

Chapter 19: Water and Wastewater Systems

INTRODUCTION

Proper construction, operation and maintenance of water and wastewater facilities are essential to public health and a safe and healthy environment. Water and wastewater systems in the Rutland Region include systems serving individual homes, schools or businesses and systems serving groups of homes or entire communities. The municipally-owned systems usually serve a community but there are many systems serving groups of homes, schools or businesses that are privately owned.

Water and wastewater system locations are both a result of and a determinant in an area's character and development patterns.

This chapter of the *Plan* addresses public water supply and wastewater treatment systems, private wells, and on-site septic systems, and their relationships with land use.

CURRENT CONDITIONS

The Vermont Agency of Natural Resources regulates the construction, replacement, modification, and operation of potable water supplies and wastewater systems. The Agency regulations include plan reviews, construction permits, operational requirements and permits, sampling and reporting requirements and certified operators for community systems.

Recent changes to state regulations essentially require all new and replacement water and wastewater facilities and modifications require permits from the State unless the town decides to administer the rules.

Public Water and Wastewater

Public water utilities are located in communities throughout the Region (see chart in the following pages), though they

are not found in every densely populated village. Most of these water systems rely on groundwater as their source of water, although the largest system (Rutland City) is supplied by surface waters.

Wastewater treatment and disposal systems are operated and maintained in many of the Region's larger villages. In the more rural areas, on-site waste disposal is the accepted alternative. In general community sewer systems in the Rutland Region are in good condition with adequate reserve capacity where they exist.

Limited financial support for community water and wastewater facility improvements are available through the Vermont Department of Environmental Conservation, the U.S. Department of Agriculture Vermont Agency of Commerce and Community Development.

On-Site Septic

Recent improved onsite septic system technology, regulation, and monitoring has had a beneficial impact on our environment. The State permit process was



FAST FACT

Title 10 chapter 56 of state statute authorizes the Secretary of the Agency of **Natural** Resources to regulate the purity of drinking water, the adequacy, construction and operation of public water systems, public water sources and public water source protection areas.



A municipal water supply serves the Village of Poultney.

RRPC Staff



DEFINITIONS

"Public water system" means any system, or combination of systems owned or controlled by a person, which provides drinking water through pipes or other constructed conveyances to the public and which:

- has at least 15 service connections; or
- serves an average of at least 25 individuals for at least 60 days a year.

Public water system shall also mean any part of a piped system which does not provide drinking water, if use of such a part could affect the quality or quantity of the drinking water supplied by the system. Public water system shall also mean a system which bottles drinking water for public distribution and sale.

"Community water system" means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Noncommunity water system" means a public water system that is not a community water system.

- "Nontransient" systems are systems which serve 25 or more of the same people daily for more than six months in any year.
- "Transient" systems are all other noncommunity public water systems, such as a system serving a restaurant.

reformed so that all septic systems and water supplies are treated consistently under one statute, advanced technologies can be used, the exemption for 10-acre lots ended, and failed systems are entitled to a "best fix" permit for replacement. The revised statutes have not been met with uniform praise, however, as the loss of the 10-acre lot exemption has caused problems for development in some communities with poorly-drained soils.

UNMET NEEDS

Water Supply

- Threats to the quality of the groundwater and wells include runoff from agriculture, roads and salt storage areas, contaminated runoff from paved areas, and failing septic systems. Unlike source protection areas for public water supplies, private wells are not afforded levels protection aside from minimum setbacks from structures.
- The lack of reliable groundwater mapping throughout most of the Rutland Region and the State is a glaring unmet need. Without this information it is difficult to predict areas in need of protection from potential contamination. It is also difficult to assess the impacts that each additional well, public water system, or private water system will have upon existing water systems.
- Upgrades and improvements to existing public water supply facilities to meet current State and Federal regulations for public health protection are unaffordable. These problems in the Rutland Region are primarily related to aged and inadequately sized infrastructure. Small water mains often result in inadequate pressure under peak flow and fire flow conditions.
- The recently adopted Federal groundwater disinfection rule may require some of the systems to provide continuous disinfection based on testing. In addition there is a continuing need for

additional certified public water system operators.

- Data is lacking but it is likely that many water systems serving individual homes do not meet current construction standards and most have never been tested as recommended by the State Health Department.
- The State identifies needed public water system improvements through the State Sanitary Survey program. There are not enough Federal and State funds available to meet the identified needs.

Wastewater

Community sewer systems require proper operation and maintenance by certified operators and ongoing upgrading and replacement of facility components. As the population and other system users increase, treatment facility expansions may be required. There are not adequate funds available to meet these needs.

- Population growth leads to more waste, which invariably leads to more contaminants, pathogens, and byproducts that must be dealt with.
- There are a significant number of existing on-site systems that do not meet standards and many of these systems discharge directly to streams or the surface without adequate treatment.
- As is the need for water system operators, there is expected to be a lack of qualified trained operators for community wastewater systems in the near future as retirements take effect.
- Combined sewer and storm water systems are still releasing raw sewage into receiving waters during heavy rains.
- Trends towards larger lot sizes, fewer residents per household, and increased development outside of traditional village centers have reduced the efficiency and scales of economies traditionally enjoyed by public water and wastewater systems.
- Not all towns have located and mapped

their sewer lines. Sewer systems need to be inspected regularly to identify sources of storm and runoff waters and eliminate excess flow. In order to minimize the probability of exceeding the capacity of sewer facilities, inflow and infiltration of storm and runoff waters into the piping system carrying wastes to the treatment plant must be eliminated. Separate storm sewer facilities are needed in many areas.

- In some cases, old sewer lines made of clay and even wood may still exist and are in need or replacement.
- Construction of community or communal sewer systems to serve areas with septic system failures and areas with primarily clay soils may be necessary.

FUTURE TRENDS

Multiple trends related to population growth and aging of existing water and sewer infrastructure are worth noting and preparing for:

- There has been some concern that as more people move in to certain areas, the long-range sustainability of the water supply is a concern. In some areas of the Region, homeowners have had to dig inordinately deep in order to find reliable water sources.
- The volume of waste treatment by-products (septage and sludge) will continue to grow with the population.
- The Region’s aging water distribution and sewer systems will inevitably require increasing investments to maintain the existing level of service. Older pipes will need repair or replacement in future years. Federal and State funding for these improvements may not increase as rapidly as the need, requiring more funding by local municipalities.
- Aging sewer systems may increase system infiltration and main breaks resulting in more spills and stream contamination.

- Some towns may experience a decrease in development or a change in development patterns because of the elimination of the ten-acre exemption.
- The Region is experiencing an increase in the conversion of lakeside cottages to year-round houses, posing problems related to septic system capacities and their ability to meet current State standards.
- The changed on-site regulations’ emphasis on maintaining open space and reducing sprawl, and the high cost of infrastructure, may result in greater emphasis on using existing water and wastewater infrastructure. This will require correcting deficiencies of these systems and expanding capacity in place as needed rather than constructing new systems.

MEETING CURRENT AND FUTURE NEEDS

A number of options are available for communities to address water & sewer issues. They include:

- Development of local capital budgets and programs to address water systems’



For systems that attain their drinking water from lakes, reservoirs, or rivers, understanding the geology and land use of the watershed is important. Drinking water systems served by groundwater sources should identify the nature of the aquifer. Both surface water and groundwater systems should pay particular attention to soils, slope, hydrology, and land use. See the Water Quality chapter for more information.



Wastewater Treatment Facility for the City of Rutland



FOOD FOR THOUGHT

Source Protection Areas:

Source Protection Plans provide land use management tools which reduce the threats of contamination and foster drinking water protection by mapping the recharge area of a water source, recommending measures to control potential sources of contamination, and identifying alternative drinking water sources in the event of contamination.

Since 1992, the state has required source protection plans (SPPs) for all community and non-transient non-community water systems. The state also requires that SPPs be in place prior to the final permitting of new public community water systems.

aging infrastructure and inadequately sized facilities' needs. It is unlikely that sufficient Federal and State funds will be available to make these improvements when required by the State.

- Consolidation of small public systems to reduce operating costs and substantially improve public health protection may be effective.
- Identifying, protecting from harmful development and pollution, and eventually acquiring potential municipal water sources. There is a continuing need for towns to take action to improve protection for water system sources and to identify and protect potential needed new water sources.
- Construction of additional water storage facilities at outlying areas to improve fire protection.
- Mapping of groundwater to aid in the protection of quality potable water supplies.
- Encouraging the citing of new wells in ways that avoid depletion of the groundwater supplies.
- Adoption and implementation of Source

Water Protection Plans and overlay zoning districts.

- Provision of training for water and wastewater system operators. Well trained operators are a critical component in protecting public health and the environment.

RUTLAND RPC ACTIONS

- Assist towns in identifying septic suitability of lands.
- Assist towns in identifying potential and needed water sources and areas for protection of water source
- Assist towns in obtaining funding to acquire and/or upgrade facilities.
- Assist towns in developing long range financial plans to address water and wastewater deficiencies.
- Assist towns with long range water and waste water planning.
- Provide education to towns on State onsite water and wastewater regulations.

CASE STUDY:

SUPERIOR WASTEWATER TREATMENT AWARD FOR RUTLAND CITY

In 2001, the City of Rutland received a prestigious award from the EPA: the National Wastewater Management Excellence Award, earned by the City for its achievements in their medium-advanced municipally operated Wastewater Treatment Facility.

The Award is granted based on four criteria:

1. Outstanding operations and maintenance practices at publicly owned wastewater treatment facilities;
2. Exemplary biosolids operating projects, and special biosolids management achievements;
3. Municipal implementation and enforcement of local pretreatment programs; and,
4. Combined sewer overflow control programs.

The awards program provides national recognition for the programs developed to protect the public's health and safety and the nation's water quality. Municipalities and industries are awarded for their achievements in complying with applicable water quality requirements and satisfactory records with respect to environmental quality.

Another success of the City of Rutland's Wastewater Treatment Facility and Department of Public Works is their work with local community groups in an effort to improve the water quality of the region. The Facility treats wastewater from parts of Clarendon, Killington, Rutland Town and Mendon, and has worked with the Upper Otter Creek Watershed

RUTLAND REGION DRINKING WATER SUPPLY SYSTEMS BY TOWN

- **Benson:** Most homes draw their water from springs and drilled wells. Community water systems serve the senior citizen center and a camp for troubled youth.
- **Brandon:** Domestic water is supplied in the villages of Forest Dale and Brandon by fire districts; community water systems and individual wells serve the rest.
- **Castleton:** Municipal water is supplied to the village along Route 4A; fire district serves the Four Corners/Hydeville area and existing commercial, industrial and residential development along 4A.
- **Chittenden:** All residences and businesses are served by private water supplies, with the exception of residences in the northwest corner of town, which are serviced by the Town of Pittsford's water system.
- **Clarendon:** Most water is drawn from individual wells or springs. A private system serves the industrial park.
- **Danby:** The majority of homes draw their water from springs and drilled wells. The Borough is served by the Danby-Mt Tabor Fire District 1 town spring and drilled well.
- **Fair Haven:** The village is served by a municipal water system; Inman Pond is the source. Other water supplies in town are maintained privately by homeowners associations and individual homeowners.
- **Hubbardton:** Water is drawn from individual wells or springs.
- **Ira:** Water is drawn from individual wells or springs.
- **Killington:** Most residential and commercial dwellings maintain individual wells whose ground water supply is primarily from bedrock aquifers. Killington, Ltd. has wells with large capacity in the Sherburne Valley District.
- **Mendon:** Structures in Mendon are served by individual wells or small community water supplies.
- **Middletown Springs:** Water is drawn from individual drilled or dug wells or springs.
- **Mount Holly:** Water is obtained from individual drilled or dug wells or springs throughout most of the town. A spring fed water system supplies a small number of buildings in the village of Belmont.
- **Mount Tabor:** The majority of homes draw their water from springs and drilled wells. The Borough is served by the Danby-Mt Tabor Fire District 1 town spring.
- **Pawlet:** Water is drawn from individual wells or springs.
- **Poultney:** Municipal water system for the village is supplied by springs on Nickwackett Mountain. Homes and businesses elsewhere are on wells or springs.
- **Pittsford:** Municipal water supply primarily serves the village area. Water is supplied from two gravel wells. The Florence water system is supplied through wells. Homes and businesses elsewhere use individually dug wells, springs, or private community water systems.
- **Proctor:** Over 90 percent of residents are served by municipally owned water and sewer systems. The principal sources supplying the municipal water system are two surface water streams in Chittenden and gravel well near the river in Proctor. Residents not served by the municipal water systems rely on wells or springs.
- **Rutland City:** Virtually 100% of the City has municipal water service. Its supply comes from a dam and intake facility on Mendon Brook, about 3 miles northeast of the City. The City owns five parcels of land in Mendon comprising the watershed. The City also owns water rights to part of the North Branch of the Cold River, including Brewer Brook and Rooney Brook, giving a water capacity that is yet to be fully utilized. The City can draw water from East Creek in the event of an emergency affecting the primary water supply.
- **Rutland Town:** Commercial / industrial areas along Route 7 South, the town school, and Northwood Park, are served by Rutland City's water system. Several small, community water systems were instituted by developers. Residents and businesses not connected to these systems use individual wells or springs.
- **Shrewsbury:** The great majority of homes draw their water from springs and drilled wells. The exceptions to this are the village of Cuttingsville, which is served by a private water company, and Spring Lake Ranch, which has its own private system.
- **Sudbury:** Water is drawn from individual wells or springs.
- **Tinmouth:** Water is drawn from individual wells or springs.
- **Wallingford:** Municipal water service is provided by the Wallingford Fire District # 1, serving residents of the village area of Wallingford and by the South Wallingford Water Cooperative, serving South Wallingford. Residents not served by these systems use private water systems; individual wells, or springs.
- **Wells:** Most homes and businesses draw their water from springs and drilled wells. Community water systems serve a small condominium development, Idlewild Camps, and the elementary school.
- **West Haven:** Water is drawn from individual wells or springs.
- **West Rutland:** Nearly all of the households are served by a municipal water system. Water is drawn from an aquifer located near the Sabotka Recreation.

RUTLAND REGION WASTEWATER SYSTEMS BY TOWN

- **Benson:** Sewer service exists in the village area.
- **Brandon:** The Town owns and operates a sewage treatment plant serving an area in and around Brandon and Forest Dale Villages and surrounding areas.
- **Castleton:** Town sewer service extends throughout the Main Street village center, along most of Route 4A and Rt. 30 north of the Four Corners, including the elderly housing project and the east shore of Lake Bomoseen and one-third of Sand Hill Road.
- **Chittenden:** All sewerage is dealt with through individual on-site septic systems.
- **Clarendon:** Most sewerage is dealt with through individual on-site septic systems. An exception is the airport industrial park in North Clarendon which is hooked into the Rutland City wastewater system.
- **Danby:** All sewerage is dealt with through individual on-site septic systems.
- **Fair Haven:** A municipal sewer system serves the village area, Airport Road, the welcome center, Camera Slate, Sky Line Corp., and the National Guard Armory.
- **Hubbardton:** All sewerage is dealt with through individual on-site septic systems.
- **Ira:** All sewerage is dealt with through individual on-site septic systems.
- **Killington:** The Town is serviced by several large capacity sewage treatment facilities. Most of the Killington Road Commercial District is serviced by Sherburne Fire District #1. The Alpine Pipeline services Pico, expanded development in the Killington Ski Area Basin and other sections west of the Sherburne Pass. An extension of the Alpine Pipeline on the east side of the Sherburne Pass serves businesses and residences along Killington Road to approximately Merrill Drive. Killington Ski area and the "400-acre" PUD are serviced by two systems operated by Killington, while the Sunrise condominiums are serviced by their own treatment facility. Killington, Ltd. constructed a pipeline from the Killington treatment plant to the Alpine Pipeline to serve the Grand Hotel as well as proposed new development within the Killington Basin Area. The remainder of the sewage treatment and disposal in town is carried out by individual on-site systems.
- **Mendon:** Local residences are primarily served by individual on-site septic systems. The Alpine Pipeline serves properties along US Route 4 transporting wastewaters into Rutland City for treatment.
- **Middletown Springs:** Homes and businesses rely upon on-site septic systems.
- **Mount Holly:** Homes and businesses rely upon on-site septic systems.
- **Mount Tabor:** Homes and businesses rely upon on-site septic systems.
- **Pawlet:** West Pawlet is served a municipal sewage system. Homes and businesses throughout the rest of the town rely upon on-site septic systems.
- **Pittsford:** A sewer district covers much of the intensely developed areas along Route 7 and Route 3. Homes and businesses throughout the rest of the town rely upon on-site septic systems.
- **Poultney:** Poultney Village is served a municipal sewage system. Homes and businesses throughout the rest of the town rely upon on-site septic systems.
- **Proctor:** A sewage treatment system serves most of the town; residents outside the service area rely on on-site septic systems.
- **Rutland City:** The City's sewer treatment facilities serves all of the city. A private sewer pipe also carries wastewater from commercial and residential areas along Route 4 via the Alpine Pipeline. The Airport Industrial Park in Clarendon is also connected to the system. A storm sewer running from the renovated downtown shopping plaza to East Creek provides the initial portion of a drainage system through the business district. A combined Sewer Overflow (CSO) project is designed to eliminate or treat overflows.
- **Rutland Town:** Portions of the town are connected to Rutland City's sewer service. A sewage pumping station, operated by Fire District 1 also serves the town.
- **Shrewsbury:** All sewerage is dealt with through private or individual on-site septic systems.
- **Sudbury:** All sewerage is dealt with through individual on-site septic systems.
- **Tinmouth** All sewerage is dealt with through private or individual on-site septic systems.
- **Wallingford:** Sewer service provided by the Wallingford Fire District 1 serves the village. Homes and businesses throughout the rest of the town rely upon on-site septic systems.
- **Wells:** All sewerage is dealt with through individual on-site septic systems.
- **West Haven:** All sewerage is dealt with through individual on-site septic systems.
- **West Rutland:** A municipal sewer system serves 83% of the households and most businesses. Homes and businesses throughout the rest of the town rely upon on-site septic systems.