ASSET MANAGEMENT PLAN 2025

Borough of Spring Lake Heights

DECEMBER 16, 2024

BOUROUGH OF SPRING LAKE HEIGHTS
555 Brighton Avenue, Spring Lake Heights, 07762

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

AWWA	American Water Works Association
BWSE	Bureau of Water System Engineering
cfs	Cubic Feet per Second
DPW	Department of Public Works
e.g.	For example
EPA	United States Environmental Protection Agency
Gpd	Gallons per day
GIS	Geographic Information System
gpm	Gallons per minute
MCL	Maximum Contaminant Level
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJWSA	New Jersey Water Supply Authority
PDD	Peak Day Demand
PWS	Public Water System
SCADA	Supervisory Control and Data Acquisition
SDWA	Federal Safe Drinking Water Act
SMMUA	Southeast Monmouth Municipal Utilities Authority
WTP	Water Treatment Plant

Executive Summary

The Borough of Spring Lake Heights Water, PWSID #NJ1349001, and Sewer Department has prepared the Asset Management Plan. The Utility's Water Department Staff maintains and operates the system to ensure proper daily functions. The Water Department delivers a firm capacity of 0.962 MGD of water to their customers, per the NJDEP Surplus Deficit Website. This water is distributed to approximately 2,370 metered services. With a ratio of 131 commercial services to 2286 residential services including both active and inactive accounts. Maps of the water utility's components are maintained and stored both at the Borough of Spring Lake Heights offices, as well as the Water Treatment Plant.

The Borough of Spring Lake Heights Water Department has a series of Level of Service Goals regarding the operations of the system.

Table 1: Level of Service Goals

Goal	Performance
2. Replace all brittle water mains	Complete in 10 years
3. Install mains to loop, eliminate dead ends where possible	Complete in 10 years
4. Rehabilitate or replace unlined cast iron water mains	Cement line or replace all unlined cast iron mains by 2040
5. Inspect and maintain all fire hydrants	100% annually
6. Flush all mains twice per year	100% of mains annually
7. Reduce water losses to below 10%	Complete in 10 years
8. The water system will meet all primary state and federal regulatory standards	100%
9. Exercise all system valves	Every year
10. Upgrade SCADA and electronic equipment	Completed
11. Exercise bulk & emergency interconnections	Annually

The Borough of Spring Lake Heights has budgeted funds to help improve the ongoing support of reaching these goals. This budget is used to allocates funds needed to maintain, service, and improve the water system. This is funded through the general rates, fees, and charges. External financing for capital expenses may be financed through the issuance of municipal bonds as well as the New Jersey Infrastructure Bank (NJIB). Implementing the recommended additional Operation & Maintenance (O&M) goals will require additional funding for the Water and Sewer Department. In the 4th quarter of 2024, the Borough of Spring Lake Heights hired their consulting engineering firm to perform a rate study in the anticipation of increasing rates in 2025 to help aid in the support of the Levels of Service goals, as well as the Capital Improvement Projects.

An Action Plan has been curated to help improve the overall implementation of the Level of Service goals. The highest priority activities in the Borough's Action Plan are reflected in Table 2.

Table 2: Action Plan | High Priority Actions

Urgency	Issue	Corrective Action Plan	Target Completion Date
High	Reduce distribution system unaccounted for water	Replace valves, hydrants, and pipe joints identified as leaking	2030
High	Reduce water main breaks, improve water quality and system pressure	Replace brittle and undersized water mains	2060
High	Improve water quality and system pressures	Line or replace cast iron mains	2040
High	Improve water quality	Flush distribution system mains	Semi-annually
High	Meet Levels of Service outlined in this report	Investigate need to hire additional staff	Proposed
High	Reduce amount of infiltration into sewer system.	Reline or replace all aging sewer mains	2040

1.0 Introduction

The Asset Management Plan prepared by the Borough of Spring Lake Heights Water Department details the current and future plans in regards to managing its infrastructure assets. Customer Service requirements and the regulations necessitate that the Borough actively manage drinking water assets through careful maintenance, repair, and replacement decisions. The Asset Management Plan is an effective tool for combining technical, management, and financial practices, to ensure the level of service required by the community at an appropriate cost.

The purposes of the Asset Management Plan Include:

1. Demonstrating responsible management of the drinking water assets.
2. Communicating and justifying funding requirements indicated by the plan.
3. Providing a management roadmap for the water system.
4. Serving as a link between the Borough of Spring Lake Heights Water Department and its customers.

This Asset Management Plan contains an overview of the utility, the mission statement, the Level of Service Goals agreement, a critical asset list, the operations and maintenance strategy, and the capital investment program.

1.1 Mission Statement

The following is a mission statement that defines the goals and expectations of the Borough of Sprin Lake Heights Water Department and is the guide for the Level of Service Goals discussed in Section 3.0:

The Borough of Spring Lake Heights' Water Department is committed to providing reliable, high-quality drinking water to its customers and the residents of Spring Lake Heights. The safety and dependency of water service is of the utmost priority. The Borough's Water Department aims to always be courteous and prompt when responding to customer inquiries, and concerns, and will take all appropriate measures to resolve any water-related issues facing the residents of the Borough. The department aims to use its financial assets in an economically responsible manner, maintaining system components as needed to ensure their continued operation and upgrading equipment to meet or exceed ever-increasingly stringent water quality requirements.

1.2 Minimum Maintenance Tasks

The Borough's Water Department preforms continuous and periodic tasks to ensure compliance with all requirements of a Public Water Supply (PWS). These include, but are not limited to the following:

1. Maintaining a minimum of 20 pounds per square inch (psi) operating pressure at all times, under all conditions, other than acute site-specific emergency water main breaks.
2. Maintaining a typical operating pressure in the target range of 25 psi – 80 psi in all but emergency conditions.
3. Maintaining a firm treatment capacity in excess of 5-year rolling PDD (0.642 MGD).
4. Maintaining a firm source capacity in excess of 5-year rolling PDD.
5. Maintaining a minimum of 0.132 million gallons (MG) of system storage, based on calculation from NJAC 7:19-6.7.
6. Target zero compliance violations for State and Federal regulated primary drinking water contaminants.
7. Maintaining a minimum of 0.2 mg/l residual free chlorine at all points in the distribution system, under all operating conditions, other than acute site-specific emergency water main breaks.
8. Maintaining a finished water pH within the EPA recommended range.
9. Submitting all required Public Watter Supply compliance and enforcement data in a timely fashion for 100% of reporting requirements.
10. Maintaining a continuous contractual agreement with a certified drinking water laboratory to be renewed annually.
11. Maintaining an on-call emergency service agreement with a minimum of one experienced service provider for the following infrastructure categories: wells, treatment equipment, transmission and distribution, and storage tanks.
12. Notify all customers of water quality on a minimum annual basis via publication of the consumer confidence report (CCR).

1.4 Asset Management Team

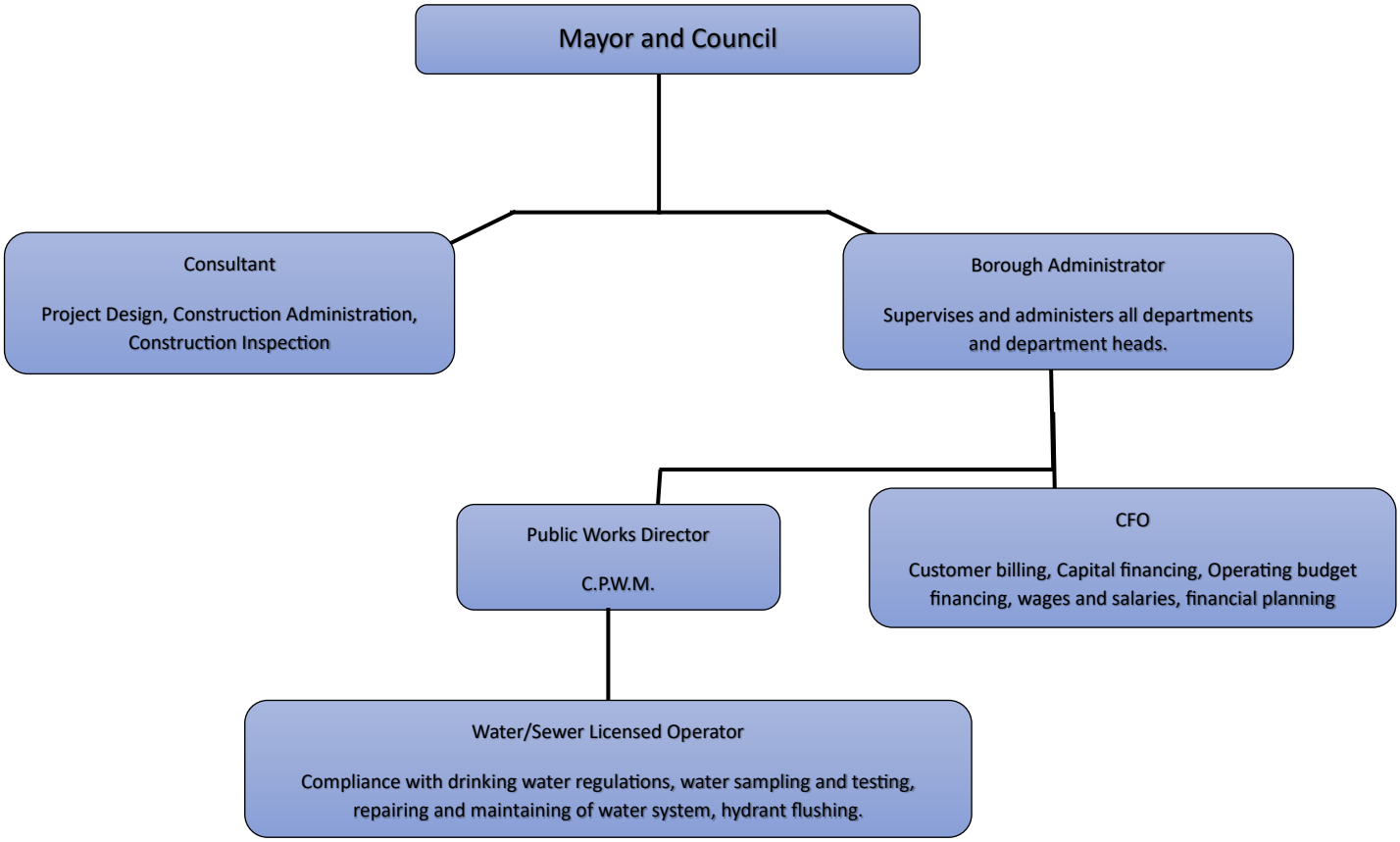
The Borough of Spring Lake Heights Water Department employs a staff that perform daily functions to keep the utility running properly. Some of these individuals have been utilized as members of the "Asset Management Team". The Water Department staff performs asset management planning responsibilities. The Asset Management Team is responsible for preparing, implementing, and updating this plan.

The Borough Administrator and Consultant interface with the Public Works and Finance departments on a regular basis. These offices are involved with Water, Sewer and other projects. The Asset Management Team is responsible for coordinating such involvement in developing and implementing this plan. While other Borough departments may not be responsible for implementation, they will need to provide support in implementing the Asset Management Plan. The current team is listed in Table 1-1 and an overall organization chart for the Borough is provided in Figure 1-1.

Table 1-1: Asset Management Team

Name	Title	Organization	Role / Responsibility on Project
John Barrett	Boro Administrator	Borough of Spring Lake Heights	Borough Employee
Joseph May	Public Works Director	Borough of Spring Lake Heights	Borough Employee
Connor Kessler	Water /Sewer Assistant Licensed Operator	Borough of Spring Lake Heights	Borough Employee
Patrick K. Cole, P.E.	Water Engineer	H2M Associates, Inc.	Consultant

Figure 1-1: Borough Organizational Chart



2.0 Water System Overview

The Borough of Spring Lake Heights Water Department serves a population of approximately 5,000 people, per New Jersey Drinking Water Watch. Table 2-1 provides a breakdown of customers by type and water system assets. Maps of the utility are maintained by the utility at the Borough of Spring Lake Heights offices as well as the Water Treatment Plant.

The Borough owns and maintains its potable water distribution system. Water main system ranges in pipe size from six inches (6") in diameter up to ten inches (10") in diameter. The distribution system includes three (3) storage tanks, all of which are located at the Water Treatment Plant on Old Mill Road. Water for the Borough is sourced from (2) wells located within the Borough, as well as from an interconnection with water being bulk purchased from the New Jersey Water Supply Authority (NJWSA). The water mains are constructed of various materials, mostly constructed with cast iron with some pipes being comprised of ductile iron.

The Borough's water system is in average condition, with some deferred maintenance which needs attention in the upcoming years. A few major projects have already been completed including rehabilitation of Well 2 and Well 3, Hydrant and Valve replacements, and the implementation of the Supervisory Control and Data Acquisition (SCADA) system.

Table 2-1: Water System Data

Item	Units	Description
Customer Breakdown		
Commercial	**Services**	**131**
Residencial	**Services**	**2255**
Total	**Services**	**2386**
System Demands - 2023		
Unaccounted for Water (2023)	**Percentage (%)**	**12.16**
Volume Produced	**Average Day (MGD)**	**0.087**
Volume Purchased	**Average Day (MGD)**	**0.437**
Peak Daily Consumption	**Peak Day (MGD)**	**0.676**
Supply and Distribution System Assets		
Water Treatment Plants	**EA**	**1**
Wells	**EA**	**2**
Booster Pumps	**EA**	**3**
Valves	**EA**	**423**
Hydrants	**EA**	**193**
Meters	**EA**	**2324**
Water Distribution Mains	**Miles**	**23.4**
Distribution Storage Tanks	**EA**	**3**
Interconnections (non-bulk purchase)	**EA**	**2**
Bulk Purchase Interconnections	**EA**	**1**
Bulk Sale Interconnections with Other Systems	**EA**	**0**
Shared Emergency Interconnections with other purveyors	**EA**	**2**

There are three (3) total interconnections with two (2) belonging to neighborhood systems. The New Jersey Water Supply Authority (NJSWA) provides water into the Borough's distribution system via a bulk purchase. The two remaining connect us to two of our neighboring towns, the Borough of Spring Lake and Wall Township. These two interconnections are designed to provide water in emergency conditions into the Borough of Spring Lake Heights system. Table 2-2 provides more information on the interconnection valves.

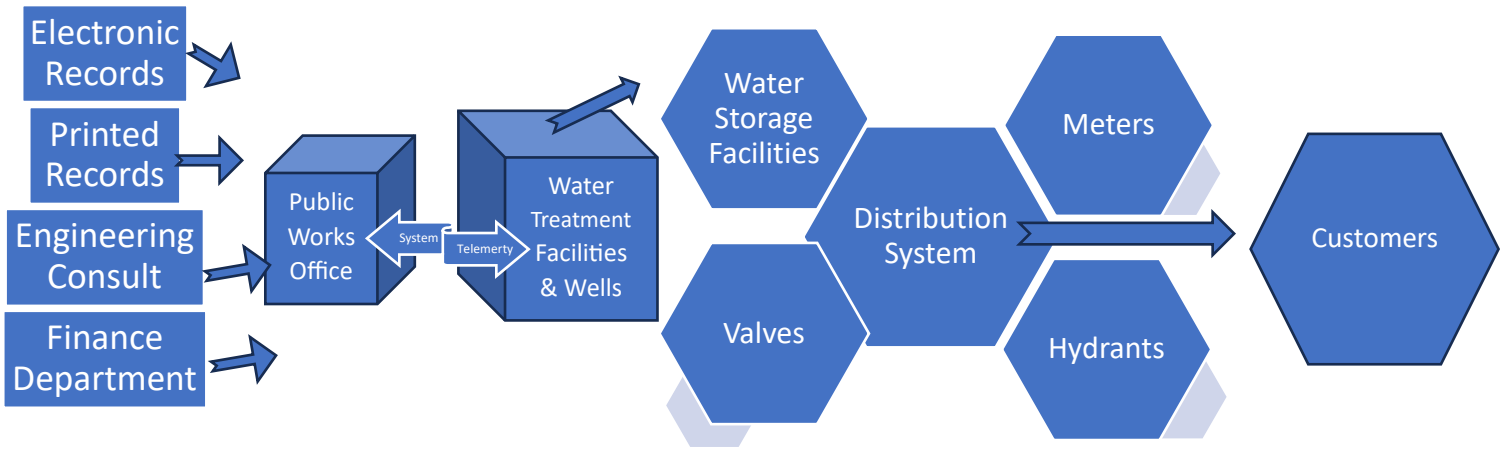
Table 2-2: Interconnections

	Diameter	Location	Status
Purchase			
NJWSA	12"	Hospital Road south of Atlantic Ave	Available
Emergency			
Wall Township	6"	Warren Ave and Old Mill Road	Closed
Spring Lake	10"	Monmouth Ave, outside of public works yard	Closed

The Borough of Spring Lake Heights' current population is 4,887 as of the 2020 Census. The Borough anticipates little to no water demand increase over the next ten (10) years due to the built-out nature of the area. However, The Borough continues to investigate options to maintain the capacity of its water supply to meet future demand growth.

An overall organization chart for the Borough of Spring Lake Heights Water Department's Assets is depicted in figure 2-1.

Figure 2-1: Water Department Assets



3.0 Level of Service

The Borough of Spring Lake Heights Water Department maintains a goal to deliver safe drinking water by providing services that meet or exceed customer expectations and comply with State and Federal regulations. This section describes the Borough's Level of Service goals and also the performance targets for each Level of Service goal. Each Level of Service shows defines the objectives of the utility's performance by asking questions such as, "how much?", "of what nature?", and "how frequently?". The performance targets define how each level of service will be measured.

The Level of Service goals determine the amount of funding that is required to maintain, renew, and upgrade the water infrastructure to provide customers with the Levels of Service specified. The Level of Service identify the service areas of concern and define the performance target for each goal. The area of service, the severity of the Level of Service Goal, and how the utility addresses each issue will affect funding requirements in accomplishing these goals. The target for all of the Level of Service goals is to allow the Borough to provide the proper service to the community and residents. Target levels of service are identified in Table 3 – 1. This table lists the Level of Service goals and performance targets for each goal.

Table 3-1: Level of Service Goals

Service Area	Levels of Service	
	Goal	Performance
Health, Safety and Security	System will meet all state and federal regulatory standards	100%
Health, Safety and Security	Inspect all fire hydrants	100% of hydrants annually
Service Quality and Cost	Install looped mains to eliminate dead ends where feasible	Complete in 15 years
Service Quality and Cost	Flush all mains once per year	100% of mains annually
Service Quality and Cost	Flush all dead-end mains twice per year using uni-directional methods	100% of dead end mains each flush
Asset Preservation and Condition	Rehabilitate or replace unlined mains	Complete by 2040
Asset Preservation and Condition	Reduce water losses to below 10%	Complete in 12 years
Service Quality and Cost	Review water rates periodically to stabilize rate base	Review annually

4.0 Critical Assets

The importance or critical value of water system assets varies depending on the Level of Service goals. The risk associated with the failure of an asset is determined by the asset itself (Main segments, valves, pumps, hydrants, etc.) and will be assigned a Consequence of Failure (CoF) and a Likelihood of Failure (LoF) in the Borough's GIS system. This process reviews assets to record their condition (LoF), how critical they are to the utility (CoF), and redundancy (the number of back-up systems to help support each asset). This analysis will enable the Borough to achieve the identified level of service goals going forward.

The Borough of Spring Lake Heights Water Department asset management team is in the process of completing the critical asset assessment. Table 4-1 identifies the risk of failure associated with each asset, which in turn will have an effect on achieving the Level of Service goals. Condition and consequence of failure are both rated on a scale from 1 to 5. A brand-new asset would be given a condition of 1, while an asset in which failure is imminent will be given a 5. The consequences will be similarly ranked with the impact of a 1 being negligible, and a 5 will be a catastrophic failure and have a large impact on the system.

Table 4-1: Critical Asset Inventory

Asset	Condition	CoF *	Capacity	Risk
Water Supply Well				
Well 2	1	5	400 gpm	5
Well 3	1	5	450 gpm	5
Water Storage Tanks				
Elevated	4	5	0.3 MG	20
Ground 1	3	3	0.3 MG	9
Ground 2	3	3	0.25 MG	9
Interconnections				
Interconnections SPLK	3	1	NA	3
Interconnection Wall	2	1	NA	2
Interconnections (NJWSA)			NA	
Distribution				
Distribution Mains	3	1	NA	3
Loop	4	3	NA	12
10”	4	5	NA	20
Services	2	1	NA	2
Hydrants	2	3	NA	6
Valves	2	3	NA	6
Booster Pumps				
Booster 1	2.5	5	500	11
Booster 2	2.5	5	500	11
Booster 3	2.5	5	500	11
Other				
Treatment Plant	4	5		20
* CoF = Consequence of Failure				

5.0 Operation and Maintenance (O&M) Strategy

O&M consists of daily procedures necessary for system operation, preventive maintenance, and emergency / reactive maintenance. In this section, the strategy for O&M varies by the asset, criticality, condition, and operating history. The information in the Critical Asset Inventory provides a list of the utility's top priority assets and identifies the risk value for each. The establishment of the maintenance program was designed with help from the consequence of failure criteria and risk criteria discussed previously. This program will aid the Borough in addressing the assets with the highest risk.

Unexpected events could cause there to be a needed change in the asset maintenance schedule. These unexpected events could result in corrective action being taken in response. These events may be found during routine inspections and avenues of operations and maintenance.

The assets with the highest priority ranking are presented below with the maintenance strategies. As an asset is repaired or replaced, its conditions will improve and be provided a better Likelihood of Failure (LoF) factor. Section 5.1 reflects both specific and broad aspects of the Operation and Preventive Maintenance plan.

5.1 Operation and Preventative Maintenance

Operation and preventative maintenance consist of day-to-day work necessary to keep all assets operating properly. Operation and preventative maintenance tasks include, but are not limited to the following:

1. Regular, monthly, and annual tasks necessary to keep the assets operating at their desired service level.
2. Daily general upkeep designed to keep assets operating at the desired level of service.
3. Tasks that provide for the normal care and attention of each asset including repairs, minor replacements, and slight adjustments.

Preventive maintenance is carried out based on a planned maintenance program (such as regularly scheduled asset repairs and inspections) and historically problematic operations (such as main breaks and water turbidity at dead ends). Equipment must be maintained according to the manufacturer's recommendations to achieve maximum return on investment. By following the manufacturer's suggested preventive maintenance, the useful life of equipment can be extended 2-3 times when compared to no maintenance. The utility can achieve positive returns from a small investment in their operating budget for preventive maintenance practices.

Valves will be exercised in accordance with current NJDEP requirements as described in C.58:31-3, summarized as follows:

a. Water purveyors shall inspect all valves in its system in order to ensure the accessibility of the valve and to ensure it is in proper operational condition. Valves found to be inoperable or broken will be repaired or replaced.
b. Valves 12 inches and over shall be inspected every 4 years, and valves under 12 inches shall be inspected every 8 years. This requirement does not encompass customer service valves or curb stops.
c. Inspection of a valve shall be as follows:
    a. Clear area around the valve to provide full operational access.
    b. Clean out the valve box.
    c. Dynamic testing of the valve, which involves either the recommended number of turns per the manufacturer's written instructions for testing, or 15 percent of the total number of turns required for complete opening or closing of the valve.

The Borough of Spring Lake Heights' water distribution system contains no valves over 12 inches. The Utility also inspects every valve once per year in correlation with their April hydrant flushing.

Hydrants will be exercised in accordance with NJDEP requirements as described in C.52:14B-1 et seq., summarized as follows.

a. Water purveyors shall test every fire hydrant once per year in order to determine proper operability.
b. Water purveyors shall design and implement a plan to flush every hydrant in the public water system, and every dead end main in the system. Flushing and testing can be conducted concurrently.

The Borough of Spring Lake Heights water department completes an inspection and flushing on every hydrant in the system two times per year. The water department also uses a unilateral flushing method, in which valves will be operated during hydrant flushing and inspection.

More detailed valve and hydrant maintenance procedures can be found in AWWA Manual M44 and AWWA Manual M17 respectively, as well as the manufacturer's written maintenance instructions.

During asset exercise and maintenance work, field workers will complete GIS reports to provide detailed information about the asset, including size, functionality, condition, GPS coordinates, and other pertinent data. This data will be used to assign Likelihood of Failure (LoF) values to assets and will serve as a means to ensure the Borough GIS mapping system remains up-to-date.

Table 5-1 shows a preventive maintenance schedule based on best management practices. If maintenance tasks have been deferred because of inadequate funding or staffing, funding must be added to future operating budgets to preserve the service life of assets.

Table 5-1: Operation and Preventive Maintenance Schedule

Task Name	Frequency
Test and record chlorine residual in the distribution system	Daily
Obtain well flow meter readings and record water production	Daily
Conduct security checks of Utility properties	Every week
Prepare and verify submittal of monthly reports	Monthly
Exercise system valves	100% Annually
Flush / exercise / inspect all fire hydrants	Semi-Annually
Flush all water mains	Semi-Annually
Receive, record, and investigate customer complaints	As received
Locate and evaluate distribution system leaks	As required
Review past usage and prepare a Demand Forecast	Annually
Read all customer meters. Compare with total water purchased	Quarterly
Obtain and test appropriate monthly water quality samples	Monthly

6.0 Water Quality

This section describes how the Spring Lake Heights Water Department addresses water quality and water efficiency issues under the two major federal statutes governing water: The Safe Drinking Water Act (SDWA) and State Drinking Water Regulations.

6.1 Source Water Assessments and Protection

The cost of water treatment, as well as the risks to public health, can be reduced by protecting source water from contamination. The Borough of Spring Lake Heights' internal water supplies consist of only confined aquifers; therefore, no Source Water Assessments are needed. However, the Borough of Spring Lake Heights purchases surface water from the New Jersey Water Supply Authority (NJWSA) who are subject for Source Water Assessments. As a result, The Borough of Spring Lake Heights Water Department regularly reviews source water assessments available from NJWSA.

A list of contaminants present is provided in Appendix B.

6.2 Water and Energy Efficiency

The Water and energy sectors are highly interdependent. Water suppliers use enormous amounts of energy to withdraw, treat, and distribute water. Identifying approaches to integrate energy efficient practices into the daily management and long-term planning for a utility also contributes to the long-term sustainability of water infrastructure by reducing operation costs and adding to a utility's bottom line. The Spring Lake Heights Water Department is investigating the following steps to encourage water and energy efficiency to aid in forestalling future large capital expenditures in infrastructure:

1. Water audits and water loss control programs
2. Employing consumer outreach programs (free home water audits, conservation education, etc.)

7.0 Capital Improvement Plan (CIP)

The Borough of Spring Lake Heights Water Department's Capital Improvement Plan (CIP) is a description of known future capital projects. Capital improvement projects include generating new assets for the utility system, or upgrading and replacing existing assets. The projects can result from growth or environmental needs, including:

1. Expenditures that purchase or create a new asset or in any way improve an asset beyond its original design capacity.
2. Upgrades that increase the capacity of the asset.
3. Construction designed to produce an improvement in the standard operation of the asset beyond its present capacity.

In addition to the capital improvement projects, the asset management team has reviewed and is establishing a renewal (or rehabilitation) strategy. Renewal expenditure is anything that does not increase the asset's design capacity but restores an existing asset to its original capacity. Improvement projects that require more than restoring an asset to its original capacity are deemed to be a renewal project. Such as the following:

1. Activities that do not increase the capacity of the asset (i.e. upgrade and enhance the assets, restoring them to their original size, condition, and capacity).
2. Rehabilitation involving improvements and realignment or restores the assets to a new or fresh condition.

In making decisions, the utility considered the following categories:

1. Structural
2. Capacity
3. Level of Service failures
4. Outdated functionality
5. Cost or economic impact
6. Energy efficiency

A summary of the current Capital Improvement is presented in Table 7-1 and Table 7-2. Since the expected needs of the utility will change each year, the CIP plan will be updated to reflect those changes.

Table 7-1: Short Term Capital Improvement Projections (2025-2030)

Item	Description	Type of Project	Quantity	Unit	Cost
1	Distribution Mains	Replace / Clean & Line	5280	FT	$1,320,000
2	Hydrants	Replace	12	EA	$150,000
3	Valves	Replace	50	EA	$750,000
4	Elevated Tank	Rehabilitation	1	EA	$2,000,000
5	Plant Yard Piping	Rehabilitation	1	EA	$250,000
6	Chlorine Injection System	Rehabilitation	2	EA	$20,000
1	Collection Mains	Replace / Clean & Line	4	% of LF of Main	$1,000,000
2	Bioxcide System	New	2	EA	$100,000
				Total	$5,590,000

Table 7-2: Long Term Capital Improvement Projects (2030 – 2035)

Item	Description	Type of Project	Quantity	Unit	Cost
1	Distribution Mains	Replace / Clean & Line	5280	FT	$1,500,000
2	Hydrants	Replace	12	EA	$175,000
3	Valves	Replace	20	EA	$350,000
4	Ground Tank # 1	Rehabilitation			$750,000
5	Ground Tank # 2	Rehabilitation	1	EA	$850,000
6	Flow Meter for NJWSA	New	1	EA	$50,000
7	Booster Pumps	Rehabilitation	3	EA	$300,000
8	WTP Generator 135KWH	Rehabilitation	1	EA	$250,000
9	Plant Yard Piping | Altimeter Valve	Rehabilitation	1	EA	$350,000
10	Automatic Transfer Switch	Rehabilitation	1	EA	$25,000
11	Fairway Mews Metering	New	3	EA	$225,000
12	Re-instate Well 4	Rehabilitation	1	EA	$1,000,000
1	Collection Mains	Replace / Clean & Line	4	% of LF of Main	$1,200,000
2	Sewer Force Mains	Replace / Clean & Line	2	EA	$1,500,000
3	Hydrogen Sulfide Relief Chamber	New	1	EA	$125,000
				Total	$8,650,000

8.0 Financial Management Strategy

This section describes the Borough of Spring Lake Heights' strategy for financing improvements to its water system. Capital costs are one-time expenses incurred to install new facilities and replace or upgrade existing facilities to provide increased capacity or comply with regulatory standards.

Currently, customers are billed on a quarterly basis. Each residential service is assessed an annual minimum charge of $280, which is divided into four quarterly payments. This base charge includes the first 9,000 gallons of usage per quarter. For usage between 9,001 and 25,000 gallons, the rate is $5.60 per 1,000 gallons. Usage over 25,001 gallons per quarter is billed at $7.50 per 1,000 gallons.

Charges exist for the cost of new or replacement service taps, with the average cost at approximately $5,000. Other miscellaneous charges are imposed for stopping or starting service, pool filling, etc.

Capital expenditures can be financed through municipal bonds and / or EIT loans. The Borough will review its financing options on a yearly basis to determine the most cost-effective method of funding the capital improvements. Usage fees will be adjusted as necessary to fund the projects via the selected financing option(s). Table 8-1 identifies the Borough's short-term capital improvement costs, which are recommended in this Asset Management Plan.

During the fourth quarter of 2024, the Assessment Management Team performed a rate study on the current water meter rates. This study found that the Borough of Spring Lake Heights has a need to increase rates in order to keep up with the Capital Projects projected in Table 8-1. The Asset Management Team created a new rate structure based both on the similar rate structures of all other municipalities purchasing water from the New Jersey Water Supply Authority, and based on the needs of said Capital Projects.

Emphasis must be placed on funding for water system projects in order to 1.) maintain the system in a preventive manner as opposed to reactive, and 2.) comply with the requirements of the Water Quality Accountability Act. This includes allocating money for maintenance tasks and personnel, as well as larger capital projects. Some such projects will require the Borough to put aside money annually for several years in advance of the construction work. While it is currently not required by law, a main replacement

target of 1% of the system annually (i.e. a 100-year service life for all mains) is recommended to avoid having an excessive amount of very old water mains. As mains age, they are more prone to breakage and water quality issues; a 1% main replacement schedule ensures that the current generation doesn't unduly burden future generations with extensive, costly main replacement work. Table 8-1 shown below depicts the estimated costs on an annual basis for the short-term Capital Improvement. In order to keep up with the anticipated inflation rates, a 2% increase per year has been applied.

Table 8-1: Short Term (2025-2030) Capital Improvement Costs

Item	2025	2026	2027	2028	2029
Distribution Main Replacement	$264,000	$269,280	$274,665	$280,158	$285,762
Hydrant Replacement	$30,000	$30,600	$31,212	$31,836	$32,472
Valve Replacement	$150,000	$153,000	$156,060	$159,181	$162,364
Elevated Tank	$2,000,000				
Plant Yard Piping		$250,000			
Chlorine Injection System		$20,000			
Sewer Main Replace Clean Reline		$1,000,000		$1,040,000	
Bioxide System	$100,000				
Total Capital Improvements	**$2,544,000**	**$1,722,880**	**$461,937**	**$1,511,176**	**$480,599**
Total 5-year plan					**$6,720,594**

9.0 Action Plan

The Spring Lake Heights Water Department's Asset Management Plan refers to many objectives, targets, maintenance, and improvements for the utility. Table 9-1 brings all these items together clearly to identify the actions required to successfully implement the Asset Management Plan.

Table 9-1: Action Plan

Urgency	Issue	Action Plan	Year	Status
Highest Priority				
High	Improve condition of system valves	Implement program to exercise valves, & replace broken / leaking valves	Ongoing	In progress
High	Improve water quality and reliability	Flush distribution system mains, replace undersized mains	Annually	In progress
High	Improve water quality and pressure	Install larger mains and loop to eliminate dead ends	Annually	In progress
High	Meet Levels of Service outlined in this report	Investigate need to hire additional staff	2025	Proposed
Lesser Priority				
Medium	Extend service life of water mains, reduce pressure loss and water quality complaints	Implement program to clean and line mains	2040	Proposed

9.1 Review Schedule

The Borough of Spring Lake Heights Water Department intends to review and update this plan on an annual basis.

Appendix A

Water Quality Report

PWSID # NJ1349001

Annual Drinking Water Quality Report
Spring Lake Heights Water Department
For the Year 2024, Results from the Year 2023

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality of water and services we deliver to you every day. We have three wells, and we purchase water from the New Jersey Water Supply Authority, Manasquan Reservoir Water Supply System. Our wells draw their water from the Mount Laurel and Englishtown Aquifers and are between 400 and 500 feet deep. The Manasquan Water Treatment Plant, located on Hospital Road in the Allenwood section of Wall Township, is owned by the Monmouth County Improvement Authority and is operated by the New Jersey Water Supply Authority. The Manasquan Water Treatment Plan takes its water from the Manasquan River in Wall Township and the Manasquan Reservoir in Howell Township.

If you are a landlord, you must distribute this Drinking Water Quality Report to every tenant as soon as practicable, but no later than three business days after receipt. Delivery must be by hand, mail, or email, and by posting the information in a prominent location at the entrance of each rental premises, pursuant to section #3 of N.J. P. L. 2021 c.82 (C58:12A-12.4 et seq.).

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Reports and Summaries for these public water systems, which are available at http://www.nj.gov/dep/watersupply/swap/index.html or by contacting NJDEP's Bureau of Safe Drinking Water at 1-609-292-5550 or watersupply@dep.nj.gov. You may also contact your public water system to obtain information regarding your water system's Source Water Assessment. The source water susceptibility ratings and a list of potential contaminant sources for these water systems is included.

We are pleased to report that our drinking water meets all federal and state safety requirements.

Spring Lake Heights Water Department 2023 Test Results

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline 1-800-426-4791.

Contaminant	Violation (Y/N)	Level Detected	Units of Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants – Radionuclides						
Combined Radium (-226 & -228) Test Results Yr. 2018	N	1.5	pCi/L	0	5	Erosion of natural deposits
Inorganic Contaminants						
Barium Test Results Yr. 2021	N	0.7	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper Test Results Yr. 2022	N	P90 = 0.16 No samples exceeded the action level.	ppm	1.3	*TT AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Test Results Yr. 2022	N	P90 = ND No samples exceeded the action level.	ppb	0	*TT AL = 15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen) Test Results Yr. 2023	N	0.3	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium Test Results Yr. 2021	N	3	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Disinfection Byproducts						
TTHM (Total Trihalomethanes) Test Results Yr. 2023	N	Range: 19.5 – 64.2 Highest LRAA: 44.9	ppb	N/A	80	By-product of drinking water disinfection
HAA5 (Total Haloacetic Acids) Test Results Yr. 2023	N	Range: 9.9 – 32.0 Highest LRAA: 27.1	ppb	N/A	60	By-product of drinking water disinfection
Synthetic Organic Contaminants - PFAS						
PFOA Perfluorooctanoic Acid Test Results Yr. 2023	N	2.3	ppt	N/A	14	Discharge from industrial, chemical, and manufacturing factories, release of aqueous film forming foam

Regulated Disinfectants				
Chlorine	Highest Annual Average	Range	MRDL	MRDLG
Test Results Yr. 2023 Water additive used to control microbes	0.85 ppm	0.3 – 1.1 ppm	4.0 ppm	4.0 ppm

HAA5 and TTHM compliance is based on a Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results.

Spring Lake Heights Water Department 2023 Test Results Secondary Contaminants					
Compound	**Units of Measurement**	**Average Level Detected**	**Range Detected**	**Recommended Upper Limit**	**Likely Source**
Chloride	ppm	39.8	39.8	250	Erosion of natural deposits; roadway ice and snow control
Foaming Agents	ppm	0.06	0.06	0.5	Surfactants used for detergents and other products
Hardness	ppm	80	80	250	Natural characteristic
Iron	ppm	0.2	0.2	0.3	Natural mineral
pH	ppm	7.4	7.4	6.5 – 8.5	Natural characteristic
Sodium	ppm	30	30	50	Erosion of natural deposits; roadway ice and snow control
Sulfate	ppm	18.7	18.7	250	Natural mineral
Zinc	ppm	0.2	0.2	5	Natural mineral

Spring Lake Heights Unregulated Contaminant Monitoring Rule 5 Data				
Unregulated Contaminant	**Average Level**	**Range**	**Units**	**Likely Source of Contamination**
PFOA	3.5	ND – 6.8	ppt	PFAS are a group of synthetic chemicals used in a wide range of consumer products and industrial applications including: non-stick cookware, water-repellent clothing, stain resistant fabrics and carpets, cosmetics, firefighting foams, electroplating, and products that resist grease, water, and oil. PFAS are found in the blood of people and animals and in water, air, fish, and soil at locations across the United States and the world.
PFOS	0.8	ND – 4.8	ppt	
PFHxA	1.25	ND – 4	ppt	
PFHxS	0.5	ND – 3	ppt	
PFPeA	1.25	ND – 4.1	ppt	

The Spring Lake Heights Water Department and the Manasquan Water Supply routinely monitor for contaminants in your drinking water according to federal and state laws. The tables show the results of monitoring for the period of January 1st to December 31st, 2023. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. Additionally, the Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos and synthetic organic chemicals (SOCs). Our system received a monitoring waiver for asbestos and was granted an SOC waiver for the previous compliance periods. The NJDEP has not yet issued SOC waivers for the current period, but our system has applied for and expects to receive a waiver for the current compliance period upon NJDEP determination. The Manasquan Water Supply System did not receive monitoring waivers for asbestos or SOC for the current monitoring period.

What are PFOA and PFOS?

Perfluorooctanoic acid (PFOA) and perfluorooctanoic sulfonate (PFOS) are per-and polyfluoroalkyl substances (PFAS), previously referred to as perfluorinated compounds or PFCs, that are man-made and used in industrial and commercial applications. PFOA was used as a processing aid in the manufacture of fluoropolymers used in non-stick cookware and other products, as well as other commercial and industrial uses based on its resistance to harsh chemicals and high temperatures. PFOS is used in metal plating and finishing as well as in various commercial products. PFOS was previously used as a major ingredient in aqueous film forming foams for firefighting and training, and PFOA and PFOS are found in consumer products such as stain resistant coatings for upholstery and carpets, water resistant outdoor clothing, and grease proof food packaging. Although the use of PFOA and PFOS has decreased substantially, contamination is expected to continue indefinitely because these substances are extremely persistent in the environment and are soluble and mobile in water. More information can be found at: https://dep.nj.gov/pfas/drinking-water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

DEFINITIONS

In the "Test Results" tables, you may find some terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) – Laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) – one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter (µg/l) – one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or Nanograms per liter (ng/l) – one part per trillion corresponds to one minute in 20,000 years, or a single penny in $100,000,000.

Picocuries per liter (pCi/L) – picocuries per liter is a measure of the radioactivity in water.

Action Level – the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level – The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal – The "Goal" (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.

Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

Nephelometric Turbidity Unit (NTU) – nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Secondary Contaminant – Substances that do not have an impact on health. Secondary Contaminants affect aesthetic qualities such as odor, taste, or appearance. Secondary standards are recommendations, not mandates.

Recommended Upper Limit (RUL) – Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste, or appearance. RULs are recommendations, not mandates.

Total Organic Carbon (TOC) – We are required to remove a certain percentage of (TOC) from our drinking water on a monthly basis. Total Organic Carbon has no adverse health effects. However, TOC provides a medium for the formation of disinfection byproducts.

Turbidity – A measure of the particulate matter or "cloudiness of the water. High turbidity can hinder the effectiveness of disinfectants.

Manasquan Water Supply 2023 Test Results
PWSID # NJ1352005

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Contaminant	Violation (Y/N)	Level Detected	Units of Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants – Radionuclides						
Alpha Emitters	NO	Highest Level: 0.75 +/0 0.32 (One sample)	pCi/L	0	15	Erosion of natural deposits
Combined Radium (-226 & -228)	NO	ND	pCi/L	0	5	Erosion of natural deposits
Radium 226	NO	Highest Level: 0.12 +/0.53 (One sample)	pCi/L	0	5	Erosion of natural deposits
Radium 228	NO	Highest Level: 0.24 +/- 0.77 (One sample)	pCi/L	0	5	Erosion of natural deposits
Microbiological Contaminants						
Total Coliform Bacteria	NO	Highest Level: 0 Range Detected: 0	# of required samples – (12 per year)	0	> 2 per month	Naturally present in the watershed
Inorganic Contaminants						
Barium	NO	Highest Level: 0.055	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nickel	NO	Highest Level: 2.19	ppb	N/A	N/A	Erosion of natural deposits; industrial discharge
Nitrate	NO	Highest Level: 0.248	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Bromate	NO	Highest Level: 7.11 Range: ND – 7.11 (10 of 12 samples were ND)	ppb	0	10	Reaction of naturally occurring bromide with ozone used in the treatment process
Copper (Biannual)	NO	90th Percentile: 0.19/0.12 No sites exceeded the action level.	ppm	<1.3	*TT AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits

Lead (Biannual)	NO	90th Percentile: 0.99/ND No sites exceeded the action level.	ppb	0	*TT AL = 15	Corrosion of household plumbing systems, erosion of natural deposits
Disinfection Byproducts						
TTHM (Total of 4 compounds in one sample)	NO	Highest Level: 27 Range: <0.5 – 12.2	ppb	N/A	80 (Annual site sampling)	By-product of drinking water disinfection
HAA5	NO	Highest Level: 7.6 Range: <1.0 – 3.9	ppb	N/A	60	By-product of drinking water disinfection
Synthetic Organic Contaminants - PFAS						
PFOS	NO	Highest Level: 4.2	ppt	N/A	13	Discharge from industrial, chemical, and manufacturing factories, release of aqueous film forming foam
PFOA	NO	Highest Level: 5.3	ppt	N/A	14	Discharge from industrial, chemical, and manufacturing factories, release of aqueous film forming foam
PFNA	NO	Highest Level: 2.4	ppt	N/A	13	Discharge from industrial, chemical, and manufacturing factories, release of aqueous film forming foam
Suspended and Dissolved Matter Removal						
Total Organic Carbon (TOC)	NO	Annual Average Removal: 37% Minimum Removal: 21% Monthly Samples Range: 21% - 50%	%	N/A	TT required removal minimum is 35% to 45% of average raw water TOC or 0% if TTHM and HAA5 Results are below a percentage of their MCL	Naturally present in the environment, decaying plant matter
Turbidity of Filtered Water	NO	Maximum: 0.15 Range: 0.02 – 0.15 100% of samples were <0.3 NTU	NTU	0.05	> 1 NTU (1.49 due to rounding) – TT = 95% of monthly samples <0.3 NTU	Soil and organic matter runoff

Regulated Disinfectants				
Chlorine	Highest Annual Average	Range	MRDL	MRDLG
Water additive used to control microbes	2.07 ppm	0.75 – 2.07 ppm	4 ppm	4 ppm

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.

Manasquan Water Supply
Secondary Contaminants / Water Quality Parameters / Unregulated Compounds

Contaminant	Average Level Detected	Units of Measurement	Recommended Upper Limit	Likely Source of Contamination
Secondary Contaminants				
Zinc	0.39	ppm	5.0	Byproduct of corrosion inhibitor additive
Fluoride	0.12	ppm	2 (MCL = 4)	Water additive which promotes strong teeth; erosion of natural deposits; industrial discharge
Sodium	24.2	ppm	50	Erosion of natural deposits; roadway ice and snow control
Chloride	36	ppm	250	Erosion of natural deposits; roadway ice and snow control
Unregulated Contaminants				
PFHxA (Perfluorohexanoic acid)	Highest Level: 2.8	ppt	N/A	Industrial discharge
PFHxS (Perfluorohexanesulfonic acid)	Highest Level: 5.3	ppt	N/A	Industrial discharge

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Cryptosporidium is usually removed through the filtration process and inactivated by other treatment processes such as ozonation. In order to check for the presence of Cryptosporidium, the USEPA issued the Long-Term Enhanced Surface Water Treatment Rule in January 2006. As part of this rule, the Manasquan System began monthly sampling and testing for Cryptosporidium in October 2016 and this testing continued through its completion in September 2018. The sample results did not show any presence of Cryptosporidium.

Sources of Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Spring Lake Heights Water Department and the Manasquan Water Supply System are responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Although most lead exposure occurs from inhaling dust or from contaminated soil, or when children eat paint chips the U.S. Environmental Protection Agency (USEPA) estimates that 10 to 20 percent of human exposure to lead may come from lead in drinking water. Infants who consume mostly mixed formula can receive 40 percent to 60 percent of their exposure to lead from drinking water. Lead is rarely found in the source of your drinking water but enters tap water through corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing materials. These materials include lead-based solder used to join copper pipes, brass, and chrome-brass faucets, and, in some cases, service lines made of or lined with lead. New brass faucets, fittings, and valves, including those advertised as "lead-free," may still contain a small percentage of lead, and contribute lead to drinking water. The law currently allows end-use brass fixtures, such as faucets, with up to 0.25 percent lead to be labeled as "lead free." However, prior to January 4, 2014, "lead free" allowed up to 8 percent lead content of the wetted surfaces of plumbing products including those labeled National Sanitation Foundation (NSF) certified. Visit the NSF website at www.nsf.org to learn more about lead containing plumbing fixtures. Consumers should be aware of this when choosing fixtures and take appropriate precautions. When water stands in lead service lines, lead pipes, or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.

However, for those served by a lead service line, flushing times may vary based on the length of the service line and plumbing configuration in your home. If your home is set back further from the street a longer flushing time may be needed. To conserve water, other household water usage activities such as showering, washing clothes, and running the dishwasher are effective methods of flushing out water from a service line.

Steps You Can Take to Reduce Exposure to Lead in Drinking Water

For a full list of steps visit: https://www.state.nj.us/dep/watersupply/dwc-lead-consumer.html

Run the cold water to flush out lead. Let the water run from the tap before using it for drinking or cooking any time the water in the faucet has gone unused for more than six hours. The longer the water resides in plumbing the more lead it may contain. Flushing the tap means running the cold-water faucet. Let the water run from the cold-water tap based on the length of the lead service line and the plumbing configuration in your home. In other words, the larger the home or building and the greater the distance to the water main (in the street), the more water it will take to flush properly. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one gallon of water.

Use cold, flushed water for cooking and preparing baby formula. Because lead from lead-containing plumbing materials and pipes can dissolve into hot water more easily than cold water, never drink, cook, or prepare beverages including baby formula using hot water from the tap. If you have not had your water sampled or if you know, it is recommended that bottled or filtered water be used for drinking and preparing baby formula. If you need hot water, draw water from the cold tap and then heat it.

Do not boil water to remove lead. Boiling water will not reduce lead; however, it is still safe to wash dishes and do laundry. Lead will not soak into dishware or most clothes.

Use alternative sources or treatment of water. You may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 1-800-NSF-8010 or www.nsf.org for information on performance standards for water filters.

Determine if you have interior lead plumbing or solder. If your home/building was constructed prior to 1987, it is important to determine if interior lead solder or lead pipes are present. You can check yourself, hire a licensed plumber, or check with your landlord.

Replace plumbing fixtures and service lines containing lead. Replace brass faucets, fittings, and valves that do not meet the current definition of "lead free" from 2014 (as explained above). Visit the NSF website at www.nsf.org to learn more about lead-containing plumbing fixtures.

Remove and clean aerators/screens on plumbing fixtures. Over time, particles and sediment can collect in the aerator screen. Regularly remove and clean aerators screens located at the tip of faucets and remove any particles.

Test your water for lead. Please call Stephen Dodd 1-732-449-3500 to find out how to get your water tested for lead. Testing is essential because you cannot see, taste, or smell lead in drinking water.

Get your child tested. Contact your local health department or healthcare provider to find out how you can get your child tested for lead if you are concerned about lead exposure. New Jersey law requires that children be tested for lead in their blood at both 1 and 2 years of age and before they are 6 years old if they have never been tested before or if they have been exposed to a known source of lead.

Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.

Water softeners and reverse osmosis units will remove lead from water but can also make the water more corrosive to lead solder and plumbing by removing certain minerals; therefore, the installation of these treatment units at the point of entry into homes with lead plumbing should only be done under supervision of a qualified water treatment professional.

Health Effects of Lead

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development. Contact your local health department or healthcare provider to find out how you can get your child tested for lead if you are concerned about lead exposure. You can find out more about how to get your child tested and how to pay for it at https://www.nj.gov/health/childhood-lead/testing.

In July 2021, P.L.2021, Ch.183 (Law) was enacted, requiring all community water systems to replace lead service lines in their service area within 10 years. Under the law, the Borough of Spring Lake Heights Water Department is required to notify customers, non-paying consumers, and any off-site owner of a property (e.g., landlord) when it is known they are served by a lead service line*. Our service line inventory is available on our website at www.springlakehts.com under water-sewer utility, or upon request.

If you have any questions about this report or concerning your water utility, please call Joseph Langel at 1-732-449-3500. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Borough Council meetings at Borough Hall, 555 Brighton Avenue. Meetings are held on the second and fourth Mondays of each month at 8:00 p.m.

We at Spring Lake Heights Water Department work hard to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future. Please call our office if you have questions.

Borough of Spring Lake Heights – PWSID # NJ1349001

Borough of Spring Lake Heights is a public community water system consisting of 3 wells.

This system's source water comes from the following aquifers: Englishtown Aquifer System, Mount Laurel-Wenonah Aquifer System.

This system purchase water from NJWSA Manasquan System and can purchase water from the following water systems: Wall Township Water Department, Spring Lake Water Department.

Susceptibility Ratings for Borough of Spring Lake Heights Sources

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

The seven contaminant categories are defined at the bottom of this page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for groundwater than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproducts		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells - 3			3			3			3			3		2	1			3		1	2		3	

NJ Water Supply Authority – Manasquan System – PWSID # NJ1352005

NJ Water Supply Authority – Manasquan System is a public community water system consisting of 2 surface water intakes.

This system's source water comes from the following surface water bodies: Manasquan Reservoir, Manasquan River.

Susceptibility Ratings for NJ Water Supply Authority – Manasquan System Sources

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

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	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radio-nuclides			Radon			Disinfection Byproducts		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Surface water intakes – 2	2				2			2			2			2				2			2	2		

Pathogens: Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
Nutrients: Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
Volatile Organic Compounds: Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
Pesticides: Man-made chemicals used to control pests, weeds, and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.
Inorganics: Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.
Radionuclides: Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.
Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to http://www.nj.gov/dep/rpp/radon/index.htm or call 1-800-648-0394.
Disinfection Byproduct Precursors: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

Appendix B

New Jersey Water Supply Authority

Source Water Assessment

NJ Water Supply Authority - Manasquan System

Source Water Assessment Summary

A State Review of Potential Contamination Sources Near Your Drinking Water

The Department of Environmental Protection (DEP) has conducted an assessment of the water sources that supply each public water system in the state, including yours. The goal of this assessment was to measure each system's susceptibility to contamination, not actual (if any) contamination measured in a water supply system.

The assessment of your water system, the *NJ Water Supply Authority - Manasquan System*, involved:

- Identifying the area (known as the source water assessment area) that supplies water to your public drinking water system;
- Inventorying any significant potential sources of contamination in the area; and
- Analyzing how susceptible the drinking water source is to the potential sources of contamination.

DEP evaluated the susceptibility of all public water systems to eight categories of contaminants. These contaminant categories are explained, along with a summary of the results for your water system, on page 3. Page 4 contains a map of your water system's source water assessment area.

A public water system's susceptibility rating (L for low, M for medium or H for high) is a combination of two factors. H, M, and L ratings are based on the potential for a contaminant to be at or above 50% of the Drinking Water Standard or MCL (H), between 10 and 50% of the standard (M) and less than 10% of the standard (L).

- How "sensitive" the water supply is to contamination. For example, a shallow well or surface water source, like a reservoir, would be more exposed to contamination from the surface or above ground than a very deep well.
- How frequently a contaminant is used or exists near the source. This is known as "intensity of use." For example, the types of activities (such as industry or agriculture) surrounding the source.

The susceptibility rating does not tell you if the water source is actually contaminated. The Consumer Confidence Report annually issued by your water utility contains important information on the results of your drinking water quality tests, as required by the federal Safe Drinking Water Act.

Where does drinking water come from?

There are two basic sources of drinking water: ground water and surface water.

Ground water is water found beneath the Earth's surface. Ground water comes from rain and snow seeping into rock and soil. Ground water is stored in underground areas called aquifers. Aquifers supply wells and springs. Wells in New Jersey range from about 15 feet to 2,000 feet deep.

Surface water is the water naturally open to the atmosphere, such as rivers, lakes, streams and reservoirs. Precipitation that does not infiltrate the ground or evaporate into the sky runs off into surface water bodies.

Ground water can seep into a stream, river or other surface water body, recharging surface water bodies. Likewise, under some circumstances, surface water can seep into an adjacent aquifer.

A water system obtains its water from 1) wells drilled into the ground that pump out ground water; 2) devices called surface water intakes placed on a river, stream, reservoir; or 3) both.

What factors may affect the quality of your drinking water source?

A variety of conditions and activities may affect the quality of drinking water source. These include geology (rock and soil types); depth of a well or location of a surface water intake; how the land surrounding the source is used (for industry, agriculture or development); the use of pesticides and fertilizers; and the presence of contaminated sites, leaking underground storage tanks, and landfills.

What steps are being taken now to ensure my drinking water quality?

The DEP has numerous programs in place to maintain and protect the quality of our State's water resources. For example, the Safe Drinking Water Program is designed to ensure that water delivered for human consumption meets DEP's stringent health-based drinking water standards. Additionally, DEP has permitting, waste management, and clean up programs in place to avoid and control potential contamination. Key DEP drinking water protection initiatives will be phased-in over time in Source Water Assessment areas to advance existing program protections.

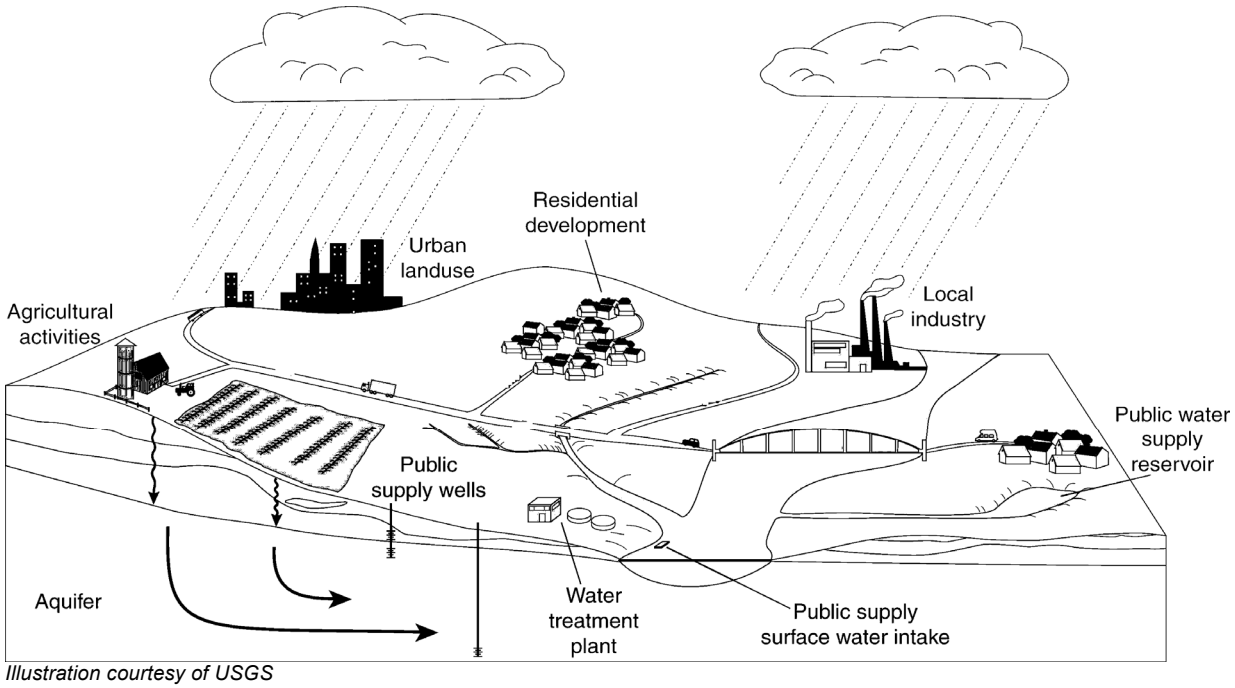


Illustration courtesy of USGS

Among the factors that may affect the quality of drinking water are the type of rock and soil and how the land is used. While some rain and snow evaporates into the sky, most of it runs off into nearby rivers and streams or seeps into the ground. Drinking water comes from underground aquifers or surface water bodies.

What can you and others do to help?

Federal law requires each state to establish and implement a Source Water Assessment Program. While government at the state and local levels can do their part, there are actions that you and your neighbors in homes and businesses can take now to help protect our precious and shared natural resource.

Here's just a few ways you and others can help ensure clean and plentiful water for New Jersey – now and in the future. Join us today for a clean water future.

In your home or business:

- Dispose of waste properly. Some materials such as motor oil, paint, flea collars, and household cleaners have the potential to contaminate source water. Contact your local Department of Public Works for proper household hazardous waste disposal.
- Limit your use of fertilizer, pesticides, and herbicides.

Here are some actions that municipal and county officials/local and county planners can take and you can help encourage and support.

- Manage and work with owners of existing potential contaminant sources to minimize potential contamination.
- Establish regulations prohibiting or restricting certain activities or land uses within the source water assessment area. Take appropriate enforcement action when necessary.
- Update municipal master plans to ensure greater protection.
- Purchase lands or create conservation easements within the source water assessment area.

NJ Water Supply Authority - Manasquan System- PWSID # 1352005

NJ Water Supply Authority - Manasquan System is a public community water system consisting of 0 well(s), 0 wells under the influence of surface water, 2 surface water intake(s), 0 purchased ground water source(s), and 0 purchased surface water source(s).

This system's source water comes from the following aquifer(s) and/or surface water body(s) (if applicable): Manasquan Reservoir,Manasquan River

This system purchases water from the following water system(s) (if applicable):

Susceptibility Ratings for NJ Water Supply Authority - Manasquan System Sources

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

The seven contaminant categories are defined at the bottom of this page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

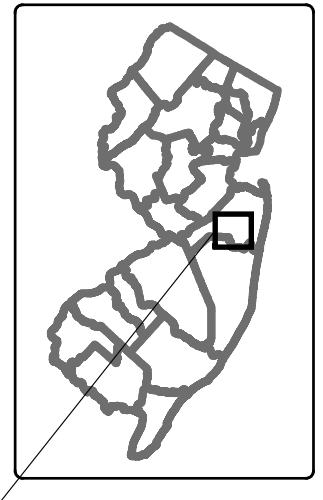
If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

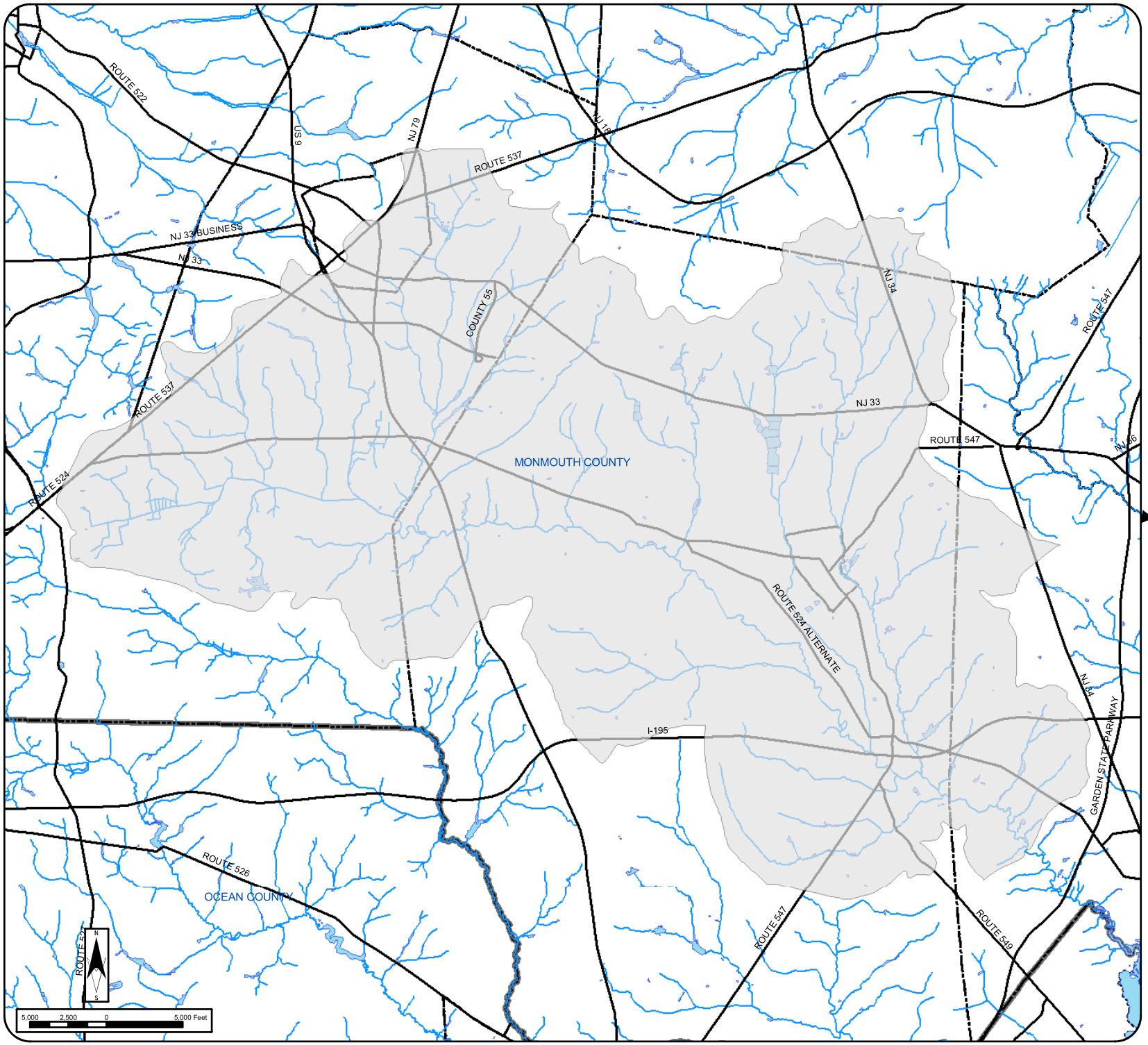
	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radio-nuclides			Radon			Disinfection Byproduct Precursors		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells - 0																								
GUDI - 0																								
Surface water intakes - 2	2				2			2			2			2				2			2	2			

- **Pathogens:** Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
- **Nutrients:** Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
- **Volatile Organic Compounds:** Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
- **Pesticides**: Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.
- **Inorganics:** Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.
- **Radionuclides:** Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.
- **Radon:** Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to http://www.nj.gov/dep/rpp/radon/index.htm or call (800) 648-0394.
- **Disinfection Byproduct Precursors**: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

NJ Water Supply Authority - Manasquan System

Source Water Assessment Areas





Legend

- Source Water Areas
- Water Bodies
- Streams
- NJDOT Major Roads
- Municipalities
- Counties

To obtain your water system Source Water Assessment Report, Potential Contaminant Source Inventory, and additional information please go to www.state.nj.us/dep/swap or call (609) 292-5550.
August, 2004

Appendix C

Map of Water System

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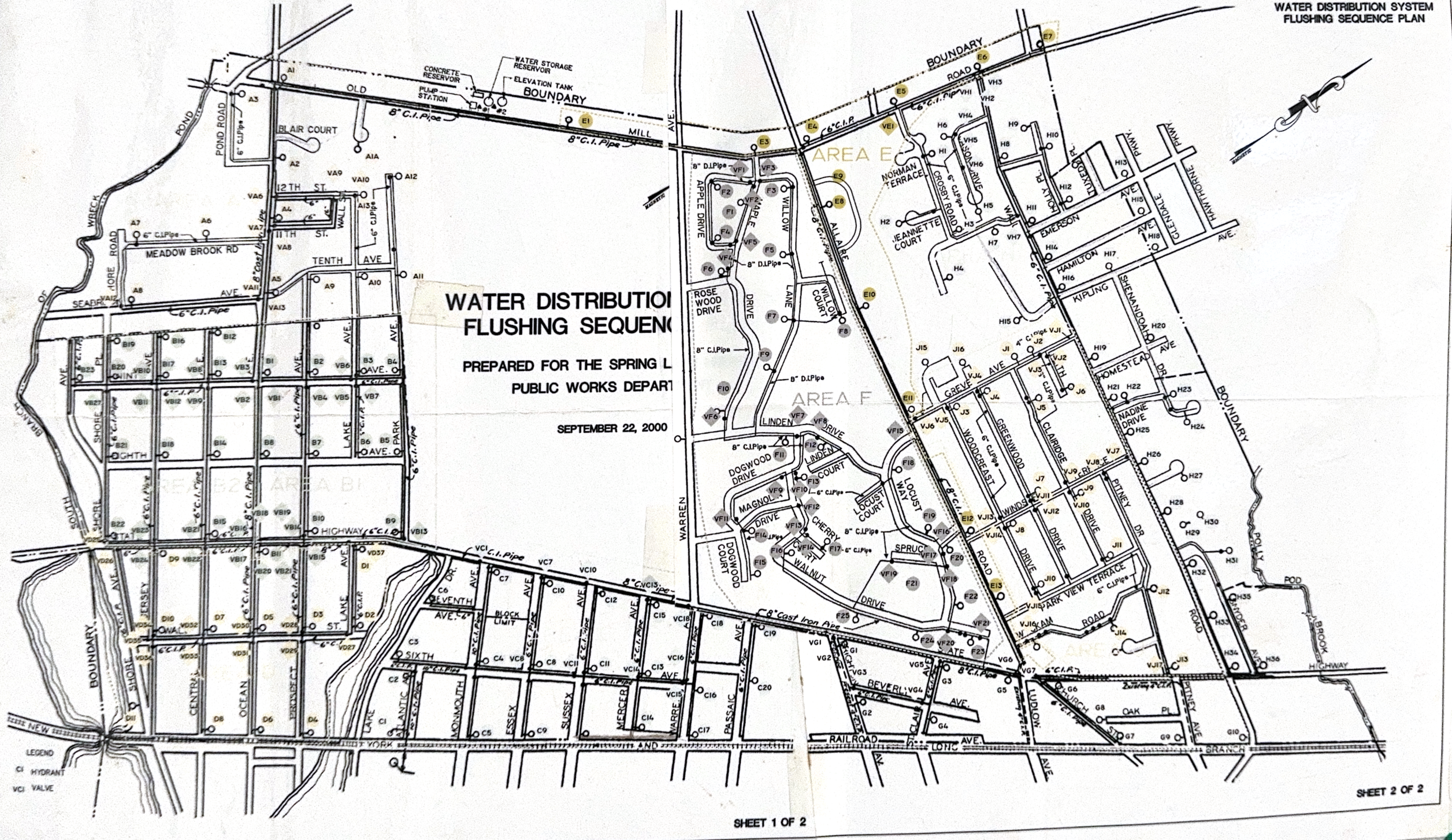
PREPARED FOR THE SPRING L

PUBLIC WORKS DEPART

SEPTEMBER 22, 2000

WATER DISTRIBUTION SYSTEM
FLUSHING SEQUENCE PLAN



SHEET 1 OF 2

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