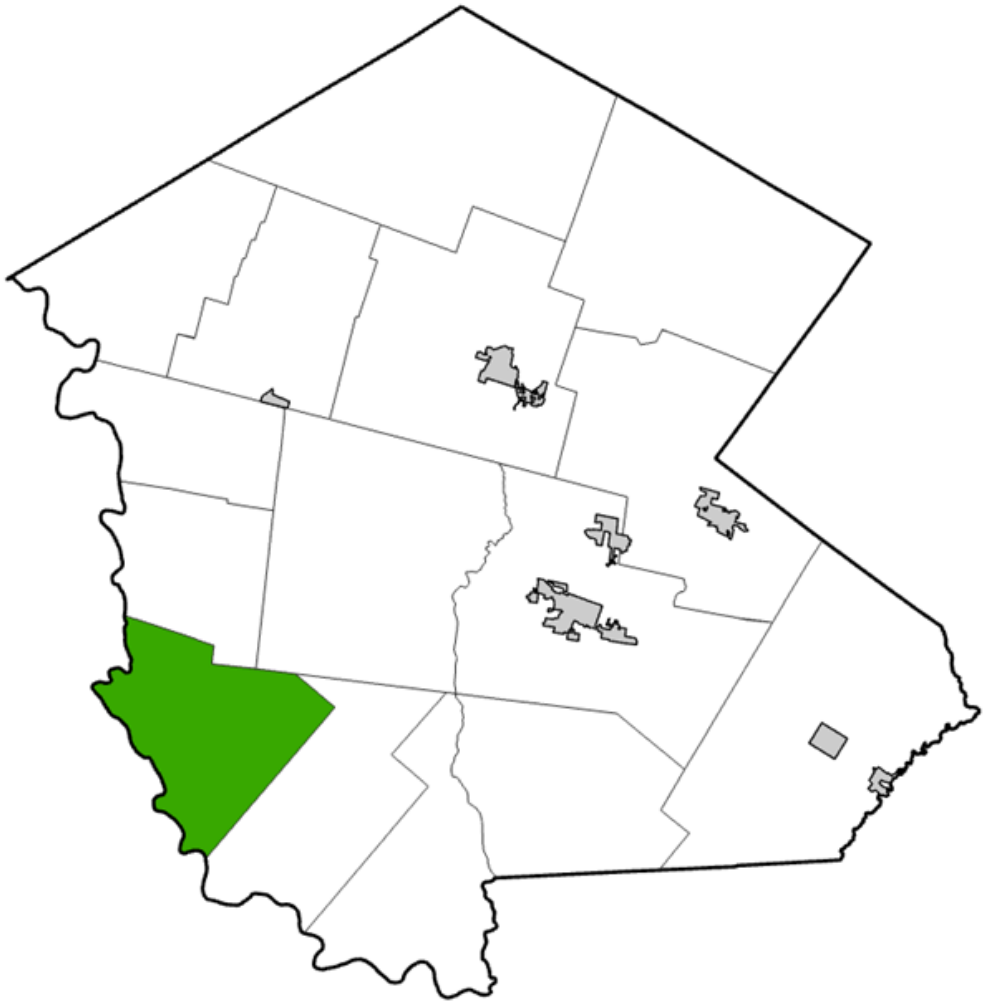
Sullivan County Assessment of Potable & Wastewater Infrastructure

VOLUME II

Town of Tusten



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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

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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)

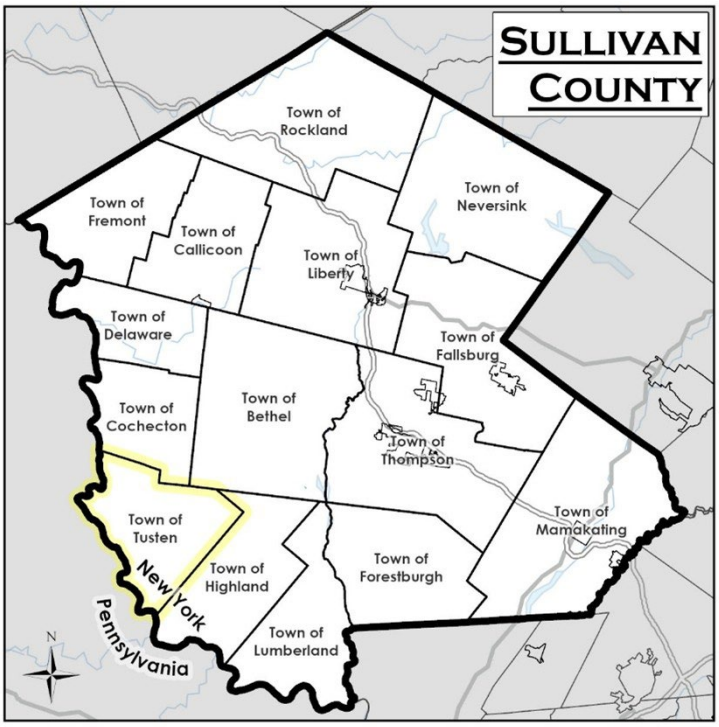
A wastewater treatment plant is the location at which pollutants are removed from wastewater collected, and is a critical element of a wastewater management system. WWTPs typically involve several processes. Preliminary treatment is the measurement, screening, and removal of inorganic material (grit). 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



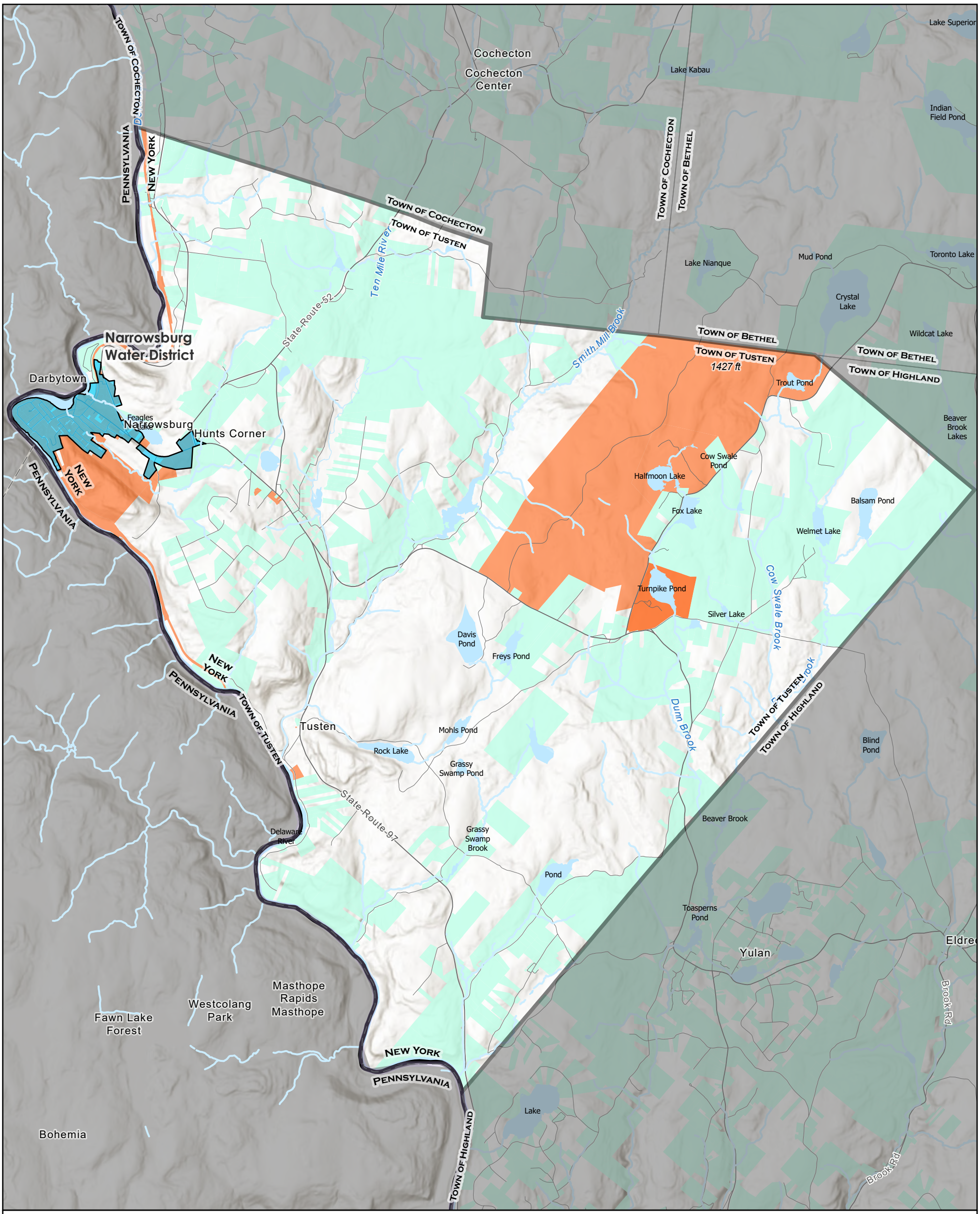
The Town of Tusten, located in southwest Sullivan County, is comprised of rolling hills, woodland tracts, small lakes, and small farms interspersed around the primary hamlet of Narrowsburg located along the Delaware River. Other hamlets include Lava, Newieden, Hunts Corner, and Tusten. The Town borders Cochecton to the north, Bethel to the northeast, Highland to the east and southeast, Damascus Township in Wayne County, PA, to the west, and Lackawaxen Township in Pike County, PA, to the southwest. The Town's population was 1,405 at the 2020 Decennial Census. Tusten owns and operates the Narrowsburg Water Distribution District, which includes Hunts Corner, and the Narrowsburg Sewer Collection District, which is confined to the immediate hamlet area. The Town lies entirely within the DRBC boundary but entirely outside the NYC watershed boundary.

4. WATER SUPPLY AND DISTRIBUTION INVENTORY & EVALUATION

4.1 Municipal Systems

4.1.1 System Components Inventory and Overview

The Town provides municipal water service within an area encompassed by the Narrowsburg Water District. This service was first provided in 1925, when associated infrastructure was first installed. The system is permitted to withdraw 338,400 gallons per day from groundwater, pursuant to a DRBC docket. Drinking water is sourced from three wells along Delaware Drive, Second Street, and NYS Route 97. Of these wells, two are actively used. The system employs a chlorine gas and sodium hydroxide disinfection treatment process.



Town of Tusten Water Facilities Map

Sullivan County, New York

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

0 0.5 1 2 3 4 Miles

N

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

Table 1. Town of Tusten 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
Tusten - Narrowsburg	Well #1	201,600	66,716	302,523	338,400	136,774
	Well #2	288,000				
	Well #3	86,400				

Until recently, water was stored in a 75-year-old, 200,000-gallon, wax-lined steel tank situated between Hilltop Lane and Bridge Street. As of 2024, the water district covers an area of 444.75 acres, provides water to approximately 800 users through 325 service connections, and comprises 410 parcels. The distribution system is 100% metered and consists of roughly 7 miles of 0.75" to 8" water mains, 74 shutoff valves, and 59 fire hydrants.

According to the 2024AWQR, the Town reported no violations but did report elevated levels of sodium. Sodium is naturally occurring but also is present in the environment due to human activities, such as road salting and water softeners; animal wastes also can be a source.

4.1.2 Recent/Future Upgrades

The Town is in the process of implementing a roughly $7.5 M system-wide improvement project, with construction anticipated in 2026. The project consists of water storage, pumping, wellhouse, and distribution system upgrades. Upgrades in the distribution system include replacement of aging and undersized water mains, construction of new water main to eliminate dead ends, and upgrade various appurtenances, including hydrants and valves.

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.

- Revenues and trends – Metered sales make up about 75% of the budgeted revenues, with unexpended balance from prior years and user charges based on assessed value comprising another 21%.
- Expenses and trends – Administration (primarily contractual and personal services) and transmission and distribution account for about 75% of the 2025 budget; employee benefits accounted for about 11%.
- Rate structure – Water rates are based on metered water use and assessed value of parcels within the district.
- Revenue versus expenditures – As noted, unexpended balance carryover was about 4% of 2024 budgeted appropriations.
- Debt service – Debt service accounted for about 45% of 2025 water appropriations.
- Reserves – According to the 2025 adopted budget, the Town has maintained transfers to a dedicated reserve fund in 2024 and 2025.
- Water use law – Chapter 264 of the Town code is the water use law.

4.2 Other Systems

Based on information available, one regulated private community water system exists in the Town (Table 2). No facilities with capacity requiring a NYSDEC water withdrawal permit located in the Town.

Table 2. Town of Tusten regulated private community water systems

Water System	Service Area	SDWA #	Population	Connections
BLUE HERON PARK	MHP	NY5214752	40	31

4.3 Challenges and Opportunities

The municipal water system may be as much as a century old, and the Town has undertaken projects to address system life-cycle issues.

As indicated by the water withdrawal reporting information, as of the most recent report, about 60% of water produced is unaccounted for (i.e., unmetered). Leaks, hydrant flushing, firefighting, faulty meters, and other causes contribute to this number. Replacing mains and other aging infrastructure is an opportunity to reduce these system losses.

5. SANITARY SEWER AND WASTEWATER TREATMENT INVENTORY & EVALUATION

5.1 Municipal Systems

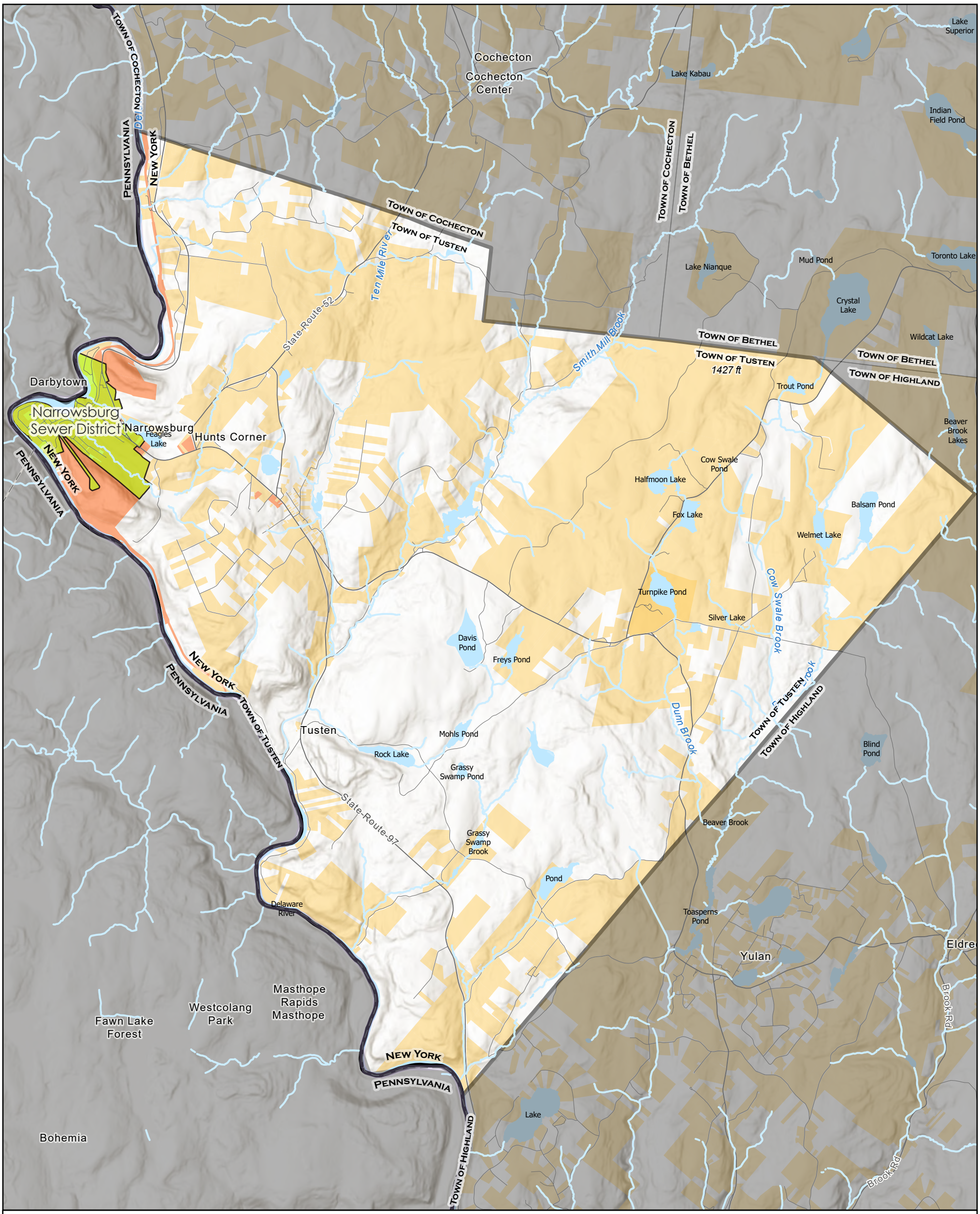
The Town provides municipal sewer service to an area encompassed by the Narrowsburg Sewer District, which was created in 1981, with the installation of the collection system and a wastewater facility over the following years. The district nearly mirrors the water district boundary, with a major exception being that of the 20 parcels within the Hunts Corner hamlet area. As of 2024, the sewer district covers an area of 577.6 acres, provides collection service for approximately 750 users through 463 service connections, and comprises 354 parcels.

5.1.1 System Components Inventory and Overview

The collection system includes 8.5 miles of primarily 4", 6", or 8" gravity sewer mains; the system also includes a 476' low-pressure 6" main at the east end of Bridge Street. There are 20 lift stations throughout the district, comprised of 1 pump station, 1 pump pit, 1 valve pit, and 17 service line pumps. Additional sewer features include 26 manholes, 68 septic tank interconnections, 130 cleanouts, and 7,932 feet of sewer easements.

The WWTP SPDES permit has been renewed through December 31, 2026. The permit provides for a limit of 100,000 GPD discharged to the Delaware River. The WWTP is a four-bed sand filtration system built in 1982 and located at the terminus of Engleman Lane at the railroad tracks. The wastewater flow of the facility runs from an 8" gravity main to a pump station, a valve vault, a 6" force main, an intercepting and dosing tank, filter beds, a distribution box, a chlorine contact tank, a monitoring tank, and finally to receiving waters. The 578-foot outfall pipe crosses under the Conrail right-of-way and Delaware Drive until it reaches its discharge point at the center of the Delaware River.

According to NYSDEC's EBPS, this facility received a rank of 87 and a score of 72. The score components are based on age of the existing SPDES permit and time since the last time the facility 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.



Town of Tusten Wastewater Facilities Map

Sullivan County, New York

N

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

0 0.5 1 2 3 4 Miles

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

5.1.2 Recent/Future Upgrades

No recent upgrades have been conducted on the wastewater collection system. Similar to the comprehensive investment in the water system, officials report plans to investigate the needs of the sewer system and begin the process of repair and upgrading in the short term.

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.

- Revenues and trends – Sewer rents comprise most (91%) of revenues, with unexpended fund balance carried over accounting for about 7%.
- Expenses and trends – Treatment and disposal and administrative costs account for about 75% of 2025 appropriations. Sewer service accounted for about 11% of the Town's total 2025 budget.
- Rate structure – Pursuant to a rate restructuring in 2023, users are now charged based on metered water usage.
- Revenue versus expenditures – As noted, 2024 unexpended fund balance was about 7% of 2024 appropriations.
- Debt service – According to the 2025, the sewer district does not carry debt.
- Reserves – The 2025 shows an allocation of about 1% of appropriations to be transferred to a reserve fund.
- Sewer use law – Chapter 229 of the Town code is the sewer use law.

5.2 Other Systems

No private centralized sewer systems are located within the Town of Tusten.

5.3 Challenges and Opportunities

As noted, the Town intends to evaluate the need for investments in the municipal sewer system. Officials noted that the above-mentioned work on the Town's water system has been a major focus in recent years, and projects of that size and scope can be challenging in terms of demands at all levels of municipal government, from customer service to municipal boards, grant administration, project management and oversight, etc.

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.

- Narrowsburg Annual Water Quality Report (AWQR) 2024 (NY5203338)
- 2025 adopted budget
- Town code
- NYSDEC Environmental Benefit Permit Strategy (EBPS) 2025 Rankings
- EPA Community water system Service Area Boundaries (accessed September 2025)