Understanding Jersey WaterCheck Data - Terms and Systems

Overview

This document explains the following related to Jersey WaterCheck:

- Terms used, their definitions, and clarification if they differ from typical industry usage
- Which “systems” were included/excluded and the basic information provided for each
- The breakdown of systems based on population served

This document has been reviewed by the Jersey Water Check data advisory committee.

Terms

In this section, each term is provided with a general definition, according to typical industry usage. This includes clarifications, if any, for how the term is used in the context of Jersey WaterCheck.

Water vs. Wastewater

“Water” refers to potable water (i.e., drinking water), meaning safe for consumption, and “wastewater” refers to contaminated water that cannot be consumed.

Wastewater vs. Sewage/Sewer

“Wastewater” is used water from any combination of domestic, industrial, commercial or agricultural activities, surface runoff or stormwater, and any sewer inflow or sewer infiltration. As a term, “wastewater” includes both industrial and sanitary (i.e., municipal) categories– it refers to

the flow, not the infrastructure. Thus, there are industrial wastewater treatment systems and sanitary/municipal wastewater collection and treatment systems.

“Sewage” is wastewater that is produced by a community of people (A.K.A. domestic/municipal wastewater) which mostly consists of greywater (from sinks, bathtubs, showers, dishwashers, and clothes washers), blackwater (the water used to flush toilets, combined with the human waste and toilet paper that it flushes away), and soaps/detergents. Thus, this term is associated with municipal wastewater systems.

Water vs. Wastewater Systems

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“Water” systems refer to those that provide potable water (i.e., drinking water). These are also synonymous with “water supply” systems.

“Wastewater” systems are all municipal wastewater systems. Thus, for the purposes of the dashboard, “wastewater” is considered synonymous with “sewer/sewage.”

System vs. Utility

“System” is a regulatory unit. It does not imply size, as systems can be small, medium or large, and it does not imply ownership, as there can be one owner of many systems. For example, American Water has 15 million customers across the country (2 million in New Jersey), but they are not served by a single hydrologically connected system.

“Utility” is a type of organization that provides an essential service. The government oversees water and wastewater utility service in New Jersey either by delivering it directly through units of local, county, regional and state agencies or indirectly through corporations that own regulated utilities supervised in New Jersey under the Board of Public Utilities.

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The dashboard uses “system” rather than “utility”, because this better characterizes the individual profiles that data is reported for. For example, NJ American Water is a utility that owns 28 drinking water systems, which are independently operated from each other. Thus, “system” is the right word to refer to the infrastructure and “utility” is more appropriate for the ownership. Additionally, WaterCheck uses “system” as a word to encompass utilities, which feature most of the metrics, as well as municipalities, which feature metrics related to green infrastructure (GI) and combined sewer overflows (CSOs).

Public vs. Private

In general, entities in the public sector are under government ownership or control, whereas those in the private sector are run by individuals and companies for profit.

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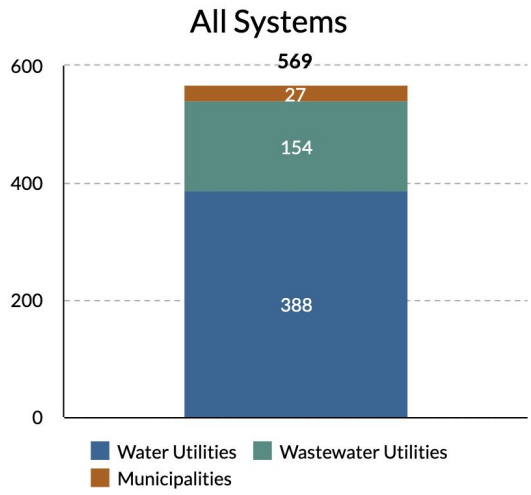
“Public” refers to government owned (i.e., publicly owned) utilities, such as municipalities, municipal/county authorities, state agencies, etc.

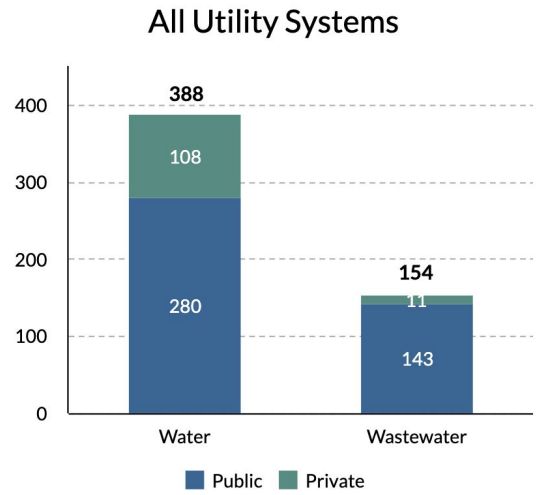
“Private” refers to corporate owned (i.e., investor owned) utilities only. Privately held utilities are not included in the dashboard.

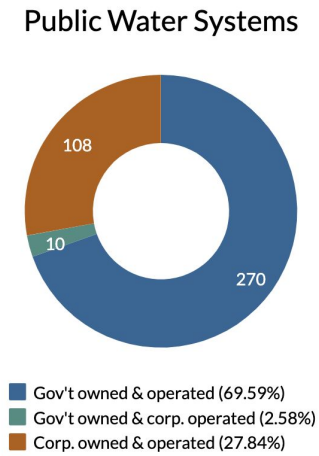
Please refer to “Understanding How the Water Sector is Organized in New Jersey” for a more in-depth explanation of the types of water systems in New Jersey.

Systems in Jersey WaterCheck

All Systems, All Utility Systems (by Type), and Public Water/Wastewater Systems (by Subtype)







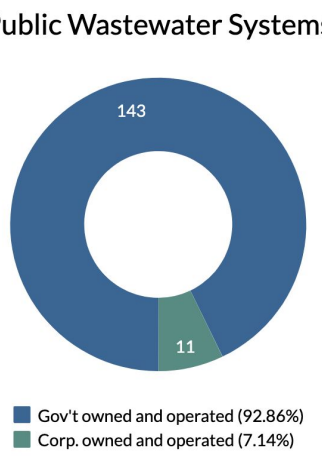


Table of All Utility Systems in Jersey WaterCheck

	Water	Wastewater
Public	280	143
Government owned and operated	270	143
Government owned and corporate operated	10	0
Private *(Corporate owned and operated)*	108	11
Total	388	154
	542	

Systems Included vs. Excluded

Please refer to the Understanding How the Water Sector is Organized in New Jersey document for a more in-depth explanation of the types of water systems in New Jersey.

The comprehensive list of utility-type systems was obtained from NJDEP. The "Water" list includes systems by PWSID (Public Water System Identification Number). This list was obtained from NJDEP's Public Water System deficit/surplus database, which was provided via an Excel spreadsheet. Public community water supply (PCWS) systems were included, whereas public non-community water supply (PNCWS) were not. This is because Jersey Water Works goals focus on residents and communities.

The "Wastewater" list includes systems by NJPDES (New Jersey Pollutant Discharge Elimination System) permit number. This list was obtained via the NJPDES Active Permit List in NJDEP DataMiner. NJPDES-permitted systems that are Domestic Treatment Works (DTW) were included, whereas industrial treatment works were not. Specifically, the list was filtered by the "Discharge Category" column to include all "Sanitary Wastewater" systems and certain "Discharge to Groundwater" systems. This is because Jersey Water Works goals focus on residents and communities. Currently, Jersey WaterCheck does not include wastewater systems that are collection systems only, and thus, do not have a NJPDES permit. This decision was made based on data gathering challenges, but future updates may include adding collection systems to the dashboard.

For both water and wastewater, systems that serve prisons, schools, healthcare facilities, nursing homes, mobile home parks, etc. were excluded. This is because most data is much more difficult to gather or otherwise assess for those types of systems compared to ones owned by state/local government or large investor-owned corporations.

The municipalities with metrics related to green infrastructure were the ones that responded to a survey with questions pertaining to those metrics specifically. The survey was directly sent to municipalities within the New Jersey Highlands and Kirkwood Cohansey clusters of the William Penn Foundation's Delaware River Watershed Initiative. These municipalities were prioritized due to prior green infrastructure work that New Jersey Future (which supplies backbone staff for Jersey Water Works) has done in those towns in partnership with funders in the region, notably the William Penn Foundation. The municipality-focused survey was also distributed through other mediums, such as newsletters, to capture as many municipalities in New Jersey as possible.

System Characteristics

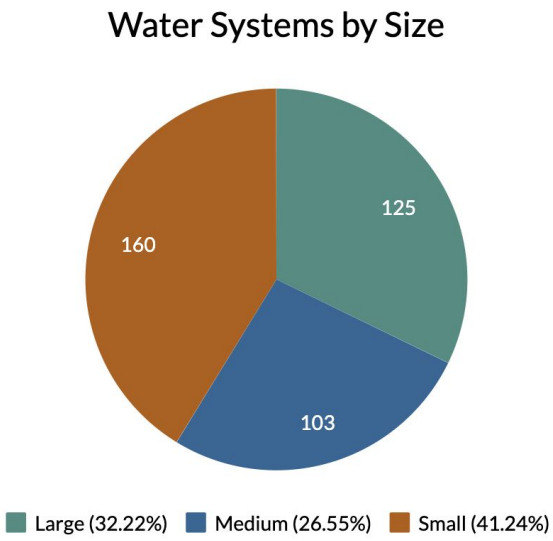
Map: The dots signifying the utility on the map in the "System Finder" page represent the centroids of the service area polygons, which are provided by NJDEP via the New Jersey Geographical Information Network (NJGIN) Open Data portal.

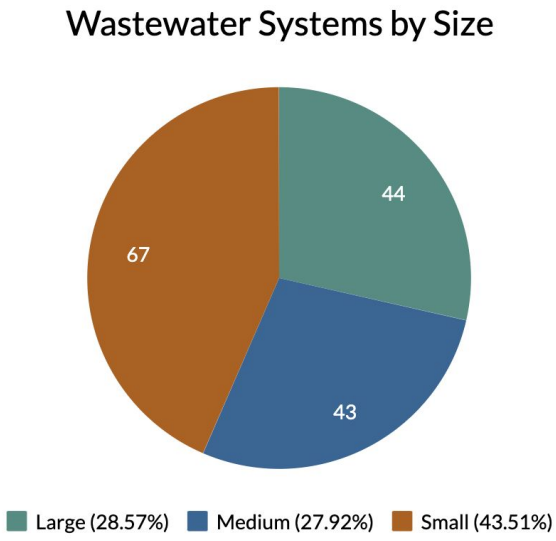
The following represent system characteristics that appear on each system's page to provide basic information about the system.

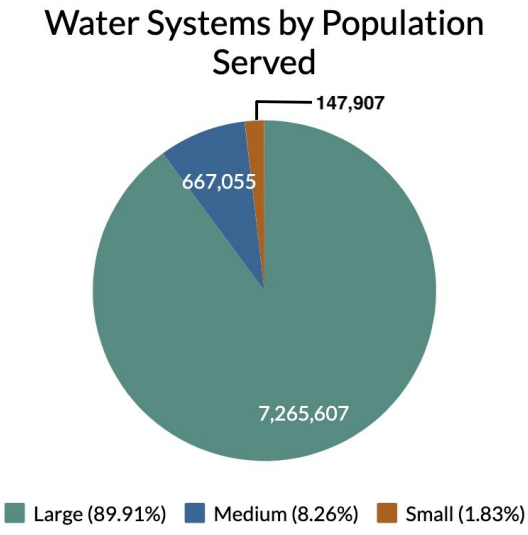
- Water vs. Wastewater
    - Defined previously
- Ownership Type (Public vs. Private)
    - Defined previously
- Sub-types
    - Government owned* and operated
        - *For Jersey WaterCheck, this is synonymous with publicly owned
    - Government owned and corporate* operated
        - *Specifically, operated by a private entity under a contractual agreement
    - Corporate* owned and operated
        - *For Jersey WaterCheck, this is synonymous with investor owned
- Badge: Jersey Water Works (handshake icon)
    - Indicates that the system is a member of the Jersey Water Works collaborative
- Population Served
    - This was calculated via a spatial analysis. Please refer to the Methodologies document for details.
- System Size (Tier)
    - Systems were categorized into three categories based on the size of population served. See the following section for more details.
- Number of Connections

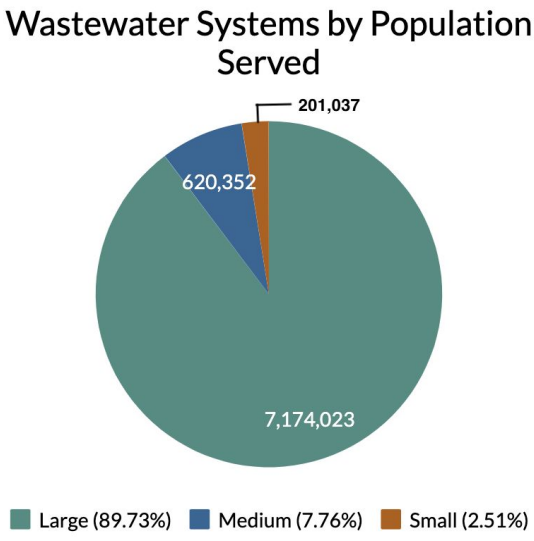
    - This data was obtained from NJDEP DataMiner (Report Category > Water Supply and Geoscience > Safe Drinking Water > “What Municipalities are Served by My Water System”).
- Water Type
    - For drinking water systems, this refers to the source of water.
    - For wastewater systems, this refers to the water body that receives the treated discharge.
- Average Flow in 2019 (MGD) - *Wastewater*
    - **Source**: This data was obtained from NJDEP DataMiner (Report Category > NJPDES Permitting Program > “12-consecutive month average flow as a percentage of a treatment plant permitted flow for (Groundwater / Surface Water)” .
    - **Description***:* There is a wide variation in sewage flow rates over the course of a day. A sewerage system must accommodate this variation. In most cities domestic sewage flow rates are highest in the morning and evening hours. They are lowest during the middle of the night. Flow quantities depend upon population density, water consumption, and the extent of commercial or industrial activity in the community. The average sewage flow rate is usually about the same as the average water use in the community.
- Total Peak Demand in 2019 (MGD) - *Water*
    - **Source**: This data was obtained from NJDEP’s Public Water System deficit/surplus database via an Excel spreadsheet that NJDEP provided.
    - **Description**: For the purposes of planning a water system, the total daily water use is less important than the peak daily water use or the peak demand. In reality, most of the water used in the home occurs over a very short time period, usually in the morning or evening. As a result, for planning purposes it is recommended that a water system be able to supply all of the day's projected water use in a 2-hour peak demand period. If you estimate that your home water use will be 400 gallons per day, the water system should be sized to provide this much water in a 2-hour period.
- Non-Revenue Water (2018)
    - **Source**: This data was obtained from the Delaware River Basin Commission (DRBC) via an Excel spreadsheet that DRBC provided..
    - **Description**: Non revenue water (NRW) is water that has been produced and is "lost" before it reaches the customer. Losses can be real losses (through leaks, sometimes also referred to as physical losses) or apparent losses (for example through theft or metering inaccuracies). High levels of NRW are detrimental to the financial viability of water utilities, as well to the quality of water itself. NRW is typically measured as the volume of water "lost" as a share of net water produced. However, it is sometimes also expressed as the volume of water "lost" per km of water distribution network per day.

System Size









Public water and wastewater systems in New Jersey have various categorizations based on characteristics like population served or amount of water serviced. Jersey WaterCheck uses an arbitrary classification system, based on the population served by each system, which was calculated via a spatial analysis (See the Data Sources and Methodologies document for details). For both water and wastewater systems, “large” systems were classified as serving the highest amount of people and collectively serve 90% of the population; “medium” systems were classified as serving the next highest numbers of people and collectively serve 8% of the population; and “small” systems were classified as serving the lowest number of people and collectively serve 2% of the population.

Large (Collectively serve 90% of population*)

- Water: serve more than 11,000
- Wastewater: serve more than 25,000

Medium (Collectively serve 8% of population*)

- Water: serve 3,000 - 11,000
- Wastewater: serve 8,000 - 25,000

Small (Collectively serve 2% of population*)

- Water: serve less than 3,000
- Wastewater: serve less than 8,000

*Year-round population served determined by spatial analysis (See Data Sources and Methodologies document for details)