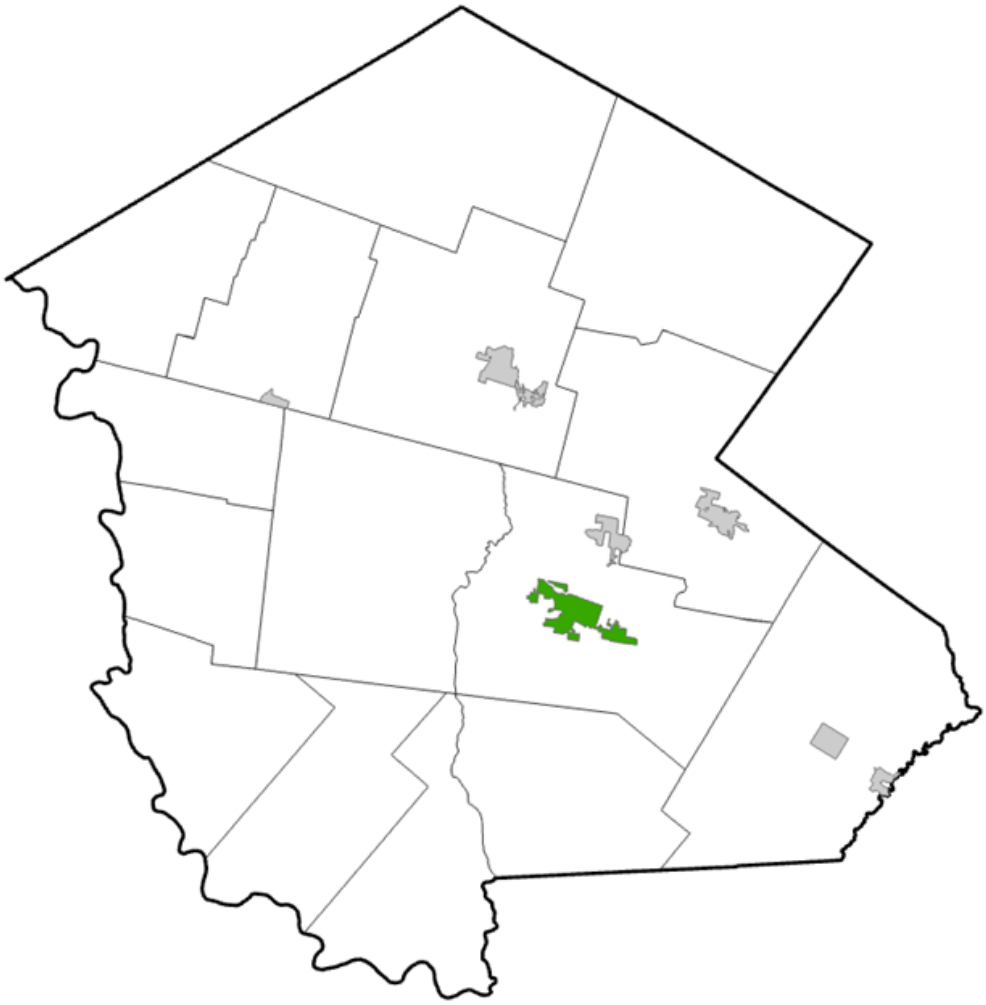
Sullivan County Assessment of Potable & Wastewater Infrastructure

VOLUME II

Village of Monticello



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Volumes I and II are part of a larger report.
The full Sullivan County Assessment of Potable and
Wastewater Infrastructure Report may be requested from the
Sullivan County Division of Planning, Community Development and Environmental Management

1. ABOUT THIS DOCUMENT

In 2025, the Sullivan County Division of Planning, Community Development, and Environmental Management (DPEM) undertook, with the support of Delaware Engineering, DPC, a project to assess water supply and wastewater management infrastructure throughout the County.

As part of that project, known as the Countywide Assessment of Potable and Wastewater Infrastructure (CAPWI), water and sewer infrastructure serving residents and businesses in each of the County's twenty-two municipalities was surveyed, inventoried, and evaluated. This document details the results of this effort and presents the information in a series of Community Reports. The CAPWI Volume 1 Report reflects the information developed within this Volume 2 Report through a series of recommended actions aimed at supporting water and sewer service county-wide, and advanced by the County.

1.1 Using this Document

The information is structured around inventory and evaluation of each community's water supply and wastewater management infrastructure. While emphasis is placed on municipally owned systems, the report surveys and documents other centralized and regulated decentralized water and sewer systems in the Community. Individual on-site facilities are beyond the scope of this report, though it is noted where in the County these systems are exclusively relied on. Mapping showing service areas and other key information accompanies the report. Sources and methods are also described.

The information in this volume is, in general, not at a level of detail or intended to provide analysis of system or component capacity, be used in the design of specific capital projects, provide detailed system mapping, assess or recommend specific operational techniques or strategies, or other similar activities requiring development of precise technical information and detailed engineering assessment. Instead, this volume provides an inventory and planning-level evaluation of these systems in support of policy and programmatic needs and decision making.

The Countywide Water and Sewer Evaluation and Recommendations report can be viewed by visiting the following website from DPEM.
https://www.sullivanny.gov/Departments/PlanningEnvironmental/PlansandStudies/CAPWI

Individual Community Profile reports have also been prepared as part of the CAPWI project and are intended to be standalone documents that can be used by a variety of audiences,

including municipal leaders and officials, residents, and businesses, seeking basic information about water and sewer service in the municipality.

Finally, many of the terms used have specific meanings and are further elaborated upon in a Glossary attached to this report. Terms appearing in the Glossary are denoted in underline throughout the document, and in the electronic version, you may click these terms to be taken directly to where that term appears in the Glossary.

1.2 Understanding the Data: Public vs. Private Infrastructure

As stated previously, the primary focus of this report is inventorying municipally owned water and sewer systems in Sullivan County. However, the community profile reports also provide limited information on privately-owned systems where relevant and publicly available. In order to understand the data presented, the reader must first have a basic understanding of the regulatory framework governing the operation of different types of water and sewer systems in New York State.

Regardless of ownership, there are two regulatory agencies that are primarily responsible for issuing permits and approvals for drinking water and wastewater systems – the New York State Department of Health (NYSDOH) and the New York State Department of Environmental Conservation (NYSDEC).

1.2.1 Public Water Systems (NYSDOH)

In Sullivan County, the NYSDOH is the agency responsible for regulating public water systems. This includes water systems owned and operated by a municipality, as well as privately-owned water supply companies, and even hospitals, gas stations, and other facilities with private wells. When it comes to water systems, public means that these systems serve the public at large – not the form of ownership.

In general, water systems regulated by NYSDOH as public water systems are classified as either community water systems or non-community water systems (see Glossary for more information). The data contained in this report is limited to community water systems**,** whether publicly or privately owned. Information about non-community water systems (including those that service transient seasonal populations like camps and bungalow colonies) is included, where available, but is not further detailed.

1.2.2 Wastewater Treatment Facilities (NYSDEC)

New York State's wastewater discharge regulations are administered by the NYSDEC through the State Pollutant Discharge Elimination System (SPDES) program, which requires

permits for any facility that is designed to treat and discharge wastewater. That includes sewage treatment plants that discharge effluent directly to a surface waterbody (like a nearby lake or stream) as well as facilities that discharge wastewater into the ground (like septic systems and sand filters).

No SPDES permit is required for a facility designed to treat less than 1,000 GPD, and Minor SPDES projects (those with wastewater discharges of less than 10,000 GPD) are typically covered by a NYSDEC General Permit (GP-0-25-002). Only wastewater treatment facilities that don't fall into one of those two categories (Major SPDES projects) are detailed in this report. Those include centralized systems (e.g., Publicly Owned Treatment Works), regulated decentralized systems (e.g., "package plants"), and commercial-sized septic systems that discharge to groundwater. Like water systems, wastewater treatment facilities can be publicly or privately owned.

Although the SPDES program is involved in the centralized wastewater systems with which the CAPWI effort is primarily concerned, the City of New York and DRBC each regulate in parallel wastewater facilities within their respective geographies. Of further note is that residential systems handling less than 1,000 GPD are regulated by NYSDOH.

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2. GLOSSARY OF TERMS

2.1 Action Level (AL)

The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

2.2 Annual Water Quality Report (AWQR)

The Annual Water Quality Report is required by federal law and NYS regulation and is designed to provide consumers with information on the quality of the water delivered by their public water system. Systems serving fewer than 1,000 service connections are required to report information on the water source and water treatment, the levels of any detected contaminants, and compliance with drinking water rules, plus general educational information. The report also includes an explanation of the size of the population served by the system, which also typically includes the number of service connections. These reports are available at municipal offices and on municipal websites for public consumption.

2.3 Centralized System (Water or Sewer)

Centralized systems, which can be water supply or wastewater management, refer to infrastructure that is, typically but not exclusively, municipally owned and which is characterized by extensive distribution and conveyance networks serving large areas. Water supply and wastewater management are provided at typically larger-scale facilities. These systems are highly regulated. This infrastructure consists of both collection and conveyance, as well as treatment.

2.4 Decentralized System (Water or Sewer)

These systems are characterized by smaller numbers of connections and with water supply and wastewater treatment works provided closer to the users or source of demand. This term includes individual on-site water supply wells and septic systems serving single users, but also encompasses systems serving multiple connections that are regulated similarly to centralized systems.

2.5 Collection and Conveyance System

The sanitary sewer collection and conveyance system refers to the elements of the sewer system that enable wastewater to flow from points where it's generated to the point(s) where it's treated. In this report, the system begins at the point of connection to individual users and consists, generally, of pipes, manholes, pump stations, forcemains, and upstream wastewater storage (flow attenuation).

2.6 Community Water System (CWS)

A public water system (i.e., one that serves 15 or more service connections used by year-round residents or regularly serves at least 25 year-round residents - see definition in this document) that supplies water to the same population year-round. Examples of community water systems include municipally owned (cities, towns, or villages) public water supplies, public water authorities, or privately-owned water suppliers such as homeowner associations, apartment complexes, and mobile home parks that maintain their own drinking water system. See also the discussion in this Glossary of non-community water systems.

Community water system information, where available, is presented in tabular format. The following table provides an explanation of the meaning of the various values contained in each of the fields.

Water System	Service Area	SDWA #	Population	Connections
[Name of water system]	*[The Primary type of area that is served by the* public water system*: MHP =* mobile *home park]; HOA = Home-owners association;* Residential = Residential area; etc.]	*[Safe Drinking Water Information System (SDWIS) ID number]*	*[The reported population that is served by the system in SDWIS reporting.]*	*[The reported number of service connections within a system in SDWIS reporting.]*

2.7 Deferred Maintenance

In this report, deferred maintenance refers to the postponement of essential upkeep, repairs, or replacements for public facilities, infrastructure, or equipment. These typically minor items will become delayed to the point where they end up impacting performance and reliability, becoming far more costly to rectify. Small maintenance over many years is

more sustainable than waiting for an issue to happen, such as a water main break due to an unrepaired detected leak, or continuing to operate with undersized or obsolete equipment instead of upgrading to something that will save time and money over the long run.

2.8 Delaware River Basin (DRB) and Delaware River Basin Boundary

The area of drainage into the Delaware River and its tributaries, including Delaware Bay, is regulated by the DRBC. Its size is approximately 13,500 sq. miles and includes land in four states.

2.9 Delaware River Basin Commission (DRBC)

The Delaware River Basin Commission is the regional body created in 1961 by the Delaware River Basin Compact signed among the states of Delaware, New Jersey, Pennsylvania, and New York with the force of law to oversee managing the Delaware River system across state boundaries. Among other regulatory programs, DRBC addresses projects in the basin that withdraw from or discharge to the basin's waters over certain thresholds. The threshold for water withdrawals is taking water from ground or surface water, or diversion, or transfer in or out of the Basin, when the daily average gross withdrawal during any 30 consecutive-day period exceeds 100,000 gallons. The threshold for discharges is those over 50,000 GPD during any consecutive 30-day period from wastewater treatment facilities or the importation or exportation of wastewater.

2.10 Delaware River Basin Commission (DRBC) Docket

The record of decision made by DRBC, pursuant to its authority under the 1961 Compact, relating to an application for a permit, including those relating to regulated water withdrawals and discharges. Dockets contain information about water and sewer systems and permitted withdrawal and discharge thresholds.

2.11 Distressed Communities

As per the Empire State Development Corporation and NYS Climate Act, distressed or disadvantaged communities are those that bear the burden of negative public health effects, environmental pollution, and climate change impacts that possess population decline, economic hardships, high unemployment, and high concentrations of low to moderate-income households.

2.12 Disinfection Byproducts (DBPs)

DBPs are substances produced when chlorine, used for disinfection of water, reacts with organic materials in the water. The formation of DBPs is usually a greater concern for water systems that use surface water, such as rivers, lakes, and streams, as their source, as these sources are more likely to contain organic materials necessary for these reactions.

Total trihalomethanes (TTHM) are volatile regulated disinfection DBPs that can pose significant cancer, organ, and reproductive risks. They include chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

Total haloacetic acids (THAA) are regulated disinfection DBPs that can pose cancer and developmental health risks. They include monochloroacetic, dichloroacetic, trichloroacetic, monobromoacetic, and dibromoacetic acids.

2.13 Equivalent Dwelling Unit (EDU)

An EDU is a measurement for water usage that standardizes all users into units based on the demand of one single-family dwelling unit. EDUs are used by utility providers to calculate service charges associated with the probable demand for each user.

2.14 New York State Environmental Facilities Corporation (EFC)

EFC is a NYS public benefit corporation that assists communities and certain businesses throughout New York State to undertake critical water quality infrastructure projects by providing access to low-cost capital, grants, and expert technical assistance. As such, EFC plays a significant role in capital projects undertaken by NYS municipalities. A primary goal is to ensure that these projects remain affordable while safeguarding essential water resources. EFC develops and advances financing strategies to maximize the funding that can be made available, aiding compliance with Federal and State requirements, and promoting green infrastructure practices. In implementing these programs, EFC partners with NYSDEC and NYSDOH on wastewater and drinking water supply projects, respectively.

EFC allocates state and federal funds to participating entities in the form of grants and loans. Major programs include the Clean Water State Revolving Fund (CWSRF), which is oriented toward sanitary sewer and wastewater infrastructure projects, and the Drinking Water State Revolving Fund (DWSRF), which is oriented toward water supply infrastructure projects. These funds “revolve” as borrowers pay their loans back, with payments in turn used to finance new projects; EFC also uses revenue bonds to increase available capital.

Other programs include the engineering planning grants (EPG) program, which provides support to fund the engineering reports required to apply to EFC for financial assistance. EFC provides financial assistance in the form of subsidized loans and grants, such as through the WIIA program created under the 2015 Water Infrastructure Improvement Act.

2.15 Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) protects human health and the environment by developing and enforcing regulations, conducting research, providing education, and issuing grants. EPA sets and enforces national standards and federal environmental laws, and cleans up contaminated sites. EPA is ultimately responsible for oversight of key laws affecting both water supply and wastewater management, including the National Pollutant Discharge Elimination System (NPDES); oversight of states, local governments, and water suppliers to enforce the standards under the Safe Drinking Water Act; and regulation of solid and hazardous waste. Importantly, EPA also administers critical funding sources supporting investment in drinking water and clean water (wastewater management) infrastructure.

2.16 Gallons per Day (GPD)

Gallons per day is a unit of measurement that defines the rate of volume flow, or use, for a liquid, such as water, over a 24-hour period. GPD is often used as a measurement of, e.g., the quantity of water consumed by a user or the amount of wastewater generated over the course of a day.

2.17 Gallons per Minute (GPM)

Gallons per minute is a unit of measurement for flow rate, indicating the volume of a liquid that passes a specific point in one minute. GPM is often used to indicate, e.g., the capacity of a water well.

2.18 Individual On-Site Facilities or Systems (Water or Sewer)

As used in this report, individual facilities (or systems) are a subtype of decentralized infrastructure serving a single user, most commonly via on-site water supply wells and septic systems. These wells and septic systems are mainly regulated under building codes, the NYS sanitary code (administered by NYSDOH), and NYSDEC (i.e., with respect to water well drilling and licensing of well drillers). However, these systems may also be regulated

similarly to centralized systems, depending on capacities and types of uses or users served (see Regulated Decentralized Systems).

2.19 Inflow and Infiltration (I&I)

Inflow is when storm water enters the sanitary sewer system (e.g., from a sump pump or roof leader), while infiltration is when groundwater seeps into the system (e.g., due to high groundwater and defects or cracks in pipes and manholes). Both are problems for wastewater treatment, as this "clean" water adds unnecessary volume to the system, which can overload treatment plants or reduce capacity in elements of the conveyance system, such as pipes or pump stations.

2.20 Influent (WWTP)

Influent flow refers to the incoming wastewater that enters a wastewater treatment plant. It is measured at a point prior to the wastewater entering any portion of the treatment process.

2.21 Maximum Contaminant Level (MCL)

MCL is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goal (MCLG) as possible. MCLG is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. MCLs are required to be reported on a water system's AWQR.

2.22 Methyl Tert-Butyl Ether (MTBE)

Methyl tert-butyl ether is a chemical historically used as a gasoline additive. It is a type of volatile organic compound (VOC) that can contaminate groundwater by evaporating easily and dissolving in water.

2.23 Million Gallons per Day (MGPD)

Million gallons per day is a unit of measurement that defines the rate of volume flow, or use, for a liquid, such as water, over a 24-hour period, reported in increments of 1 million gallons. MGPD is often used as a measurement of water produced by a source or wastewater treated at a WWTP over the course of a day.

2.24 Municipal System (water or sewer)

This is the term used throughout the report to denote ownership by a municipal corporation, such as a village or town, of a centralized water supply or wastewater management system.

2.25 New York State Department of Health (NYSDOH)

NYSDOH is responsible for administering the rules and regulations governing both water supply and wastewater management. Under regulatory power delegated by USEPA, NYSDOH regulates public water systems, including community water systems, in NYS. NYSDOH also regulates certain wastewater management systems under an agreement with the New York State Department of Environmental Conservation (NYSDEC); NYSDOH-regulated systems typically include residential septic systems and other wastewater facilities with a flow of less than 1,000 GPD.

2.26 Non-Community Water System

According to NYSDOH, a non-community water system is a public water system (i.e., a water system with at least 5 service connections or that regularly serves an average of at least 25 people daily for at least 60 days out of the year) that serves the public but does not generally serve the same people year-round. There are two types of non-community water systems: transient and non-transient non-community water systems.

- Transient Non-community Water System – A transient non-community water system is a non-community water system that serves different people for more than six months out of the year. Rest stops, parks, convenience stores, and restaurants with their own water supplies are examples of transient non-community water systems. In Sullivan County, summer camps that maintain their own water systems are also examples of transient non-community water systems.
- Non-transient Non-community Water System – A non-transient non-community water system is a non-community water system that serves the same people more than six months per year, but not year-round. Schools, colleges, hospitals, and factories with their own water supplies are examples of non-transient non-community water systems.

Non-community water systems are regulated by NYSDOH as public water systems (see public water system discussion in this Glossary). For purposes of this report, these systems are discussed where information is available.

2.27 NYC Watershed Boundary

The NYC Watershed Boundary encompasses the NYC watershed, defined as the land area contributing surface water to the New York City water supply. Activities within the NYC watershed are subject to the City of New York's Rules and Regulations for the Protection of Contamination, Degradation, and Pollution of the New York City Water Supply and its Sources. This includes wastewater management systems, such as individual on-site septic systems and wastewater treatment plants.

2.28 NYSDEC Water Withdrawal Permit

Any water withdrawal system with the capacity to withdraw 100,000 gallons per day (GPD) (also referred to as "threshold volume") or more of surface water, groundwater, or a combination thereof requires registration with, permitting from, and reporting to NYSDEC, pursuant to Part 601 of the New York Compilation of Codes, Rules, and Regulations (NYCRR).

2.29 Other System (water or sewer)

This is the term used throughout the report to denote ownership by a non-municipal entity, such as a mobile home park, industrial campus, or homeowner’s association, of a centralized water supply or wastewater management system.

2.30 Per- and polyfluoroalkyl substances (PFAS)

According to the EPA, PFAS are widely used, long-lasting chemicals, components of which break down very slowly over time. Because of their widespread use and persistence in the environment, many PFAS are found in the blood of people and animals all over the world and are present at low levels in a variety of food products and in the environment. PFAS are found in water, air, fish, and soil at locations across the nation and the globe. Scientific studies have shown that exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals. There are thousands of PFAS chemicals, of which are found in many different consumer, commercial, and industrial products. Questions remain in terms of how to better detect these compounds, the extent of human exposure, the magnitude of human and environmental harm, and how to manage these chemicals. Under recent rulemaking, the EPA will regulate five PFAS individually. They are PFOA, PFOS, PFNA, PFHxS, and HFPO-DA. EPA will regulate four PFAS as a mixture: PFHxS, PFNA, HFPO-DA, and PFBS.

2.31 Public Service Commission (PSC) Docket

A PSC docket is a file for a specific case or proceeding containing official documents, hearing transcripts, and public comments related to the regulation of utility companies, such as those for electric, gas, and water services. Certain privately owned centralized sewer systems and water supply systems are regulated by PSC pursuant to the NYS Transportation Corporations law. In general, sanitary conveyance and treatment systems serving more than one service connection (NYSDEC SPDES Permit regulations (6 NYCRR 750-1.6(f)) and water supply systems -- except municipally-owned systems - selling, furnishing, and distributing water for domestic, commercial and public purposes (Art. 4-B of the NYS Public Service Law) are regulated by PSC with respect to rates, charges, and other aspects of utility operations.

2.32 Public Water System

Pursuant to federal and NYS regulations, a public water system is defined as one that provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. A public water system may be publicly or privately owned.

2.33 Ragging

As used in this report, "ragging" refers to the accumulation and entanglement of fibrous, non-biodegradable debris in and around the impellers of wastewater treatment pumps, including, but not limited to, wet wipes, rags, hair, and plastics. This phenomenon creates rope-like bundles that obstruct flow, reduce efficiency, and cause costly maintenance issues.

2.34 Regulated Decentralized System (Water Supply or Wastewater Management)

A regulated decentralized system is a subcategory of decentralized infrastructure that is regulated similarly to centralized systems. Regarding water supply, this term includes a public water system, as defined by NYSDOH in regulation, that typically is privately owned but may also include systems owned by municipalities. It encompasses centralized and certain decentralized water supply systems, but also other public water systems, such as those serving restaurants. In addition to NYSDOH, these systems may also be regulated by NYSDEC and DRBC (for water withdrawals). Regarding wastewater management, these systems may discharge to surface water or groundwater and require SPDES permits (i.e.,

capacity to discharge 1,000 gpd or more). Depending on their location, these systems may also be regulated by DRBC and/or NYCDEP.

2.35 Rotating Biological Contactors (RBC)

An RBC is a fixed-film treatment process used in the secondary treatment of wastewater. It consists of a series of closely spaced, parallel discs mounted on a rotating shaft, which is supported just above the surface of the wastewater. Microorganisms grow on the surface of the discs, where biological degradation of pollutants takes place prior to discharge into the environment.

2.36 Service Area

As used in the report, service area refers to the geography within which users may be served by centralized water or sewer systems.

2.37 Special District (e.g., water district or sewer district)

A special district refers to the special-purpose government vehicle that towns and counties in NYS are authorized to create for the purpose of providing a service. In this report, special district generally refers to the authority for NYS towns to create water districts and sewer districts pursuant to NYS Town Law Article 12 and Article 12-a. A special district has three discrete elements: The legal requirements governing formation and operation, the taxation and administration by which a town provides water or sewer service, and the engineering and design of the infrastructure supporting the provision of these services. NYS General Municipal Law Art. 17-a also provides for the consolidation of water and sewer districts. In NYS, villages do not have the authority to create special districts and instead provide water and sewer service pursuant to Articles 11 and 14 of the NYS Village Law, respectively.

2.38 State Pollutant Discharge Elimination System (SPDES)

SPDES is the permit program in NYS that addresses water pollution by regulating point sources that discharge pollutants to waters of the United States. NYSDEC administers the program under authority created in 1972 by the Clean Water Act, known as the NPDES permit program. Under NPDES, state governments are authorized by the EPA to perform many permitting, administrative, and enforcement aspects of the program. In this report, SPDES and associated NYSDEC permitting refer to the outlet or discharge pipe (referred to as a "point source") that discharges sanitary wastewater into the surface waters or ground

waters of the state, and constructing or operating a disposal system such as a sewage treatment plant.

2.39 State Pollutant Discharge Elimination System (SPDES) Permit "Administrative" or "SAPA" Renewal

SAPA renewal (or continuation; also called "administrative renewal") is the process by which certain SPDES permits may be issued without a full technical review by NYSDEC. It typically occurs on a 5-year cycle, based on the date of permit issuance. Authority for SAPA renewals lies in NYS's State Administrative Review Act (SAPA). Provided a SPDES permittee makes a timely application to NYSDEC for renewal of an existing SPDES permit, NYSDEC may authorize, administratively, that permittee to continue to operate their regulated discharge. This continuation is typically permitted under the terms and conditions of the prior SPDES permit. It is important to note that SAPA renewal can result in situations where a SPDES permit, after several SAPA renewal cycles, may get out of alignment with applicable standards, and compliance with contemporary standards can ultimately require capital investment.

2.40 State Pollutant Discharge Elimination System (SPDES) Environmental Benefit Permit Strategy (EBPS)

"Also known in NYS regulation as a Modification Priority Ranking System, EBPS is the system that establishes procedures to manage State Pollutant Discharge Elimination System (SPDES) permit renewal applications in a manner that prioritizes permits based upon their potential or actual impact to the environment. Under this system, SPDES permit holders are assigned a score and rank that then determines the order in which NYSDEC staff carry out a full technical review to determine whether a permit needs modification. Facilities are assigned a score for applicable priority ranking factors, each of which is then multiplied by a value according to assessed potential impacts to water quality. A longevity factor is applied based on the permit type and time since full technical review (long form permit application). These scores are added together, and a rank is assigned. The higher the EBPS Permit Priority Score, the higher the priority that permit has for full technical review and modification initiated by NYSDEC."

2.41 State Pollutant Discharge Elimination System (SPDES) Permit Full Technical Review

Full technical review is the process by which NYSDEC reviews applications for SPDES permits. It is in contrast to SAPA renewal. Full technical review may be initiated by NYSDEC or may be initiated due to a permittee's request to modify their existing permit (e.g., to

increase the flow of a WWTP). Reviews are performed based upon potential water quality impact or major changes to the facility's flow and wastewater treatment system. The process involves determining whether new effluent limits and other permit requirements, such as best management practices or a compliance schedule, are needed.

2.42 Submersible Chopper Pumps

This type of pump is a centrifugal pump designed for liquid submersion, which is equipped with a cutting system that "chops" up all incoming solids prior to pumping to minimize clogging within a wastewater system.

2.43 Sullivan County Partnership

Officially "The Sullivan County Partnership for Economic Development", is a private not-for-profit corporation that serves as the one-stop resource for business development in the County. The Partnership is a team that works to find the most advantageous and cost-effective locations for the expansion of industry and supports small business development by providing guidance and technical assistance through a variety of financing options.

2.44 Trickling Filters

A trickling filter is a step in pollutant removal at a wastewater treatment facility that uses microorganisms to remove organic matter by distributing it over a fixed bed of porous sediment.

2.45 Variable Frequency Drive (VFD)

A variable frequency drive (VFD) is an electronic device that controls the speed of an AC motor by adjusting the frequency and voltage of the power supplied to it. VFDs are energy efficient when demand on a motor or system varies, as VFD output can be varied based on demand or load. This is in contrast to across-the-line drives, which operate at full voltage and cannot be varied.

2.46 Wastewater Treatment Plant (WWTP)

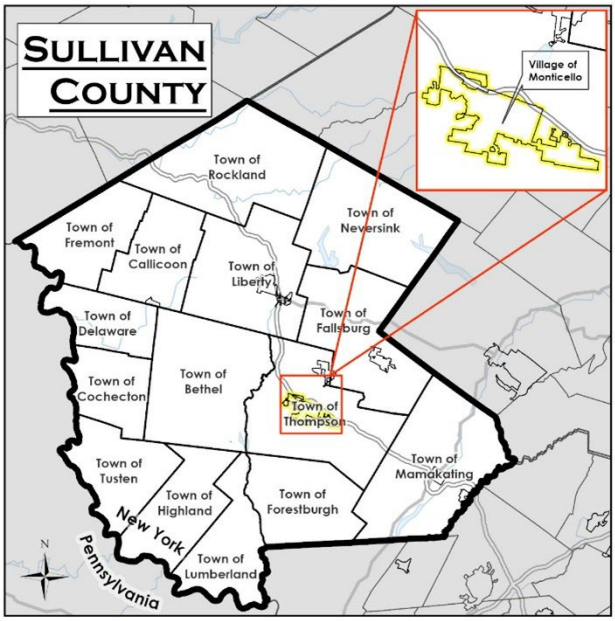
A wastewater treatment plant is the location at which pollutants are removed from wastewater collected, and is a critical element of a wastewater management system. WWTPs typically involve several processes. Preliminary treatment is the measurement, screening, and removal of inorganic material (grit). Primary treatment is a physical settling process that removes larger solids (e.g., in a settling tank or clarifier). Secondary treatment

is a biological process in which dissolved solids are converted by microorganisms into a cellular or biological mass that can be later removed (e.g., in a secondary clarifier). Tertiary or advanced treatment involves disinfection (e.g., chlorine or UV light) as well as nutrient, additional solids, or biochemical oxygen demand (BOD) removal.

2.47 Water Distribution System

Water distribution system refers to the system elements that convey water from the source of supply to individual user connections. It includes infrastructure like pipes (water mains), valves, treatment facilities, storage tanks, and booster stations. Hydrants may be connected to the distribution system and serve water supply functions, such as flushing of mains, but hydrants also serve as part of fire suppression systems.

3. MUNICIPAL OVERVIEW



The Village of Monticello is situated in the center of the Town of Thompson, at the intersection of New York State Routes 17 and 42. The Village's 2,618 acres contain a population of 7,173 as estimated by the 2020 Decennial Census. The Village's population rises each year with seasonal residents and camp operations. The Village possesses a diverse array of building and housing types.

The Village provides municipal water and sewer service. The largest users within the Village include the Monticello Raceway, County Office Buildings, and the High School. The areas lying outside of the Village that are directly tied to the water and sewer systems are the areas in the Town of Thompson encompassed by the Cold Spring Road, the Dillon Farm, and the Adelaar water and sewer districts. The largest users outside the Village are all located within the Adelaar District and include Resorts World Casino, Monster Golf Club, and Kartrite Resort and Water Park.

The Village lies entirely within the DRBC boundary but entirely outside the NYC watershed boundary.

4. WATER SUPPLY AND DISTRIBUTION INVENTORY & EVALUATION

4.1 Municipal Systems

The Village owns and operates a municipal water system serving residential, commercial, and industrial properties within and surrounding Monticello. NYSDEC water withdrawal permit information is summarized below.

Village of Monticello Water Facilities Map

Sullivan County, New York

Prepared by: Delaware Engineering, DPC
Date: January 2026
Source: Sullivan County, NYSDEC, ESRI World Terrain

0 0.25 0.5 1 1.5 2 Miles

N

- Village Water Service Area
- Municipal Water Service Areas
- Centralized or Regulated Decentralized Service
- Individual On-Site Systems
- Delaware River Basin (Entire Village)
- NYC Watershed (Entirely Outside)
- Village Boundary
- Stream
- Waterbody

Table 1. Village of Monticello water withdrawal permit information (all figures in GPD)

Water System	Component	Max Rate (GPD)	Average Daily w/d	Peak Day w/d	NYSDEC Permitted w/d	DRBC Permitted w/d
Village of Monticello	Kiamesha Lake	2,880,000	1,271,516	1,822,123	2,900,000	2,430,000
	Well #1	432,000				
	Well #2	432,000				
	Well #3	360,000				

4.1.1 System Components Inventory and Overview

In 2023, the distribution system consisted of 50 miles of pipe serving a population of 9,500 with 2,040 connections and 2,124 metered accounts. The system receives its water from surface water (Kiamesha Lake) and three municipal groundwater wells. Although permitted for a higher withdrawal, the Village water operators limit withdrawals from the Kiamesha Lake source to 2.0 MGD during the summer and 1.53 MGD throughout the rest of the year, according to the Village's Engineer.

Due to federal surface water treatment rules requiring filtration, the water from the lake goes through a treatment process that includes coagulation, filtration, disinfection, PH adjustment, and corrosion control treatment. The treated water enters the distribution system and fills the two water tanks in the Village. The water from the wells goes through the same process, except it does not have a coagulation process.

The well field water production is variable, with an average of 40,000-80,000 GPD in 2022 and an average under 35,000 GPD in 2023. The maximum pumping was measured at 276,000 GPD in 2019; however, the pump is regularly limited to between 100,000 and 200,000 GPD due to operational circumstances. Therefore, only one-third of the well field's potential is currently being utilized.

With respect to the distribution system, Waverly Avenue, Edward Avenue, Route 42, and East Broadway are areas with a history of more frequent water main breaks. As part of the Resorts World Catskills Casino project, for which the Village provides water supply, the existing 0.5 MG water storage tank located on West Broadway was recently replaced with a new 2.5 MG water storage tank.

According to the 2024 AWQR, the Town reported no violations or exceedances based on contaminant testing.

4.1.2 Recent/Future Upgrades

The Kiamesha Lake source has been a recent focus for upgrades. A new intake line from the lake to the plant was installed in 2023. In 2023, the Village Engineer recommended upgrading the well piping and/or well pumps to allow for an increase of flows into the distribution system of up to an additional 600,000 GPD. The flows have been approaching the 1.53 MGD permitted limit but are still below the 2.0 MGD summer limit, according to the engineer's report.

The Village Engineer recommended that, in order to accommodate current and future development, the plant's year-round capacity be increased to 2.0 MGD to accommodate the 110,000 GPD increase from permitted future developments and the 162,000 GPD from land development projects currently pending approval. This increase, plus a doubling of the well-field production, which is possible, according to the Village Engineer, would constitute a total potential capacity of 2.6 MGD. Well-field planned engineering analysis includes well evaluations and repairs, and also conducts the relevant hydraulic analysis of the piping network to further improve production capacity in the well field. Moreover, the Village's Water Superintendent stated that the water treatment plant needs capital investment. The Village has USDA grant funding available and engineering plans for a new facility, though there remain additional steps to implement this project.

In 2023, the Village completed the lead and copper monitoring required under their reduced schedule, through NYSDOH, whereas they must complete a minimum of 20 residential distribution system sampling sites every 3 years.

According to the 2024 AWQR, about 52% of water produced was sold to customers, while the remainder was accounted for through filter backwashing, hydrant flushing, firefighting, municipal buildings, and system losses.

4.1.3 Finances and Administration

As part of the data collection process, information about system finances and budgeting was requested and researched from publicly available sources; local codes governing system administration and use were also reviewed, where publicly available. This information, where available, was used in order to develop an understanding of key metrics, including revenues and trends, expenses and trends, rate structure, revenues versus expenditures, debt service, and reserves.

Analysis of available financial information against the following metrics is as follows.

- Rate structure – Users are charged per 100 cubic feet. Outside-Village rates are 100% higher than inside-Village rates. There also appear to be minimum rates established for seasonal users.
- Water use law – Chapter 256 of the Village code is the water use law.

Detailed budget and other information were unavailable for review at the time of writing with respect to revenues and trends, expenses and trends, revenues versus expenditures, debt service, and reserves.

4.2 Other Systems

No private centralized water systems exist within the Village, and there are no facilities with capacity requiring a NYSDEC water withdrawal permit.

4.3 Challenges and Opportunities

The Village has made investments in parts of the Kiamesha Lake source system, but additional investments in the WTP are needed. Production from the Village's Park Street well complex has been uneven and lower than what yield testing has indicated may be possible. Based on information supplied by the Village Engineer, it is likely that significant additional demands placed on the system, such as those caused by land development, will require investments in the development of additional supply capacity. With respect to land development, this represents an opportunity to broaden the user base and spread of fixed costs, as well as partnering with those proposing projects to offset the cost of providing additional services. The proportion of water produced that is unaccounted for via metered sales or other tracking mechanisms is also a challenge.

5. SANITARY SEWER AND WASTEWATER TREATMENT INVENTORY & EVALUATION

5.1 Municipal Systems

5.1.1 System Components Inventory and Overview

The Village's WWTP, located on the east end of the Village, near the Sullivan County Landfill, was originally constructed over 50 years ago and last upgraded in 2016. The plant discharges to Tannery Brook (Class C) and has a permitted flow of 3.1 MGD. The most recent permit renewal document was unavailable for review. The previous permit was

Village of Monticello Wastewater Facilities Map

Sullivan County, New York

Prepared by: Delaware Engineering, DPC
Date: January 2026
Source: Sullivan County, NYSDEC, ESRI World Terrain

- Village Wastewater Service Areas
- Municipal Sewer Service Areas
- Centralized or Regulated Decentralized Service
- Individual On-Site Systems
- Delaware River Basin (Entire Village)
- NYC Watershed (Entirely Outside)
- Village Boundary
- Stream
- Waterbody

0 0.25 0.5 1 1.5 2 Miles

N

issued in 2016 and expired in 2020. It should be noted that, upon application to NYSDEC, certain SPDES permits, including for wastewater systems, can be renewed under the NY State Administrative Procedures Act (so-called "SAPA extensions"), and this has likely occurred for this permit. Peak inflows during rain or snowmelt are between 4.5 and 6 MGD, while average summer flows are approximately 2.2 MGD. The WWTP received a rank of 249 and a score of 105 in NYSDEC's EBPS system, which indicates that the WWTP lies in the middle of priority for NYSDEC's full technical review. The score components are based on the age of the existing SPDES permit and the time since the facility last submitted a long-form permit application, together with required comprehensive effluent sampling. In general, the higher the EBPS rank, the more likely it is that the permit for this facility will undergo a full technical review by NYSDEC in the near future.

The collection system consists of approximately 30 miles of gravity and force mains of various diameters with 9 pump stations, 14 flow meters, and approximately 730 manholes. Nearly 100 manholes were shown to need repair or replacement in the Village's 2011 inventory. Upgrading the 40-60-year-old pump stations is a priority for the Village; this is followed by the replacement of all force mains throughout the system.

5.1.2 Recent/Future Upgrades

The WWTP received extensive process and equipment upgrades in 2016. The system was upgraded to a sequencing batch reactor with a fine bubble aeration system able to meet stricter regulations for the removal of biochemical oxygen demand (BOD), total suspended solids (TSS), and nutrients from nitrates and phosphates. Variable frequency drives were added to the plant to keep pumping costs to a minimum by ensuring that they only operate when demanded. A new belt press was installed, which presses sludge to 20% solids and reduces the cost and energy to haul off the water component of the waste. A fine screen was added to remove rags and wipes to ensure that no materials will get caught in the pumps. Ineffective sludge handling has been corrected, significantly improving dewatering of sludge and reducing offsite hauling. New processes have also decreased overall electrical usage and the cost of operations and maintenance.

Officials report no other upgrades or projects are planned at this time.

5.1.3 Finances and Administration

As part of the data collection process, information about system finances and budgeting was requested and researched from publicly available sources; local codes governing system administration and use were also reviewed, where publicly available. This information, where available, was used in order to develop an understanding of key

metrics, including revenues and trends, expenses and trends, rate structure, revenues versus expenditures, debt service, and reserves.

Analysis of available financial information against the following metrics is as follows.

- Rate structure – Sewer rents are a combination of capital fees determined based on assessed value and usage fees determined by water usage.
- Sewer use law - Chapter 206 of the Village code is the sewer use law.

Detailed budget and other information were unavailable for review at the time of writing with respect to revenues and trends, expenses and trends, revenues versus expenditures, debt service, and reserves.

5.2 Other Systems

No private centralized sewer systems exist in the Village.

5.3 Challenges and Opportunities

The conveyance system is understood to need investment due to component life-cycle issues, including the repair or replacement of approximately 15% of the manholes in the system, as well as investment in the pump stations and forcemains, which are reaching the end of their useful life. As noted above, a Village priority has been addressing pump stations and forcemains.

In addition to the conveyance system, it also appears that, in addition to pump stations, forcemains, and manholes, gravity mains and associated connections are in a condition such that I&I is a concern. Given that the system does not combine storm and sanitary flows, it is more likely that the age of the system, coupled with materials of construction, exacerbates I&I.

One proposed land development project located on the east side of the Village has been presented in concept form to the Planning Board. This proposal involves a residential development of about 1,000 dwelling units with an estimated wastewater flow of 300,000 GPD. The Village is requesting that the project construct its own sewer treatment plant for the Village to operate at the site to avoid substantial upgrade costs for expanding the Village's pumping and piping infrastructure. The presence of I&I and limited capacity in the existing pressure mains may, depending on specific siting, involve investments in the conveyance system in order to support land development activities that involve an increase in flow to the Village system.

6. METHODOLOGY AND SOURCES

In preparing this report, publicly available data were collected and reviewed, along with any additional documentation supplied by a municipal representative, county office, or other authoritative sources. In addition, the project team contacted and interviewed key individuals who have specialized knowledge of their local systems. The following is a list of sources consulted.

- Village of Monticello Annual Water Quality Report (AWQR) 2024 (NY5203337)
- 2025 Village Engineer's Status Report
- 2010-2023 Water Withdrawal Permit WWR0001029 Reports
- 2013 SPDES Permit Modification
- 2015 SPDES Permit Renewal
- Sewer Fieldwork Map from Sewer Department
- Sewer Improvements Map from Sewer Department
- Water Distribution Map from Water Department
- Sewer Pump Station Reports from Sewer Department