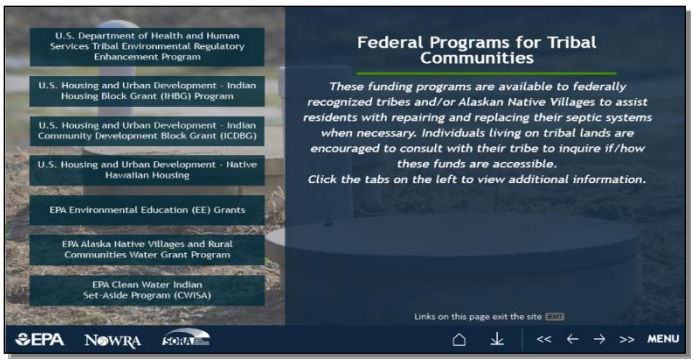

Federal Programs for Tribal Communities

These funding programs are available to federally recognized tribes and/or Alaskan Native Villages to assist residents with repairing and replacing their septic systems when necessary. Individuals living on tribal lands are encouraged to consult with their tribe to inquire if/how these funds are accessible.

Click the tabs on the left to view additional information.

U.S. Department of Health and Human Services Tribal Environmental Regulatory Enhancement Program

Description

U.S. Department of Health and Human Services Environmental Regulatory Enhancement (https://ami.grantsolutions.gov/index.cfm?switch=searchresult&type=office&param=ANA&page=ANA) grants provide tribes with resources to develop legal, technical, and organizational capacities for protecting their natural environments. Grants build tribal capacity, allowing involvement in all aspects of each project, including: environmental issue identification, planning, development, and implementation.

Who is Eligible?

Federally recognized Indian Tribes, as recognized by the Bureau of Indian Affairs;

Incorporated non-federally recognized tribes;

Incorporated state-recognized Indian Tribes;

Nonprofit Alaska Native community entities or tribal governing bodies (Indian Reorganization Act (IRA) or traditional councils) as recognized by the Bureau of Indian Affairs;

Nonprofit Alaska Native Regional Associations and/or; Corporations with village specific projects; or

Other tribal or village organizations or consortia of Indian Tribes

Tribal governing bodies (IRA or traditional councils) as recognized by the Bureau of Indian Affairs

U.S. Housing and Urban Development - Indian Housing Block Grant (IHBG) Program

The Indian Housing Block Grant Program (https://www.hud.gov/program_offices/public_indian_housing/ih/grants/ihbg) allocates formula funding to tribes or tribally designated housing entities for the delivery of a range of affordable housing opportunities and housing-related activities to low and moderate income members of Federally recognized Indian Tribes, Alaska Native Villages, and native Hawaiians. Funding can support water-related infrastructure construction for water and sewer facilities.

Who is Eligible?

Eligible IHBG recipients are Federally recognized Indian Tribes or their tribally designated housing entity (TDHE) and a limited number of state recognized tribes who were funded under the Indian

Housing Program authorized by the United States Housing Act of 1937 (USHA). With the enactment of Native American Housing Assistance and Self-Determination Act of 1996 (NAHASDA), Indian Tribes are no longer eligible for assistance under the USHA.

U.S. Housing and Urban Development - Indian Community Development Block Grant (ICDBG)

Description

The Indian Community Development Block Grant Program (https://www.hud.gov/program_offices/public_indian_housing/ih/grants/icdbg) provides eligible grantees with direct grants for use in developing viable Indian and Alaska Native Villages, including decent housing, a suitable living environment, and economic opportunities, primarily for low and moderate-income persons. Projects funding by the ICDBG program must principally benefit low and moderate income persons.

Who is Eligible?

Eligible applicants for assistance include any Indian Tribe, band, group, or nation (including Alaska Indians, Aleut, and Eskimos) or Alaska Native Village which has established a relationship to the Federal government as defined in the program regulations. In certain instances, tribal organizations may be eligible to apply.

U.S. Housing and Urban Development - Native Hawaiian Housing

Description

The purpose of the Section 184A Native Hawaiian Housing Loan Guarantee (https://www.hud.gov/program_offices/public_indian_housing/ih/codetalk/onap/nh) is to provide access to sources of private financing on Hawaiian home lands. Section 184A permits HUD to guarantee 100% of the unpaid principal and interest due on an eligible loan. The program is designed to offer home ownership, property rehabilitation, and new construction opportunities for eligible Native Hawaiian individuals and families wanting to own a home on Hawaiian home lands.

Who is Eligible?

Native Americans, Alaska Natives and Native Hawaiians eligible to reside on Hawaiian Home Lands.

EPA Environmental Education (EE) Grants

Description

Under the Environmental Education Grants Program (https://www.epa.gov/education/environmental-education-ee-grants), EPA seeks grant proposals from eligible applicants to support environmental education projects that promote environmental awareness and stewardship and help provide people with the skills to take responsible actions to protect the environment. This grant program provides financial support for projects that design, demonstrate, and/or disseminate environmental education practices, methods, or techniques.

Who is Eligible?

Applicant organizations must be located in the U.S. or U.S. territories and the majority of the educational activities must take place in the U.S.; or in the U.S. and Canada or Mexico; or in the U.S. Territories.

Who is Eligible? (continued)

Applicants must represent one of the following:

Local education agency.

State education or environmental agency.

College or university.

Non-profit organization as described in section 501(c)(3) of the Internal Revenue Code.

Noncommercial educational broadcasting entity.

Tribal education agency.

Includes schools and community colleges controlled by an Indian Tribe, band, group, or nation and which are recognized as eligible for special programs and services provided by the U.S. to Indians because of their status as Indians and which are not administered by the Bureau of Indian Education.

EPA Alaska Native Villages and Rural Communities Water Grant Program

Description

The Alaska Native Villages and Rural Communities Grant Program (https://www.epa.gov/small-and-rural-wastewater-systems/alaska-native-villages-and-rural-communities-water-grant-program) assists these communities with the construction of new or improved wastewater and drinking water systems. Communities can also use the funding for training and technical assistance in system operations and maintenance.

Who is Eligible?

Small communities with water and sewer studies and construction projects. See additional criteria here (http://dec.alaska.gov/water/village-safe-water/funding-conditions/)

EPA Clean Water Indian Set-Aside Program (CWISA)

Description

The Clean Water Indian Set-Aside Grant Program (CWISA) (https://www.epa.gov/small-and-rural-wastewater-systems/clean-water-indian-set-aside-program) provides funding to Indian tribes and Alaska Native Villages for wastewater infrastructure. The CWISA is administered in cooperation with the Indian Health Service (IHS).

Who is Eligible?

All federally recognized tribes, Alaska Native Villages, and tribes on former reservations in Oklahoma (as defined by the U.S. Bureau of Indian Affairs) are eligible for CWISA funds.

To be considered for CWISA funding, tribes must identify their wastewater needs to the IHS Sanitation Deficiency System. EPA uses the IHS Sanitation Deficiency System priority lists to identify and select projects for CWISA funding.

Links on this page exit the site

State Funding Programs for Septic Systems

There are many state, local, and NGO funding programs that can help fund septic system projects – a few examples are provided here. Your county or local health department may be able to provide specific information on opportunities (as well as lists of local service providers).

The Funds section of EPA's Water Finance Clearinghouse (https://ofmpub.epa.gov/apex/wfc/f?p=165:1:::::) provides a comprehensive listing of septic system funding sources. You can use the map feature to search for opportunities in your area.

Click on the blue icons to learn more.

Washington

Water Quality Combined Financial Assistance Program (https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-grants-and-loans/On-site-sewage-projects)*

This program awards grants and loans to counties, health departments, and conservation districts. The funds can be used for septic system repairs and replacements and septic abandonment and connections to existing sewer systems. The grant and loan funds may also be used for community septic system repair and replacement, pollution identification projects, and homeowner education programs.

*This program does not provide funding directly to homeowners, but residents can check with their municipalities on the potential for local opportunities.

Craft3 (https://www.craft3.org/Borrow/clean-water-loans)

Through their Clean Water Loan, Craft3 finances the replacement of failing septic systems in Oregon and the following Washington Counties: Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pacific, Pierce, Snohomish, Thurston, Wahkiakum and Whatcom. Rates and terms are determined by the applicant's annual household income.

Snohomish County Public Works (https://snohomishcountywa.gov/2812/Savvy-Septic-Home)

Uses funds from Ecology's Water Quality Combined Financial Assistance Program to hold septic care workshops. Their "Savvy Septic" program provides financial incentives for septic inspections, rebates for risers for the septic tank, and grants to repair septic systems for low-income homeowners.

Skagit County (https://skagitcounty.net/Departments/HealthEnvironmental/onsitesewer.htm)

Their current program, funded with Department of Ecology's Water Quality Combined Financial Assistance Program, provides loans for septic repairs. Each loan is paired with a grant. Properties receive grants of $1,000 or $2,000 depending on distance from the shore. In addition, the county offers rebates for septic system inspections and riser installations.

Spokane County Conservation District (http://sccd.org/departments/water-resources/onsite-septic-system)

Provides technical assistance and loans to homeowners to repair or replace failing septic systems, or to abandon failing septic systems and connect the home to an existing sewer line. Grants are also available to financially distressed homeowners.

Thurston County (https://www.co.thurston.wa.us/health/ehoss/loan_program.html)

Thurston County Environmental Health, along with Community Partners administer several low-interest loan and grant programs to help residents who live in shellfish protection areas or need financial assistance to maintain or repair their septic systems.

Oregon

Example Funding in Oregon

Craft3 (https://www.craft3.org/Borrow/clean-water-loans)

Craft3 is a non-profit organization (Community Development Financial Institution) that offers loans to help communities, small businesses, and families in Oregon and Washington in order to enhance economic, ecological, and family resilience.

Through their Clean Water Loan, Craft3 offers loans to finance the replacement of failing residential septic systems in Oregon and certain counties in Washington. Craft3 also services loans for the financing of all commercial septic systems in both Oregon and Washington.

Rates and terms are determined by applicant's annual household income.

Hawaii

Act 120 Tax Credit Program (http://health.hawaii.gov/wastewater/home/taxcredit/)

Hawaii Department of Health – Wastewater Branch

This is an income tax credit for the cost of upgrading or converting a qualified cesspool to a septic tank system or aerobic treatment unit system. Taxpayers are eligible for a tax credit for up to $10,000 for each qualified cesspool. Qualified cesspools under Act 120 must be located within 200 feet of a shoreline, perennial stream or wetland, or be within a source water assessment program area.

Iowa

On-Site Waste Water Assistance Program (http://www.iowasrf.com/program/other_water_quality_programs/on-site-waste-water-assistance-program/)

Iowa State Revolving Fund Program

This program offers low-interest (3%) loans to rural homeowners to replace inadequate or failing septic systems. Eligible loan recipients must own an existing home with a septic system in an area without public sewer service. Loans start at $2,000 with terms up to 10 years and can fund up to 100% of actual costs.

Kentucky

Homeowner Septic System Grant Program (http://kypride.org/programs/septic/)

Eastern Kentucky Personal Responsibility in a Desirable Environment (PRIDE)

This program provides grants to low-income homeowners to replace their straight pipes, outhouses, or failing septic systems with functional septic systems, as required by applicable state and federal laws. Eligible applicants must be located in one of the 42 counties served by Eastern Kentucky PRIDE and must provide proof of income.

Minnesota

Minnesota AgBMP Loan Program (http://www.mda.state.mn.us/agbmploan)

With EPA CWSRF Funding

With EPA CWSRF funding, this program offers low-interest (up to 3%) loans to any Minnesota landowner to replace, repair, or upgrade existing septic systems or to construct new systems. Any septic system that is designed to meet regulatory compliance is eligible for a loan, including individual septic systems, community septic (cluster) systems, and connecting to central sewer. Loans can be issued for up to $200,000 and amortized up to 10 years. The landowner works with a local government to approve the septic project and with a local lender that will issue and service the loan. The landowner must meet the lender's credit requirements and terms. Some local government units act as lenders and issue the loan in the form of a special assessment on the property. This program has issued 6,600 loans valued at $56 million as of early 2018. Visit this link (https://app.gisdata.mn.gov/mda-agbmploan/) to find your local contacts for specific information.

New York

Example Funding Opportunity in New York (https://www.efc.ny.gov/SepticReplacement)

New York State Departments of Environmental Conservation and Health and the Environmental Facilities Corporation

New York State Departments of Environmental Conservation and Health and the Environmental Facilities Corporation formed a new $75 million program to replace failing septic systems in communities in 31 counties of New York. Homeowners will be reimbursed for 50% of eligible costs up to $10,000.

Virginia

Indoor Plumbing Rehabilitation Program (http://www.dhcd.virginia.gov/index.php/housing-programs-and-assistance/6-indoor-plumbing-rehabiliation-ipr.html)

Virginia Department of Housing and Community Development

The Indoor Plumbing Rehabilitation program provides zero percent interest, subsidized loans in eligible localities for the installation of indoor plumbing to owners of substandard housing where indoor plumbing does not exist or where the existing septic systems have failed. Loan repayments are determined by the homeowner's ability to make payments.

Massachusetts

Community Septic Management Program (https://www.mass.gov/guides/the-community-septic-management-program)

Massachusetts Department of Environmental Protection

This program provides low-cost loans with typical interest rates of 5% to homeowners for use to bring their septic systems into compliance.

Homeowner Septic Loan Program (https://www.mass.gov/guides/title-5septic-systems-financial-assistance-opportunities-for-system-owners)

Massachusetts Housing Finance Authority

This is a bank loan program providing low-interest loans to homeowners through the MassHousing Program.

Septic System Tax Credit (https://www.mass.gov/service-details/view-residential-property-tax-credits)

Massachusetts Department of Revenue

Funding is provided in the form of a tax credit of up to $6,000 over four years for costs associated with septic upgrades.

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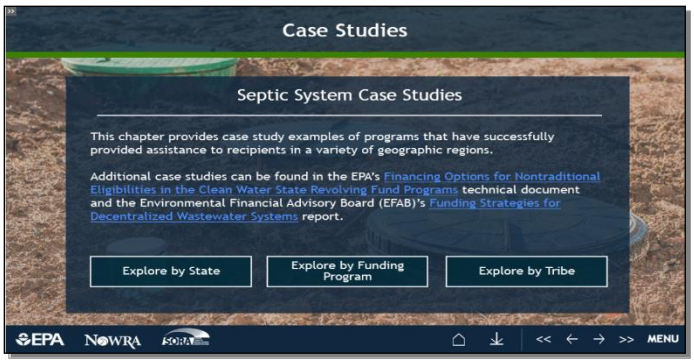
Subchapter 3.4: Case Studies



Case Studies

Septic System Case Studies

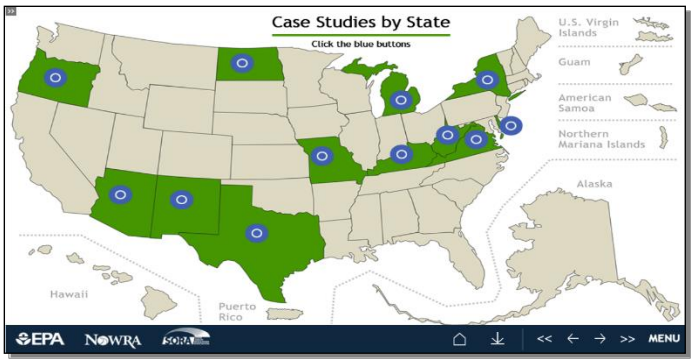
This chapter provides case study examples of programs that have successfully provided assistance to recipients in a variety of geographic regions.

Additional case studies can be found in the EPA's Financing Options for Nontraditional Eligibilities in the Clean Water State Revolving Fund Programs (https://www.epa.gov/sites/production/files/2017-05/documents/financing_options_for_nontraditional_eligibilities_final.pdf) technical document and the Environmental Financial Advisory Board (EFAB)'s Funding Strategies for Decentralized Wastewater Systems (https://nepis.epa.gov/Exe/ZyPDF.cgi/P100TZ1H.PDF?Dockey=P100TZ1H.PDF) report.

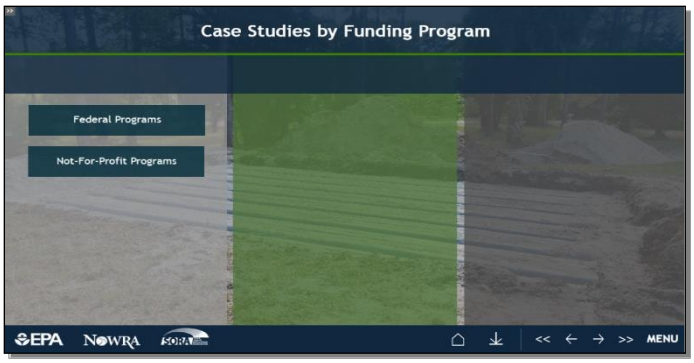
Explore by State

Explore by Funding Program

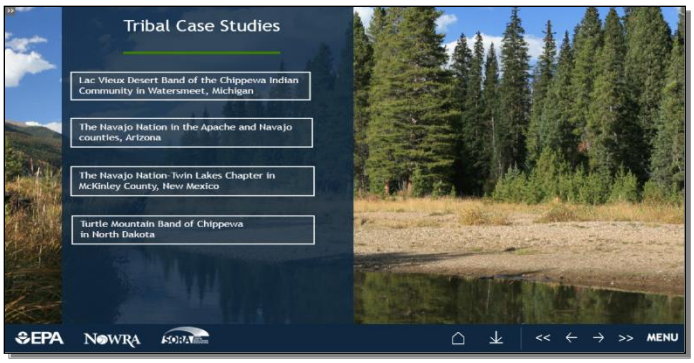
Explore by Tribe



Case Studies by State
Click the blue buttons
Portland, Oregon
Apache and Navajo counties, Arizona
The Navajo Nation, McKinley County, New Mexico
Bastrop, Texas
Turtle Mountain Indian Reservation, North Dakota
Table Rock Lake, Missouri
Watersmeet, Michigan
Muskegon County, Michigan
Mason County, Michigan
Ten Mile Creek, Kentucky
Rural Community of Crown, West Virginia
Franklin County, Virginia
Halifax County, Virginia
State of Delaware
Hillsdale, New York
Suffolk County, New York



Case Studies by Funding Program
Federal Programs
U.S. EPA – Clean Water State Revolving Fund
Delaware
Crown, West Virginia
U.S. EPA – Clean Water Indian Set-Aside Grant Program
Watersmeet, Michigan
Apache and Navajo counties, Arizona
McKinley County, New Mexico
Turtle Mountain, North Dakota
U.S. EPA – Clean Water Act 319 Funding
Ten Mile Creek, Kentucky
USDA Rural Development – Section 504 Funding
Bastrop, Texas
Hillsdale, New York
Mason County, Michigan
Muskegon County, Michigan
Not-For-Profit Programs
Craft3 Clean Water Loan Program
Portland, Oregon
RCAP
Hillsdale, New York
Suffolk County, New York
SERCAP Essential and Critical Needs Program
Halifax County, Virginia
SERCAP Loan Fund Program
Franklin County, Virginia



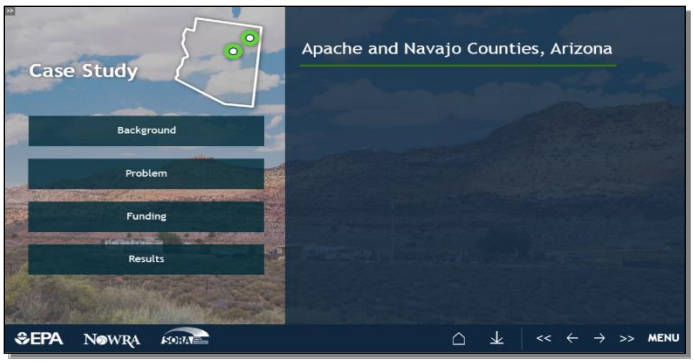
Tribal Case Studies

Lac Vieux Desert Band of the Chippewa Indian Community in Watersmeet, Michigan

The Navajo Nation in the Apache and Navajo counties, Arizona

The Navajo Nation-Twin Lakes Chapter in McKinley County, New Mexico

Turtle Mountain Band of Chippewa in North Dakota



Case Study

Apache and Navajo Counties, Arizona

Background

Location: Apache and Navajo counties, Arizona

Program: U.S. EPA - Clean Water Indian Set-Aside Grant Program (https://www.epa.gov/small-and-rural-wastewater-systems/clean-water-indian-set-aside-program)

When: 2009-2013

Who: The Navajo Nation

Tribe: Yes

Problem

Failing septic systems needed to be replaced at 30 homes

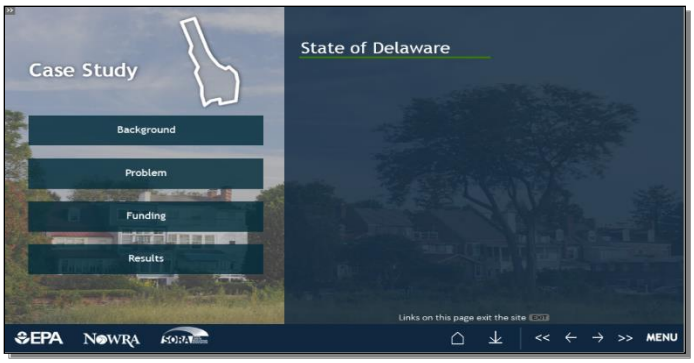
Funding

Funding Program: EPA Clean Water Indian Set-Aside Grant Program and American Recovery and Recovery Act of 2009 (ARRA)

Funding Amount: $449,790 for the replacement of failing septic systems at 30 homes

Results

The project provided wastewater facilities to 32 homes and sanitation facilities to 30 homes. Homeowners received training on the proper use and maintenance of septic systems, with a focus on the health benefits of properly maintained systems.



Case Study: State of Delaware

Background

Location: Delaware

Program: U.S. EPA - Clean Water State Revolving Fund

When:2017-2018

Who: Homeowners

Tribe: No

Problem

Homeowner received a Notice of Violation for their septic system which was found to be unpermitted and a non-conforming system illegally discharging to a state storm water drainage system. The homeowner was required to have their system pumped on a weekly basis until the replacement system was installed. This requirement was a huge financial burden and the homeowner applied for SLRP funding.

Funding

Funding Program: U.S. EPA Clean Water State Revolving Fund (Delaware) – Septic Rehabilitation Loan Program (SRLP) (https://dnrec.alpha.delaware.gov/environmental-finance/septic-rehabilitation/)

Funding Amount: The total loan amount was $22,249

The project cost breakdown was as follows:

Appraisal: $275.00

Lien Search $95.00

Document Recording Fee $139.00

Coupon Payment Book $0.00

Site Evaluation $725.00

Site Evaluation Review $75.00

Septic System Design $975.00

Septic System Permit: $115.00

Total Closing Fees: $2,409.00

Septic Installation: $19,800.00

Total Loan Amount $22,249.00

The loan process took two months and consisted of ordering Lien search, appraisal, septic site evaluation, septic design, and permit.

This loan was approved under the Septic Extended Funding Option (SEFO) loan program.

The SEFO program is a 0% loan program that is offered when the applicant does not qualify for the SRLP loan program.

Results

The homeowner received the loan to install a new septic system that conformed to Delaware state regulations. The homeowner does not have required monthly payments; the loan balance is only due upon sale of the property, leaving as small of a financial burden on the homeowner as possible.

Source: Delaware Department of Natural Resources and Environmental Control

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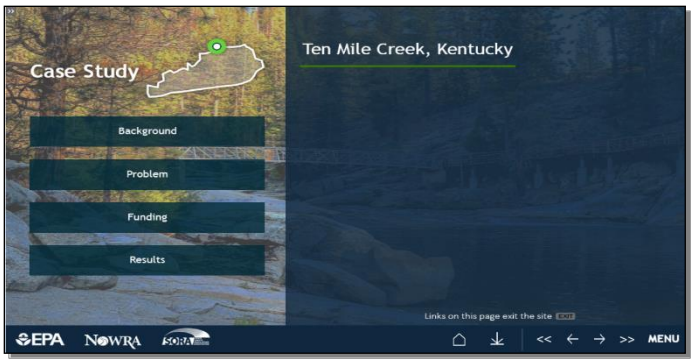

Case Study: Ten Mile Creek, Kentucky

Background

Location: Ten Mile Creek, Kentucky

Ten Mile Creek is located in the northeastern corner of the Kentucky River basin, in the Eagle Creek watershed

Program: U.S. EPA – Clean Water Act 319 Funding

When: 2005-2009

Who: Northern Kentucky Health Department

Tribe: No

Problem

Malfunctioning septic systems and straight pipes that drained directly to the creek led to an increase in stream bacteria levels in Ten Mile and Eagle Creeks

Funding

Funding Program: U.S. EPA – Clean Water Act 319 Funding

Funding Amount: The Kentucky Division of Water (KDOW) awarded Clean Water Act (CWA) Section 319 funding to Northern Kentucky Health Department (NKHD) to develop and implement a watershed-based plan for the Ten Mile Creek subwatershed. The plan outlined the pathogen, sediment, nutrients, and pesticide load reductions needed to achieve water quality criteria.

The Ten Mile Creek watershed-based plan identified approximately 45 straight pipes and 158 failing septic systems (with leaking drainfields, overflows, etc.). It was determined that pathogen loads could be reduced by 90% by installing or upgrading 40 to 100 septic systems. Through the NKHD onsite wastewater grant program, 34 septic systems were installed or upgraded in the subwatershed. Later, another 23 new septic systems were installed. NKHD initiated a public education social marketing campaign to inform residents of septic system issues and announced a grant program for homeowners in the Ten Mile Creek subwatershed. The project used a total of $473,163 in Section 319 funding between 2005 and 2013. Restoring water quality in Eagle Creek was the result of a collaborative effort by many partners, including the KRBT, Eagle Creek Watershed Council, NKHD, Ten Mile Creek residents, Kentucky Water Resources Research Institute, Kentucky River Watershed Watch, and KDOW.

Results

The project resulted in decreased pathogen loads in the creeks. In addition, there was a public education and social marketing campaign to educate residents on the water quality issues that their communities faced.

For more information on the CWA 319 program, visit its website here. (https://www.epa.gov/nps/319-grant-program-states-and-territories)

Source (https://www.epa.gov/nps/319-grant-program-states-and-territories)

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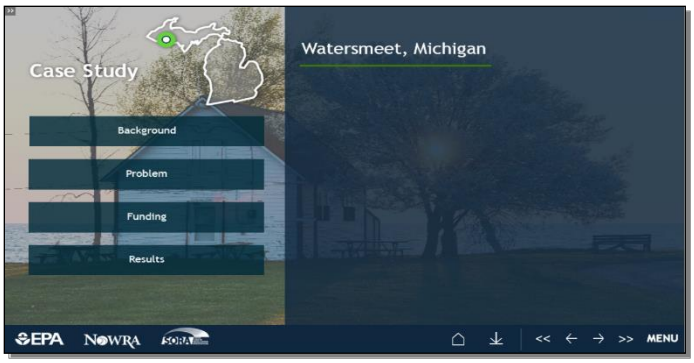
Michigan Case Studies

Click on the following to explore the case studies.

Watersmeet, Michigan

Muskegon County, Michigan

Mason County, Michigan



Case Study: Watersmeet, Michigan

Background

Location: Chippewa Indian Community, Watersmeet, Michigan

Program: U.S. EPA – Clean Water Indian Set-Aside Program

When: August 2015

Who: Lac Vieux Desert Band of the Chippewa Indian Community

Tribe: Yes

Problem

The septic systems serving several homes in the Lac Vieux Desert Band of the Chippewa Indian Community in Watersmeet, Michigan had failed. The leaking mound systems and ponding effluent from drainfields resulted in pools of untreated wastewater, a potential source of drinking water contamination. The project had originally called for abandoning existing failing systems and constructing a community sewage treatment system. However, due to the archaeologically sensitive and sacred land and unfit soils surrounding the project area, the project team revised the scope and decided individual home septic systems would be the most appropriate solution.

Funding

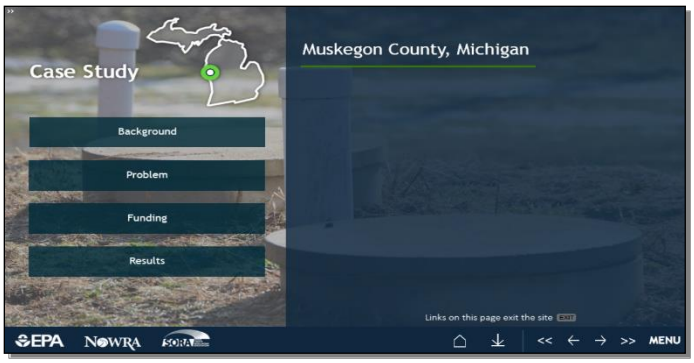
Funding Program: EPA Clean Water Indian Set-Aside (CWISA) Program

Funding Amount: The CWISA funded $290,000 to Lac Vieux Desert Band of the Chippewa Indian Community towards the repair and replacement of the failed systems with updated individual septic systems, and the installation of a control panel for the existing lift station.

Results

The project was completed in August 2015 and the systems now serve 16 homes.

Source: CWISA 2015 Annual Report (https://www.epa.gov/sites/production/files/2016-01/documents/2015annualreport_cwisa_approved_1_5_16.pdf)



Case Study: Muskegon County, Michigan

Background

Location: Muskegon County, Michigan

Program: USDA Rural Development - Single Family Housing Repair Loans & Grants (Section 504 Funding)

When: June 2017

Who: Homeowner

Tribe: No

Problem

Homeowner was in need of financial assistance for the construction of a new septic system

Funding

Funding Program: The USDA Rural Development - Single Family Housing Repair Loans & Grants (Section 504 Funding) (https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants)

Funding Amount: Total system cost was $6,750 – assistance provided was a combination of loan and grant

Results

Installation included:

1000-gallon precast concrete septic tank.

540 square foot drainfield.

500-gallon pump chamber

To learn more about how you can apply to Section 504 Funding, visit USDA Rural Development's State Funding Map (https://www.rd.usda.gov/browse-state) to connect with your local USDA home loan specialist.

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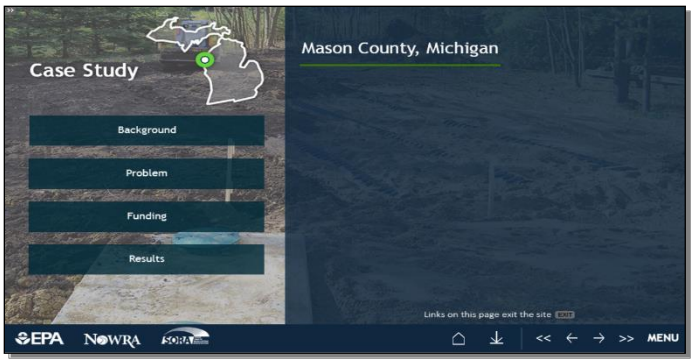

Case Study: Mason County, Michigan

Background

Location: Mason County, Michigan

Program: USDA Rural Development -Single Family Housing Repair Loans & Grants (Section 504 Funding)

When: May 2016

Who: Homeowner

Tribe: No

Problem

Homeowner was in need of financial assistance for the construction of a new septic system.

Funding

Funding Program: The USDA Rural Development - Single Family Housing Repair Loans & Grants (Section 504 Funding) (https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants)

Funding Amount: Total system cost was $6,775 – assistance provided through a low-interest loan. The loan can be repaid over a 20-year term and the interest rate is fixed at 1%.

Results

Installation Included:

1250-gallon septic tank/dual chamber with effluent filter.

450 square foot drainfield.

275-gallon pump chamber with pump and alarm.

Sand fill under elevated drainfield.

Additional fill for drainfield slopes and cover.

To learn more about how you can apply to Section 504 Funding, visit USDA Rural Development's State Funding Map (https://www.rd.usda.gov/browse-state) to connect with your local USDA home loan specialist.

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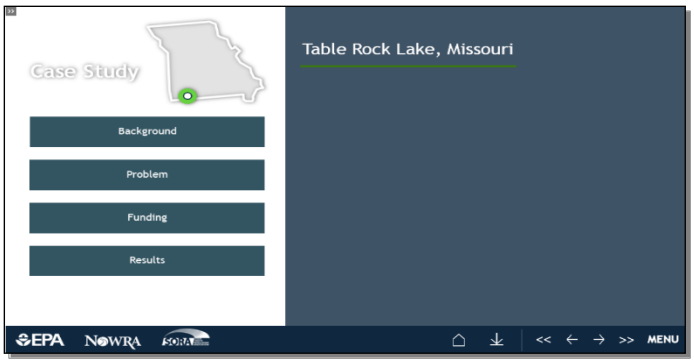


Case Study: Table Rock Lake, Missouri

Background

Location: Table Rock Lake, Missouri

Program: National Community Decentralized Wastewater Demonstration Project Grant (2005 - congressional earmark)

When: 2005

Who: Homeowners

Tribe: No

Problem

In the 1990s, the communities on the shores of Table Rock Lake experienced an increase in population leading to a subsequent increase in the number of homes with septic systems. Due to steep slopes, fractured limestone, and thin soil, the natural environment was not effectively treating septic system effluent. It was determined that 75%-90% of systems over 5 years old in 2001 were failing. The community recognized that failing septic systems negatively impacted the Lake's water quality and could potentially lead to a decline in area tourism.

Funding

Funding Program:

National Community Decentralized Wastewater Demonstration Project Grant (2005 - congressional earmark)

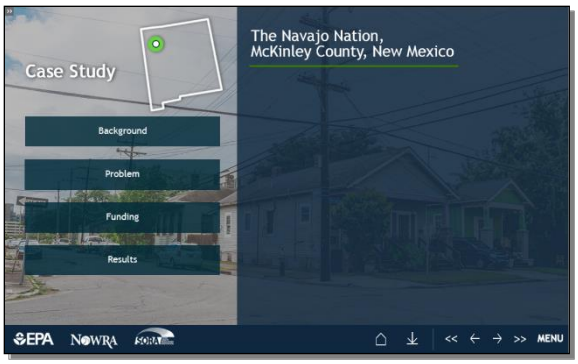
Funding Amount:

Table Rock Lake Water Quality, Inc. (TRLWQ) was created as an independent 501(c)3 non-profit with the mission of improving and maintaining the water quality of Table Rock Lake. TRLWQ was awarded a $1,940,000 National Community Decentralized Wastewater Demonstration Project Grant, as part of a congressional ear-mark, in 2005 to demonstrate advanced onsite wastewater treatment technologies and management through installation of new systems and determine long term solutions through the creation of a Responsible Management Entity (RME).

Results

TRLWQ demonstrated the feasibility of advanced onsite wastewater treatment systems for Table Rock Lake property owners. Maintenance and management concerns were addressed with the formation of a RME, the Ozarks Clean Water Company (OCWC). Similar to a city sewer program, property owners pay a monthly bill for OCWC's services. Water quality in Table Rock Lake has shown continued improvement over the years, which is considered to be at least partially attributable to the improvements in the community's septic system management. For more information on this

project, view the Technical Report (https://www.epa.gov/septic/table-rock-lake-water-quality-decentralized-wastewater-demonstration-project-final-technical).



Case Study: The Navajo Nation, McKinley County, New Mexico

Background

Location: The Navajo Nation, McKinley County, New Mexico

Program: U.S. EPA - Clean Water Indian Set-Aside Grant Program

When: 2007-2015

Who: The Navajo Nation-Twin Lakes Chapter

Tribe: Yes

Problem

Failed septic systems with drainfields 20-30 years old needed to be replaced in seven homes.

Funding

Funding Program:

EPA Clean Water Indian Set-Aside Grant Program and American Recovery and Recovery Act of 2009 (ARRA)

Funding Amount:

$52,236 to replace six septic systems and one sewer line

Results

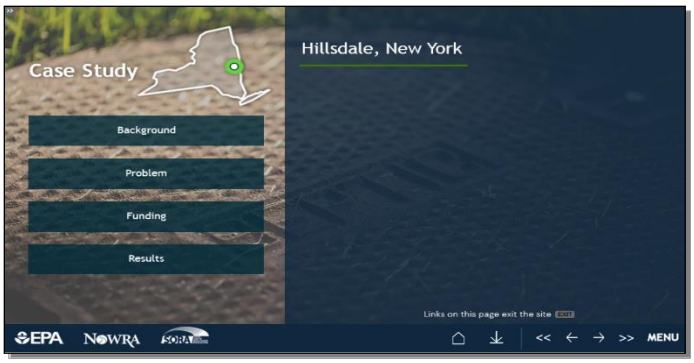
Six new septic tanks and drainfields and one new sewer line were installed. Homeowners received on-going Indian Health Services training for water and sewer systems operation and maintenance.

New York Case Studies

Click on the following to explore the case studies.

Hillsdale, New York

Suffolk County, New York



Case Study: Hillsdale, New York

Background

Location: Hillsdale, New York

Program: RCAP, USDA Rural Development, U.S. HUD CDBG, New York State Department of Environmental Conservation (NYSDEC)

When: 2007-2015

Who: Hillsdale Community System

Tribe: No

Problem

Hillsdale was under a consent order by New York State Department of Environmental Conservation (NYSDEC) to resolve the issue of failing septic systems in the hamlet.

Connecting to central sewer systems was not an available option geographically or economically. Septic systems were not a good option due to poor soils and small lots that did not provide adequate separation distances. Thus, a community septic system (cluster system) was the best choice.

Funding

Funding Program:

RCAP, USDA Rural Development, HUD CDBG, and NYSDEC

Funding Amount:

$2.4 Million

$1.4 Million in grants

$990,000 from USDA Rural Development

$400,000 from NY Governor’s Office for Small Cities

$75,000 from Private Seed Grants

$1 Million in loans

A 30-year term loan from USDA Rural Development at zero percent interest.

Results

A community septic system (cluster system) was installed and 110 units were connected. The system meets effluent limits and has a low O&M cost of $25,000 per year. The system serves 72 parcels in Hillsdale, for commercial and residential usage, and is designed for a flow of 35,000 gallons per day (gpd). The average flow was 10,000-12,000 gpd.

The project resolved environmental concerns and revitalized the economy in the hamlet. Commercial development was previously restricted due to the inability to install new septic systems; however, the new community system allowed businesses to open.

Source: Clark, D. Town of Hillsdale NY Case Study Small Community Wastewater Systems. Clark Engineering & Surveying PC website (http://ryanbiggs.com/the-need-for-alternativeinnovative-wastewater-treatment-and-disposal-systems/).

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Case Study: Suffolk County, New York

Background

Location: Suffolk County, New York

Program: Septic Improvement Program – Reclaim Our Water Initiative

When: 2014 - present

Who: Suffolk County homeowners

Tribe: No

Problem

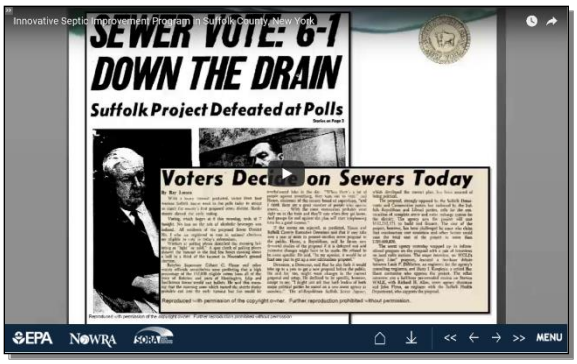
Approximately 74% of Suffolk County, NY rely on septic systems for treatment of their waste. These systems were not designed to treat nutrients; nitrogen has emerged as the most widespread and least effectively addressed of the region's water pollutants.

Funding

Funding Program: Septic Improvement Program created under the Reclaim Our Water Initiative

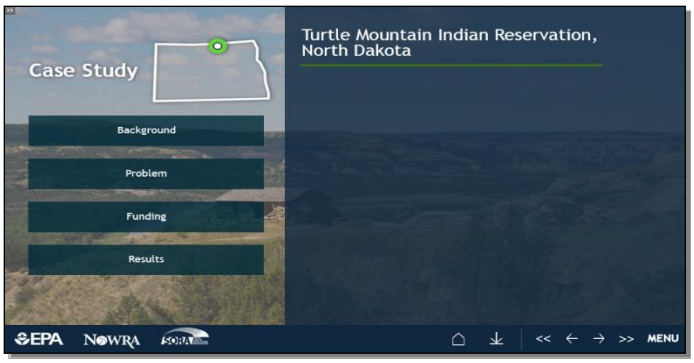
Funding Amount:

Up to $11,000 per homeowner in grant funds, low interest loans available for the remainder of the cost



Website

This links to a video about Suffolk County titled, ‘Innovative Septic Improvement Program in Suffolk County, New York.



Case Study: Turtle Mountain Indian Reservation, North Dakota

Background

Location: Turtle Mountain Indian Reservation, North Dakota

Program: U.S. EPA - Clean Water Indian Set-Aside Grant Program

When: 2009-2015

Who: The Band of Chippewa

Tribe: Yes

Problem

The Band of Chippewa submitted a project request to IHS in 2009, requesting assistance under Public Law 86-121 in the construction of wastewater facilities to serve 50 existing homes. Septic systems had failed due to age, excessive precipitation, poor soils, and/or poor initial construction.

Funding

Funding Program:

EPA Region 8 Clean Water Indian Set-Aside Grant Program

Funding Amount:

$361,000

Results

Septic systems were replaced at 18 homes. As-built drawings and information on proper operation and maintenance were provided to homeowners.

Case Study: Portland, Oregon

Background

Location: Portland, Oregon

Program: Craft3 Clean Water Loan Program

When: 1994 - present

Who: Homeowner

Tribe: No

Problem

The Torres family first noticed a problem when their plumbing began backing up. They decided to get the septic tank pumped, thinking that would solve the problem, but it didn't help. Eventually, the septic tank collapsed and created a sinkhole in the family's backyard. They were unable to pay for a new septic system out of pocket and also unsure whether they would be able to stay in their home long-term. When their septic system failed, the family faced an emergency need.

Funding

Funding Program: Craft 3 Clean Water Loan Program (https://www.craft3.org/Borrow/clean-water-loans)

Funding Amount: When the family found out that a new system would cost about $19,000, they began searching for affordable financing options and found the Craft3 program. Craft3 provides zero-money-down loans to residents of Oregon and Washington who have aged or failing septic systems. The rates and terms of Craft3 loans are determined by the applicant's annual household income.

Results

Craft3 was able to work quickly to provide a zero-money-down loan and have a contractor replace the system. The family now has properly flushing toilets and a new septic system. It is estimated that the Craft3 loan protected nearly $350,000 worth of real estate assets.

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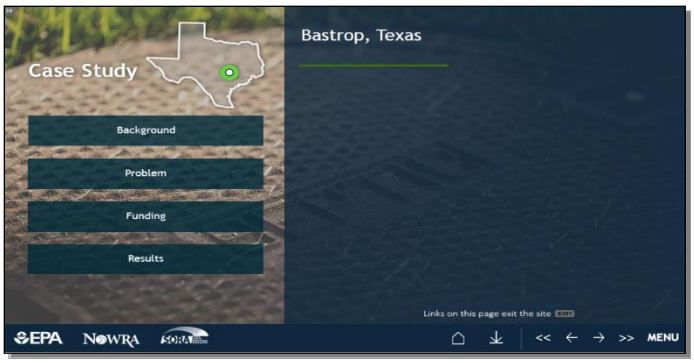

Case Study: Bastrop, Texas

Background

Location: Bastrop, Texas

Program: USDA Rural Development – Section 504 Funding

When: July 2016

Who: Homeowner

Tribe: No

Problem

The home had a makeshift sewer system of PVC pipes and was in need of a complete installation of a septic system.

Funding

Funding Program:

USDA Rural Development – Section 504 Funding

Funding Amount:

504 Combination Loan and Grant Assistance. Section 504 Loan assistance in the amount of $1,197 and a grant in the amount of $7,500.

Results

Installation of:

JET model J-750-gallon septic tank

Included site evaluation, system design, JET model J-750 Treatment Plant, Jet controls, chlorinator, 750-gallon pump tank, controls, sprinklers, and pipe.

Two-year service and maintenance agreement for the system

To learn more about how you can apply to Section 504 Funding, visit USDA Rural Development's State Funding Map (https://www.rd.usda.gov/browse-state) to connect with your local USDA home loan specialist.

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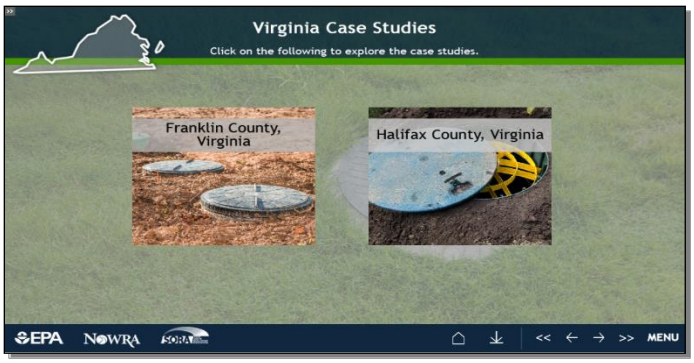

Virginia Case Studies

Click on the following to explore the case studies.

Franklin County, Virginia

Halifax County, Virginia

Case Study: Franklin County, Virginia

Background

Location: Franklin County, Virginia

Program: SERCAP Loan Fund Program

When:2014

Who: Homeowner

Tribe: No

Problem

A very low-income family of three in Franklin County – a disabled husband, a wife working a minimum wage job, and a teenage daughter – needed substantial repairs to their septic system's drainfield in order to stay in their home.

Funding

Funding Program:

SERCAP Loan Fund Program (http://w.sercap.org/se_loan_fund.htm) provides low-interest loans to residents in rural communities in Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. The program provides up to $15,000 for either upgrades, repair, or installation of a septic system. The program also provides up to $150,000 for funding to community septic systems (cluster systems).

Funding Amount:

The drainfield repairs were funded through SERCAP's Loan Fund Program for $2,500 at a low interest rate of 2%.

Results

With assistance from SERCAP's Loan Fund, the family had the financial resources to repair the drainfield so that it is fully functional and meets all applicable legal requirements. The repairs to the drainfield helped ensure the value of the home was maintained, and the family now has a healthier home environment in which to live.

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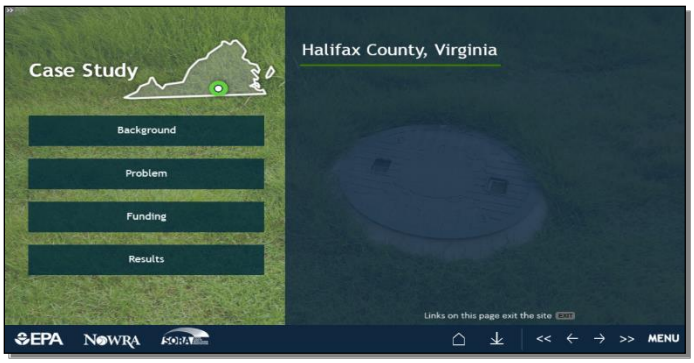

Case Study: Halifax County, Virginia

Background

Location: Halifax County, Virginia

Program: SERCAP Essential and Critical Needs Program (formerly Miscellaneous Grants Program)

When: 2015

Who: Homeowner

Tribe: No

Problem

A family of three in Halifax County began experiencing a foul odor and plumbing problems in the home related to septic system issues.

Funding

Funding Program:

SERCAP Essential and Critical Needs Program (http://sercap.org/about-sercap/service-region)

The family applied for funding through SERCAP to pump out their septic tank and install new drainfield lines with a distribution box. SERCAP approved the family's funding request.

Funding Amount:

$3,500

Results

The family reported that the SERCAP assistance provided critical financial support, enabling them to complete the necessary septic system upgrades. Their toilets are now flushing properly and the foul odor is gone. In addition to the environmental and health benefits, the home's property value has increased now that the system has been repaired.

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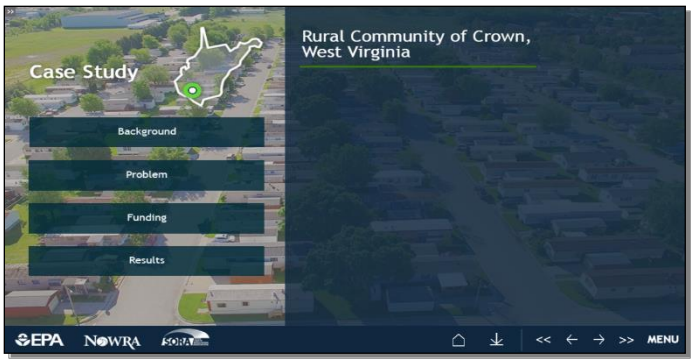


Case Study: Rural Community of Crown, West Virginia

Background

Location: Rural community of Crown, West Virginia, located in the lower part of the Monongalia Watershed

Program: Clean Water State Revolving Fund

When: March 2016

Who: Monongalia County

Tribe: No

Problem

For years, the community had been plagued with the overflow of raw sewage as a result of sub-standard, outdated septic systems. Effluent from these systems was being discharged directly into ditches and local streams Due to severe economic hardship, the small, rural community was nt in a position to fund a solution to their water quality problems.

Funding

Funding Program:

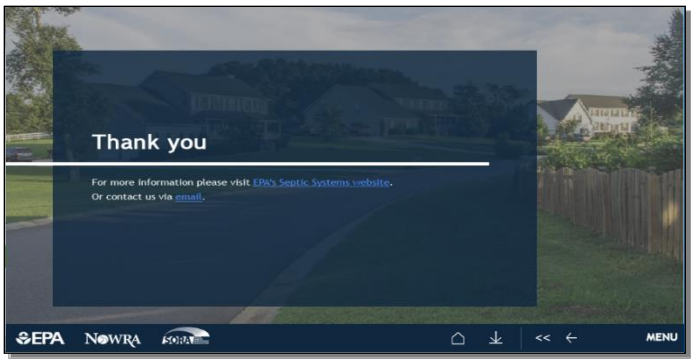
Clean Water State Revolving Fund, West Virginia administered by the West Virginia Department of Environmental Protection

Funding Amount:

The funding for this $1.58 million project came in the form of $1.57 million in additional subsidization from the CWSRF and $10,000 from the Monongalia County Commission.

Results

To address Crown’s public health concerns, the West Virginia Department of Environmental Protection financed the construction of an innovative community septic system (cluster system). The project included 4,400 Linear Feet (LF) of gravity sewer pipe, 550 LF of force main, 15 manholes, and a 12,000 gallons per day package plant, consisting of three 5,000 gallon community septic tanks discharging to 44 recirculating sand filters, with a drip irrigation sub-surface discharge. Over 40 homes in Crown, WV are now tied to this community septic system (cluster system).



Thank you

For more information please visit EPA's Septic Systems website (https://www.epa.gov/septic)

Or contact us via email (decentralizedmou@epa.gov).