NEW JERSEY AMERICAN WATER

March 27, 2024

Via Electronic Filing
Hon. Sherri L. Golden, Secretary to the Board
Board of Public Utilities
44 South Clinton Ave, 1st Floor
P.O. Box 350
Trenton, NJ 08625-0350

Re: New Jersey-American Water Company, Inc. Wastewater System Improvement Charge ("WSIC") Foundational Filing
BPU Docket No. _______________

Dear Secretary Golden:

On behalf of New Jersey-American Water Company, Inc. ("NJAWC"), enclosed herewith is the Wastewater System Improvement Charge Foundational Filing pursuant to *N.J.S.A.* 48:2-21 and *N.J.A.C.* 14:9-11.1 *et seq.*

Consistent with the Order issued by the Board in connection with In the Matter of the New Jersey Board of Public Utilities' Response to the COVID-19 Pandemic for a Temporary Waiver of Requirements for Certain Non-Essential Obligations, BPU Docket No. EO20030254, Order dated March 19, 2020, these documents are being electronically filed with the Secretary of the Board, the Division of Law, and the New Jersey Division of Rate Counsel. No paper copies will follow.

Respectfully submitted,

Christopher M. Arfaa

CMA:dlc
Enc.

c: Stacy Peterson, Acting Director, Division of Rates & Revenue (via email, w/enc.)
Brian O. Lipman, Director, Division of Rate Counsel (via email, w/enc.)
Susan E. McClure, Managing Attorney, Water & Wastewater, Division of Rate Counsel (via email, w/enc.)
Pamela Owen, Deputy Attorney General, Division of Law, Department of Law & Public Safety (via email, w/enc.)

Christopher M. Arfaa
Director, Corporate Counsel
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Camden, NJ 08102
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BEFORE THE
STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE PETITION OF NEW JERSEY-AMERICAN WATER COMPANY, INC. FOR AUTHORIZATION TO IMPLEMENT A WASTEWATER SYSTEM IMPROVEMENT CHARGE	:	BPU Docket No. WR_________ **PETITION**

TO THE HONORABLE COMMISSIONERS OF THE BOARD OF PUBLIC UTILITIES:

New Jersey-American Water Company, Inc. (the "Company," "NJAWC" or "Petitioner"), a public utility corporation of the State of New Jersey, with its principal office at 1 Water Street, Camden, New Jersey 08102, hereby petitions this Honorable Board (the "Board" or "BPU") for authority pursuant to N.J.S.A. 48:2-21 and N.J.A.C. 14:9-11.1 et seq., and such statutes, regulations and Board orders that may be deemed by the Board to be applicable, for approval to file and implement an automatic adjustment clause tariff that would establish a Wastewater System Improvement Charge ("WSIC" or "Surcharge") for the renewal of wastewater sewer system assets for the period of 2024 through 2027. The proposed rates in this Petition, if approved, would increase annual revenues in increments occurring at approximately six-month intervals by no more than $3.3 million, or 5% of NJAWC's total wastewater revenues as established in its most recent base rate decision[1], the maximum WSIC revenue allowable under N.J.A.C. 14:9-11.1, et seq., over the time covered by the Company's Foundational Filing (attached). The proposed Surcharge would commence approximately eight months after approval of this filing, as infrastructure is renewed or replaced, placed in service, and is used for providing service to customers.

[1] The final cap number is expected to be set in the Company's current base rate case proceeding, BPU Docket No. WR24010056 and current Purchased Sewage (Wastewater) Adjustment Clause proceeding, BPU Docket No. WR23110791.

In support of this Petition, NJAWC states as follows:

1. NJAWC is engaged in the production, treatment and distribution of water and collection of wastewater within its defined service territory within the State of New Jersey. Said service territory includes portions of the following counties: Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Union, and Warren. As of December 31, 2023, Petitioner provides service to approximately 668,000 water and fire service customers and 64,200 wastewater service customers. NJAWC is a wastewater utility within the meaning of N.J.A.C. 14:9-11.2 and 14:9-1.2 and provides wastewater services in the following counties: Atlantic (1 system), Bergen (1 system), Burlington (2 systems), Camden (2 systems), Cape May (2 systems), Gloucester (1 system), Hunterdon (7 systems), Monmouth (2 systems), Morris (5 systems), Ocean (2 systems), Somerset (3 systems), and Warren (2 systems).

2. The present Petition is filed in accordance with N.J.A.C. 14:9-11.1 et seq. and 14:1-5.1 et seq.

3. In support of this Petition, NJAWC submits the attached Foundational Filing, consisting of the following:

a) An engineering evaluation report of NJAWC's sewer system, contained in Sections 1, 2 and 3 and Appendix A of the Foundational Filing, that:

    i. Identifies the rationale for the work needed to be accelerated for NJAWC to properly sustain its wastewater infrastructure (see Sections 1 through 3);

ii. Demonstrates that the plan proposed to accelerate the renewal of the wastewater infrastructure is the most cost-effective plan (see Sections 1 through 3);

iii. To the extent that elements of the wastewater infrastructure are failing, identifies what mechanisms are causing the failures (see Sections 2 and 3); and

iv. Identifies what is being done to extend the life of NJAWC's wastewater infrastructure assets (see Sections 1 through 3).

b) The following WSIC project information for the upcoming WSIC period:

i. A list of potential projects with cost estimates, WSIC-eligible asset class or category (see Sections 2 and 3 and Appendix A);

ii. The nature, location, estimated duration of project work (including estimated in-service dates) and a description and reason for project necessity (see Section 3 and Appendix A);

iii. Aggregate information capturing blanket type WSIC-eligible infrastructure to be rehabilitated or replaced (e.g., service laterals, manholes, etc.) and the estimated annual cost of such blanket type replacement programs (see Section 2);

iv. Vintage, condition, and other similar relevant, reasonably available information about the eligible infrastructure being rehabilitated or replaced (see Sections 1, 2 and 3);

v. A list of projects with project identification numbers, WSIC-eligible asset class or category, and estimated project costs (see Section 2 (blanket infrastructure) and Appendix A (projects list); and

vi. Other such relevant and appropriate information to assist in making an informed decision regarding any given project (see Executive Summary and Section 1).

c) The expected amount of NJAWC's base spending, including underlying detail documenting that the base spending has been made on the appropriate types of infrastructure; a proposed WSIC assessment, calculated in accordance with subsection N.J.A.C. 14:9-11.9; and work papers showing the detailed calculations supporting the proposed assessment schedule (see Appendix B).

4. If implemented in the semi-annual increments described above, the maximum allowable monthly surcharge under N.J.A.C. 14:9-11.1, et seq., would be approximately $4.16 per month for a five-eighths inch (5/8") meter or meter equivalent at the end of the time period covered by the Foundational Filing. This estimated maximum monthly surcharge is an approximate number only and may be higher or lower depending on many factors, including but not limited to changes in the number of customers served by the Company. Surcharges on meters of other sizes will be calculated as set forth in the rule. Such surcharges will be implemented incrementally, after semi-annual WSIC filings, as set forth in N.J.A.C. 14:9-11.5, -11.8 and -11.9, and may not generate revenues that exceed the WSIC cap as defined in N.J.A.C. 14:9-11.2 and described above.

5. With respect to N.J.A.C. 14:9-11.4, to reach the 5.0% maximum WSIC revenue cap of $3.3 million, the Company's eligible capital spending above base spending would be approximately $$26 million over the period of this Foundational Filing.

6. Pursuant to N.J.A.C. 14:9-11.5(a)1, the Company intends to include in its semiannual filings for recovery under this Foundational Filing any and all projects approved and carried over from a prior WSIC period.

7. Notice of this Petition, and the effect thereof, will be served by mail upon the clerks of municipalities, the Boards of Chosen Freeholders and the County Executives within the Petitioner's service area at least 20 days before the date set for public hearing, which notice shall include and specify the time and place of said hearing.

8. Customers will be notified of this filing and the effect thereof as well as the time and place of the public hearing by publication of a Public Notice at least 20 days prior to the date set for the public hearing, in newspapers of general circulation within Petitioner's service territory.

9. Notice of this Petition and a copy of this filing have been served upon the Director, Division of Rate Counsel, and the Department of Law & Public Safety, Office of the Attorney General, Public Utilities Section, via electronic mail as permitted by the Board's Order of March 19, 2020 in Docket No. EO20030254.

10. Proof of Service of the Notice as previously referred to herein will be filed with the Board.

11. Petitioner respectfully submits that the investments proposed, and rates requested by it herein are just and reasonable in all respects.

WHEREFORE, Petitioner respectfully requests that the Board find and determine as follows:

1. That the investments proposed and subsequent rates set forth in this Foundational Filing, are just and reasonable; and

2. That the Petitioner's Foundational Filing is approved in all respects.

Respectfully submitted,

NEW JERSEY-AMERICAN WATER COMPANY, INC.

By: ______________________
Christopher M. Arfaa

Dated: March 27, 2024

Communications addressed to Petitioner in this case should be sent to:

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VERIFICATION

STATE OF NEW JERSEY :
SS
COUNTY OF CAMDEN :

Jamie Hawn, of full age, being duly sworn, according to law, deposes and says:

1. I am the Director, Rates and Regulatory for New Jersey-American Water Company, Inc. and authorized to make this Verification on behalf of that Company.

2. I have reviewed the within Petition, and the information contained therein is true according to the best of my knowledge, information and belief.

Jamie Hawn

Jamie Hawn
Director, Rates & Regulatory

Sworn to and subscribed before
me this 27th day of March 2024.

Donna L Carney

DONNA L. CARNEY
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES MAY 24, 2028

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EXECUTIVE SUMMARY

This report presents the 2nd Wastewater System Improvement Charge ("WSIC") Foundational Filing for New Jersey-American Water Company, Inc. ("NJAWC", "New Jersey American Water" or the "Company") for the rehabilitation and replacement of critical wastewater collection system assets for the period of 2024 through 2027. The Company's wastewater business comprises 31 community wastewater systems, including both collection and treatment systems as well as collection only systems. Combined, the systems have approximately 576 miles of gravity and force mains. The Company has identified projects across the state for completion between 2024 and 2026. The projects include replacement or rehabilitation of sewer lines (including structural and nonstructural lining projects), grouting and sealing of sewer line joints; replacement or rehabilitation of sewer laterals, manholes, force mains; and sewer lines, manholes, and sewer lateral relocations (or other utility owned sewer assets) stemming from coordination with government entities. The total cost of this program is estimated and expected to be capped at approximately $29 million, including the base year expenditures of approximately $1.7 million per year.

Wastewater System Improvement Charge Rules

On October 28, 2020, the New Jersey Board of Public Utilities ("BPU" or "Board") approved the implementation of a new rule to establish a WSIC for wastewater utilities at *N.J.A.C.* 14:9-11.1 *et. seq.* The rule was published in the New Jersey Register on December 7, 2020, and became effective on that date. A WSIC is "a regulatory mechanism that enables the accelerated level of investment needed to promote the timely rehabilitation and replacement of critical wastewater distribution components that enhance safety, reliability, public health, effluent quality, and/or conservation."[1] "The purpose of a WSIC is to provide a rate recovery mechanism that encourages and supports necessary accelerated rehabilitation and replacement."[2]

As required by the rule and specifically described by *N.J.A.C.* 14:9-11.4, this document constitutes NJAWC's WSIC Foundational Filing. This Foundational Filing includes an engineering evaluation of the Company's wastewater utility distribution system, proposed WSIC projects (including projected costs), the expected amount of base spending (as defined in the rule) to be made by NJAWC, the proposed form of public notice, as well as maximum customer bill impact. Regarding *N.J.A.C.*14:9-11.9(a)3, the Company's flat-rate wastewater customers, being residential in nature, were incorporated in the common 5/8" meter or meter equivalent count. The Foundational Filing also includes other information the Company deems to be relevant. Table ES.2 at the end of this Executive Summary shows the information required to be included in the Foundational Filing and indicates the corresponding report sections that contain this information.

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[1] *N.J.A.C.* 14:9-11.1(a).
[2] *N.J.A.C.* 14:9-11.1(b).

Wastewater System Asset Performance Evaluations

This Foundational Filing includes an engineering study of NJAWC's wastewater collection assets. The report presents an asset overview, a discussion of blanket replacement projects, and discussions of key infrastructure issues. The Filing's sections are as follows:

Section 1. Asset Overview

Section 1 provides a general statewide overview of NJAWC's wastewater operations. The Company's inventory of wastewater collection mains is briefly described, including a summary of NJAWC's pipe material by diameter and miles. The asset inventory further breaks down the vintage of pipe by decade installed, in miles. Section 1 discusses NJAWC's experience with main breaks and main failures and briefly describes the Company's asset management practices.

Section 2. Service Laterals, Cleanouts and Manholes ("Blanket" WSIC Assets)

Section 2 generally describes the Company's inventory of service laterals, cleanouts and manholes, including the most recent history of capital expenditures on these types of assets. Laterals, cleanouts and manholes are referred to as "blanket" assets because they are numerous and essentially the same throughout the Company's operation areas. Each class of assets is discussed in detail, with needs and benefits set forth on an aggregate basis. Because these assets are numerous, it is essential that the Company adhere to a systematic program of inspection and repair or replacement, as appropriate. Replacement of manholes near critical customers, such as hospitals and schools, require more detailed planning to manage any shutdown or by-pass.

Section 3. Individual Wastewater Systems

Section 3 generally describes the Company's wastewater systems for the entire state. The section begins with an overall summary of the various types of systems within the NJAWC footprint and describes the various size of systems in terms of groups; small, medium and large. The section further describes the systems in terms of number of connections as well as estimated flows. Details of specific system challenges are presented, and the individual systems are more fully described with details of specific challenges provided. The common themes throughout the systems include undersized or obsolete wastewater mains that are subject to failure as well as inflow and infiltration.

Appendix A – Project List

Appendix A contains the complete, detailed project list for all projects covered by this Foundational Filing, as well as projects that have been identified as potential alternative projects should one or more of the projects identified on the list become unable to proceed for any reason. Appendix A includes the majority of the project-specific information required by *N.J.A.C.* 14:9-11.4(b)2. Information regarding blanket-type, WSIC-eligible infrastructure is provided in Section 2. The vintage data and condition of existing materials is addressed in Section 1.

Appendix B – Proposed Assessment

Appendix B sets forth the financial impacts of the WSIC projects proposed in the Foundational Filing. Appendix B also includes the statement of base spending, the aggregate WSIC spending covered by this filing, and the projected total assessment for each semi-annual WSIC period. This information has been projected based on the Company's pending base rate case filing and may change depending on the final BPU decision in that matter. Thus, the Company has prepared two scenarios for Appendix B:

- Scenario 1 assumes that the final BPU decision in the pending base rate case does not include any WSIC-eligible post-test year additions (July 2024 through December 2024). Thus, Appendix B, page 1 of 7 presents the first surcharge filing to include those projects consistent with *N.J.A.C* 14:9-10.7(c).
- Scenario 2 assumes that the final BPU decision in the pending base rate case includes all WSIC-eligible post-test year additions. Thus, Appendix B, page 2 of 7 presents the first surcharge filing to exclude those projects.

Appendix C – Public Notice

Appendix C includes the proposed form of public notice for the public hearing required by the rule. The proposed public notice includes the maximum amount proposed to be recovered from customers covered by this Foundational Filing based on the Company's most recent general rate case.

WSIC Program Cost Impacts

The cost of the program and impact on its customers is shown in detail in Appendices B and C. NJAWC's base spending level will be approximately $1.7 million annually based on the 2022 Annual Report to the Board as defined by *N.J.A.C.* 14:9-11.2. NJAWC proposes the accelerated WSIC-eligible spending as shown in Table ES.1. This program is within the limits defined in the rules.

Table ES.1 - NJAWC Estimated WSIC Program
(Base spending + WSIC spending)

Scenario 1 - Includes Post Test Year WSIC Eligible Additions

	WSIC Assessment				
Eligible Investments	**Filing #1**	**Filing #2**	**Filing #3**	**Filing #4**	**Total**
WSIC-eligible base spending	$ 855,992	$ 855,992	$ 855,992	$ 855,992	$ 3,423,966
WSIC-eligible above base spend[1]	9,357,311	5,614,386	5,614,386	5,614,386	26,200,470
Total Eligible Investments	$ 10,213,302	$ 6,470,378	$ 6,470,378	$ 6,470,378	$ 29,624,436
5/8" meter[2]	$1.51	$2.40	$3.28	$4.16	
WSIC Revenue as a % of total WW Revenue	1.81%	2.88%	3.95%	5.00%	
Annualized WSIC Revenue[3]	$1,184,751	$1,887,446	$2,584,025	$3,274,486	

[1]To reach the 5.00% maximum WSIC revenue allowable per the approved Rules & Regulations, eligble capital spend above base spend would need to be $26,200,470 for the WSIC Filings.

[2]Monthly cost for an average residential customer

[3]WSIC revenues associated with capital spend from the filing period commences in the subsequent period.

Scenario 2 - Excludes Post Test Year DSIC Eligible Additions

	WSIC Assessment				
Eligible Investments	**Filing #1**	**Filing #2**	**Filing #3**	**Filing #4**	**Total**
WSIC-eligible base spending	$ 855,992	$ 855,992	$ 855,992	$ 855,992	$ 3,423,966
WSIC-eligible above base spend[1]	4,743,016	7,114,524	7,114,524	7,114,524	26,086,589
Total Eligible Investments	$ 5,599,008	$ 7,970,516	$ 7,970,516	$ 7,970,516	$ 29,510,555
5/8" meter[2]	$0.77	$1.91	$3.04	$4.16	
WSIC Revenue as a % of total WW Revenue	0.92%	2.29%	3.65%	5.00%	
Annualized WSIC Revenue[3]	$603,112	$1,501,322	$2,391,780	$3,274,487	

[1]To reach the 5.00% maximum WSIC revenue allowable per the approved Rules & Regulations, eligble capital spend above base spend would need to be $26,086,589 for the WSIC Filings.

[2]Monthly cost for an average residential customer

[3]WSIC revenues associated with capital spend from the filing period commences in the subsequent period.

An effective wastewater system improvement program such as the one envisioned by the WSIC rules and presented in this Foundational Filing will help avoid certain costs that the Company would otherwise experience and allows for a more efficient allocation of both capital and O&M (operation and maintenance) expenditures. An efficient WSIC program reduces a great deal of the uncertainty inherent in a traditional rate case recovery schedule and allows NJAWC to continue the accelerated renewal program facilitated by the rules.

One of the expectations NJAWC has for the programs implemented pursuant to the WSIC rules is a more consistent level of asset renewal going forward, buoyed by the support, commitment, and recognition of the need for infrastructure renewal and replacement that is signaled by the WSIC rules. This will be critical, as the issue of aging infrastructure continues to intensify for all underground utilities. A dedicated and consistent annual level of funding for these projects will also benefit the communities we serve by improving the Company's ability to better coordinate its construction programs with the communities' road reconstruction schedules and other underground utility work, thereby reducing the disruption that unplanned, emergent infrastructure renewal and replacement programs often trigger. Likewise, a more routine and even application of permits through local and state agencies could be realized. Design and construction of planned projects can be bundled more effectively for economies of scale in order to achieve a higher level of efficiency. If design and construction schedules are more consistently managed, the competitive bidding process may be able to be further leveraged to achieve more economical pricing. It is more cost-effective to replace the infrastructure with a formalized bidding process than to pay emergency and after-hour rates to outside contractors and employees.

More importantly, maintaining systematic investment in critical infrastructure supported by timely cost recovery is critical to take advantage of the efficiencies and economies of scale that can be captured and leveraged through the WSIC program to drive more benefits for customers, municipalities, and the employees and contractors who deliver these projects.

As discussed in the balance of this report, there is an undeniable benefit from the WSIC program. Customers will experience improved safety and reliability of their wastewater service. The Company's program seeks to be the most cost-effective plan for accelerating the rehabilitation and replacement of wastewater infrastructure at a level greater than would be possible without the WSIC program.

Table ES.2 - Summary of Rule Requirements for Foundational Filings

	Sections of Report
***N.J.A.C.* 14:9-11.4(b)1.** An engineering evaluation report of the wastewater utility's sewer system that: i. Identifies the rationale for the work needed to be accelerated for the wastewater utility to properly sustain its wastewater infrastructure;	Sections 1 through 3
ii. Demonstrates that the plan proposed to accelerate the renewal of the wastewater infrastructure is the most cost-effective plan;	Sections 1 through 3
iii. To the extent that elements of the wastewater infrastructure are failing, identifies what mechanisms are causing the failures; and	Sections 2 and 3
iv. Identifies what is being done to extend the life of the wastewater utility's wastewater infrastructure assets.	Sections 1 through 3

	Sections of Report
***N.J.A.C.* 14:9-11.4(b)2.** WSIC project information for the upcoming WSIC period that includes the following: i. A list of potential projects with cost estimates, WSIC-eligible asset class or category;	Sections 2 and 3 and Appendix A — Project List
ii. A list of projects that were initiated under a prior Foundational Filing that were in-service, but not recovered in base rates as an eligible WSIC project or were not in-service at the time the WSIC rates were reset to zero pursuant to *N.J.A.C.* 14:9-11.6(c) and to which the utility will seek recovery of WSIC-eligible expenses under the new Foundational Filing;	Appendix A
iii. A list of projects that were in-service during a prior Foundational Filing and where previously unrecovered restoration costs may be sought in a current Foundational Filing;	None
iv. The nature, location, estimated duration of project work (including estimated in-service dates), and a description and reason for project necessity;	Section 3 and Appendix A – Project List
v. Aggregate information capturing blanket-type, WSIC-eligible infrastructure, to be rehabilitated or replaced (that is, service laterals, manholes, etc.) and the estimated annual cost of such blanket-type replacement programs;	Section 2
vi. Vintage, condition, or other similarly relevant, reasonably available information about the eligible infrastructure that is being rehabilitated or replaced;	Sections 1 through 3
vii. Estimated project costs;	Section 2 (blanket infrastructure) and Appendix A – Project List
viii. Project identification numbers, so WSIC projects can be easily tracked; and	Appendix A – Project List
ix. Other such information, as is relevant and appropriate, in order to provide adequate information to make an informed decision regarding any given project.	Sections 1 through 3 and Appendix A – Project List
***N.J.A.C.* 14:9-11.4(b)3.** The expected amount of base spending for the wastewater utility, including underlying detail adequate to document that the base spending has been made on the appropriate types of infrastructure, a proposed WSIC assessment, calculated in accordance with subsection *N.J.A.C.* 14:9-11.9; and work papers showing the detailed calculations supporting the proposed assessment schedule.	Appendix B — Proposed WSIC Assessment

	Sections of Report
N.J.A.C. **14:9-11.4(b)4.** Public notice and a public hearing, at a minimum, are required in the WSIC Foundational Filing. The notice for said hearing shall include the maximum amount in dollars that is allowed to be recovered between rate cases as well as an estimated rate impact for the entire period on customers.	Appendix C — Proposed Form of Public Notice

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SECTION 1. ASSET OVERVIEW

1.1 NJAWC OVERVIEW

NJAWC is the largest investor-owned water and wastewater utility in the state, providing high-quality and reliable water and wastewater services to more than 2.8 million people. The Company provides wastewater services to approximately 64,200 customers in 31 wastewater systems located in 12 counties ranging from Cape May County in the southern part of the state to Bergen, Morris, and Warren counties in the north. Twenty-one (21) systems include both wastewater collection and treatment whereas the remaining 10 are collection only.

A map showing the location of the Company's wastewater systems is shown in Exhibit 1.1, and a list of the wastewater systems is provided in Table 1.1.1. Field distribution crews, water quality and maintenance staff, and customer field services are dispatched from local Operating Centers for the collection only systems whereas NJAWC contracts with Natural Systems Utilities (NSU) to operate and maintain many of the combined collection and treatment wastewater systems (Long Hill Twp. System is operated by NJAW personnel).

The Company provides wastewater system services to approximately 8,700 wastewater customers in Burlington, Camden, and Gloucester Counties. Camden and Gloucester counties include wastewater collection systems in Haddonfield, Mount Ephraim, and Elk Township. Field personnel for these areas are dispatched from the Operating Centers in Delran and Lawnside. The Burlington County systems are operated and maintained by NSU.

The Company provides wastewater system services to approximately 17,300 wastewater customers in Cape May and Atlantic Counties, most of which are in Ocean City and Egg Harbor City with the balance in Middle Township. Ocean City and Egg Harbor City are managed by the Fire Road Operating Center in Egg Harbor Township. NJAWC contracts with NSU to operate and maintain the Avalon Country Club Sewer System in Middle Township.

The Company provides wastewater system services to approximately 4,850 wastewater customers in Bergen, Hunterdon, Morris, and Warren Counties. This area includes the Long Hill Township System as well as the statewide Applied Wastewater Management (AWM) legacy wastewater systems. Except for Long Hill Township, these systems are operated and maintained by NSU.

The Company provides wastewater system services to approximately 12,250 wastewater service customers in Somerset County, most of which are in the EDC, Bound Brook, and Somerville wastewater systems with the balance in the Hillsborough Chase system. Bound Brook and Somerville are managed by the Hillsborough and Plainfield Operating Centers. NJAWC contracts with NSU to operate and maintain the EDC and Hillsborough Chase systems.

The Company provides wastewater system services to approximately 21,000 wastewater service customers in Monmouth and Ocean counties, with systems located in Lakewood, Howell, Upper Freehold, and Plumsted townships. The two Operating Centers that manage the Lakewood and Howell systems are in Shrewsbury and Howell. The systems in Upper Freehold Township and Plumsted Township are operated and maintained by NSU.

Figure 1.1.1 NJAWC Wastewater Service Map

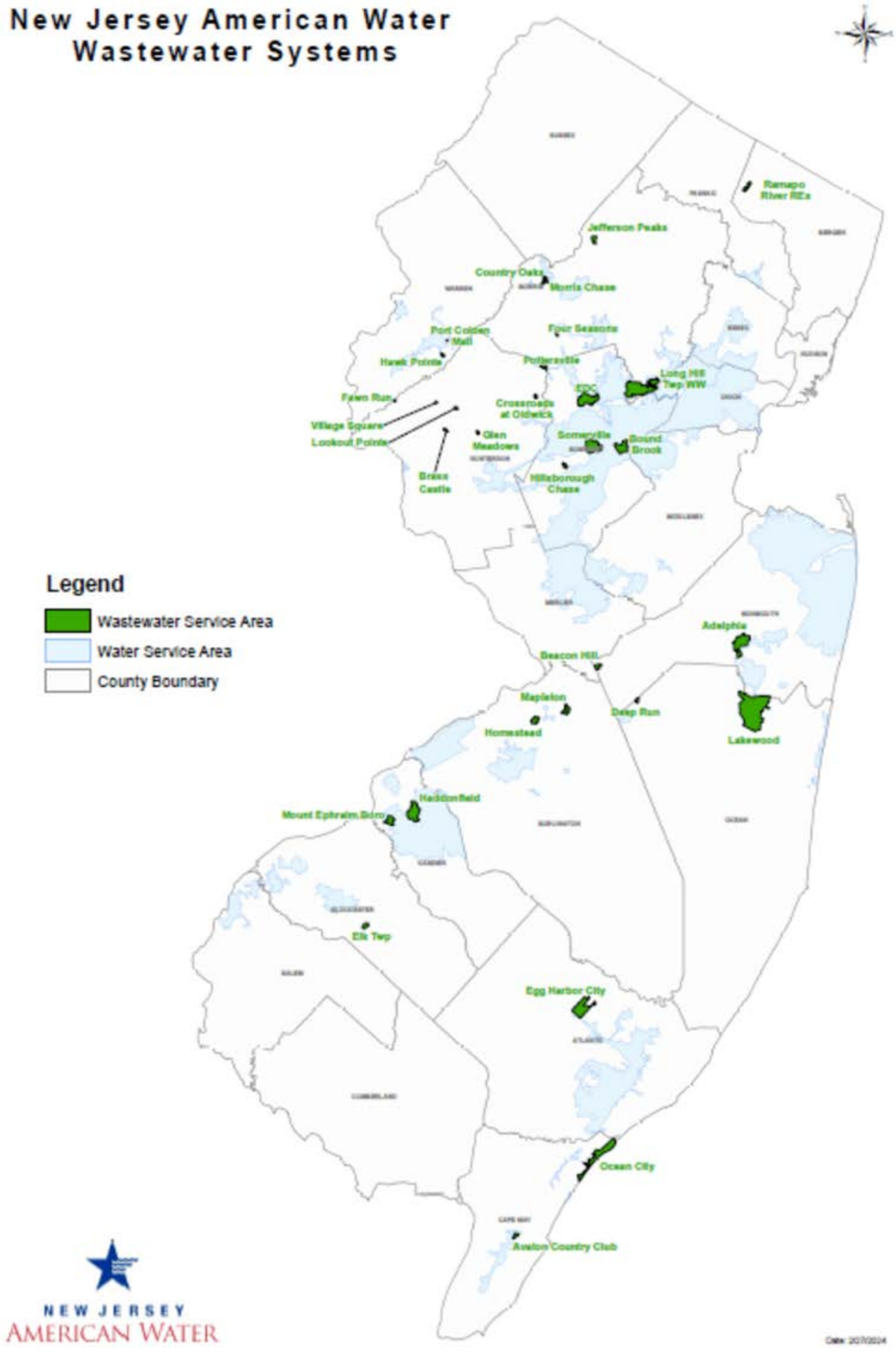


Table 1.1.1 – List of Wastewater Systems

System	County	Municipality
Egg Harbor City Sewer System	Atlantic County	Egg Harbor City
Ramapo River Reserve WW System	Bergen County	Oakland
Homestead Sewer System	Burlington County	Mansfield Township
Mapleton Sewer System	Burlington County	Mansfield Township
Haddonfield Sewer System	Camden County	Haddonfield
Mount Ephraim Sewer System	Camden County	Mount Ephraim
Avalon Country Club Sewer System	Cape May County	Middle Township
Ocean City Sewer System	Cape May County	Ocean City
Elk Sewer System	Gloucester County	Elk Township
Brass Castle Sewer System	Hunterdon County	Union Township
Crossroads at Oldwick Sewer System	Hunterdon County	Oldwick Township
Fawn Run Sewer System	Hunterdon County	Bloomsbury
Glen Meadows/Twin Oaks WW System	Hunterdon County	Clinton Township
Lookout Pointe Sewer System	Hunterdon County	Union Township
Pottersville Sewer System	Hunterdon County	Tewksbury Township
Village Square Sewer System	Hunterdon County	Hampton Township
Adelphia Sewer System	Monmouth County	Howell Township
Beacon Hill Sewer System	Monmouth County	Upper Freehold Twp.
Country Oaks Sewer System	Morris County	Mount Olive Twp.
Four Seasons at Chester System	Morris County	Chester Township
Jefferson Peaks Sewer System	Morris County	Jefferson Township
Long Hill Sewer System	Morris County	Long Hill Township
Morris Chase Sewer System	Morris County	Mount Olive Twp.
Deep Run Sewer System	Ocean County	Plumsted Township
Lakewood Sewer System	Ocean County	Lakewood Township
Bound Brook Sewer System	Somerset County	Bound Brook
EDC Sewer System	Somerset County	Bedminster Twp Bernards Twp
Hillsborough Chase Sewer System	Somerset County	Hillsborough Township
Somerville Sewer System	Somerset County	Somerville

System	County	Municipality
Hawk Pointe Sewer System	Warren County	Washington Township
Port Colden Mall	Warren County	Washington Township
Total		31

1.2 ASSET INVENTORY

Overview – NJAWC's wastewater assets comprise 31 Community Wastewater Systems in 12 counties throughout New Jersey. These systems provide wastewater service to approximately 64,000 customers, serving a combined population of approximately 169,000 people.

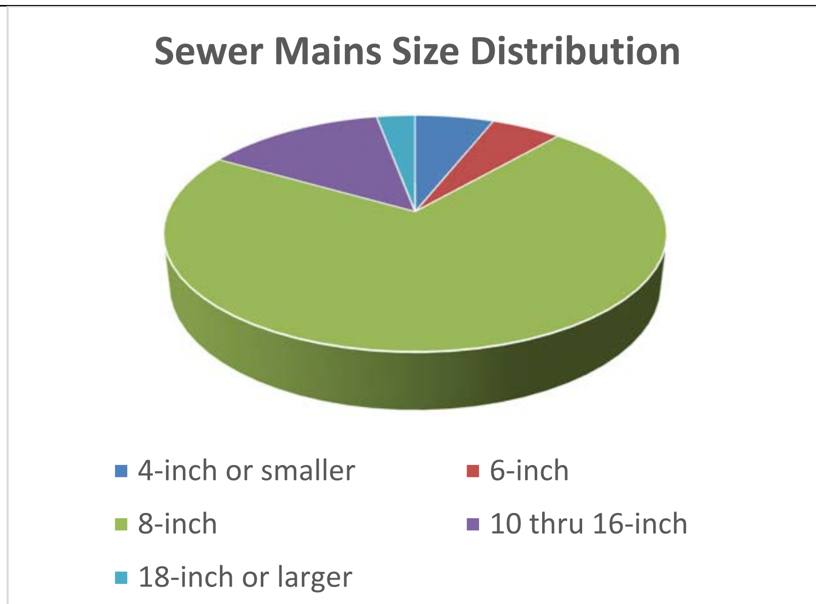
The combined collection systems comprise approximately 576 miles of gravity and force mains. The wastewater collection systems have fewer main sizes and types of pipe material than water distribution systems. Most sewer mains (approximately 72%) are 8-inch mains; approximately 17% are 10-inch and larger; and the balance, approximately 11%, are 6-inch or smaller. Most smaller mains are force mains, while 18-inch or larger mains are likely to be sewer interceptors. Table 1.2.1 shows the sewer main size distribution:

Table 1.2.1 – Sewer Mains Size Distribution

Size	
4-inch or smaller	6%
6-inch	5%
8-inch	72%
10 thru 16-inch	14%
18-inch or larger	3%

Smaller mains 6-inch or less are likely force mains.

Larger mains 18-inch or larger are likely to be wastewater interceptors.



Pipe material can be vitrified clay pipe (VCP), also known as clay tile, asbestos cement pipe (ACP), frequently referred to as transite pipe, and cast-iron pipe (CIP) for the older sewer mains. The newer sewer main material is poly vinyl chloride (PVC) pipe. On rare occasions ductile iron pipe (DIP) is specified. For specific sewer main crossings, especially for directional drill projects, the material of choice is high density polyethylene (HDPE) pipe.

NJAWC's wastewater infrastructure was installed over many decades, with portions dating back to 1900. The quantity of pipe installed each year varied considerably over the last 120 years. Construction materials and practices varied according to the standards and practices used at the time. Tables 1.2.2 and 1.2.3 summarize NJAWC's buried sewer main inventory as categorized by material, diameter, and estimated installation year. Section 3 of this report provides greater detail on the assets and performance issues affecting the life of the mains in each wastewater system.

Service standards, design standards, and construction practices varied widely across the years, leading to different service life estimates and service quality issues. Much of the wastewater collection systems piping installed in the United States, beginning in the late 1800's up until the 1940's, was manufactured from vitrified clay or VCP. From the 1940s through 1960, asbestos cement pipe was quite common and essentially replaced VCP and CIP. Beginning in the 1970s, the use of poly vinyl chloride or PVC pipe became quite common and remains the preferred choice for wastewater gravity sewers and force mains. Currently, approximately 51% of NJAWC's sewer pipes are PVC and 2% are DIP. The balance is older pipe, mainly vitrified clay pipe (VCP) at 21%, asbestos cement pipe (ACP) at 9%, various other materials at 8%, and unknown (likely VCP or ACP) at 9%. A summary of pipe quantities present by material and size is shown in Table 1.2.2.

Table 1.2.2 - NJAWC Sewer Main Material by Diameter in Miles

Diameter	AC	ACP	Brick	CIL	CIU	DI	DIP	HDPE	Other	PCCP	PE	PVC	RCP	UNK	VCP	Total
0												1.8		16.4	0.0	18.2
2											0.1	2.2		0.1		2.4
2.5														0.2		0.2
3						0.0		0.1			0.6	4.3				5.0
4					0.0	1.7			0.2		0.0	6.6		0.3	0.1	9.0
6	0.7				0.5	5.9		0.5	0.5		0.0	12.7		0.5	9.7	31.0
8	38.9	0.4		0.4	0.9	1.6	1.5		32.7	0.0		221.7	0.7	22.2	92.9	413.8
9	0.0													0.2		0.2
10	2.3		0.0		0.6	1.2	0.0	0.0	1.4			10.2		1.9	7.2	24.9
12	9.6				0.5	0.3		0.0	2.1			18.8	0.1	2.6	4.6	38.6
14	0.3	0.0				0.4			3.5			0.8		0.1	0.2	5.3
15	0.1			0.0		0.0						4.8		1.5	1.4	7.9
16	0.4			0.2	0.3	0.0		0.0				0.0		0.1	1.2	2.2
18	0.4			0.2	0.1	0.1				0.1		6.4		0.6	1.4	9.2
20	0.7					0.0						0.1		0.2	0.1	1.1
21				0.0									0.1	0.4	0.0	0.5
24						0.1						3.7	0.1	1.0	0.0	4.8
27												0.4		0.6		1.0
36												0.4				0.4
Total	53.4	0.4	0.0	0.8	2.8	11.3	1.5	0.7	40.5	0.2	0.7	294.9	0.9	49.0	118.9	575.9

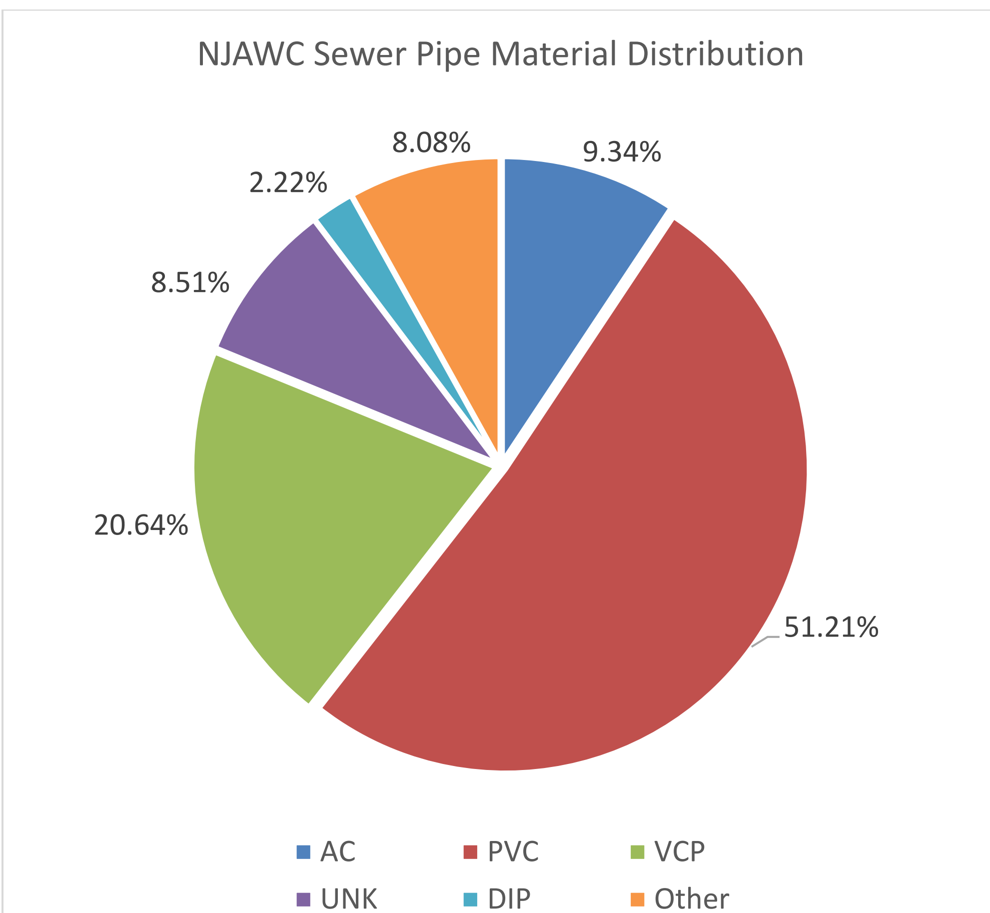
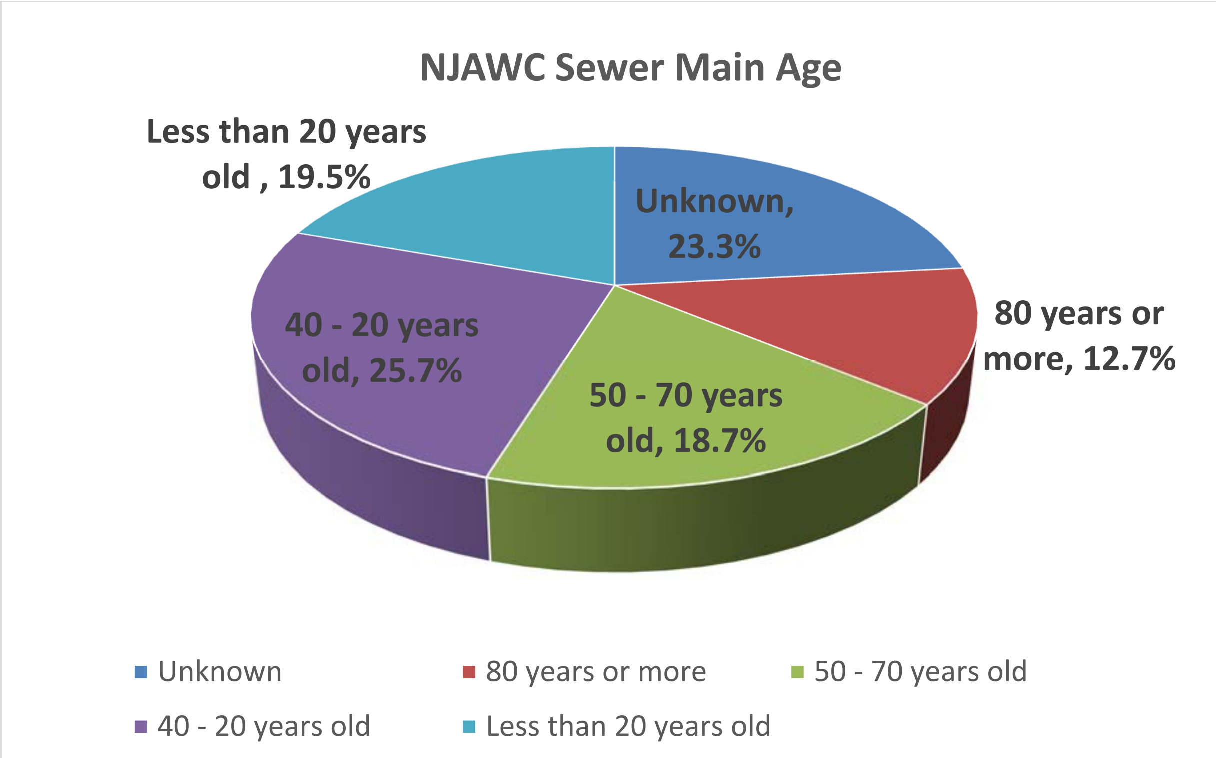


Table 1.2.3 further defines the pipe stock by an estimated installation decade. Because the installation year was typically not annotated on historical maps, this data could not be readily captured in the electronic data conversion to the GIS system. As a result, the decade installed is estimated for the older mains.

Table 1.2.3 - Estimate of Existing Mains by Decade Installed (in Miles)

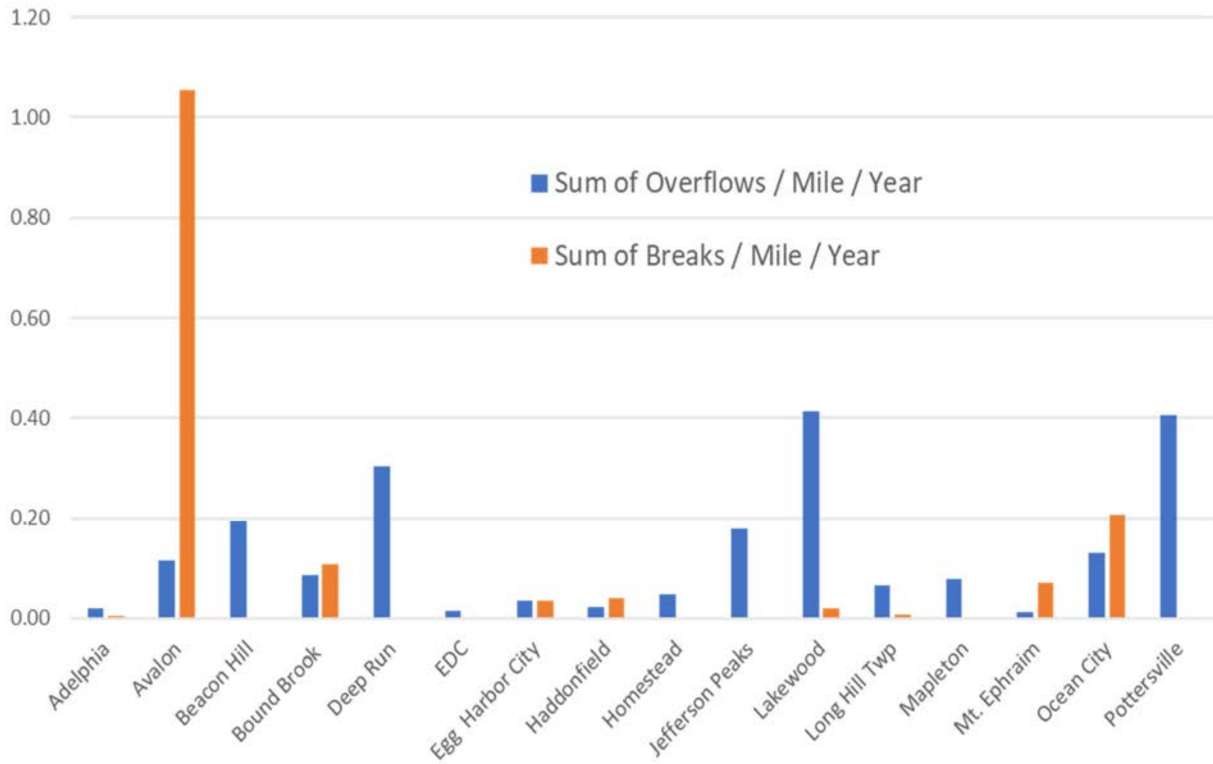
Wastewater Ssytem	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	Unknown	Total
Adelphia Sewer System								3	13	7	5	1	0	1	31
Avalon Country Club Sewer System										2					2
Beacon Hill Sewer System										5					5
Bound Brook Boro Sewer System														23	23
Brass Castle Sewer System									3						3
Country Oaks Sewer System										2				0	3
Crossroads At Oldwick Sewer System											1				1
Deep Run (Jensens) Sewer System										2	1			0	3
EDC Sewer System									19	16	4			0	39
Egg Harbor City Sewer System		12					0		1	5	8	1	0	1	28
Elk Twp Sewer System												2			2
Fawn Run Sewer System										1				0	1
Four Seasons At Chester Sewer System											1				1
Glen Meadows Sewer System										1					1
Haddonfield Sewer System	34					0		4		0	0	5	0	1	45
Hawk Pointe Sewer System											2			1	2
Hillsborough Chase Sewer System											3				3
Homestead Sewer System									10			0			10
Jefferson Peaks Sewer System											6			0	6
Lakewood Sewer System					1	42	0			3	8	23	9	54	140
Long Hill Twp Sewer System				14	18	4	9	8	3	3	0		0		60
Lookout Pointe Sewer System											1				1
Mapleton Sewer System										9				3	13
Morris Chase Sewer System											5			0	5
Mt. Ephraim Sewer System														19	19
Ocean City Sewer System		2	5	2	3	10	16	2	9	10	9	10	2	2	83
Port Colden Mall														0	0
Pottersville Sewer System										2				0	2
Ramapo River Reserve Sewer System											5				5
Somerville Boro Sewer System		1	3	0		2	3							29	38
Village Square Sewer System										2					2
Total	34	14	8	17	22	57	28	18	58	73	59	42	12	134	576
Percentage	5.9%	2.5%	1.5%	2.9%	3.9%	9.9%	4.9%	3.1%	10.0%	12.6%	10.2%	7.2%	2.1%	23.3%	100.0%

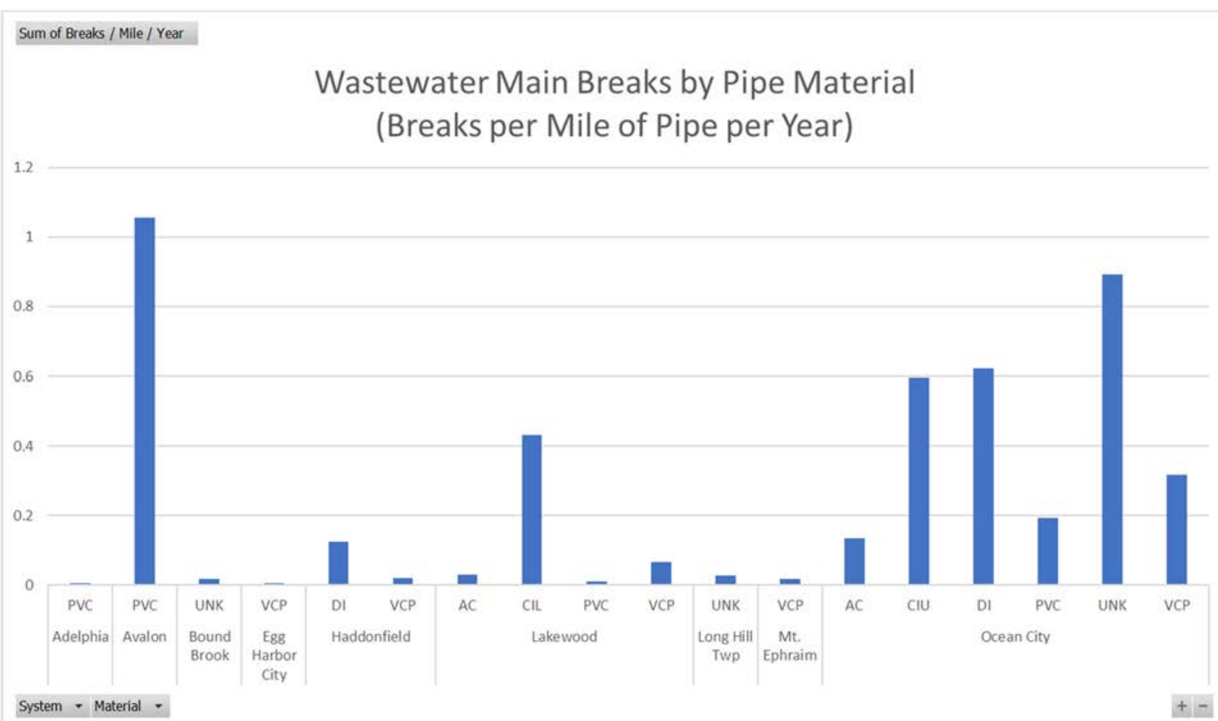


Main Breaks and Main Failures

Prior to the conversion to an electronic mapping process, NJAWC did not capture and record detailed information about individual mains on system maps, such as pipe material, year installed, or geocoded break information. Rather, this data was stored in paper card files, spreadsheets, or separate databases. This data was also not typically available for acquired systems. Since the advent of GIS-based mapping and computerized maintenance management systems, NJAWC has been capturing and recording more detailed information, where available, to help build a more precise database of pipe material, vintage, and other information to facilitate the planning and prioritization processes. Due to the limitations of existing records, the sewer main breaks and overflow history shown in the two charts that comprise Figure 1.2.1 is limited to the past few years.

Figure 1.2.1 - NJAWC Sewer Main Break and Overflow Rates





1.3 ASSET MANAGEMENT

NJAWC follows the asset management industry best practice recommendations including the New Jersey Department of Environmental Protection's (NJDEP) Asset Management Guidance and Best Practices. The Company has developed an active Asset Management Plan that is applied across all operating areas.

NJAWC uses a systematic approach to assess the condition of its collection system assets and to prioritize their replacement or rehabilitation. This process reviews the physical properties of the existing asset, the operating performance and maintenance history, and the risk and impact of a failure. External factors, including required relocation due to conflicts with other utilities and road reconstructions, are considered in the decision-making process.

Like the DSIC for water main replacement and rehabilitation, the WSIC will allow the Company to have a more systematic and levelized renewal of sewer mains, laterals, and manholes that is driven based on current needs and priorities as opposed to intermittent investments. The current renewal project inventory was mostly developed on local operational experience, some specific condition assessment, and reactive needs.

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SECTION 2. BLANKET ASSETS (SERVICE LATERALS, CLEANOUTS, AND MANHOLES)

2.1 BLANKET ASSET PROJECTS

The blanket type of wastewater collection system assets includes cleanouts, manholes, and service laterals. These are important assets in the wastewater collection system. Properly operating and accessible cleanouts and manholes are needed to perform flushing, to temporarily isolate sections of sewer mains for maintenance and repair, and to respond quickly in an emergency. Cleanouts and manholes are vital components as these provide the needed access for the maintenance of wastewater buried assets, including sewer main jetting and flushing activities.

In accordance with section (b)2. v. of the WSIC Foundational Filing Rule, *N.J.A.C.* 14:9-11.4(b).2. v., the following table summarizes NJAWC's historical capital expenditures for recurring projects or blankets. This aggregate information details the capital spending used for blanket-type WSIC-eligible assets to be rehabilitated or replaced (*e.g.,* number of each asset category replaced) and the estimated annual cost of such blanket-type replacement programs.

Table 2.1.1 - NJAWC Blanket-Type WSIC Spend History

NJAW WSIC Eligible Capex 2021-2023			
Category	**2021**	**2022**	**2023**
RP-F	$292,613	$455,592	$669,772
RP-H	$2,096,108	$2,504,118	$2,762,097
Total	$2,390,742	$2,961,732	$3,433,892
Number of Blanket Replacements			
	2021	**2022**	**2023**
Manholes	24	26	44
Laterals	501	658	359

NJAWC proposes an annual expenditure plan for wastewater service laterals and manholes replacements or renewals of approximately $3 million. This proposed spend distribution may change as system needs dictate.

2.2 SERVICE LATERALS

Service laterals collecting wastewater from the customer's premise to the sanitary sewer main generally consist of a service (gravity) pipe and cleanout (near curb or sidewalk), with the Company owning the portion from the sewer main to a point beyond the street curb or sidewalk. Service laterals are typically sized from 4-inch to 12-inch in diameter. The table below shows the existing service laterals by material and diameter. Service laterals of 4-inch pipe typically serve domestic or small commercial accounts, while the larger service laterals serve commercial or industrial accounts.

Table 2.2.1 - NJAWC Service Laterals by Type and Diameter

Service Size (in)	ACP	Cast iron	DIP	Galv. Steel	Other	PVC	VCP	Unknown	Total
2					55	97			149
4	1,569	2,265	4		16	17,069	3,494		24,415
5				1,760			1,650		3,408
6	2,111	29	344			7,619	997		11,100
8	11	263				9	5		288
10						2	1		3
Undefined								6,872	6,912
Total	**3,689**	**2,557**	**348**	**1,758**	**71**	**24,796**	**6,147**	**6,858**	**46,224**

Renewal of service laterals is an important aspect of asset management because loose joints or cracks on service laterals are typically the primary cause of infiltration and inflow (I&I) in wastewater systems, frequently during wet periods, overwhelming the wastewater systems' pumping, conveyance, and treatment of the excess flow from I&I. Excess flow contributed by I&I can lead to untreated wastewater discharge into the environment. Loose joints and pipe cracks are also the primary cause of plant roots entering the service laterals, causing hang-ups of debris such as un-dissolvable paper towels and wipes that result in blockages. While periodic reminders are sent to wastewater customers not to dispose of baby wipes, paper towels, and other un-dissolvable materials in the sewer, such practices continue to result in service disruptions.

2.3 SERVICE LATERAL MATERIAL DESCRIPTION

<u>Current materials</u>:

Poly Vinyl Chloride (PVC) Pipe - The most common type of wastewater service lateral piping is PVC pipe which is very dependable. While dependable, PVC lines can eventually deteriorate purely due to age and long exposure to adverse conditions, especially if subjected to external loads caused by soil erosion uneven ground settling, or heavy vehicular traffic.

High Density Polyethylene (HDPE) Pipe - HDPE pipe is typically used as piping material when the service lateral is under pressure. However, they are not common, particularly so on the Company-side, unless the service lateral is directly discharging into a high-pressure force main. HDPE is a flexible material that is easier to install than most other service line materials and is typically used in corrosive soil or adverse service conditions.

Ductile Iron Pipe (DIP) - DIP is typically used as service piping if operating under pressure. DIP for sewer could also be specified by local plumbing or construction codes. However, DIP is not common on the Company-side, but can be found on the customer side of the lateral. The lining of DIP for sewers is typically polyethylene, polyurethane, or epoxy. While some of the older DIPs are cement-lined, cement lining is not preferred for sanitary sewer applications due to the corrosive nature of hydrogen sulfide present in gravity sewer systems.

Prior materials:

A variety of materials were used for sewer service piping as far back as the late 1800's. Materials used in the past that are currently considered obsolete include the following:

Vitrified Clay Pipe (VCP) – This piping material was widely used in wastewater systems from the 1800s through early 1900s. VCP service laterals are quite durable if installed properly and the surrounding soil is not disturbed or subject to heavy vehicular traffic. The primary mode of failure of VCP is leaking around its joints and bellhousing cracks. The primary cause of failure is uneven or excessive settling along its bed resulting in multiple fractures and pipe-ends shifting out of aliment. While VCP is still commercially available, it is seldom used for new or replacement service laterals.

Cast Iron Pipe (CIP) – CIP was used extensively in the early 1900s. It is prone to both internal and external corrosion resulting in a significant reduction in its service life. After many decades in service, this corrosion severely impacts the structural integrity of the pipe and typically results in joint and longitudinal breakage.

Asbestos Cement Pipe (ACP) – Often referred to as transite, ACP was commonly used through the 1940s, 50s, and 60s for sanitary sewer collection systems. While many ACP service laterals remain in service, their structural integrity is typically compromised. It is very difficult to repair ACP due to the softening of the cement/asbestos fibers and the resulting deformation of the pipe, which often crumbles at the slightest movement.

Unknown – This is a NJAWC classification to identify services where the material type is not known. Usually these are services installed prior to 1940 and are likely to be either VCP or CIP service laterals.

2.4 NJAWC SERVICE LATERAL REPLACEMENT PRACTICE

Service lateral replacement is performed during sewer main renewal projects. Service laterals are also replaced as separate street level projects when appropriate. Generally, service laterals are targeted for replacement if:

1. Inferior service line materials exist, including but not limited to the following:
   a. Asbestos Cement
   b. Vitrified Clay
   c. Cast Iron
2. The area has a higher frequency of service lateral leaks / breaks than other areas of the district resulting in high I&I.

3. The area has a history of service lateral blockage due to pipe joints misalignment, plant roots, sags, or reverse slope.

Service laterals replacement projects outside the scope of sewer main replacement or paving projects are only considered when the service laterals in an area are a suspected cause of high I&I or frequent blockages. This is validated by using visual inspections, CCTV sewer video cameras, or other quantifiable evidence.

The Company portion of a service lateral is replaced upon discovery of a leak, break, or severe root problem (on the NJAWC-owned service). Whenever a service lateral is replaced or rehabbed, a cleanout is also installed whether it was there originally or not. The cleanout allows for maintenance access of the service lateral in time of need. If the service lateral is in good condition and the cause of the problem is acute and not expected to reoccur (e.g., line hit during landscaping, etc.), then a repair is made. Also, if two service lines are adjacent (defined by a few yards in distance) and of the same vintage, NJAWC may consider replacing both if one has failed due to age.

2.5 SANITARY SEWER MANHOLES AND CLEANOUTS

New Jersey American Water inspects and maintains approximately 13,400 manholes and 31,100 cleanouts within its wastewater collection systems, as reflected in Table 2.5.1, to sustain the operational integrity of these assets. This maintenance is important to local operations as this pro-active program typically increases reliability, reduces failure, and extends asset life. The failure of these assets can lead to costly repairs or replacement activities. The values reported in Table 2.5.1 are those currently residing in the Company's GIS database. The cleanouts shown are those that have been GPS recorded; however, this value under-reports the actual number of Company-owned cleanouts because many are buried and thus not visible for the GPS recording of their exact geospatial location. The geospatial location of the Company's buried wastewater systems assets is an ongoing project, and it will likely take several more years to compile a complete inventory of their actual location.

Table 2.5.1 - NJAWC Manholes and Cleanouts

System Name	Manholes	Cleanouts
Adelphia Sewer System	738	2370
Avalon Country Club Sewer System	41	NA
Beacon Hill Sewer System	137	NA
Bound Brook Boro Sewer System	602	76
Brass Castle Sewer System	11	5
Country Oaks Sewer System	49	119
Crossroads At Oldwick Sewer System	12	NA
Deep Run (Jensens) Sewer System	71	NA
EDC Sewer System	1,193	359

System Name	Manholes	Cleanouts
Egg Harbor City Sewer System	454	894
Elk Twp Sewer System	29	82
Fawn Run Sewer System	3	3
Four Seasons At Chester Sewer System	29	57
Glen Meadows Sewer System	25	17
Haddonfield Sewer System	948	4219
Hawk Point Sewer System	62	NA
Hillsborough Chase Sewer System	27	NA
Homestead Sewer System	279	108
Jefferson Peaks Sewer System	152	393
Lakewood Sewer System	3,550	13819
Long Hill Twp Sewer System	1,332	610
Lookout Pointe Sewer System	3	24
Mapleton Sewer System	236	462
Morris Chase Sewer System	160	164
Mt. Ephraim Sewer System	396	798
Ocean City Sewer System	1,751	6296
Pottersville Sewer System	65	NA
Ramapo River Reserve Sewer System	197	159
Somerville Boro Sewer System	844	41
Village Square Sewer System	NA	2
Total	13,396	31,077

Manholes – Sanitary sewer manholes are used to access gravity sewers for inspection and maintenance, cleaning, removing obstructions, and to vent sewer gases. Today, most manholes are made of precast concrete. The Company also has manholes made from brick, concrete block, and cast-in-place concrete. Manholes are provided when there is change in grade of the sewer, a change in alignment, a change in pipe size, or at a junction of two or more sewer gravity mains. Manholes are also provided in straight alignment of sewers at regular intervals, typically no more than 400 feet apart. Some brick manholes are good candidates for rehab by mortar or "*gunite*" lining; others that are in bad condition with structural defects or failure are replaced with new manholes. Typically, during municipal, county or state road resurfacing projects, the manhole's upper portion will need rehab such as rim re-setting, or complete replacement of rim and lid, if damaged or badly deteriorated.

Cleanouts – A cleanout is a means to access a sanitary service lateral for the purpose of removing blockages within the service lateral. While a building's drainage plumbing will include cleanouts inside the building, the cleanouts referred to herein are those located outside the building on the service lateral and typically near the street curb or sidewalk. A cleanout usually extends to ground level. However, many of the older cleanouts are installed below the surface at an approximate depth of one foot. Their access is often challenging and typically not visible, thus requiring some subsurface investigation to locate them. If rehab work is done to a service lateral, a cleanout is typically included as part of the rehab work.

The maintenance, repair, or replacement of these assets is critical for effective operations of a wastewater collection system. Failure to do so can lead to more frequent blockages, sewage backup into the home, or sanitary sewer overflow (SSO). Such conditions negatively affect the customer enjoyment of the sanitary sewer service, and, in the case of untreated SSO, negatively impact the environment. Moreover, badly deteriorated cleanouts and manholes are likely to contribute significantly to wastewater system I&I which can surcharge sewer mains and overwhelm the wastewater treatment plant (WWTP), resulting in significant SSO.

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SECTION 3. INDIVIDUAL WASTEWATER SYSTEM PERFORMANCE – STATEWIDE

3.1 OVERVIEW

NJAWC is responsible for the management of the Company's 31 Public Wastewater Systems in several counties throughout New Jersey. NJAWC provides wastewater service to approximately 64,000 customers, serving a combined population of approximately 169,000 people. These wastewater systems are categorized in three groups:

Group 1 – Mostly mid-size municipal based collection-only systems without any wastewater treatment ranging from 55 to 16,400 customer connections. They all have one or more connection points that convey collected wastewater from the Company-owned collection system to a regional sewerage authority. The overall length of the sewer mains (gravity and force) in this group ranges from 2 miles to 140 miles for a total of 408 miles.

Group 2 – Two mid-sized municipal based wastewater systems that provide both wastewater collection and treatment. These range in size from 2,900 to 5,400 customer connections comprising the EDC and Long Hill wastewater systems. These systems have NJAWC's largest rated wastewater treatment plants; 2.1 MGD at EDC and 2.8 MGD at Long Hill. The overall length of the sewer mains (gravity and force) in this group ranges from 39 miles to 60 miles for a total of 99 miles.

Group 3 – Mostly legacy subdivision/development-based systems acquired from Applied Wastewater Management (AWM) in 2010, including the Pottersville wastewater system which was acquired in 2008. All but one of these wastewater systems include both collection and treatment serving between 40 and 1,300 customer connections. This group also includes a very small force main system at the Port Colden Mall in Washington Township. While this group includes some 20 wastewater systems, the aggregate total customer connections is approximately 5,260. These systems, with a few minor exceptions, serve fewer than 500 customers each with an average of 275 customers per system. There are eight membrane bioreactor treatment plants, four sequencing batch reactor plants, one lagoon plant, and six extended aeration plants. The systems are primarily located in central New Jersey, with three systems in Southern New Jersey and one system on the coast. The overall length of the sewer mains (gravity and force) in this group ranges from less than one mile to 13 miles for a total of approximately 69 miles.

NJAWC's wastewater systems are listed in Table 3.1.1.

Table 3.1.1 – Statewide Operating Wastewater Systems' Characteristics (2023)

System	County	Connections	Capacity[1]
Egg Harbor City Sewer System	Atlantic County	1581	n/a
Ramapo River Reserve WW System	Bergen County	400	0.114
Homestead Sewer System	Burlington County	1306	0.250
Mapleton Sewer System	Burlington County	971	0.376
Haddonfield Sewer System	Camden County	4590	n/a
Mount Ephraim Sewer System	Camden County	1780	n/a
Avalon Country Club Sewer System	Cape May County	211	0.067
Ocean City Sewer System	Cape May County	15,521	n/a (~4MGD)
Elk Sewer System	Gloucester County	55	n/a
Brass Castle Sewer System	Hunterdon County	70	0.022
Crossroads at Oldwick System	Hunterdon County	75	0.023
Fawn Run Sewer System	Hunterdon County	52	0.019
Glen Meadows/Twin Oaks System	Hunterdon County	58	0.025
Lookout Pointe Sewer System	Hunterdon County	55	0.016
Pottersville Sewer System	Hunterdon County	107	0.048
Village Square Sewer System	Hunterdon County	39	0.016
Adelphia Sewer System	Monmouth County	3,877	n/a
Beacon Hill Sewer System	Monmouth County	471	0.104
Country Oaks Sewer System	Morris County	166	0.050
Four Seasons at Chester System	Morris County	120	0.029
Jefferson Peaks Sewer System	Morris County	408	0.125
Long Hill Sewer System	Morris County	2,894	2.8
Morris Chase Sewer System	Morris County	282	0.081
Deep Run Sewer System	Ocean County	245	0.026
Lakewood Sewer System	Ocean County	16,424	n/a (~5 MGD)
Bound Brook Sewer System	Somerset County	2,900	n/a
EDC Sewer System	Somerset County	5,400	2.1
Hillsborough Chase Sewer System	Somerset County	104	0.038
Somerville Sewer System	Somerset County	3,843	n/a
Hawk Pointe Sewer System	Warren County	122	0.082
Port Colden Mall	Warren County	1	n/a

[1] Capacity = Treatment capacity in MGD, n/a indicated for wastewater collection system only.

The statewide operating wastewater systems provide wastewater service to customers by collecting wastewater from customer premises via collection systems, where collected wastewater is either conveyed to a regional sewerage authority or treated at a Company wastewater treatment plant (WWTP). The Company owns and operates a multitude of WWTPs, lift stations, and approximately 576 miles of wastewater mains. While the various wastewater collection systems were constructed over many decades, the AWM legacy wastewater systems were mostly constructed in the 1980s, 90s, and 2000s. In total, the Company's assets include 21 WWTPs listed in Table 3.1.2, 77 wastewater lift stations, and the wastewater mains summarized in Table 3.1.3.

Table 3.1.2 – NJAWC Wastewater Treatment Plants

Facility Name	Capacity (MGD)
Ramapo River Wastewater Treatment Plant	0.114
Homestead Wastewater Treatment Plant	0.25
Mapleton Wastewater Treatment Plant	0.376
Avalon Wastewater Treatment Plant	0.067
Brass Castle Wastewater Treatment Plant	0.022
Crossroads at Oldwick Wastewater Treatment Plant	0.023
Fawn Run Wastewater Treatment Plant	0.019
Glen Meadows Wastewater Treatment Plant	0.025
Lookout Pointe Wastewater Treatment Plant	0.016
Pottersville Wastewater Treatment Plant	0.048
Village Square Wastewater Treatment Plant	0.016
Beacon Hill Wastewater Treatment Plant	0.104
Country Oaks Wastewater Treatment Plant	0.05
Four Seasons Wastewater Treatment Plant	0.029
Jefferson Peaks Wastewater Treatment Plant	0.125
Long Hill Wastewater Treatment Plant	2.8
Morris Chase Wastewater Treatment Plant	0.081
Deep Run Wastewater Treatment Plant	0.026
EDC Wastewater Treatment Plant	2.1
Hillsborough Chase Wastewater Treatment Plant	0.038
Hawke Pointe Wastewater Treatment Plant	0.082

Table 3.1.3 – Wastewater Summary of Mains by Material Type

Diameter	AC	ACP	Brick	CIL	CIU	DI	DIP	HDPE	Other	PCCP	PE	PVC	RCP	UNK	VCP	Total
0												1.8		16.4	0.0	18.2
2											0.1	2.2		0.1		2.4
2.5														0.2		0.2
3						0.0		0.1			0.6	4.3				5.0
4					0.0	1.7			0.2		0.0	6.6		0.3	0.1	9.0
6	0.7				0.5	5.9		0.5	0.5		0.0	12.7		0.5	9.7	31.0
8	38.9	0.4		0.4	0.9	1.6	1.5		32.7	0.0		221.7	0.7	22.2	92.9	413.8
9	0.0													0.2		0.2
10	2.3		0.0		0.6	1.2	0.0	0.0	1.4			10.2		1.9	7.2	24.9
12	9.6				0.5	0.3		0.0	2.1			18.8	0.1	2.6	4.6	38.6
14	0.3	0.0				0.4			3.5			0.8		0.1	0.2	5.3
15	0.1			0.0		0.0						4.8		1.5	1.4	7.9
16	0.4			0.2	0.3	0.0		0.0				0.0		0.1	1.2	2.2
18	0.4			0.2	0.1	0.1				0.1		6.4		0.6	1.4	9.2
20	0.7					0.0						0.1		0.2	0.1	1.1
21				0.0									0.1	0.4	0.0	0.5
24						0.1						3.7	0.1	1.0	0.0	4.8
27												0.4		0.6		1.0
36												0.4				0.4
Total	53.4	0.4	0.0	0.8	2.8	11.3	1.5	0.7	40.5	0.2	0.7	294.9	0.9	49.0	118.9	575.9

3.2 WASTEWATER SYSTEM ASSET PERFORMANCE

The following section presents typical challenges associated with wastewater collection systems and asset management with data and conclusions regarding the benefit from accelerated investment.

Wastewater Gravity Sewer Challenges

Older wastewater systems that have seen a lack of investment generally have high inflow and infiltration ("I&I"). High I&I can limit the capacity of downstream gravity sewers and wastewater lift stations, increasing the risk of wastewater overflows. High I&I can also limit the capacity of the receiving wastewater treatment plant by hydraulically overloading the plant.

Inflow is water that enters a sewer system from sources such as roof leaders, cellar/foundation drains, yard drains, area drains, defective manhole covers, cross connections between storm sewers and sanitary sewers, and catch basins.

Infiltration is water that enters a sewer system from the ground through defective pipes, pipe joints, connections, or manholes. Infiltration is generally dependent on the height of the ground water table above the sewer line. As the groundwater table rises with rainfall, hydraulic pressure increases on the buried pipe with associated leaks developing in the sewer system.

Most older collection systems have vitrified clay pipe (VCP) gravity sewers. Due to its weight, clay pipe is manufactured in short lengths (4 to 7 ft) resulting in many pipe joints. Prior to World War II, the most common method of jointing clay pipe was with oakum and cement mortar. The joints produced were rigid and not resistant to earth movement. The joints were made in the trench by the workmen and the workmanship could be excellent or it could be poor. Water testing was infrequent. These old oakum and cement mortar joints are susceptible to infiltration and root intrusion where tiny tree roots can enter the joints, growing bigger and breaking the clay as time goes by.

Older wastewater systems may also have brick manholes. Brick manholes are subject to deteriorated mortar joints and defects around pipe penetrations, which allow ground water and soil to infiltrate into manholes. Newer uncoated concrete manholes can be susceptible to deterioration from hydrogen sulfide gas.

Depending on the condition and hydraulic capacity of the sewer pipes, gravity sewers can be rehabilitated by slip-lining, installing a cured-in-place pipe liner, or installing a fold and formed pipe. If rehabilitation is not feasible or if upsizing is needed, the sewer can be replaced, typically with PVC pipe. Deteriorated manholes can be replaced with epoxy coated precast or cast-in-place manholes or rehabilitated by applying an epoxy coating, a cementitious coating, or installing a cured-in-place manhole liner.

Wastewater Lift Station Challenges

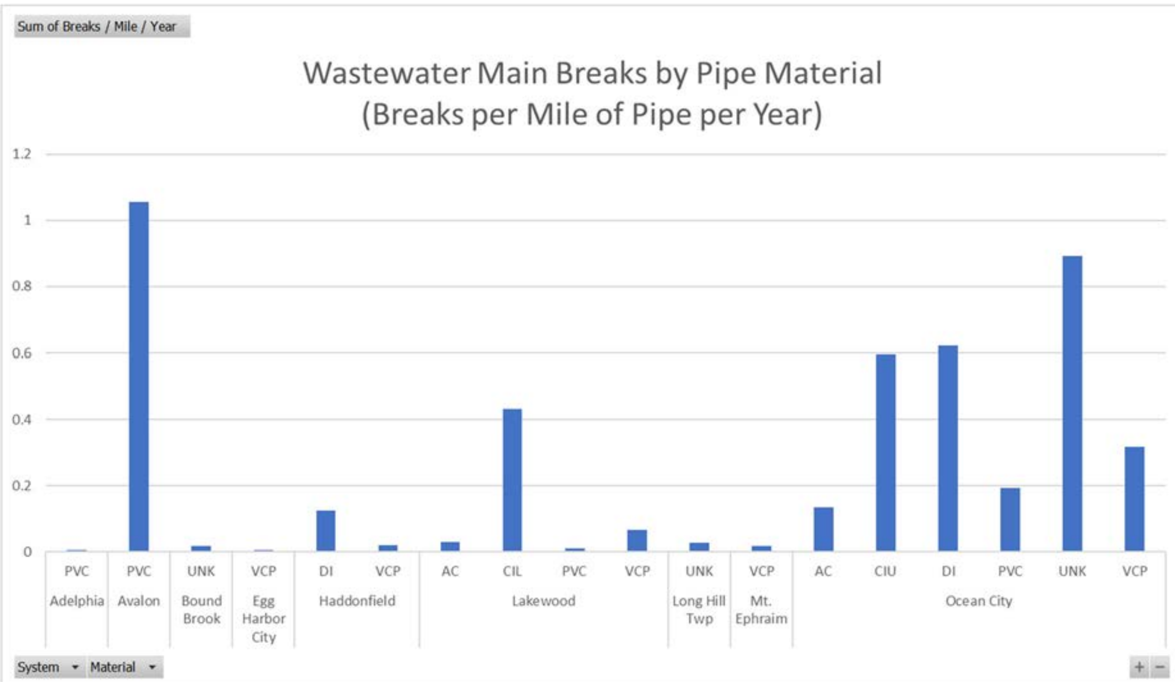
Dry well / wet well-type lift stations have been used for many years. Small to medium-size stations of this configuration can be found in many older wastewater systems. These lift stations have above-ground buildings and structures that tend to have high maintenance costs, particularly when the lift station nears the end of its useful life. The dry wells and wet wells on these stations are generally considered confined spaces, and access for maintaining pumps or cleaning out wet wells can be difficult and expensive.

The current trend is to construct submersible lift stations in small to medium-size applications mainly because of lower costs, a smaller footprint, no need for buildings, and simplified operation and maintenance. Modern submersible lift station reliability is achieved by using non-clog submersible pumps and by installing emergency alarm and automatic control (SCADA) systems for remote monitoring and operation. Modern submersible pumps are often supplied with a flush valve that agitates and resuspends built up sludge in the wet-well, thus reducing the amount of jetting and cleaning needed. There is less need to enter the wet well confined space due to ease of access from the ground surface, and pumps can be lifted out of the wet well for maintenance.

Older lift station pumps typically discharge into cast iron force mains. Similar to cast iron water mains, these force mains, which operate under pressure, are susceptible to rupture from both corrosion (internal or external) as well as fatigue (bursting) failure from the cyclical nature of pump operation. When force mains reach the end of their useful life, they are typically replaced with PVC or ductile iron pipe with special coatings for sewer service (in lieu of the typical cement lining for water service). Force mains can also be rehabilitated using similar trenchless technologies that are used for water main rehabilitation.

The performance of wastewater (sewer) mains and their relative deterioration rates can be monitored by the break frequency and characteristics. Figure 3.2.1 shows the break frequency over a multi-year period. It is quite evident that the cast-iron pipe break rate is an order of magnitude higher than any other material.

Figure 3.2.1 – Summary of Wastewater (Sewer) Main Breaks by Material



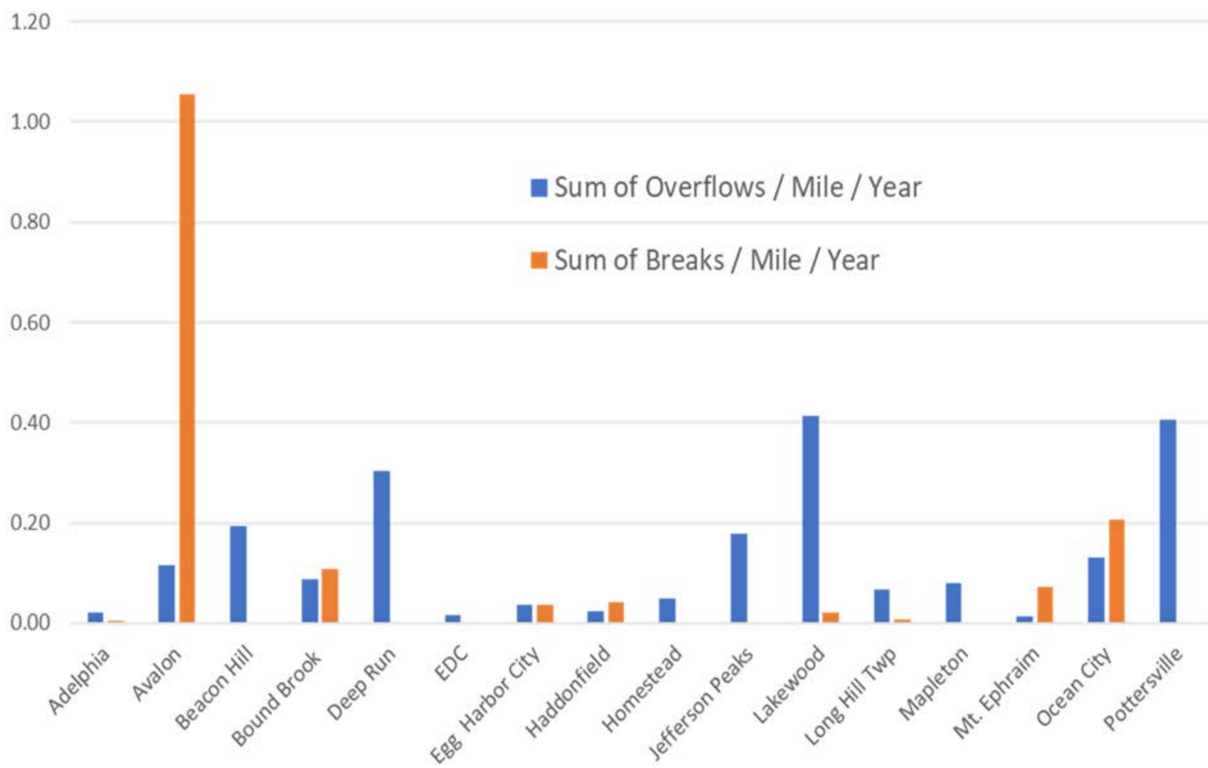
3.3 SYSTEM-SPECIFIC ISSUES

The Company's wastewater service area has grown over many decades, using the materials, design standards and construction practices available at the time. Unlike the water systems, the Company's wastewater systems are interspersed throughout the state with limited municipality-wide service, mainly for Ocean City, Egg Harbor City, Lakewood, Haddonfield, Mount Ephraim, Somerville, Bound Brook, and Long Hill. The balance is smaller systems with limited franchise and number of customers. Depending upon the age and location of the wastewater systems, performance issues are quite variable. As an example, in older sections of Lakewood, particularly the Route 9 corridor, the infrastructure is subject to frequent breaks and surcharges. The Ocean City Sewer System suffers primarily from aging infrastructure with very high

I&I due to the very nature of Ocean City topography—low and very flat with significant portion of the sewer system pipe inverts at or below the natural groundwater table. This condition is the primary cause of the high infiltration and inflow. Haddonfield's issues are significantly different from those of both Ocean City and Lakewood. It is a very old community established in the 19th century with no growth to speak of, other than an occasional redevelopment. Most sewers in Haddonfield are cast iron and VCP that are well beyond their useful life.

Figure 3.3.1 below shows break and overflow data over a multi-year period of 16 wastewater systems which better illustrates the challenges in collection systems performance.

Figure 3.3.1 – Break and Overflow Data



3.4 INDIVIDUAL SYSTEM DESCRIPTIONS

A. ATLANTIC COUNTY – EGG HARBOR WASTEWATER SYSTEM (NPDES-ID: N/A)

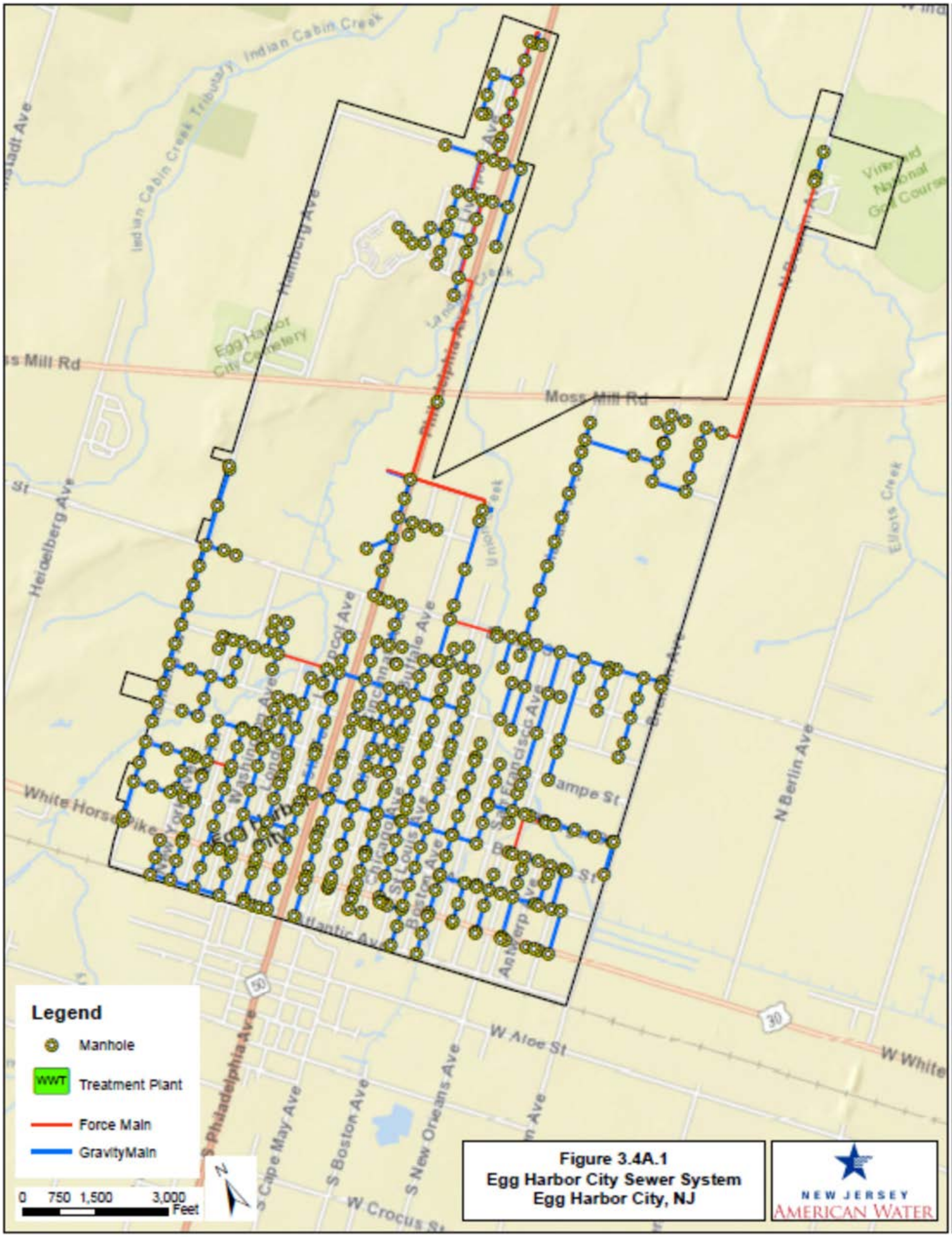
System Description

The Egg Harbor City Wastewater System is a municipal-wide wastewater collection system that provides wastewater collection services to Egg Harbor City, Atlantic County, and portions of the Townships of Galloway and Mullica, comprising of approximately 1,600 service connections. NJAWC completed the acquisition of the system on June 1, 2023. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. The collection system is divided into 10 basins, nine served by a dedicated lift station (that pumps to adjacent basins) and one that flows directly to the regional sewer authority; the Atlantic County Utilities Authority (ACUA).

Collection System

The collection system piping in the Egg Harbor City system primarily consists of vitrified clay pipe (VCP). There are nine pump stations which pump the waste to adjacent basins, which then flows to the ACUA. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. Being an older system, there are significant I&I issues that need to be addressed. Similarly, several lift stations need to be rehabilitated or replaced as they are well past their useful life and their reliability is questionable. The general layout of the collection system area is shown in Figure 3.4A.1.

Figure 3.4A.1 – Collection System Map (Egg Harbor City)



B. BERGEN COUNTY – RAMAPO RIVER RESERVE WASTEWATER SYSTEM (NPDES-ID: NJ0080811)

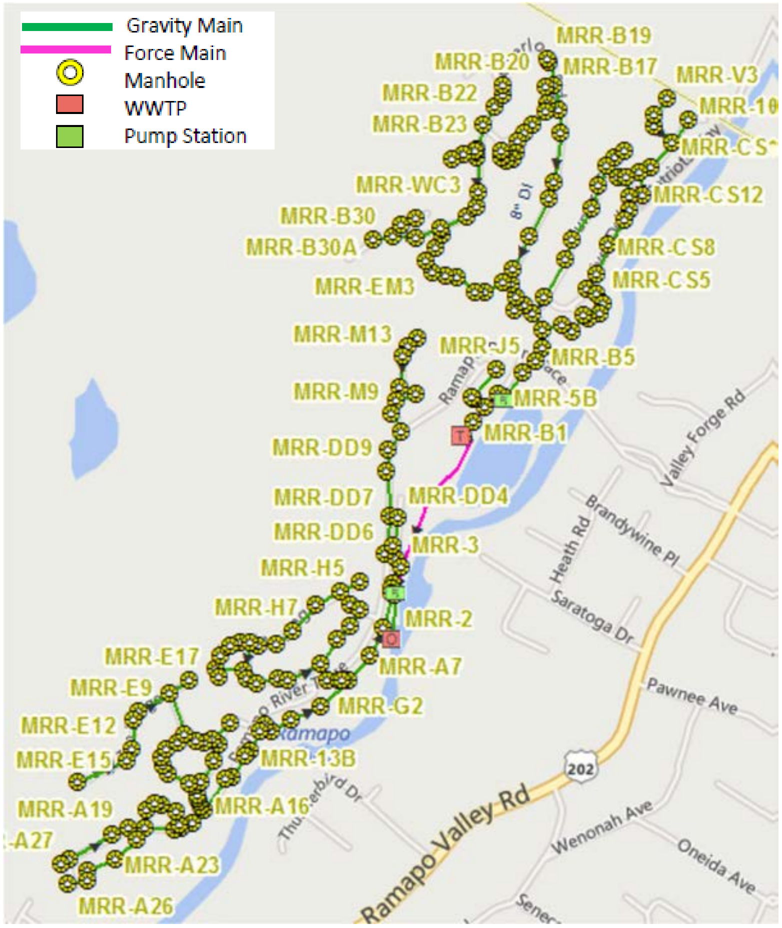
System Description

The Ramapo River Reserve Wastewater System is a small wastewater system that provides wastewater services to a residential community within Oakland Borough, Bergen County, comprising approximately 400 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. Collected sewage is then pumped to a common wastewater treatment plant (WWTP), where it is treated before discharging to the Ramapo River.

Collection System

There are approximately 0.5 miles of ductile iron cement lined force mains ranging in size from 4-inch to 8-inch, and approximately 5 miles of gravity mains of predominantly 8-inch diameters. The gravity mains are a mix of PVC and ductile iron cement lined pipes. The collection system also consists of approximately 197 manholes and one outfall. All the wastewater flows by gravity to two pump (lift) stations, which then separately pump to the WWTP. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4B.1.

Figure 3.4B.1 – Collection System Map (Ramapo)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Ramapo River Reserve system. One was using the EPA threshold criteria as shown in Table 3.4B.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Ramapo River Reserve system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Ramapo River Reserve system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Ramapo River Reserve in the last five years was calculated to be 1.72, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Ramapo River Reserve WWTP is 113,700 gpd. Figure 3.4B.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4B.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

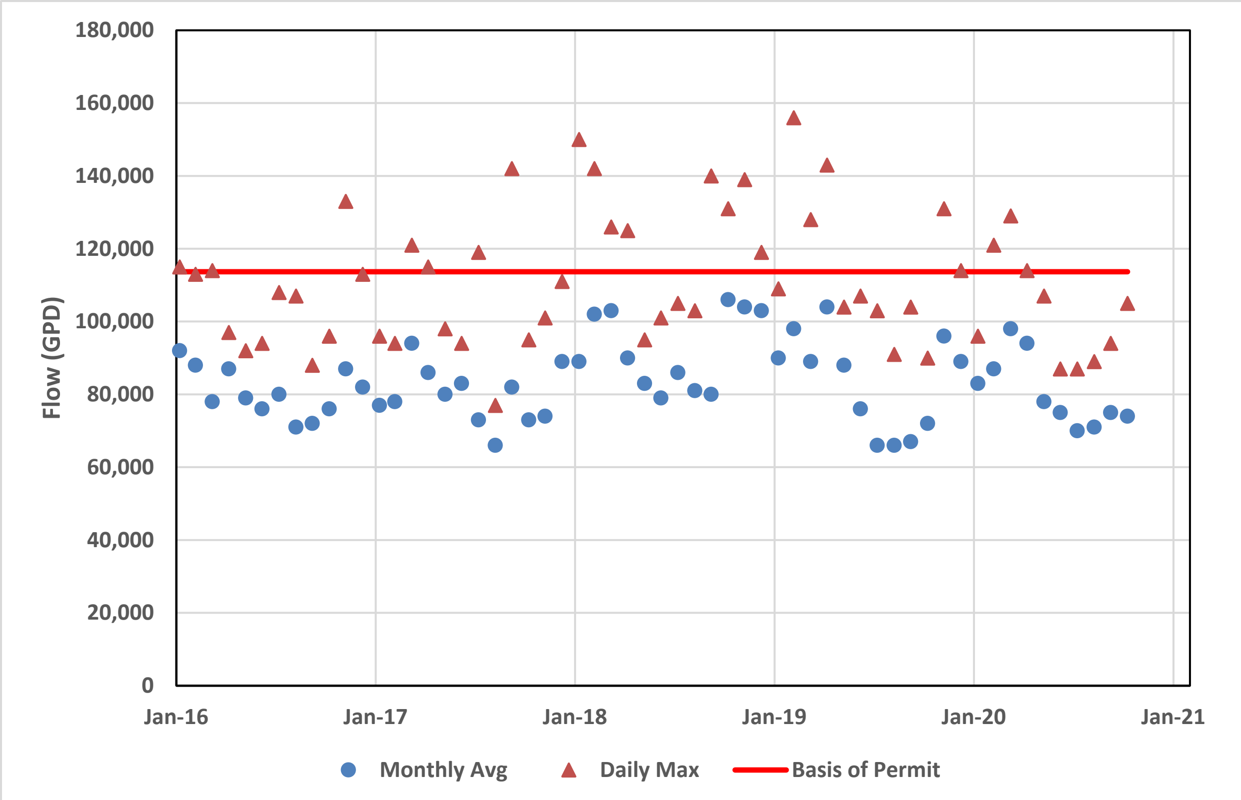
Table 3.4B.1 – Inflow and Infiltration (Ramapo)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd[2]	gpcd[3]			gpd[4]	gpcd[5]		
970	82,704	85	71%	No	142,425	147	53%	No

Table 3.4B.2 – Flow Projection vs Plant Capacity (Ramapo)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
400	400	100%	83,441	208.6	83,441	113,700	Adequate

Figure 3.4B.2 – Plant Flow (Ramapo)



C. BURLINGTON COUNTY – HOMESTEAD WASTEWATER SYSTEM (NPDES-ID: NJ0098663)

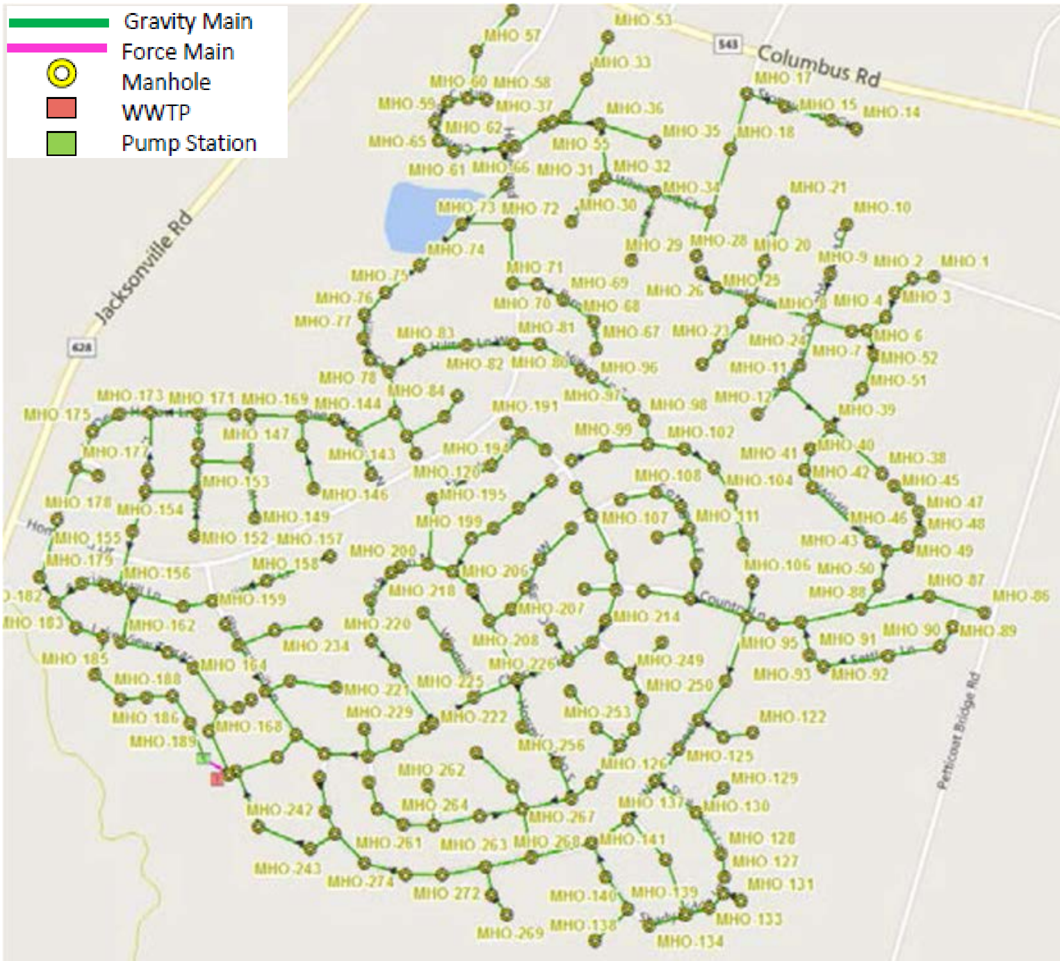
System Description

The Homestead Wastewater System is a small wastewater system that provides wastewater services to a planned development community within Mansfield Township, Burlington County, comprising approximately 1,306 service connections. Wastewater is removed from individual premises via service laterals connected to a gravity main collection system. Collected sewage flows to a common treatment plant, where it is treated before discharging to a small tributary to the Delaware River.

Collection System

Most of the collection system infrastructure was installed in 1982 but additions and replacements occurred in 2016. The system has approximately 153 feet of force main sized 2-inch and approximately 10.3 miles (54,200 feet) of gravity mains consisting of 8- or 10-inch diameters. All the pipes in the Homestead collection system are PVC. There are also approximately 279 manholes. The system has one lift station. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4C.1.

Figure 3.4C.1 – Collection System Map (Homestead)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Homestead system. One was using the EPA threshold criteria as shown in Table 3.4C.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Homestead system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Homestead system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Homestead in the last five years was calculated to be 1.7, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Homestead WWTP is 250,000 gpd. Figure 3.4C.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4C.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

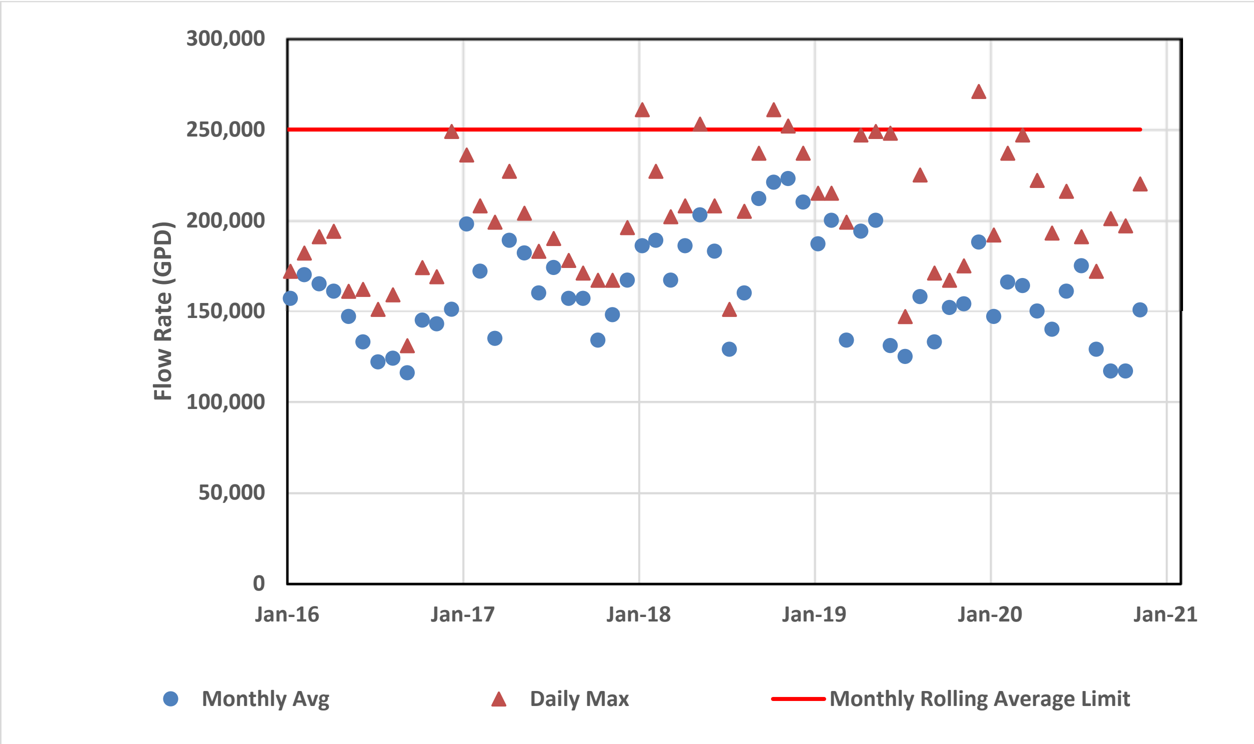
Table 3.4C.1 – Inflow and Infiltration (Homestead)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
3,093	161,088	52	43%	No	273,507	88	32%	No

Table 3.4C.2 – Flow Projection vs Plant Capacity (Homestead)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
1,306	1,306	100%	146,305	112	146,305	250,000	Adequate

Figure 3.4C.2 – Plant Flow (Homestead)



D. BURLINGTON COUNTY – MAPLETON WASTEWATER SYSTEM (NPDES-ID: NJ 0108120)

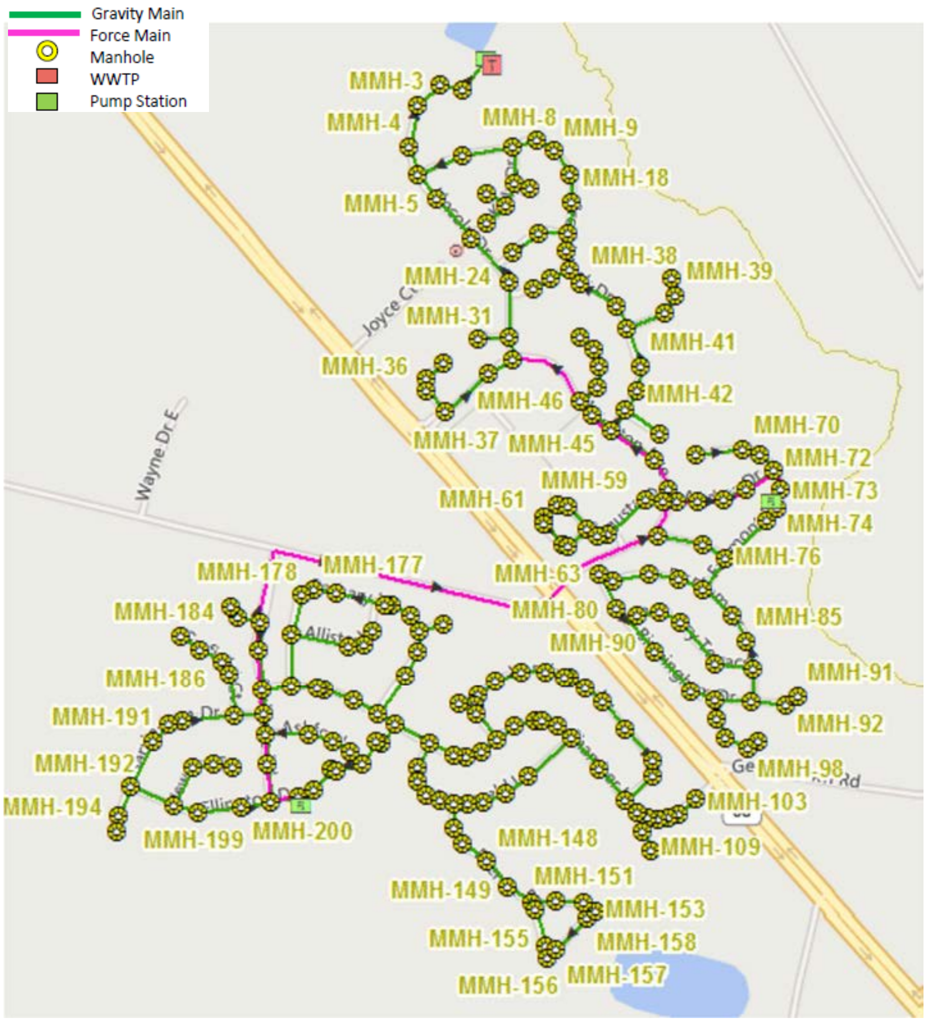
System Description

The Mapleton Wastewater System is a small community wastewater system that provides wastewater services to a development community within Mansfield Township, Burlington County, comprising approximately 971 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system comprising of gravity mains. Collected sewage flows to a common wastewater treatment plant (WWTP), where it is purified before discharging to ground.

Collection System

There are approximately 8 miles of gravity mains ranging in size from 8-inches to 15-inches, and approximately 2 miles of force mains with sizes ranging from 4-inches to 6-inches. The collection system also consists of approximately 220 manholes. The system has three lift stations. The general layout of the collection system area is shown in Figure 3.4D.1.

Figure 3.4D.1 – Collection System Map (Mapleton)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Mapleton system. One was using the EPA threshold criteria as shown in Table 3.4D.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Mapleton system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Mapleton system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Mapleton in the last five years was calculated to be 1.73, which was relatively low, indicating that no significant I&I issues were identified. However, this system has had a history of daily flow exceedances (Figure 3.4C.2). Therefore, it is recommended that the sources be identified and corrected.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Mapleton WWTP is 376,000 gpd. Figure 3.4D.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow exceeded the plant's rated capacity twice, most notably in April 2019 when the flow reached 0.41 MGD. Table 3.4D.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

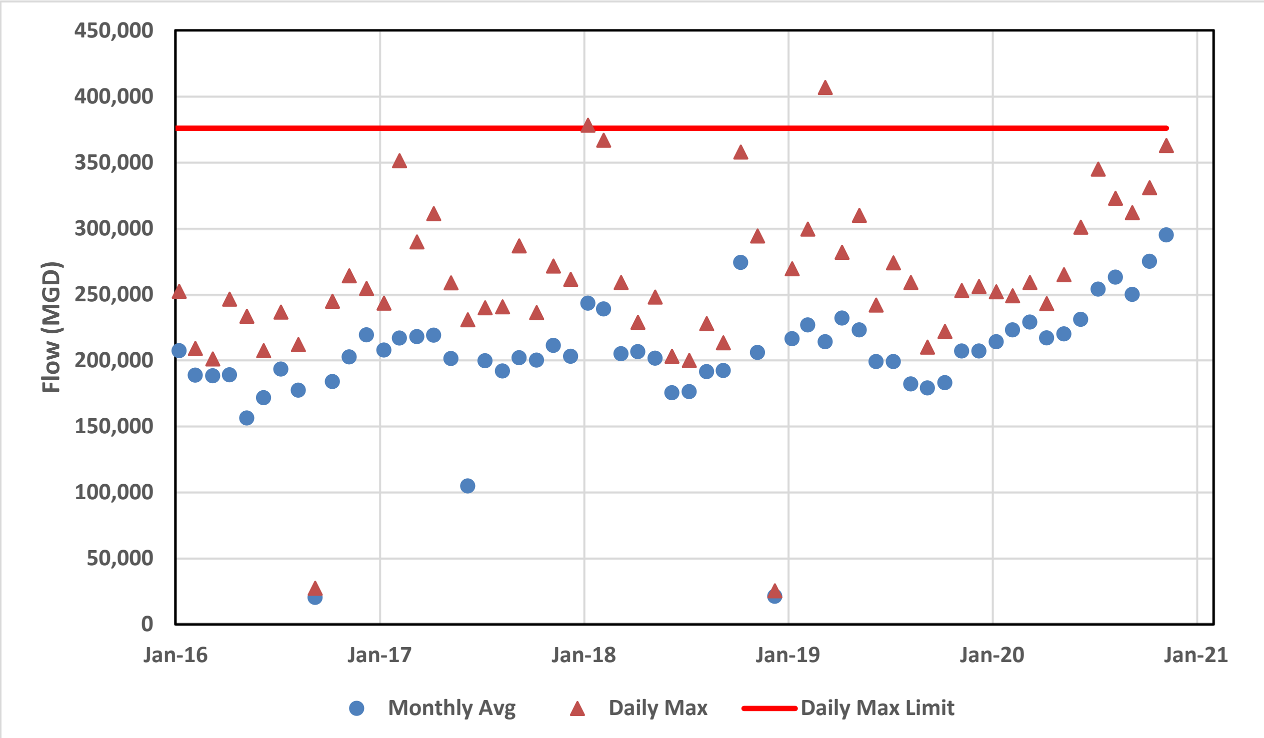
Table 3.4D.1 – Inflow and Infiltration (Mapleton)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
2,368	202,250	85	71%	No	349,745	148	54%	No

Table 3.4D.2 – Flow Projection vs Plant Capacity (Mapleton)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
971	971	100%	202,154	208.2	202,154	376,000	Adequate

Figure 3.4D.2 – Plant Flow (Mapleton)



Recommendations

Based on the analysis of this system, the following collection system improvements are recommended:

- Manhole survey and inspection
- Flow and rainfall monitoring study
- CCTV and sewer cleaning
- Smoke testing
- Replace manhole cover and frame as noted in Recurring Project RP-6

E. CAMDEN COUNTY – HADDONFIELD WASTEWATER SYSTEM (NPDES-ID: N/A)

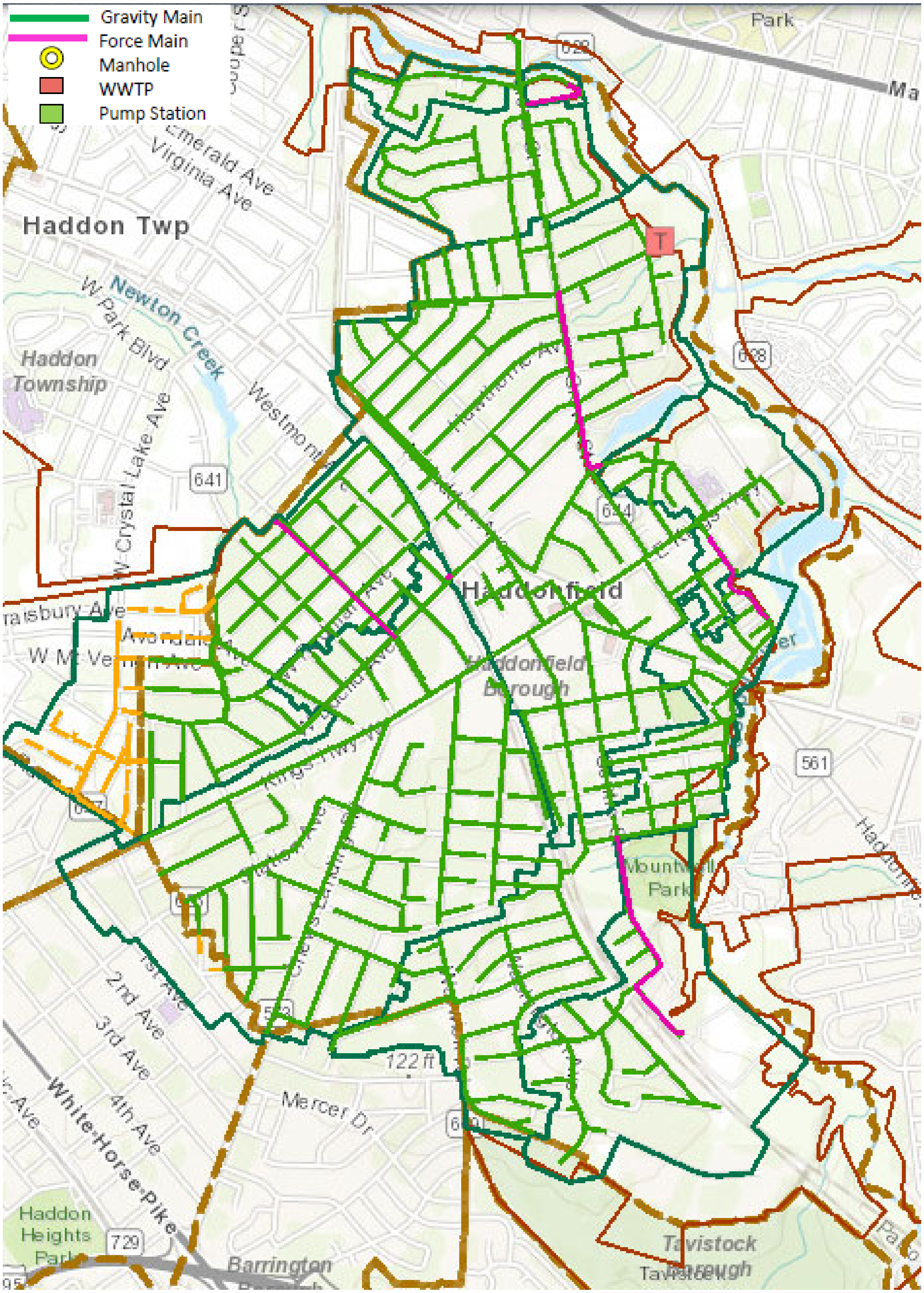
System Description

The Haddonfield Wastewater System is a municipality-wide wastewater collection system that provides wastewater collection services to Haddonfield Borough, Camden County, comprising approximately 4,600 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. The collection system is divided into eight basins, six served by a dedicated lift station (that pumps to adjacent basins) and two that flow directly to the regional sewer authority; the Camden County Municipal Utilities Authority (CCMUA).

Collection System

The collection system piping in the Haddonfield system primarily consists of vitrified clay pipe (VCP). There are six pump stations which pump the waste to adjacent basins, which then flow to the regional CCMUA interceptor. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. Being an older system, there are significant I&I issues that are being gradually addressed, but much remains to be done. Similarly, while a number of lift stations have been rehabilitated/replaced, there are two that need replacements as they are well past their useful life and their reliability is questionable. The general layout of the collection system area is shown in Figure 3.4E.1.

Figure 3.4E.1 – Collection System Map (Haddonfield)



Inflow and Infiltration

The Haddonfield collection system has significant I&I issues, particularly during prolonged wet periods. Several sewer main replacement projects have been identified to mitigate the high I&I and are included in Appendix A of this report.

F. CAMDEN COUNTY – MOUNT EPHRAIM WASTEWATER SYSTEM (NPDES-ID: N/A)

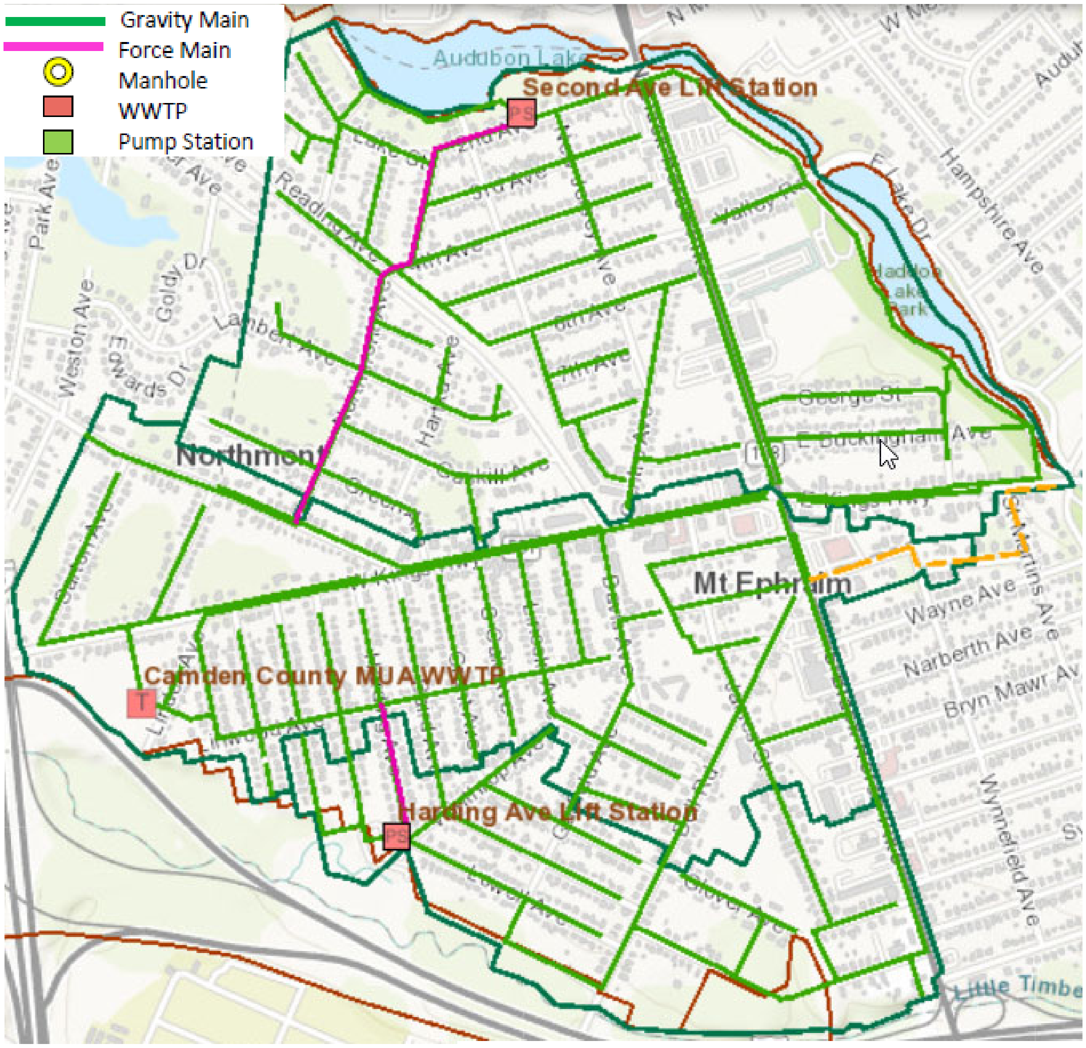
System Description

The Mount Ephraim Wastewater System is a municipality-wide wastewater collection system that provides wastewater collection services to Mount Ephraim Borough, Camden County, comprising approximately 1,780 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. The collection system is divided into three basins, two served by a dedicated lift station (that pumps to adjacent basins) and one that flows directly to the regional sewer authority; the Camden County Municipal Utilities Authority (CCMUA).

Collection System

The collection system piping in the Mount Ephraim system primarily consists of vitrified clay pipe (VCP). There are two pump stations which pump the waste to adjacent basins, which then flow to the regional CCMUA interceptor. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. Being an older system, there are significant I&I issues that are being gradually addressed, but much remains to be done. Similarly, the lift stations require upgrades or replacements as they are well past their useful life and their reliability is questionable. The general layout of the collection system area is shown in Figure 3.4F.1.

Figure 3.4F.1 – Collection System Map (Mount Ephraim)



Inflow and Infiltration

The Mount Ephraim collection system has significant I&I issues, particularly during prolonged wet periods. Several sewer main replacement projects have been identified to mitigate the high I&I and are included in Appendix A of this report.

G. CAPE MAY COUNTY – THE LINKS AT AVALON, WASTEWATER SYSTEM (NPDES-ID: NJ0069884)

System Description

The Links at Avalon Wastewater System is a small community wastewater system that provides wastewater collection and treatment services to a development community within Middle Township, Cape May County, comprising approximately 211 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

There are approximately 0.3 miles of 4-inch PVC force mains, and approximately 1.5 miles of 8-inch PVC gravity mains. The collection system also consists of approximately 41 manholes. One section of the community is served by a pump station and force main. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4G.1.

Figure 3.4G.1 – Collection System Map (Avalon)

Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Links at Avalon system. One was using the EPA threshold criteria as shown in Table 3.4G.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Avalon system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Avalon system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Avalon in the last five years was calculated to be 1.06, which was relatively low, indicating that no significant I&I issues were identified.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Links at Avalon WWTP is 67,180 gpd. Figure 3.4G.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown in Figure 3.4F.2, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4G.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

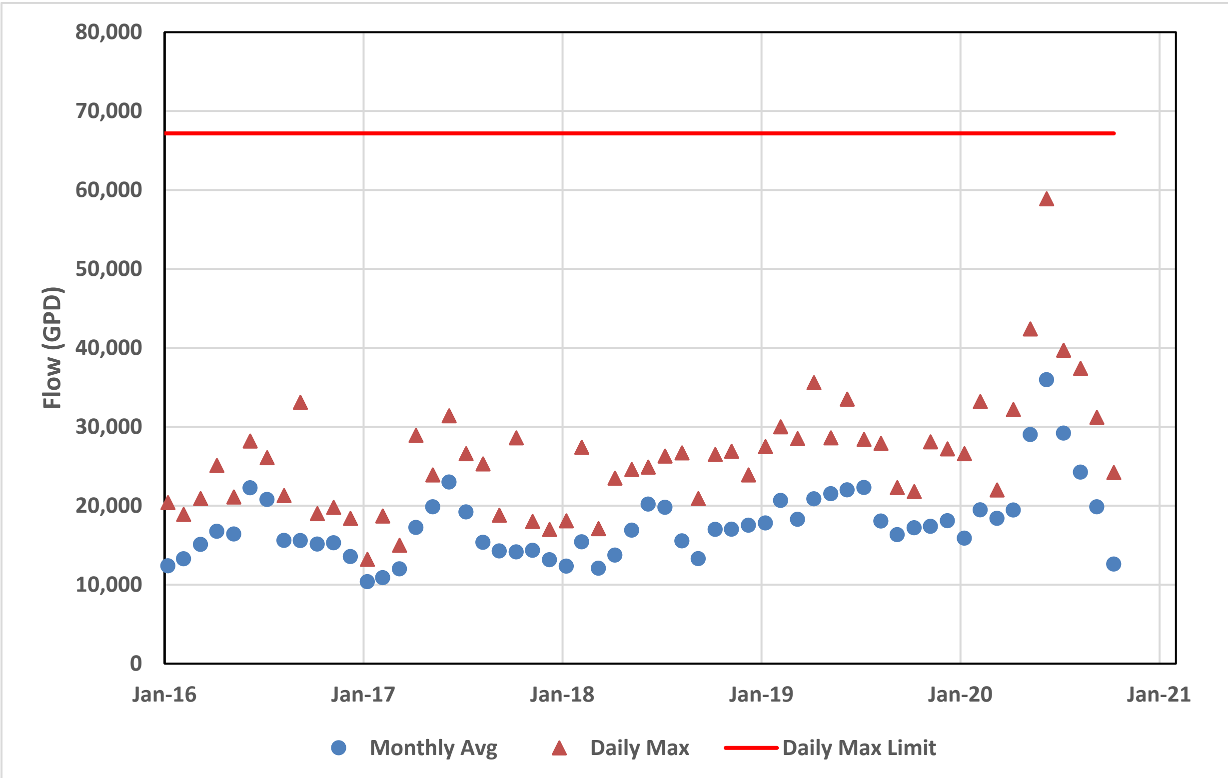
Table 3.4G.1 – Inflow and Infiltration (Avalon)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
518	14,328	28	23%	No	15,202	29	11%	No

Table 3.4G.2 – Flow Projection vs Plant Capacity (Avalon)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
211	211	100%	17,527	83.1	17,527	67,180	Adequate

Figure 3.4G.2 – Plant Flow (Avalon)



H. CAPE MAY COUNTY – OCEAN CITY SEWER SYSTEM (NPDES-ID: N/A)

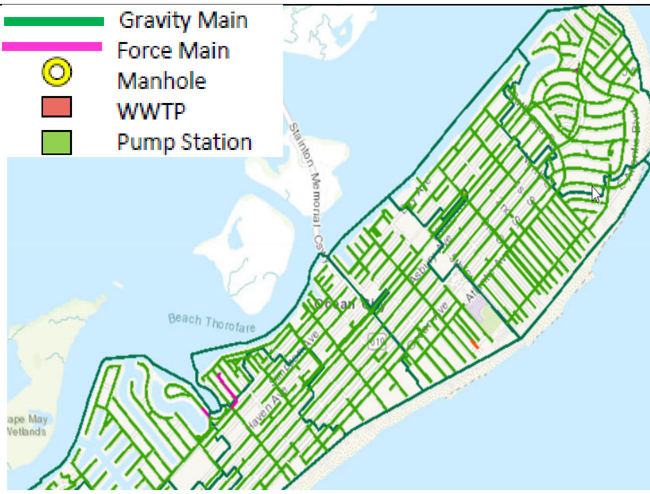
System Description

The Ocean City Sewer System is a municipality-wide wastewater system that provides wastewater services to Ocean City, a resort town in Cape May County, comprising approximately 15,500 service connections. Wastewater is collected from individual premises via service laterals connected to a collection system composed of gravity mains. The collection system is divided into twelve basins, each served by a dedicated lift station where collected sewage is either pumped into another basin or to the regional sewage authority. All the collected sewage is treated by the Cape May County Municipal Utilities Authority's (CMCMUA) Ocean City Wastewater Treatment Facility.

Collection System

The collection system piping in the Ocean City Sewer System primarily consists of asbestos cement pipe (ACP), polyvinyl chloride (PVC), and vitrified clay pipe (VCP). There are eight NJAWC owned pump stations and four CMCMUA owned pump stations which pump the collected effluent to the CMCMUA's Ocean City Wastewater Treatment Facility. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. Being an older system, there are significant I&I issues that are being gradually addressed, but much remains to be done, particularly with the older VCP and ACP. It is the ACP and VCP, which have high failure rates, that are the primary concern, and in certain areas there are blockages due to sags or undersized mains. Similarly, some lift stations require upgrades as they are well past their useful life and their reliability is questionable. The general layout of the collection system area is shown in Figure 3.4H.1.

Figure 3.4H.1 – Collection System Map (Ocean City)

Ocean City – Most Northerly	Ocean City – Center Northerly
	
Ocean City – Center Southerly	**Ocean City – Most Southerly**
	

Inflow and Infiltration

The Ocean City collection system has significant I&I issues, particularly during prolonged wet periods and coastal storms. There also appears to be a tidal influence of the I&I. While several sewer main projects have already been completed, many more sewer main segments have been identified for renewal.

I. GLOUCESTER COUNTY –ELK WASTEWATER SYSTEM (NPDES-ID: N/A)

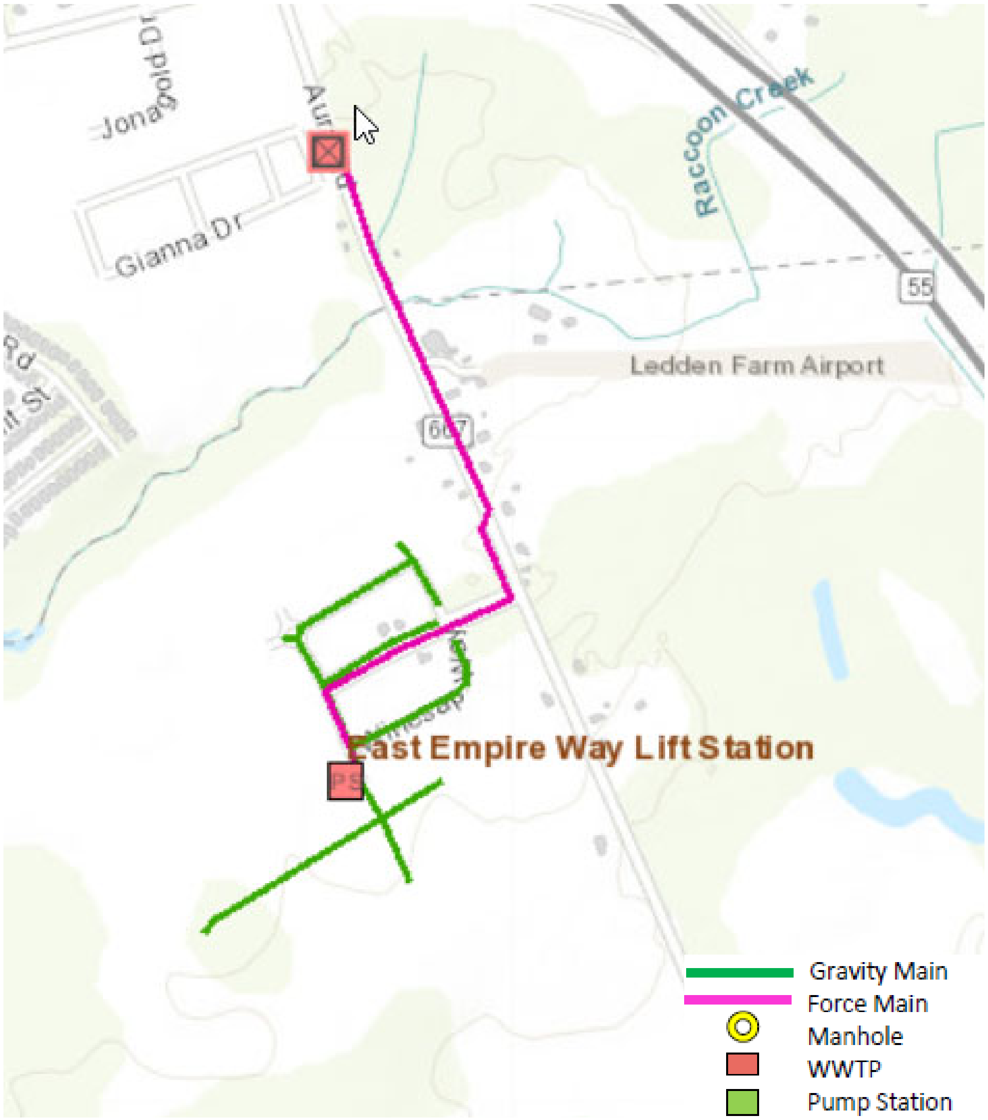
System Description

The Elk System is a newly constructed small community wastewater system that provides wastewater services to a development community within Elk Township, Gloucester County, comprising approximately 55 service connections, with future capacity for over 350 units. Wastewater is collected from individual premises via service laterals connected to a collection system comprised of gravity mains. The collected sewage is then pumped through a force main and discharged to the Glassboro Borough sewer system where it is then sent to the Gloucester County Utilities Authority for treatment and disposal.

Collection System

The collection piping in the Elk System is all PVC. Approximately 0.9 mile is gravity, and 0.7 mile is force main. The system is relatively new and has been in service for only a few years. The flow is by gravity to a lift station that pumps the sewage to Glassboro. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4I.1.

Figure 3.4I.1 – Collection System Map (Elk)



Inflow and Infiltration

Due to the young age of the system, there are no reported I&I issues or blockages.

J. HUNTERDON COUNTY – BRASS CASTLE WASTEWATER SYSTEM (NPDES-ID: NJ0068829)

System Description

The Brass Castle Sewer System is a small community wastewater system that provides wastewater services to a development community in Pittstown, Union Township, Hunterdon County, comprising approximately 70 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

Brass Castle's collection piping system consists of PVC. Customers in this system have septic tanks on their properties and the collection system accepts the effluent directly from the residences. There are approximately two miles of gravity sewer mains of 3-inch, 4-inch, or 6-inch diameters. The wastewater treatment plant connects to half a mile of force mains with diameters of either 3- or 4-inch. The collection system has 11 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4J.1.

Figure 3.4J.1 – Collection System Map (Brass Castle)

Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Brass Castle system. One was using the EPA threshold criteria as shown in Table 3.4J.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Brass Castle system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Brass Castle system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Brass Castle in the last five years was calculated to be 1.6, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Brass Castle WWTP is 22,000 gpd. Figure 3.4J.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. While the average monthly flow is consistently below the plant's rated capacity, the daily maximum flow approached the capacity during 2018. Corrective work to reduce I&I has resulted in the daily maximum flow falling well below the limit. Table 3.4J.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

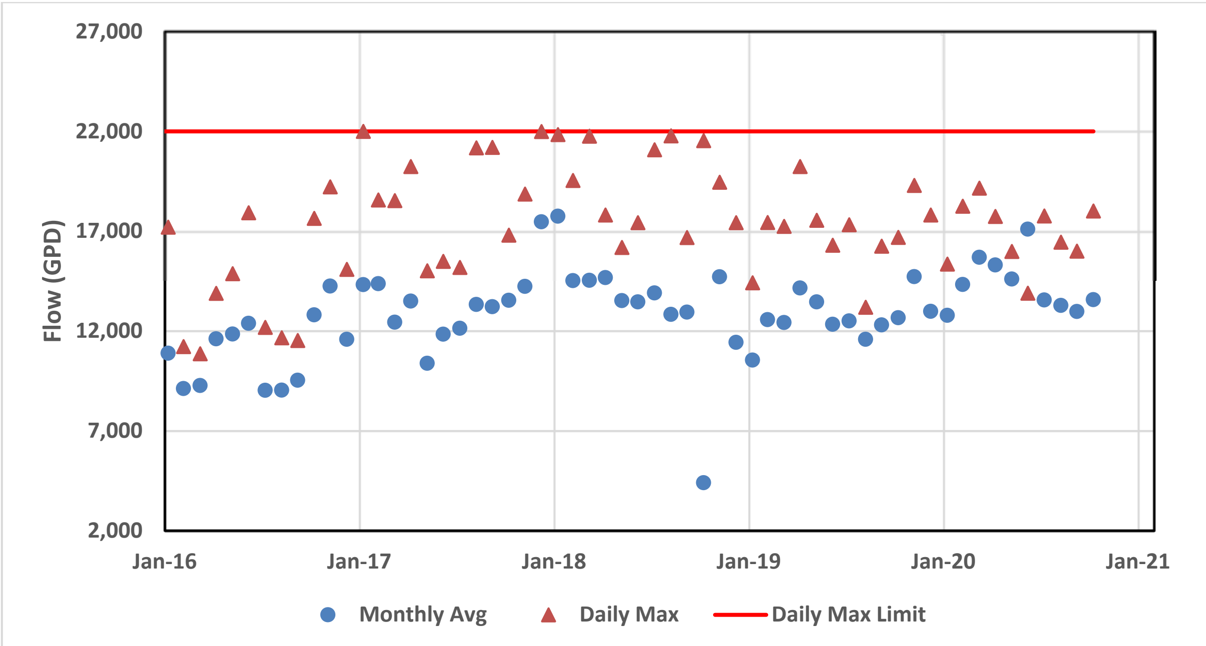
Table 3.4J.1 – Inflow and Infiltration (Brass Castle)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
173	11,828	69	58%	No	19,071	111	40%	No

Table 3.4J.2 – Flow Projection vs Plant Capacity (Brass Castle)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
70	70	100%	12,818	183.1	12,818	22,000	Adequate

Figure 3.4J.2 – Plant Flow (Brass Castle)



K. HUNTERDON COUNTY – CROSSROADS AT OLDWICK (NPDES-ID: NJ0104396)

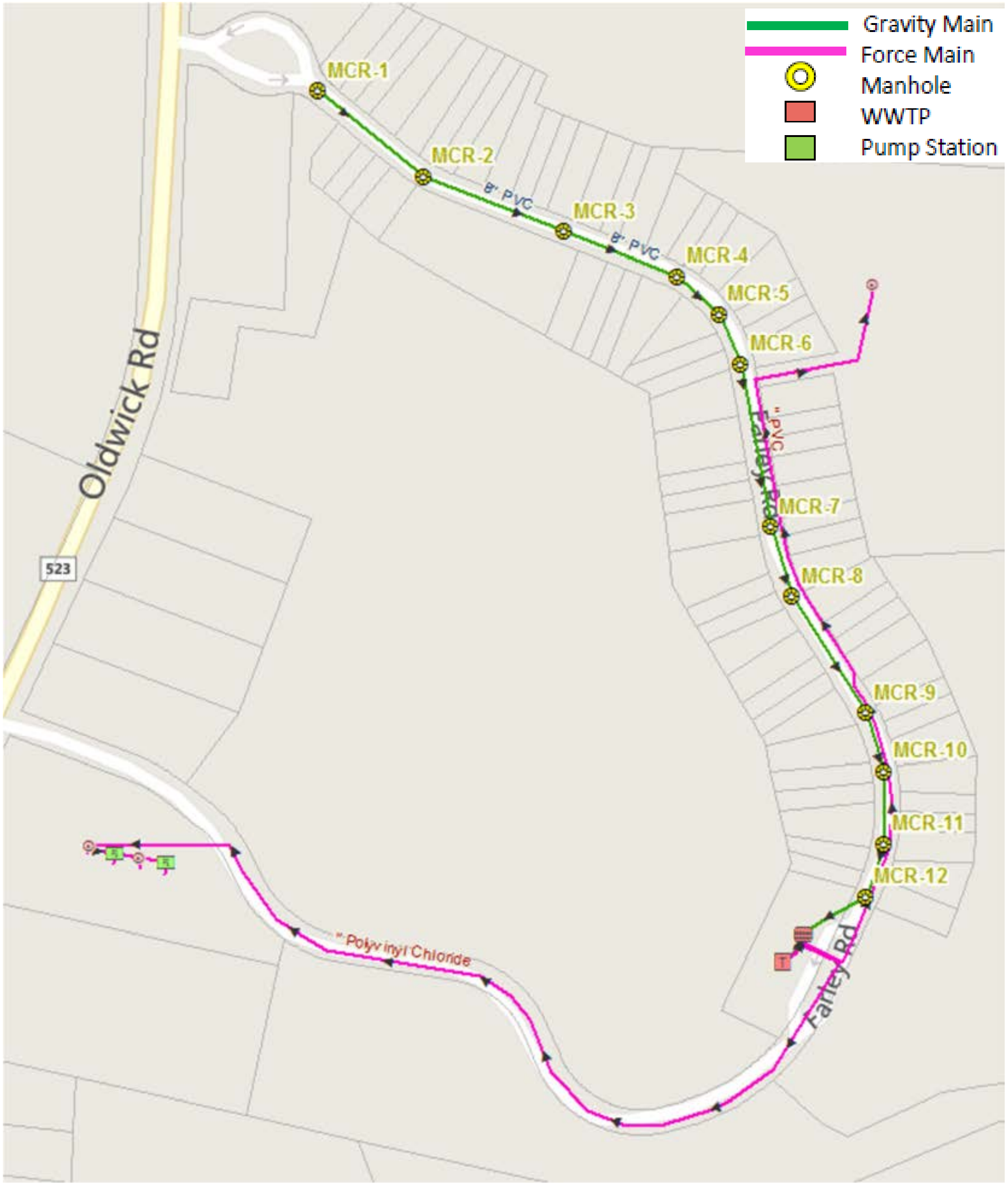
System Description

The Crossroads at Oldwick Sewer System is a small community wastewater system that provides wastewater services to a development community in Oldwick Township, Hunterdon County, comprising approximately 75 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

Due to the relatively recent construction of the wastewater facilities (2003), all collection pipes are PVC. There are approximately 0.4 miles of gravity mains with 8-inch diameter and 12 manholes. The Crossroads at Oldwick system consists of approximately 0.6 miles of force main with unknown diameter from the WWTP to the disposal fields. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4K.1.

Figure 3.4K.1 – Collection System Map (Crossroads)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Crossroads at Oldwick system. One was using the EPA threshold criteria as shown in Table 3.4K.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest

(5) five daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Crossroads at Oldwick system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Crossroads at Oldwick system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Crossroads at Oldwick in the last five years was calculated to be 1.3, which was relatively low, indicating that there are no significant I&I issues in this system.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Crossroads at Oldwick WWTP is 22,500 gpd. Figure 3.4K.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4K.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

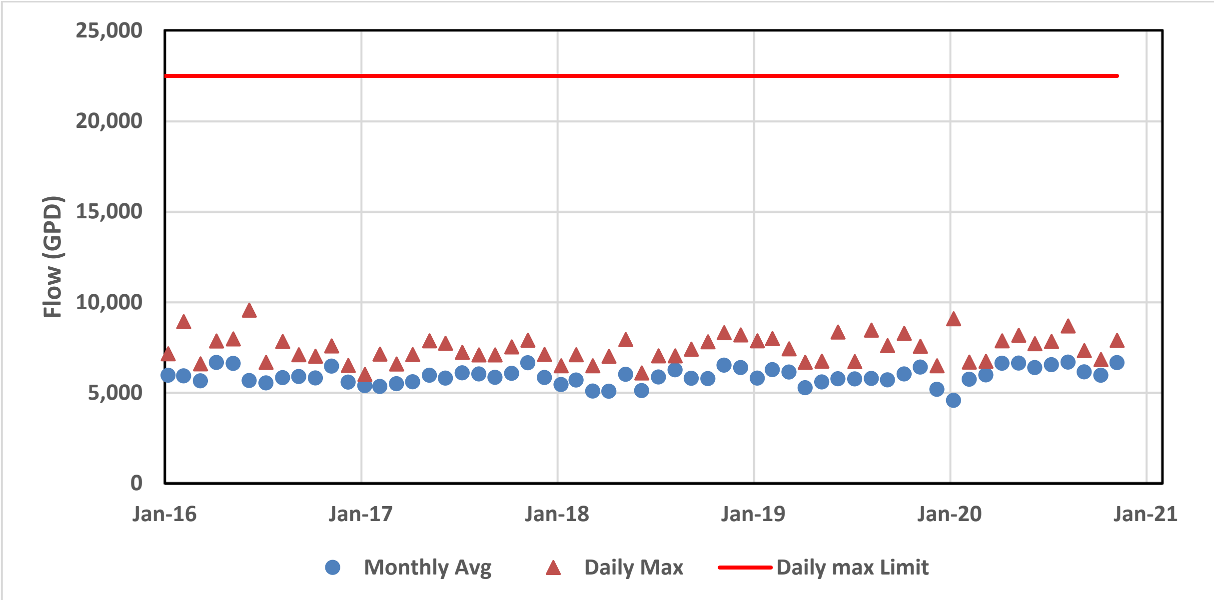
Table 3.4K.1 – Inflow and Infiltration (Crossroads)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	Gpcd		
188	5,978	32	27%	No	7,768	41	15%	No

Table 3.4K.2 – Flow Projection vs Plant Capacity (Brass Castle)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
75	75	100%	5,903	78.7	5,903	22,500	Adequate

Figure 3.4K.2 – Plant Flow (Crossroads)



L. HUNTERDON COUNTY – FAWN RUN SEWER SYSTEM (NPDES-ID: NJ0058246)

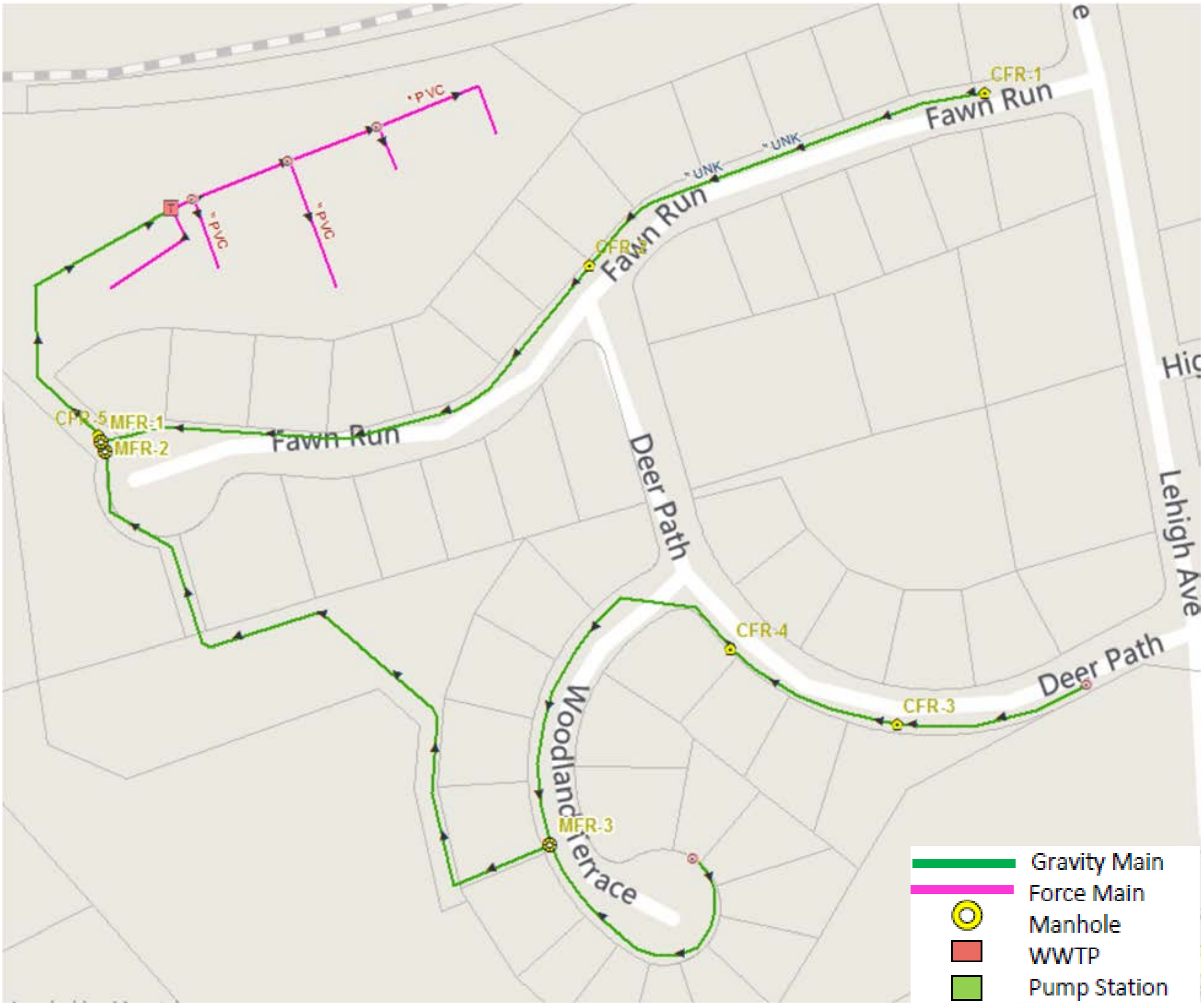
System Description

The Fawn Run Wastewater System is a small community wastewater system that provides wastewater services to a development community in Bloomsbury Township, Hunterdon County, comprising approximately 52 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

While most of the structures and collection pipes were installed relatively recently (1995), the diameters and materials of the gravity mains are unknown. There are approximately 3,500 feet of gravity mains, approximately 820 feet of force main, and five (5) manholes. Customers in this system have septic tanks on their properties and the collection system accepts the effluent directly from the residences. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4L.1.

Figure 3.4L.1 – Collection System Map (Fawn Run)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Fawn Run system. One was using the EPA threshold criteria as shown in Table 3.4L.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Fawn Run system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Fawn Run system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Fawn Run in the last five years was calculated to be 2.09, which was relatively low, indicating that no significant I&I issues were identified.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Fawn Run WWTP is 19,000 gpd. Figure 3.4L.1 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4L.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

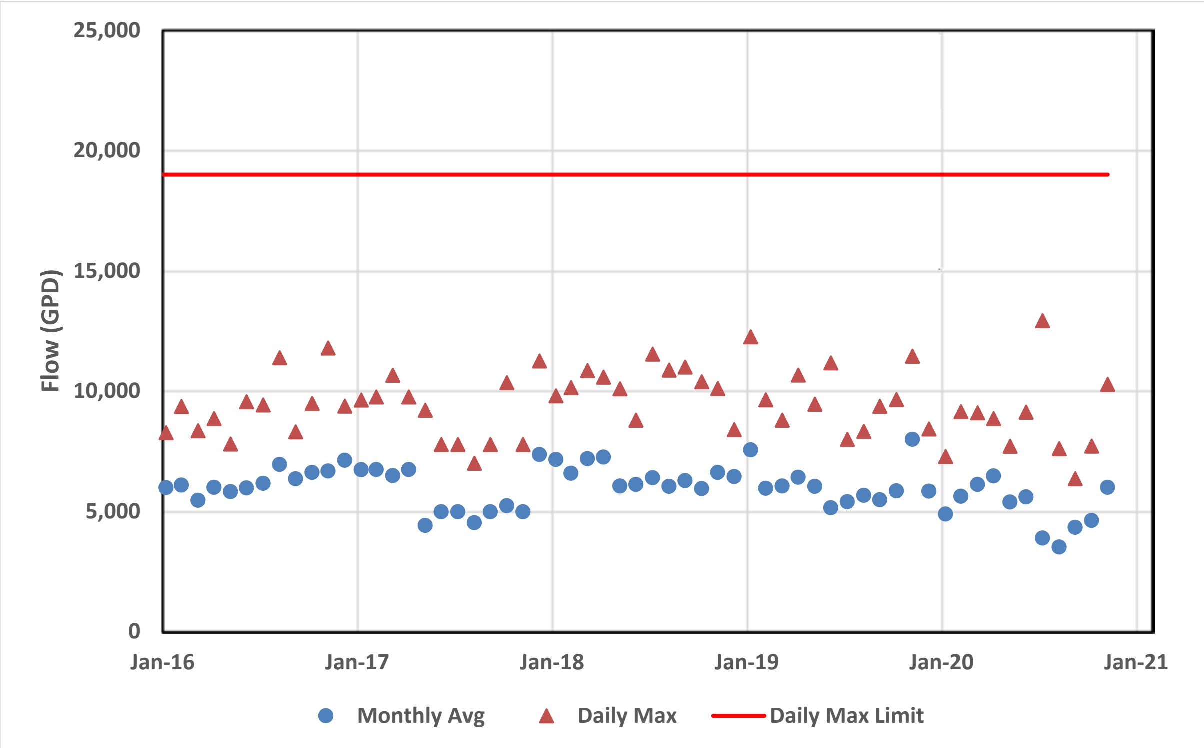
Table 3.4L.1 – Inflow and Infiltration (Fawn Run)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
128	5,880	46	38%	No	12,297	96	35%	No

Table 3.4L.2 – Flow Projection vs Plant Capacity (Fawn Run)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
52	52	100%	5,953	114.5	5,953	19,000	Adequate

Figure 3.4L.1 – Plant Flow (Fawn Run)



M. HUNTERDON COUNTY – GLEN MEADOWS/TWIN OAKS WASTEWATER SYSTEM (NPDES-ID: NJ0100528)

System Description

The Glen Meadows/Twin Oaks Wastewater System is a small community wastewater system that provides wastewater services to a development community in Clinton Township, Hunterdon County, comprising approximately 60 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

Due to the relatively recent construction of the Glen Meadows system (1995), the collection sewers are entirely made of PVC. The system contains approximately 1 mile of 8-inch diameter sewer. The collection system has 12 manholes. Significant collection system I&I issues have been reported for this system and management of these issues has resulted in the increase in volume of greywater hauled from the system. The general layout of the collection system area is shown in Figure 3.4M.1.

Figure 3.4M.1 – Collection System Map (Glen Meadows)

Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Glen Meadows system. One was using the EPA threshold criteria as shown in Table 3.4M.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Glen Meadows system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Glen Meadows system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Glen Meadows in the last five years was calculated to be 2.36, which was relatively high. The existence of I&I issues is further supported by the increase in the volume of greywater hauled from the system. It is recommended to identify sources of I&I, fix known I&I issues, or mitigate the effects of I&I.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Glen Meadows WWTP is 25,000 gpd. Figure 3.4M.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4M.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

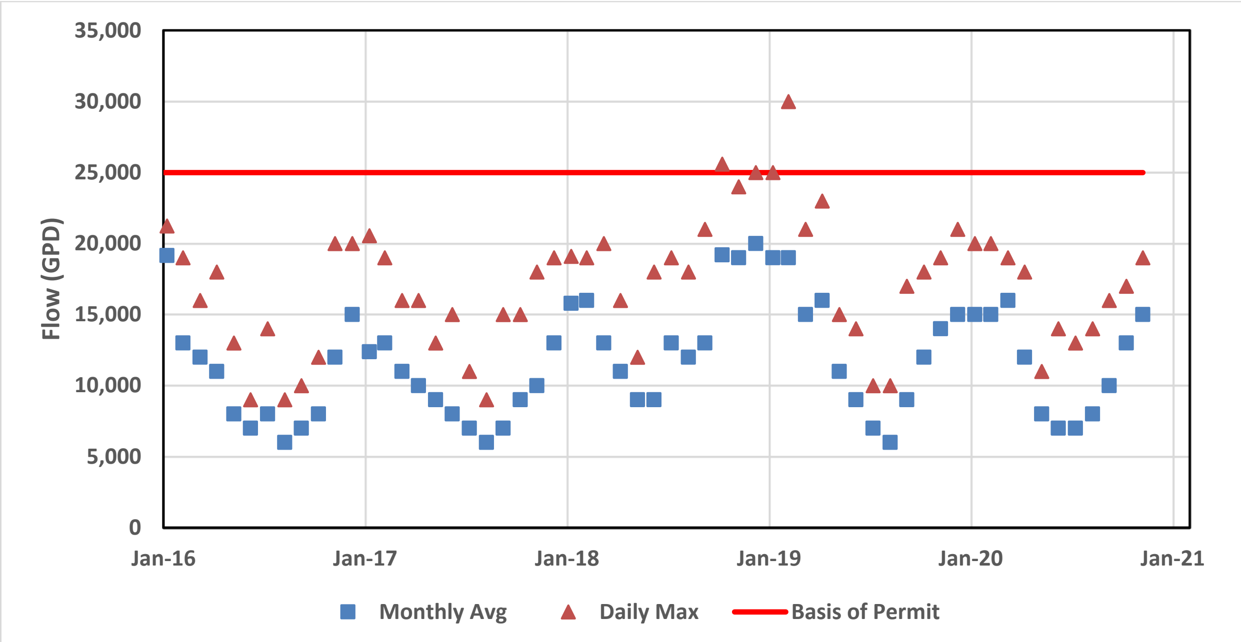
Table 3.4M.1 – Inflow and Infiltration (Glen Meadows)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
135	11,066	82	68%	No	26,086	193	70%	No

Table 3.4M.2 – Flow Projection vs Plant Capacity (Glen Meadows)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
58	58	100%	11,742	202.4	11,742	25,000	Adequate

Figure 3.4M.2 – Plant Flow (Glen Meadows)



Recommendations

Based on the analysis of this system, the following collection system improvements are recommended:

- Manhole survey and inspection
- Flow and rainfall monitoring study
- CCTV and sewer cleaning
- Smoke testing

N. HUNTERDON COUNTY – LOOKOUT POINTE WASTEWATER SYSTEM (NPDES-ID: NJ0140571)

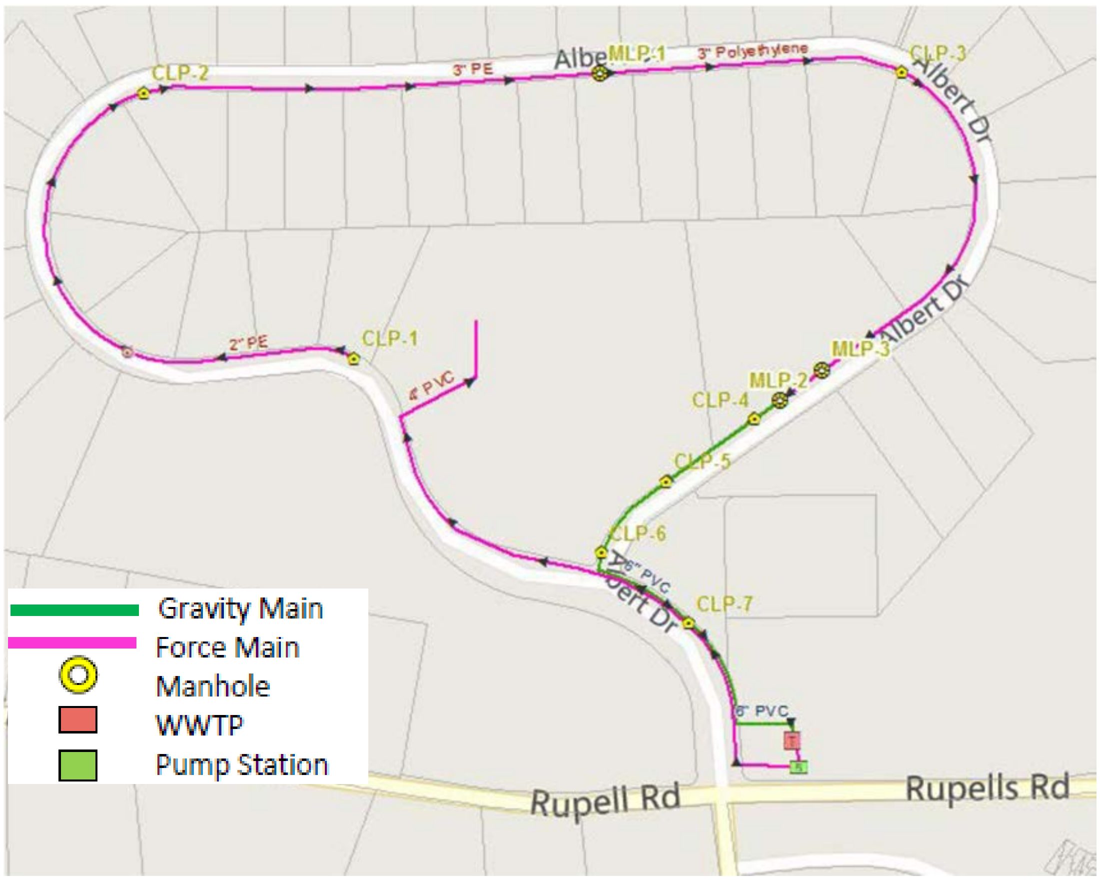
System Description

The Lookout Pointe Wastewater System is a small community wastewater system that provides wastewater services to a development community in Union Township, Hunterdon County, comprising approximately 55 service connections. Wastewater is removed from individual premises via grinder/ejector pump connected to a collection system composed of mostly force mains. Collected sewage is then directed via gravity to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

The collection piping in the Lookout Pointe system consists of all PVC piping. Each residence in this system owns a grinder/ejector pump that directs flow up a hill, which then allows all flow to be delivered to the plant by gravity. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. There are approximately 1 mile of force mains ranging in size from 2-inch to 4-inch, and approximately 0.2 miles (1100 feet) of 6-inch gravity mains. The collection system also has approximately 6 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4N.1.

Figure 3.4N.1 – Collection System Map (Lookout Pointe)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Lookout Pointe system. One was using the EPA threshold criteria as shown in Table 3.4N.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow was calculated on an annual basis because the system's I&I has been decreasing. The average dry and wet weather flow per capita in the Lookout Pointe system was lower than the dry and wet weather EPA threshold criteria each year from 2016 to 2020.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Lookout Pointe system could be hydraulically overloaded during rainfall events. As the system's I&I continued to decrease, dry and wet weather flow data in 2020 was used for the analysis. The wet weather peaking factor for Lookout Pointe was calculated to be 1.27, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Lookout Pointe WWTP is 16,200 gpd. Figure 3.4N.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4N.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

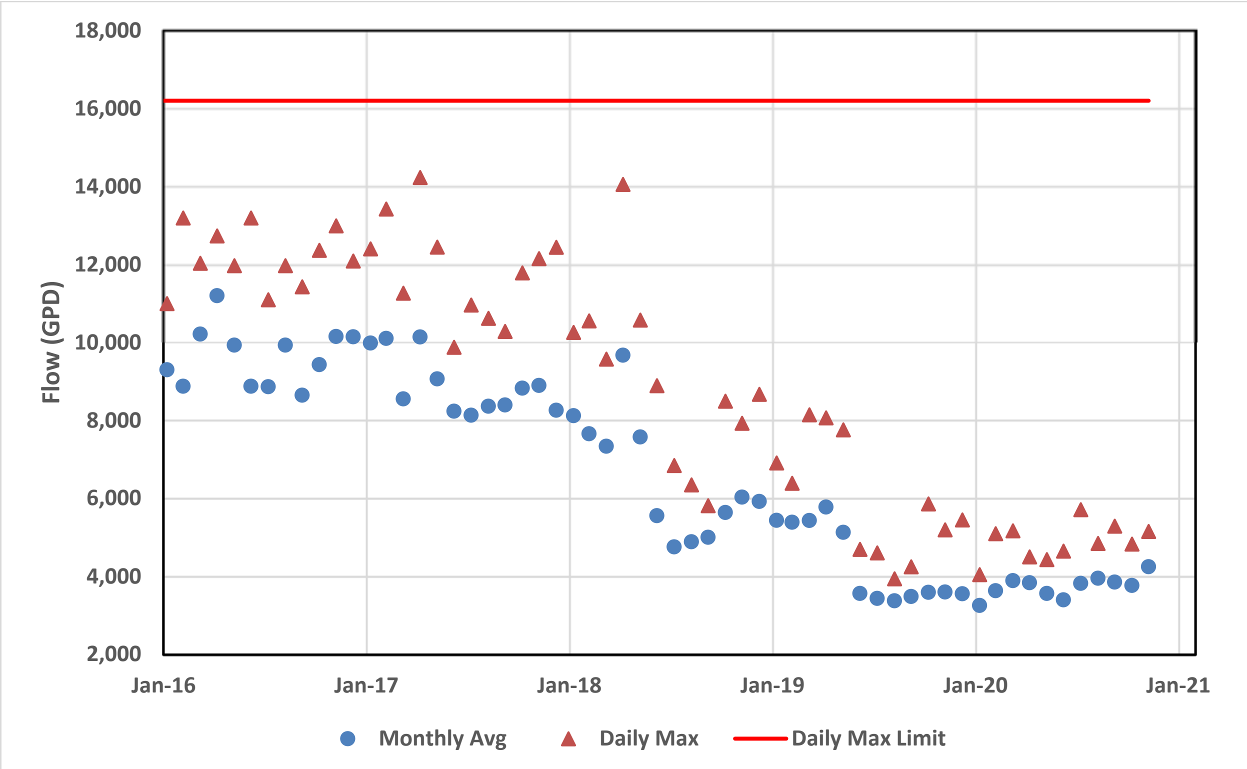
Table 3.4N.1 – Inflow and Infiltration (Lookout Point)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
138	3,690	27	23%	No	4,683	34	12%	No

Table 3.4N.2 – Flow Projection vs Plant Capacity (Lookout Point)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
55	55	100%	6,701	121.8	6,701	16,200	Adequate

Figure 3.4N.2 – Plant Flow (Lookout Pointe)



O. HUNTERDON COUNTY – POTTERSVILLE WASTEWATER SYSTEM (NPDES-ID: NJ0022781)

System Description

The Pottersville Wastewater System is a small community wastewater system that provides wastewater services to a development community in Tewksbury Township, Hunterdon County, comprising approximately 110 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. Collected sewage is then directed via gravity to a common wastewater treatment plant (WWTP), where it is purified before discharging to surface water.

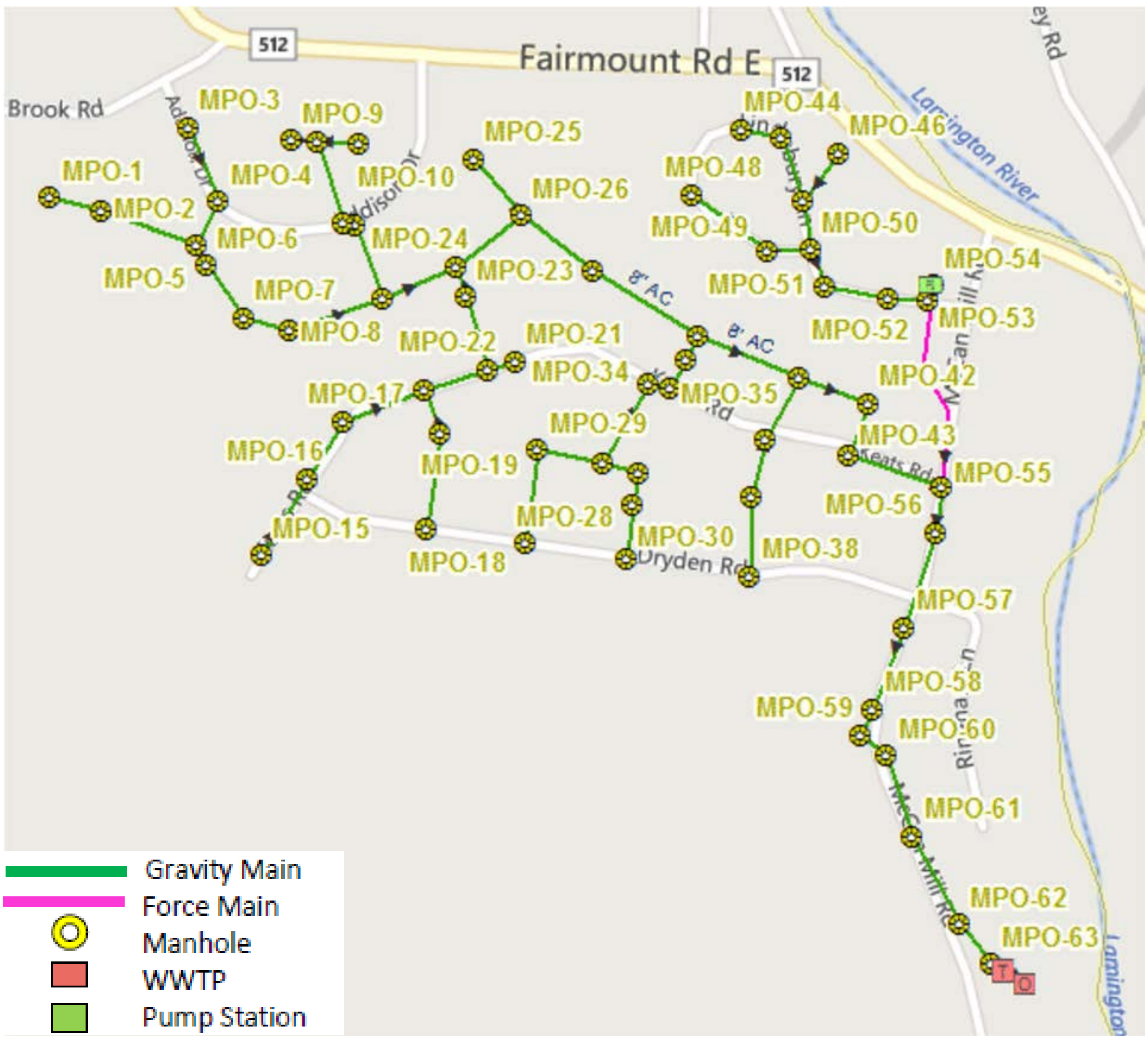
Collection System

There are approximately 2.3 miles of 8-inch gravity mains made of either asbestos cement or PVC, and approximately 630 feet (0.1 miles) of 4-inch ductile iron cement lined force main that serves the one lift station in the system. The system also has approximately 65 manholes.

Two manholes which are elevated and one section of the sewer main are located in a stream. Potential failure would cause sewage in the stream (high consequence of failure). Field inspection was recently conducted by NSU to inspect the condition of the sewers near or across the stream and identify the potential sources of I&I (August 2021). As part of the inspection, a total of 13 manholes were inspected. The results of the inspection identified that nine manholes are in need of repairs to address some defects. Manhole MPO-6 was observed to have active infiltration inside the manhole at the lowest joint. MPO-6 is located in a stream and at risk of becoming damaged and dislodged by future storm events. NSU also observed that the pipe from MPO-23 to MPO-24 is partially exposed within the stream bed. While the 8" ductile iron pipe appears to be intact, there is a risk of becoming damaged and dislodged by future storm events. NSU also reviewed a 2014 sewer CCTV report and identified a total of 24 defects in the 8" ACP sewer main. Manholes and pipe in stream should be addressed with high priority.

Significant collection system I&I issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4O.1.

Figure 3.4O.1 – Collection System Map (Pottersville)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Pottersville system. One was using the EPA threshold criteria as shown in Table 3.4O.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow was calculated on an annual basis because the system's I&I has been decreasing. The average dry and wet weather flow per capita in the Pottersville system was lower than the dry and wet weather EPA threshold criteria each year from 2016 to 2020.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Pottersville system could be hydraulically overloaded during rainfall events. As the system's I&I continued to decrease, dry and wet weather flow data in 2020 was used for the analysis. The wet weather peaking factor for Pottersville was calculated to be 2.41, which was relatively high. It is recommended to identify sources of I&I, fix known I&I issues, or mitigate the effects of I&I.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Pottersville WWTP is 48,000 gpd. Figure 3.4O.1 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4O.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

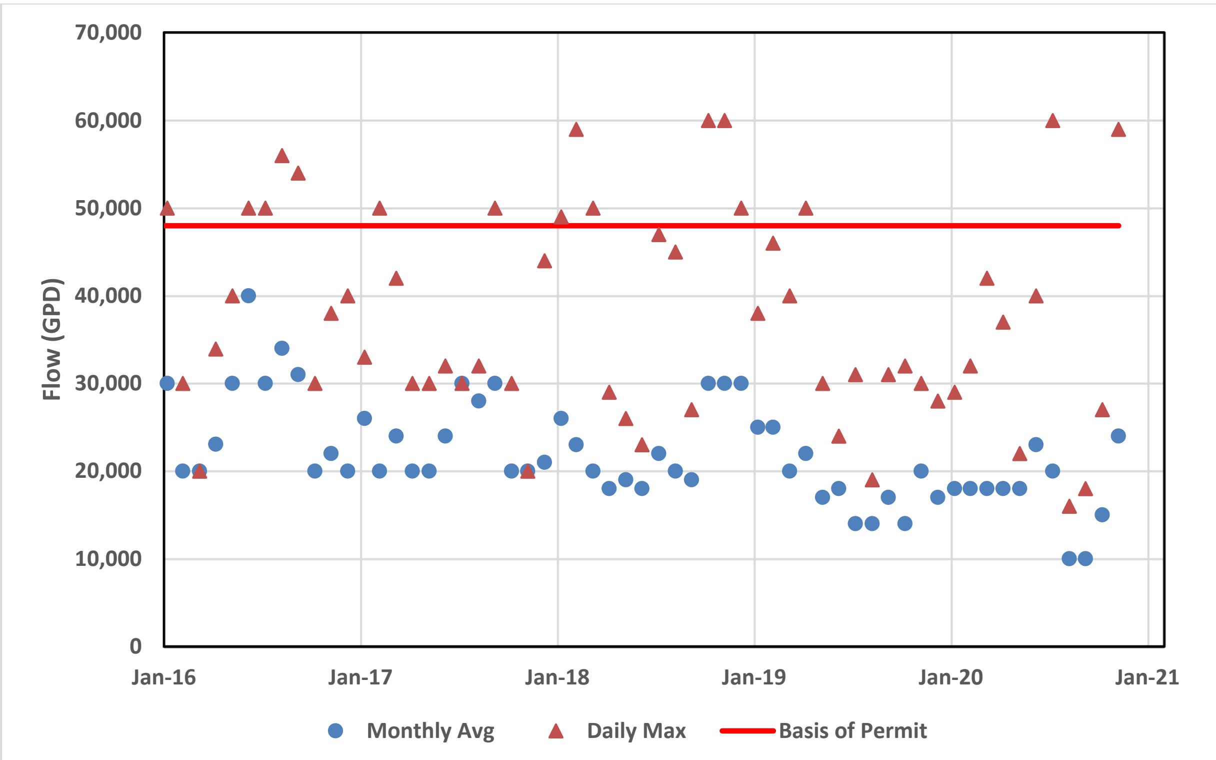
Table 3.4O.1 – Inflow and Infiltration (Pottersville)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
260	16,445	63	53%	No	39,652	153	536%	No

Table 3.4O.2 – Flow Projection vs Plant Capacity (Pottersville)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
107	107	100%	21,884	204.5	21,884	48,000	Adequate

Figure 3.4O.1 – Plant Flow (Pottersville)



Recommendations

Based on the analysis of this system, the following improvements are recommended:

- Repair manhole defects with grout
- Install inflow protector for MPO-2 and MPO-7
- Protect sewer between MPO-6, MPO-7, and MPO-8 along the stream
- Lower the sewer beneath the stream between manholes MPO-23 and MPO-24
- Repair defects identified in the 2014 CCTV inspection

P. HUNTERDON COUNTY – VILLAGE SQUARE WASTEWATER SYSTEM (NPDES-ID: NJ0066907)

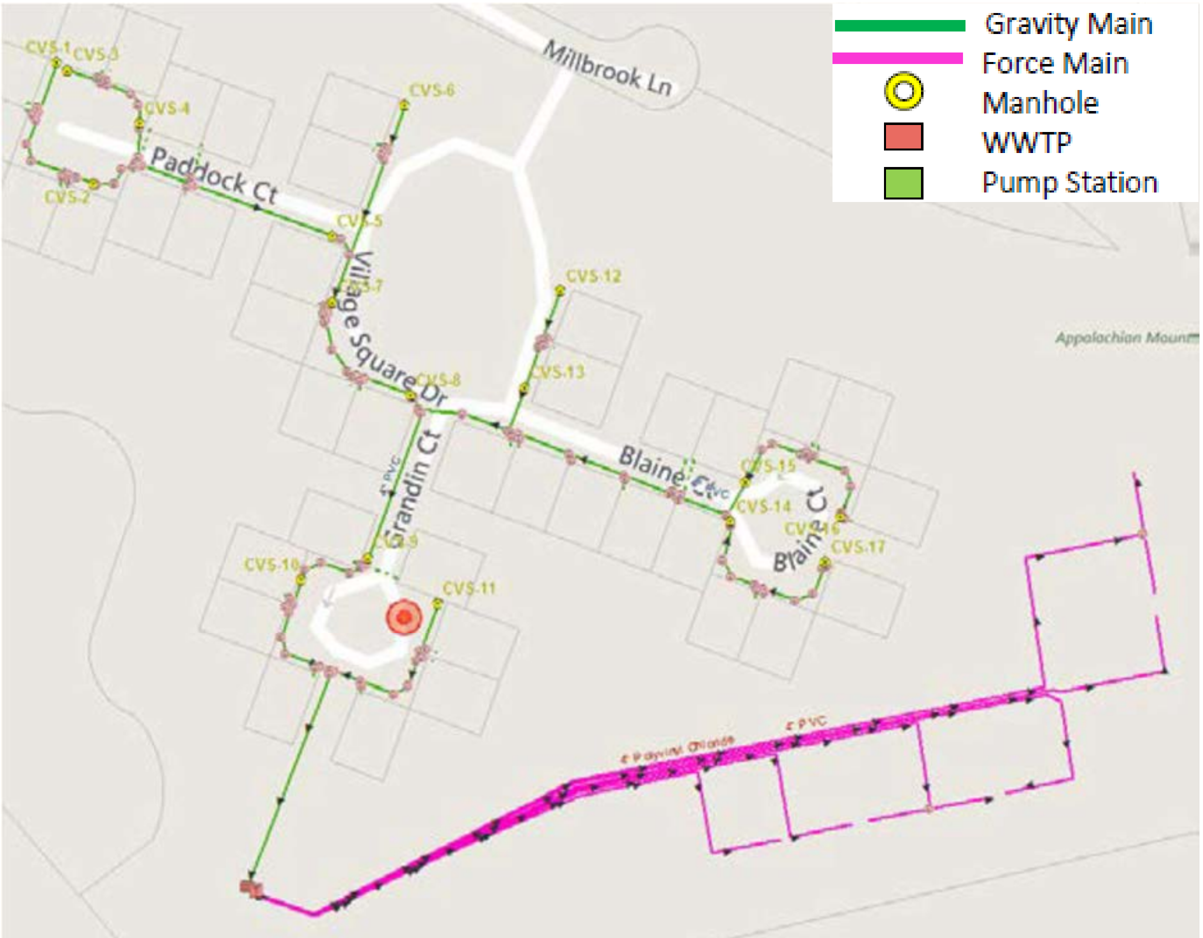
System Description

The Village Square Wastewater System is a small community wastewater system that provides wastewater services to a development community in Hampton Township, Hunterdon County, comprising approximately 40 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system comprising gravity mains. Collected sewage is then directed via gravity to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

There are approximately 0.6 miles of 4-inch PVC gravity mains, and approximately 1.3 miles of 4-inch force mains. Customers in this system have septic tanks on their properties that discharge directly to the collection system. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4P.1.

Figure 3.4P.1 – Collection System Map (Village Square)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Village Square system. One was using the EPA threshold criteria as shown in Table 3.4P.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Village Square system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Village Square system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Village Square in the last five years was calculated to be 1.2, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Village Square WWTP is 15,600 gpd. Figure 3.4P.1 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4P.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

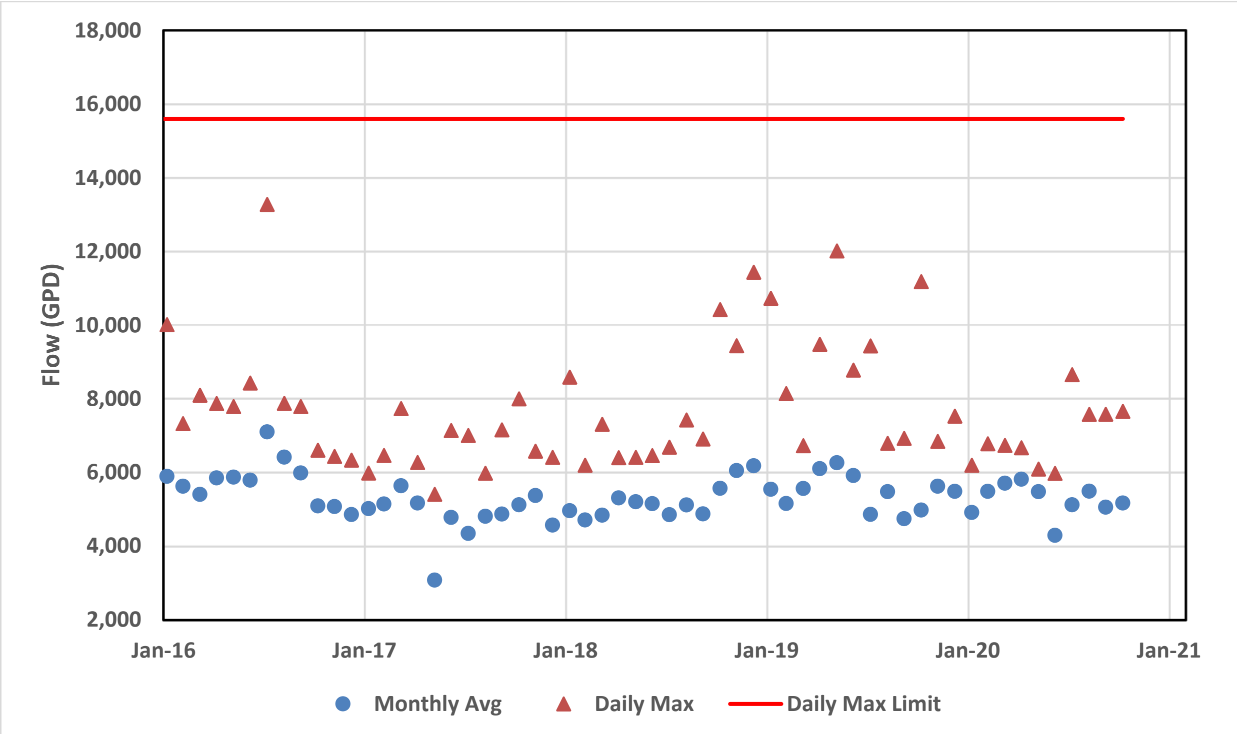
Table 3.4P.1 – Inflow and Infiltration (Village Square)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
98	5,268	54	45%	No	6,586	68	25%	No

Table 3.4P.2 – Flow Projection vs Plant Capacity (Village Square)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
39	39	100%	5,317	136.3	5,317	15,600	Adequate

Figure 3.4P.1 – Plant Flow (Village Square)



Q. MONMOUTH COUNTY – ADELPHIA WASTEWATER SYSTEM (NPDES-ID: N/A)

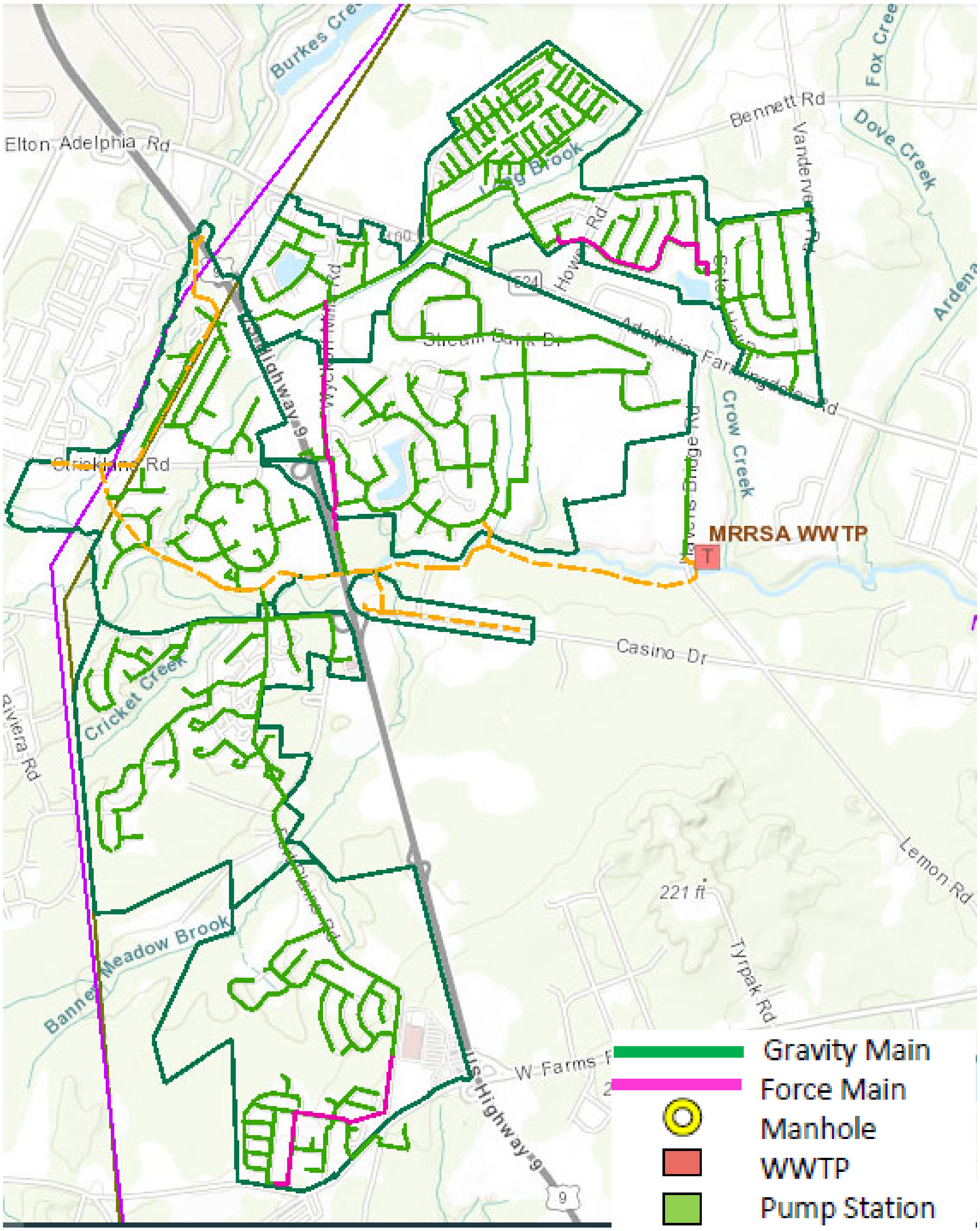
System Description

The Adelphia Wastewater System is a collection-only wastewater system that provides wastewater services to portions of Howell Township, Monmouth County, comprising approximately 3,880 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. The collection system is divided into eight basins, three served by a dedicated lift station (that pumps to adjacent basins) and five that flow directly to the regional sewer authority; the Manasquan River Regional Sewerage Authority (MRRSA). MRRSA discharges into the Ocean County Utilities Authority for treatment.

Collection System

The collection system piping in the Adelphia system primarily consists of PVC pipe with some (10%) ACP. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. The system is approaching 70 years old with signs of aging, and there are signs of I&I issues that are being gradually addressed. Similarly, the lift stations require upgrades as they are well past their useful life and their reliability is questionable. The general layout of the collection system area is shown in Figure 3.4Q.1.

Figure 3.4Q.1 – Collection System Map (Adelphia)



Inflow and Infiltration

The Adelphia sewer collection system has moderate I&I and as such rehabilitation and renewal projects are or will be identified as needed.

R. MONMOUTH COUNTY – BEACON HILL WASTEWATER SYSTEM (NPDES-ID: NJ0105228)

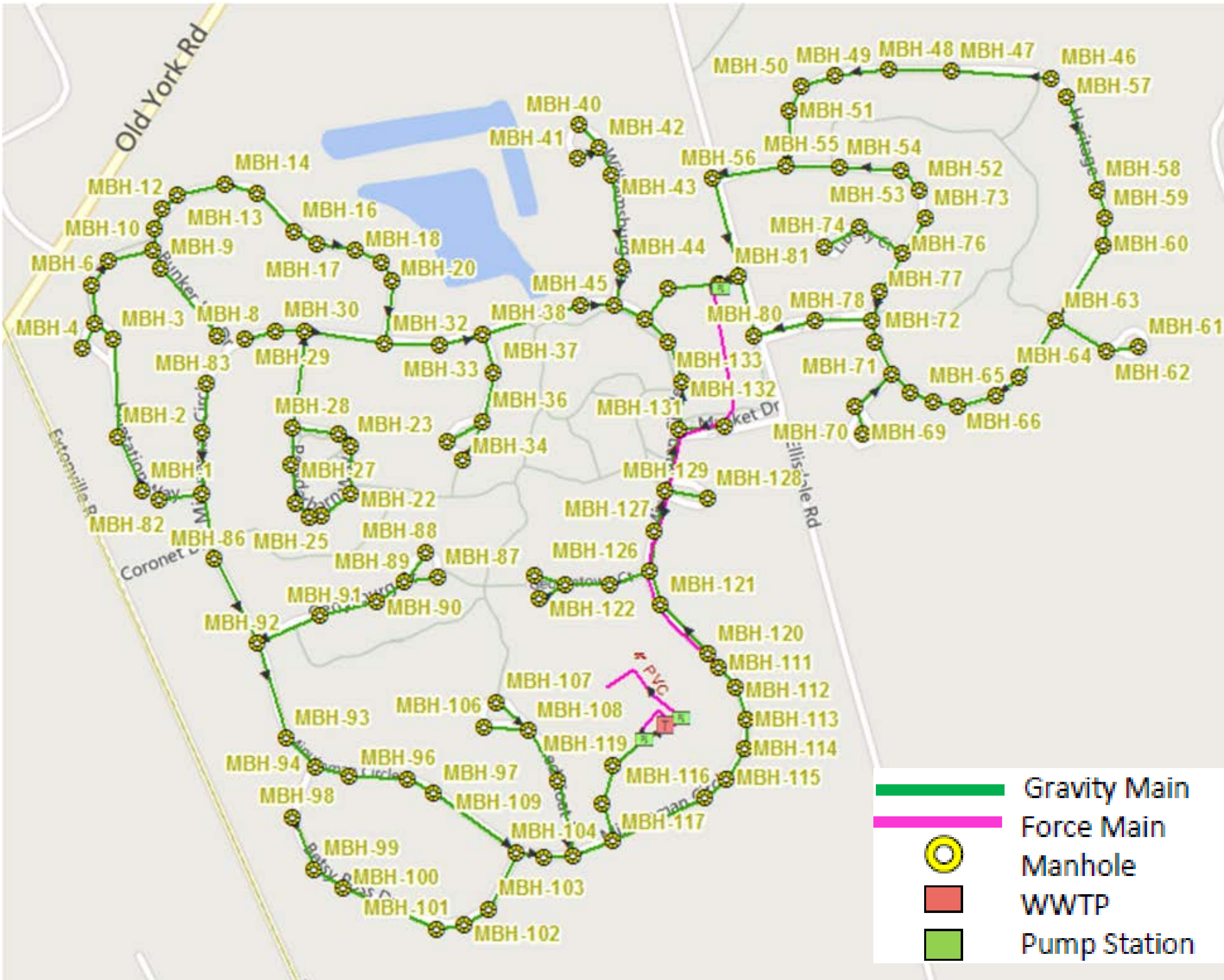
System Description

The Beacon Hill Wastewater System is a small community wastewater system that provides wastewater services to a development community in Upper Freehold Township, Monmouth County, comprising approximately 470 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

Most of the infrastructure in Beacon Hill was built at the turn of the 21st century and consists of PVC. Most of the flow is by gravity with one pump station delivering some of the flow to the plant by force main. There are approximately five (5) miles of gravity mains of 8-inch and approximately 20 feet of 10-inch gravity mains. There is 0.5 mile of force main of 3-inch and 6-inch diameter. The collection system also has about 137 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4R.1.

Figure 3.4R.1 – Collection System Map (Beacon Hill)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Beacon Hill system. One was using the EPA threshold criteria as shown in Table 3.4R.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow was calculated on an annual basis because the system incorporated I&I reduction and remediation programs in 2019 which led to decreased I&I in 2020. The average dry and wet weather flow per capita in the Beacon Hill system was lower than the dry and wet weather EPA threshold criteria each year from 2016 to 2020.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Beacon Hill system could be hydraulically overloaded during rainfall events. As the system incorporated I&I reduction programs in 2019, dry and wet weather flow data in 2020 was used for the analysis. The wet weather peaking factor for Beacon Hill was calculated to be 1.18, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Beacon Hill WWTP is 103,660 gpd. Figure 3.4R.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity of 103,660 gpd, except for December 2018 when the flow was 103,948 gpd. There is a downward trend in the flow data due to implementation of I&I improvements. Table 3.4R.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

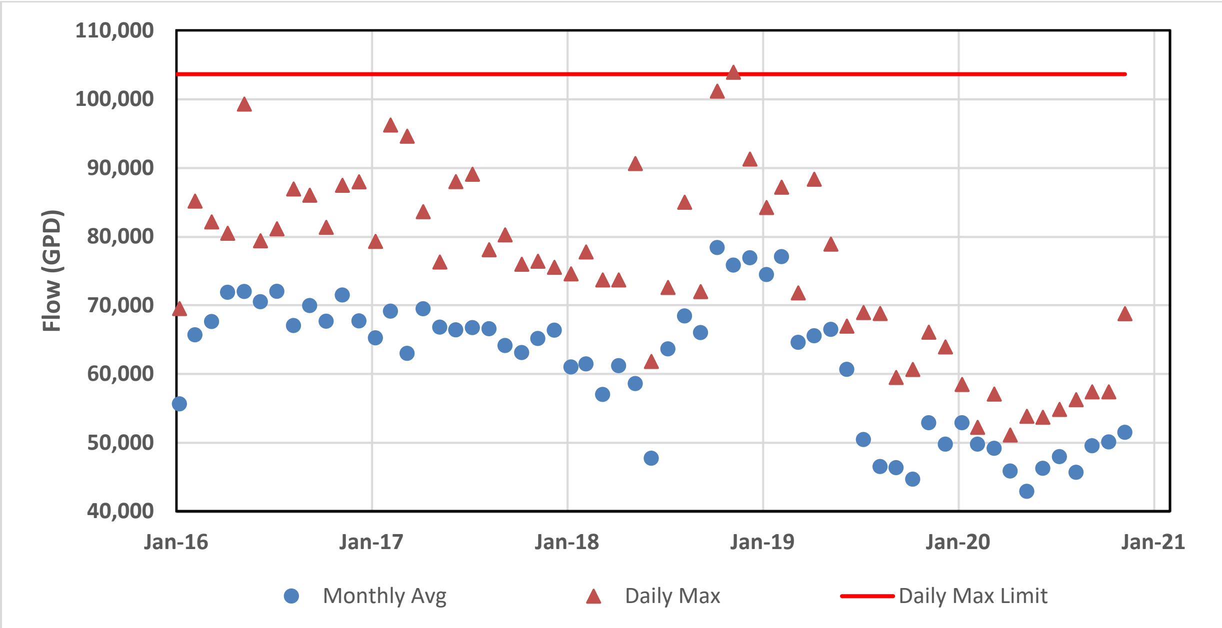
Table 3.4R.1 – Inflow and Infiltration (Beacon Hill)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
1,158	48,434	42	35%	No	57,360	50	18%	No

Table 3.4R.2 – Flow Projection vs Plant Capacity (Beacon Hill)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
471	471	100%	61,365	130.3	61,365	103,660	Adequate

Figure 3.4R.2 – Plant Flow (Beacon Hill)



S. MORRIS COUNTY – COUNTRY OAKS WASTEWATER SYSTEM (NPDES-ID: NJ0108928)

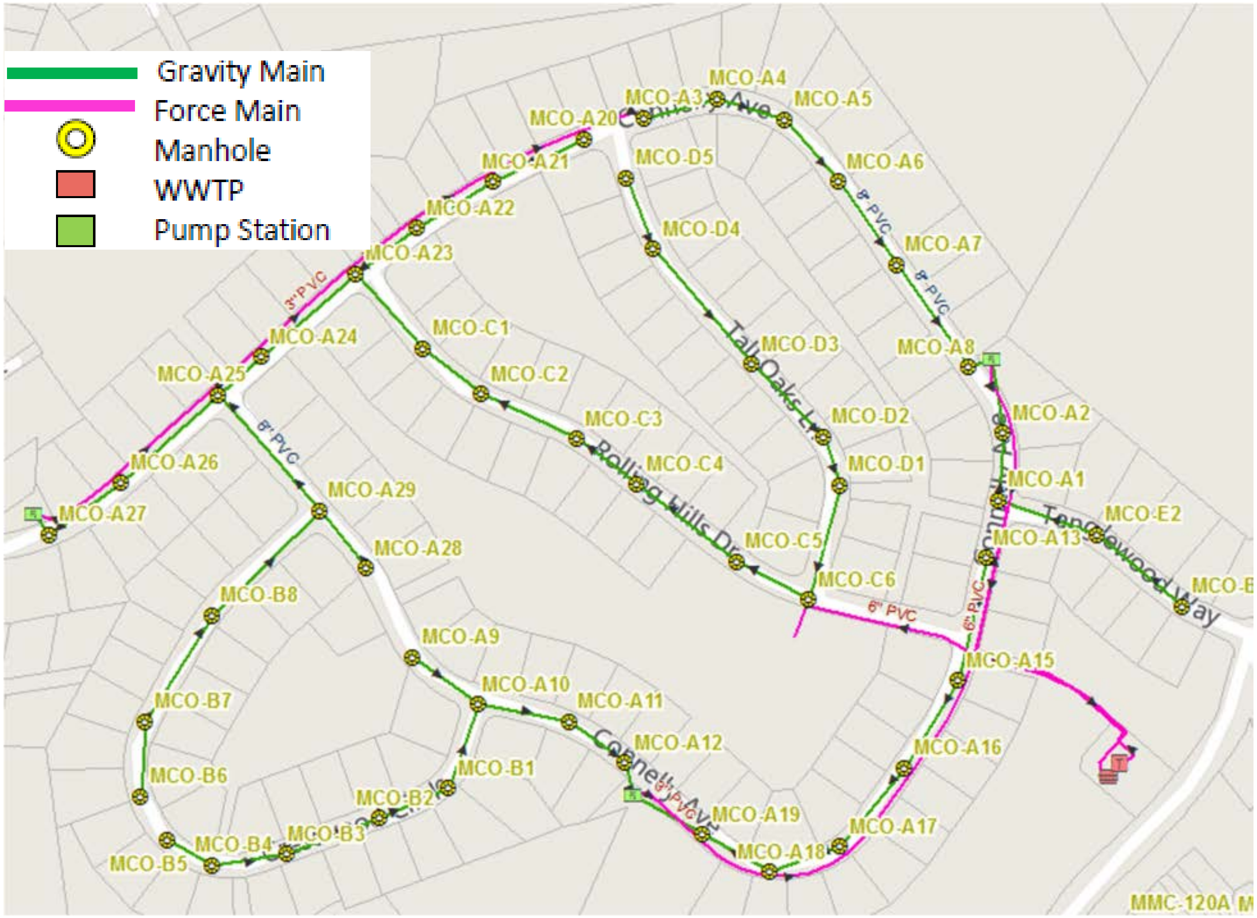
System Description

The Country Oaks Wastewater System is a small community wastewater system that provides wastewater services to a development in Mount Olive Township, Morris County, comprising approximately 170 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity sewers and force mains. Collected sewage is then directed to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

The collection system in Country Oaks is entirely PVC due to its relatively recent installation (1997). There are approximately 1.7 miles of gravity sewer mains of 8-inch diameter. Three pump stations feed approximately 0.8 miles of force main with diameters of 3 and 6 inches. The collection system also includes approximately 49 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4S.1.

Figure 3.4S.1 – Collection System Map (Country Oaks)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Country Oaks system. One was using the EPA threshold criteria as shown in Table 3.4S.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Country Oaks system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Country Oaks system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Country Oaks in the last five (5) years was calculated to be 1.46, which was relatively low, indicating that there are no significant I&I issues

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Country Oaks WWTP is 50,400 gpd. Figure 3.4S.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity, except in December 2018 when the max daily flow was 53,518 gpd. Table 3.4S.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

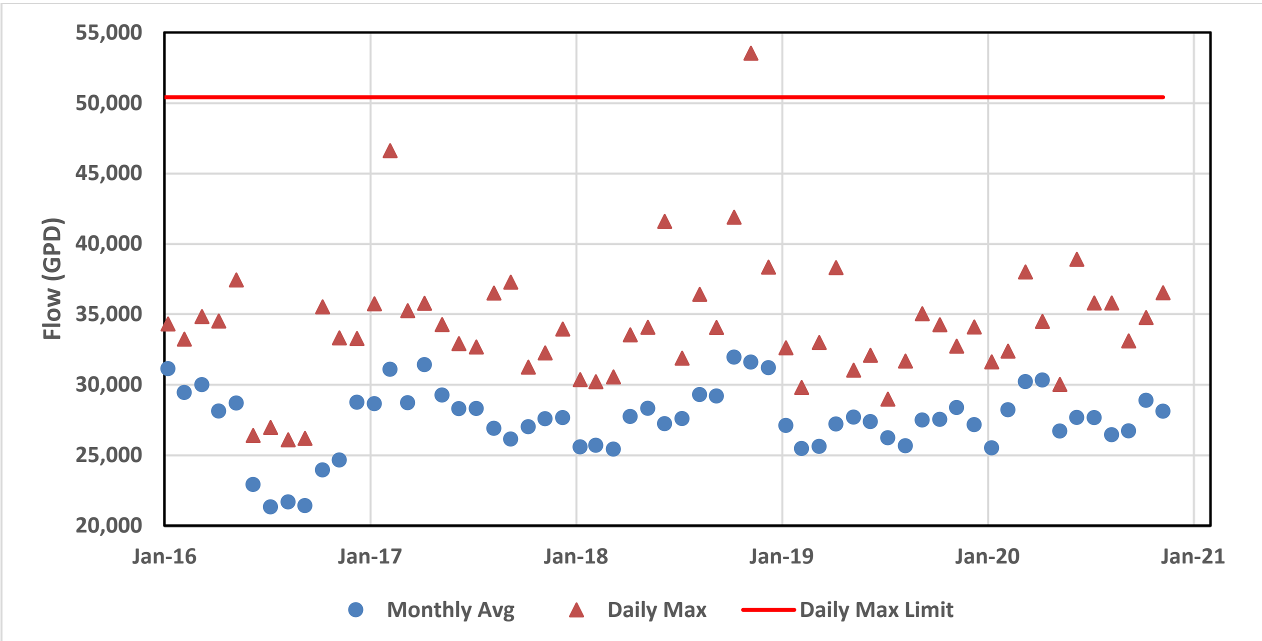
Table 3.4S.1 – Inflow and Infiltration (Country Oaks)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
415	26,994	65	54%	No	39,316	95	35%	No

Table 3.4S.2 – Flow Projection vs Plant Capacity (Country Oaks)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
166	166	100%	27,597	166.2	27,597	50,400	Adequate

Figure 3.4S.2 – Plant Flow (Country Oaks)



T. MORRIS COUNTY – FOUR SEASONS AT CHESTER WASTEWATER SYSTEM (NPDES-ID: NJ0071013)

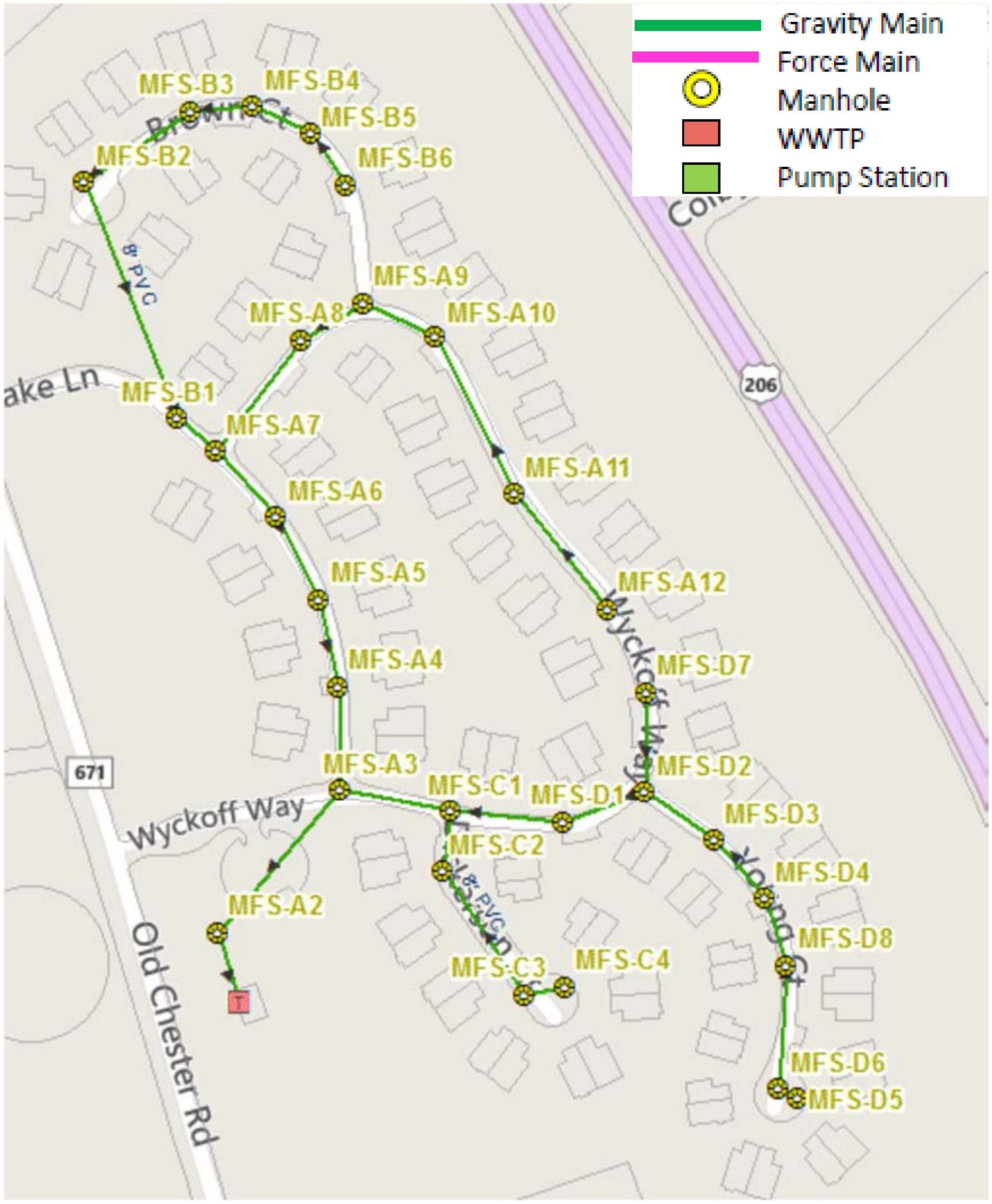
System Description

The Four Seasons at Chester Wastewater System is a small community wastewater system that provides wastewater services to a development in Chester Township, Morris County, comprising approximately 120 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed entirely of gravity mains. Collected sewage is then directed via gravity to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

The Four Seasons system consists entirely of 8-inch, PVC gravity mains. There are approximately 0.8 miles of gravity mains. The collection system also contains approximately 29 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4T.1.

Figure 3.4T.1 – Collection System Map (Four Seasons at Chester)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Four Seasons at Chester system. One was using the EPA threshold criteria as shown in Table 3.4T.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd) and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Four Seasons system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Four Seasons system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Four Seasons in the last five years was calculated to be 1.61, which was relatively low, indicating that the system has no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Four Seasons at Chester WWTP is 29,100 gpd. Figure 3.4T.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. Table 3.4T.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

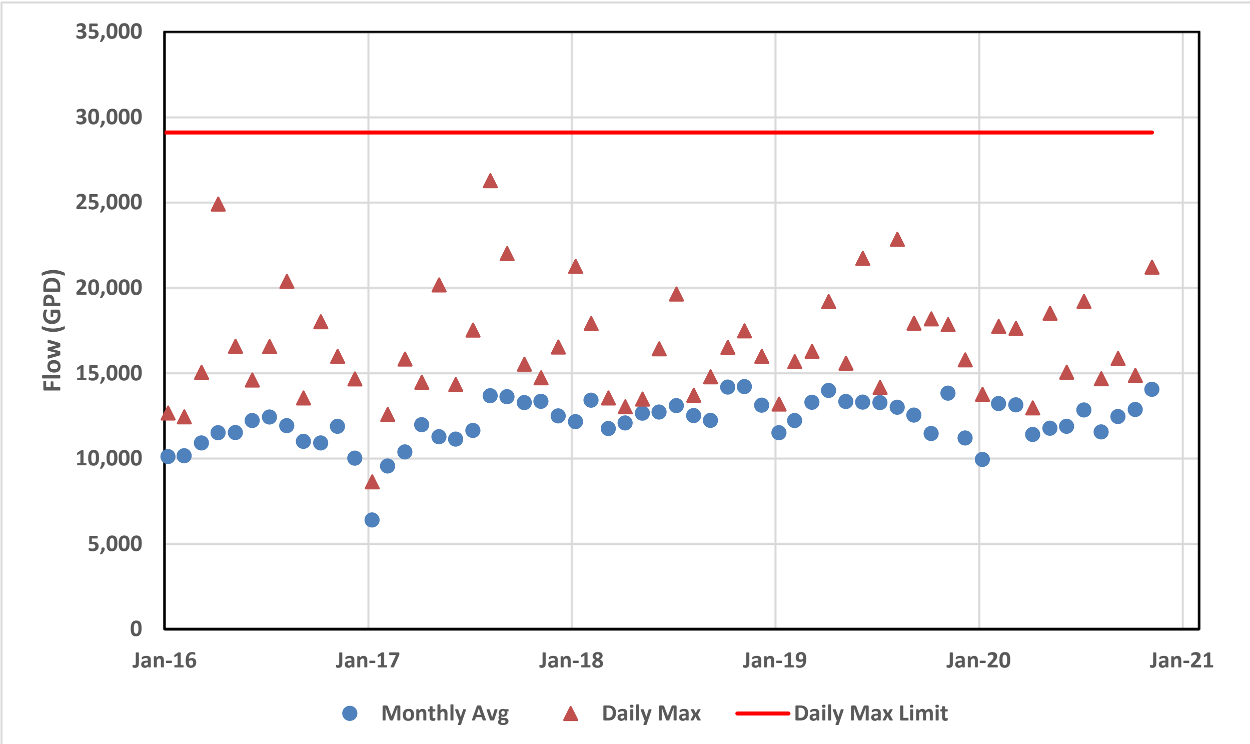
Table 3.4T.1 – Inflow and Infiltration (Four Seasons at Chester)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
283	12,941	46	38%	No	20,879	74	27%	No

Table 3.4T.2 – Flow Projection vs Plant Capacity (Four Seasons at Chester)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
120	120	100%	12,100	100	12,100	29,100	Adequate

Figure 3.4T.2 – Plant Flow (Four Seasons at Chester)



U. MORRIS COUNTY – JEFFERSON PEAKS WASTEWATER SYSTEM (NPDES-ID: NJ0133558)

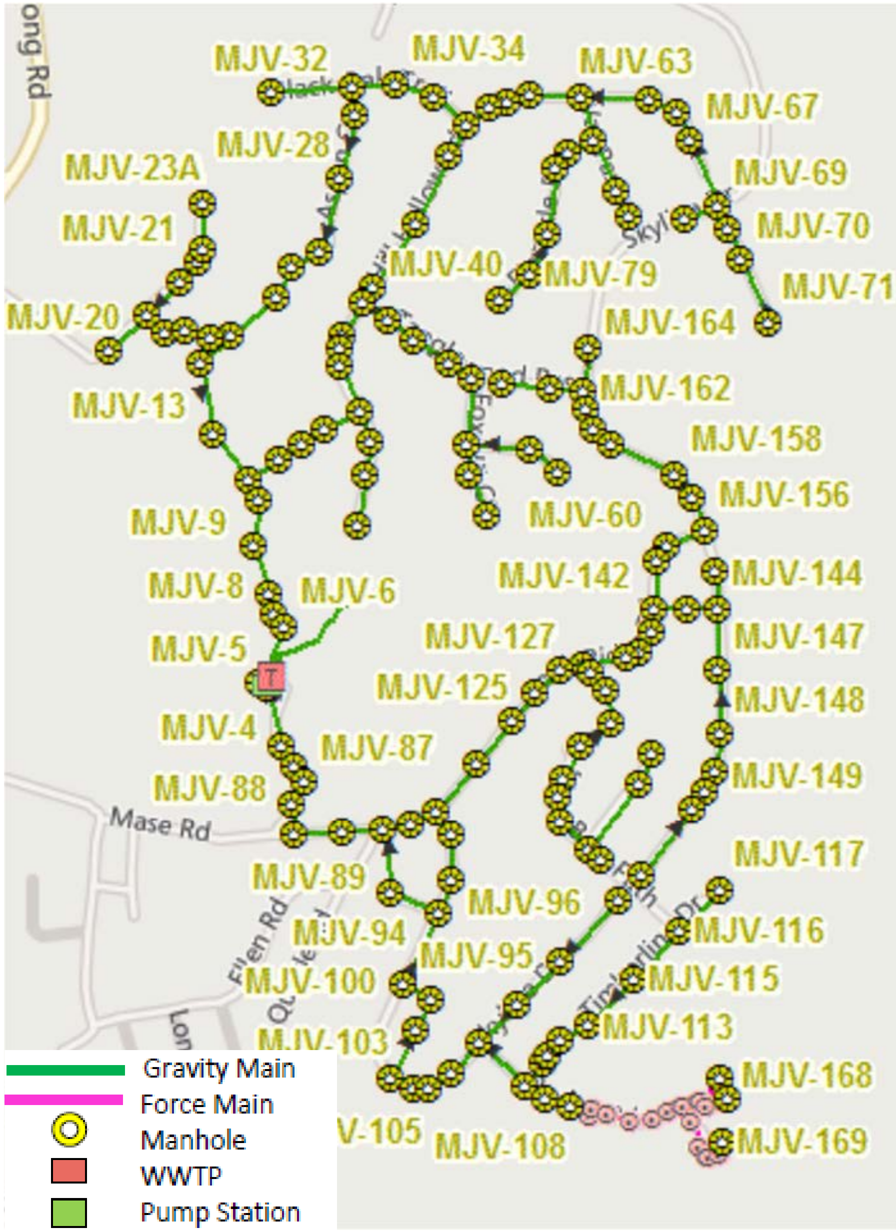
System Description

The Jefferson Peaks Wastewater System is a small community wastewater system that provides wastewater services to a development in Jefferson Township, Morris County, comprising approximately 400 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed entirely of gravity mains. Collected sewage is then directed via gravity to a common wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

Due to the recent installation year (2007), all mains are PVC. There are approximately 5 miles of gravity mains with 8-inch diameters and approximately 0.3 miles of 3-inch force mains. The collection system also has approximately 152 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4U.1.

Figure 3.4U.1 – Collection System Map (Jefferson Peaks)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Jefferson Peaks system. One was using the EPA threshold criteria as shown in Table 3.4U.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Jefferson Peaks system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Jefferson Peaks system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Jefferson Peaks in the last five years was calculated to be 1.69, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Jefferson Peaks WWTP is 125,100 gpd. Figure 3.4U.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity, except in January 2018 when flow reaches 126,522 gpd. The years following this exceedance show a decreasing trend, meaning that I&I improvements were implemented successfully. Table 3.4U.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

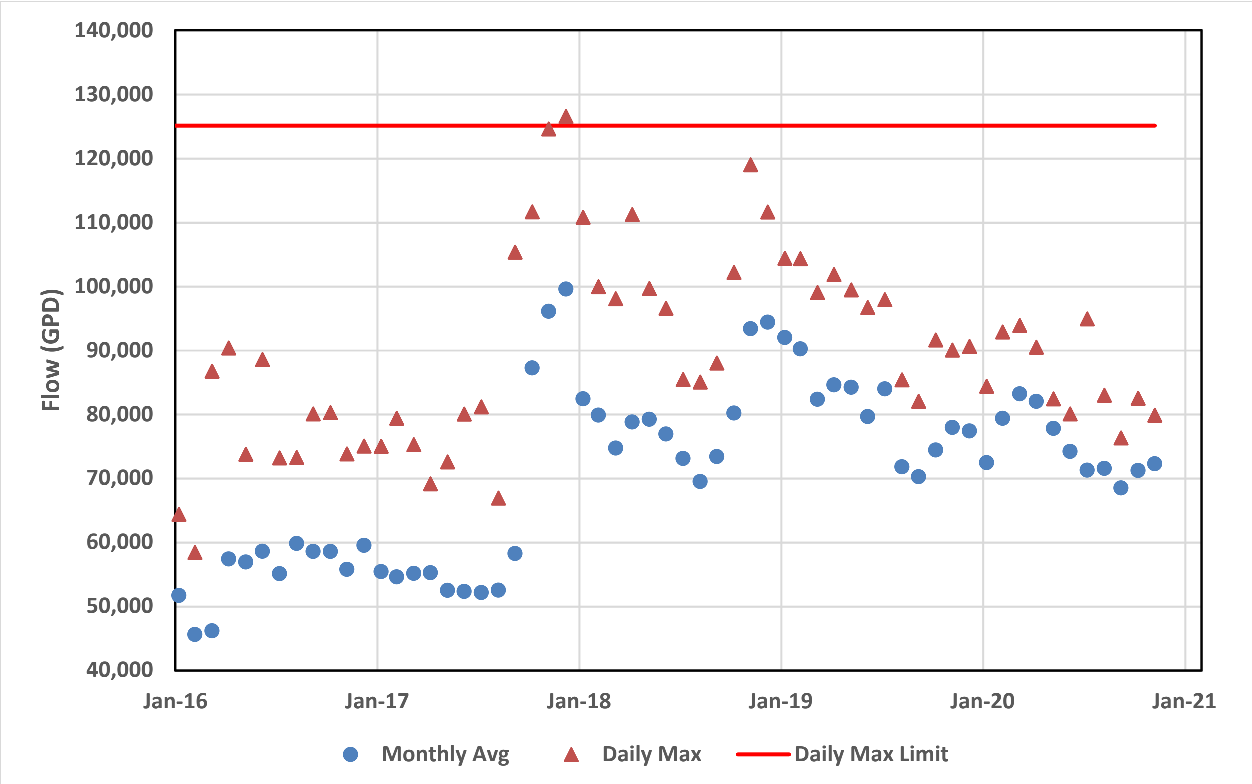
Table 3.4U.1 – Inflow and Infiltration (Jefferson Peaks)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
998	72,722	73	61%	No	122,784	123	45%	No

Table 3.4U.2 – Flow Projection vs Plant Capacity (Jefferson Peaks)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
408	408	100%	70,618	173.1	70,618	125,100	Adequate

Figure 3.4U.2 – Plant Flow (Jefferson Peaks)



V. MORRIS COUNTY – LONG HILL WASTEWATER SYSTEM (NPDES-ID: NJ0024465)

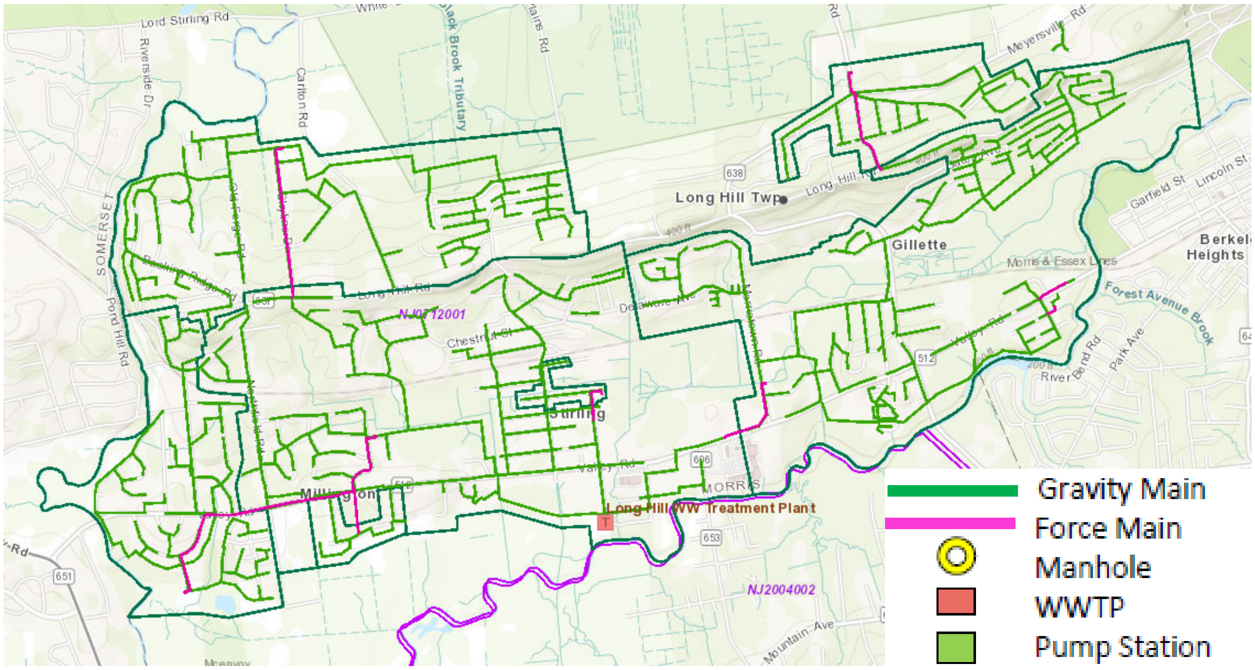
System Description

The Long Hill Wastewater System is a municipality-wide wastewater system that provides wastewater services to most of Long Hill Township, Morris County, comprising approximately 2,900 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. Collected sewage flows by gravity to a common wastewater treatment plant (WWTP) where it is treated before discharging to surface water.

Collection System

The collection piping in the Long Hill system consists primarily of vitrified clay pipe (VCP) installed in 1930 and 1940's (92%) followed by asbestos cement pipe (ACP) installed in the 1970's (8%) resulting from construction grants era where there was considerable expansion of the wastewater system. Most of the flow is by gravity, with eight (8) lift stations located throughout the system. Customers in this system do not have septic tanks on their properties, hence, the collection system accepts the effluent directly from the wastewater customers. Being an older system, it has considerable I&I issues that require attention and renewal of both older ACP mains and lift stations. The general layout of the collection system area is shown in Figure 3.4V.1.

Figure 3.4V.1 – Collection System Map (Long Hill)



Inflow and Infiltration

The EPA threshold criteria method was used to evaluate the Inflow and Infiltration ("I&I") situation in the Long Hill system. Dry weather flow is the average daily flow with no rainfall in the previous two days and the current day. Wet weather flow is the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Flow monitoring results (March-May 2021) were used to determine the wet and dry weather peaking factors on a flow-per-basin basis and is summarized in Table 3.4V.1. Based on the temporary flow monitoring study, inflow and infiltration are considered excessive in the Long Hill collection system.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the WWTP is 2.8 MGD. The wastewater system has an average flow of 1.1 MGD. However, during peak days the average flow is 3.5 MGD, significantly exceeding the WWTP capacity. Hence, several projects have been identified to mitigate this condition.

Table 3.4V.1 – Inflow and Infiltration (Long Hill)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
8,103	905,727	112	93%	No	2,464,962	304	111%	Yes

Recommendations

Excessive I&I needs addressing to improve collection system capacity. Sewer pipe lining, rehabilitation, and replacement is needed to reduce I&I. Also, manholes should be considered for lining and rehabilitation to reduce I&I.

W. MORRIS COUNTY – MORRIS CHASE WASTEWATER SYSTEM (NPDES-ID: NJ0053422)

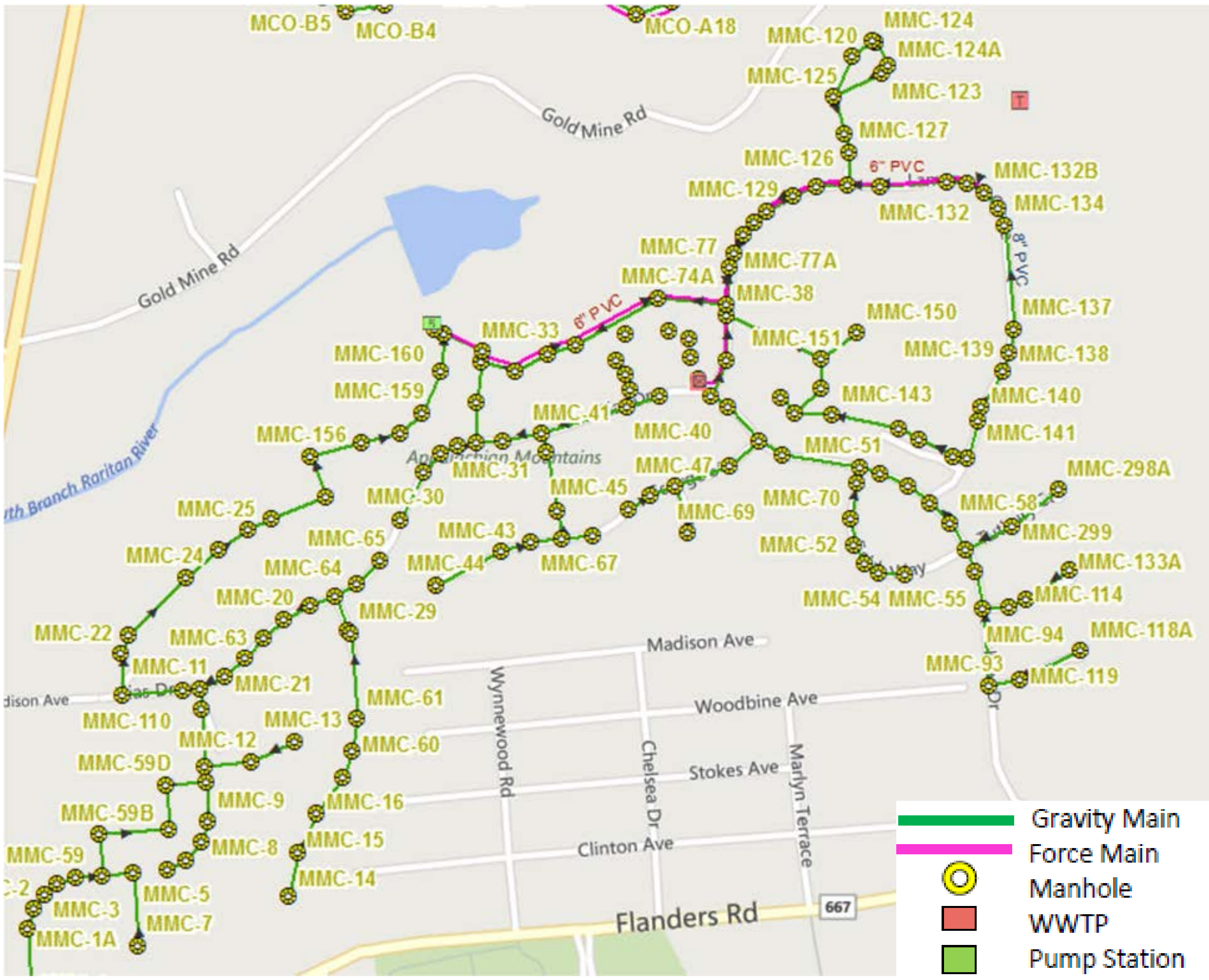
System Description

The Morris Chase Wastewater System is a small public wastewater system that provides wastewater services to a development in Mount Olive Township, Morris County, comprising approximately 280 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. Collected sewage is then pumped to the wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

There are approximately 4 miles of 8-inch gravity sewers and approximately 0.8 miles of 4-inch and 6-inch diameter force mains. Morris Chase’s force mains consist of either ductile iron or PVC, while the gravity mains consist of either ductile iron or PVC. All the wastewater flows by gravity to one pump station which then pumps through a force main to the plant. The collection system also has approximately 159 manholes. Significant collection system I&I issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4W.1.

Figure 3.4W.1 – Collection System Map (Morris Chase)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Morris Chase system. One was using the EPA threshold criteria as shown in Table 3.4W.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Morris Chase system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Morris Chase system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Morris Chase in the last five years was calculated to be 2.71, which was relatively high. It is recommended to identify sources of I&I, fix known I&I issues, or mitigate the effects of I&I.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Morris Chase WWTP is 81,000 gpd. Figure 3.4W.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow exceeded the plant's rated capacity four times, most notably in December of 2018 when the flow reached 112,657 gpd. Table 3.4W.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

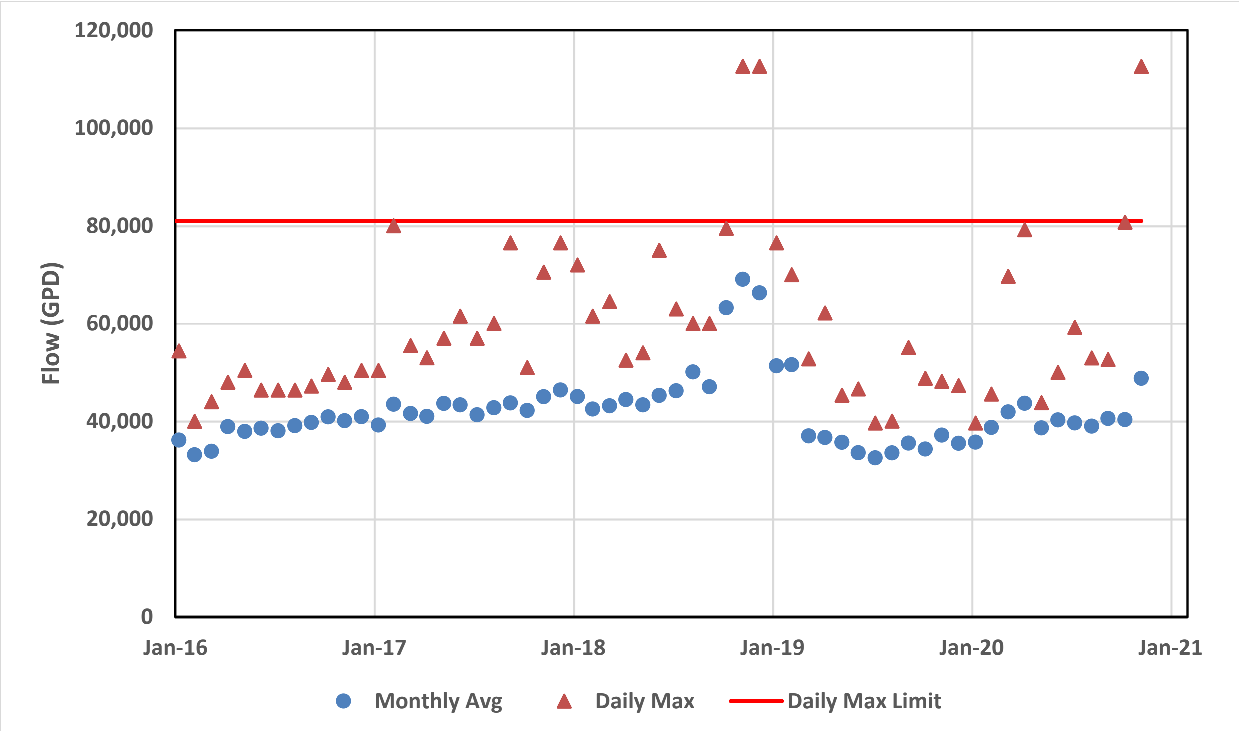
Table 3.4W.1 – Inflow and Infiltration (Morris Chase)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
670	40,985	61	51%	No	111,010	166	60%	No

Table 3.4W.2 – Flow Projection vs Plant Capacity (Morris Chase)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
282	282	100%	41,887	148.5	41,887	81,000	Adequate

Figure 3.4W.2 – Plant Flow (Morris Chase)



Recommendations

Based on the analysis of this system, the following collection system improvements are recommended:

- Manhole survey and inspection
- Flow and rainfall monitoring study
- Smoke testing

X. OCEAN COUNTY – DEEP RUN WASTEWATER SYSTEM (NPDES-ID: NJ0080055)

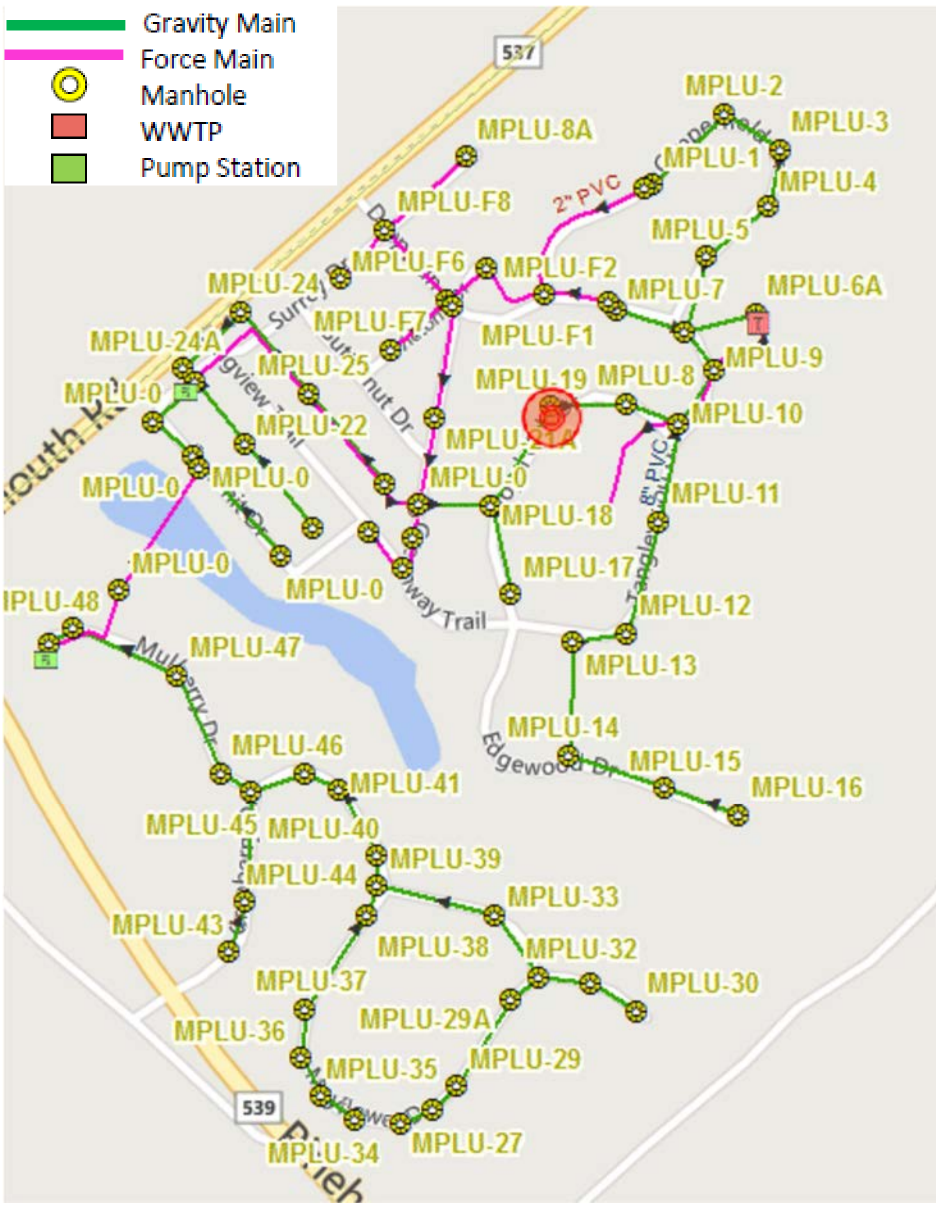
System Description

The Deep Run Wastewater System is a small community wastewater system that provides wastewater services to a development in Plumsted Township, Ocean County, comprising approximately 245 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. Collected sewage is then pumped at the system's two (2) lift stations and discharges into another basin which flows by gravity to wastewater treatment plant (WWTP), where it is purified before discharging to ground.

Collection System

Due to the relatively recent installation of the infrastructure (1992) and system updates (1999 and 2000), most of the pipes are PVC. There are approximately 2 miles of 8-inch gravity mains, 1 mile of force mains with diameters ranging from 2-inch to 4-inch, and 71 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4X.1.

Figure 3.4X.1 – Collection System Map (Deep Run)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration("I&I") situation in the Jensen's Deep Run system. One was using the EPA threshold criteria as shown in Table 3.4X.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Deep Run system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Deep Run system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Deep Run in the last five years was calculated to be 1.78, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Jensen's Deep Run WWTP is 26,050 gpd. Figure 3.4X.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. The average monthly flow was consistently less than the plant's rated capacity, except in July of 2018. Table 3.4X.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

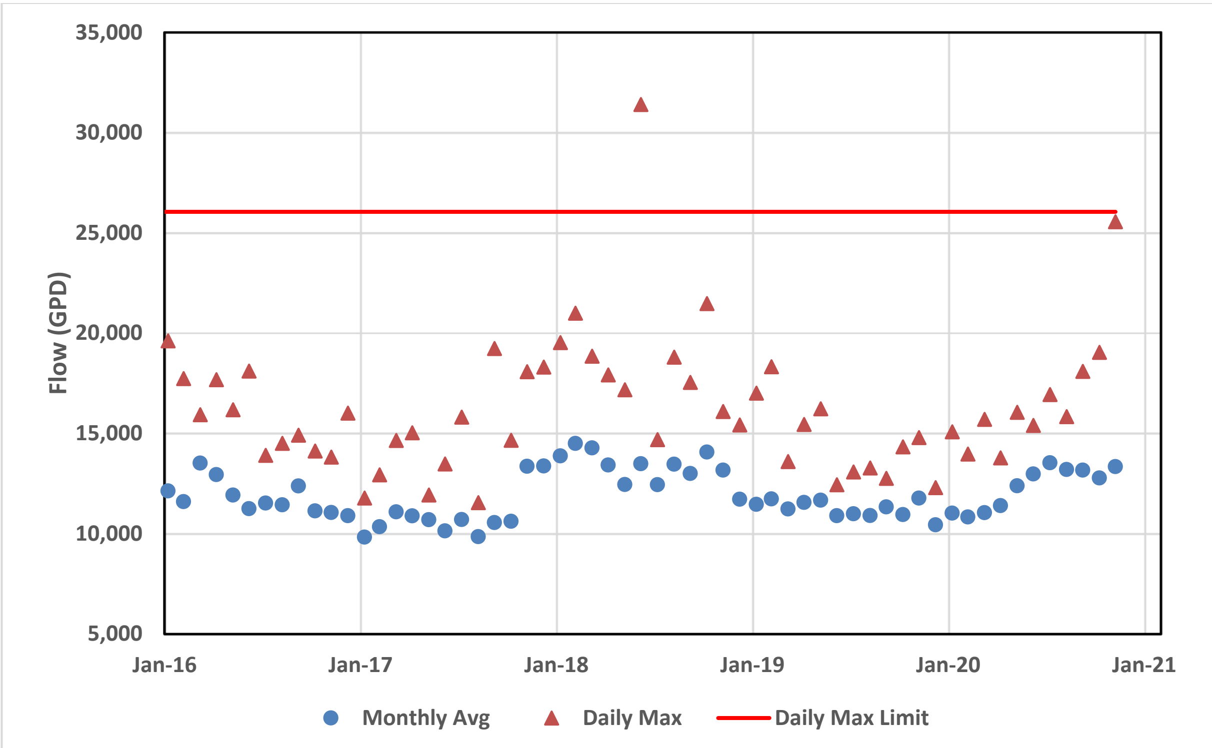
Table 3.4X.1 – Inflow and Infiltration (Deep Run)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
605	11,860	20	17%	No	21,082	35	13%	No

Table 3.4X.2 – Flow Projection vs Plant Capacity (Deep Run)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
245	245	100%	11,916	48.6	11,916	26,050	Adequate

Figure 3.4X.2 – Plant Flow (Deep Run)



Y. OCEAN COUNTY – LAKEWOOD WASTEWATER SYSTEM (NPDES-ID: N/A)

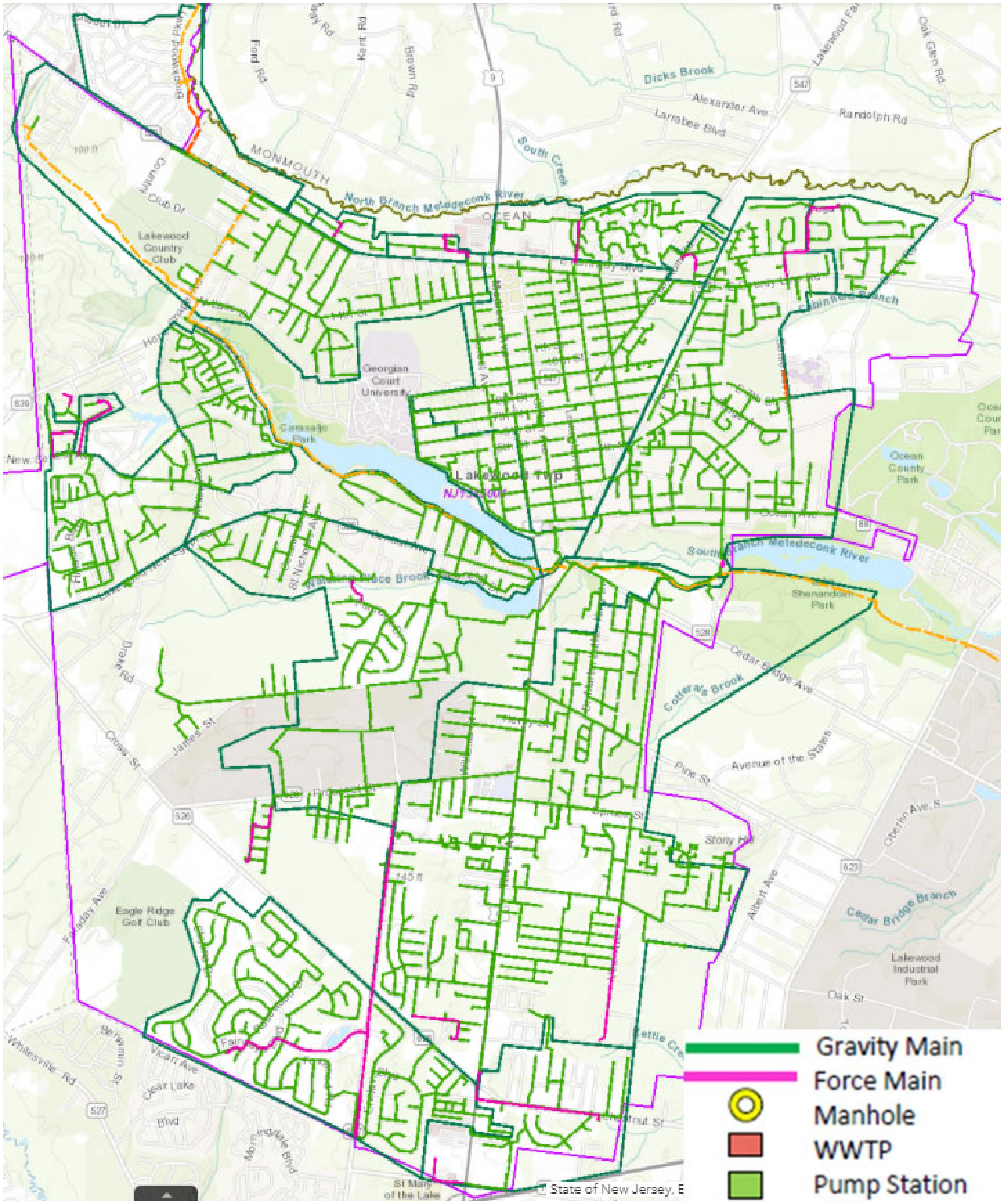
System Description

The Lakewood Wastewater System is a wastewater collection system servicing the majority (2/3) of Lakewood, a major and growing municipality in Ocean County, comprising approximately 16,400 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. The collection system is divided into 26 basins, 13 served by a dedicated lift station (that pumps to adjacent basins) and 13 that flow by gravity to the regional sewage authority interceptor. Sewage flows to seven major outfalls to the Ocean County Utilities Authority's (OCUA's) 60-inch diameter interceptor sewer.

Collection System

The collection system piping in the Lakewood system primarily consists of PVC pipe (64%), followed by asbestos cement pipe (ACP) (18%), and vitrified clay pipe (VCP) (14%). The Lakewood system is comprised of approximately 110 miles of gravity sewer mains, five (5) miles of force main, 2,800 manholes, and 13 lift stations. Customers in this system do not have septic tanks on their properties and the collection system accepts the effluent directly from the residences. Being an older system, there are hot spots with I&I issues that are being gradually addressed, but much remains to be done. Similarly, some lift stations require upgrades as they are well past their useful life and their reliability is questionable. It is the ACP and VCP that are the primary concern with high breakage, and, in certain areas, blockages due to sags or undersized mains. The general layout of the collection system area is shown in Figure 3.4Y.1.

Figure 3.4Y.1 – Collection System Map (Lakewood)



Inflow and Infiltration

The Lakewood collection system has significant I&I issues in certain spots, particularly during prolonged wet periods and heavy storms. While several sewer mains have already been replaced, many more sewer main segments have been identified for renewal.

Z. SOMERSET COUNTY – BOUND BROOK WASTEWATER SYSTEM (NPDES-ID: N/A)

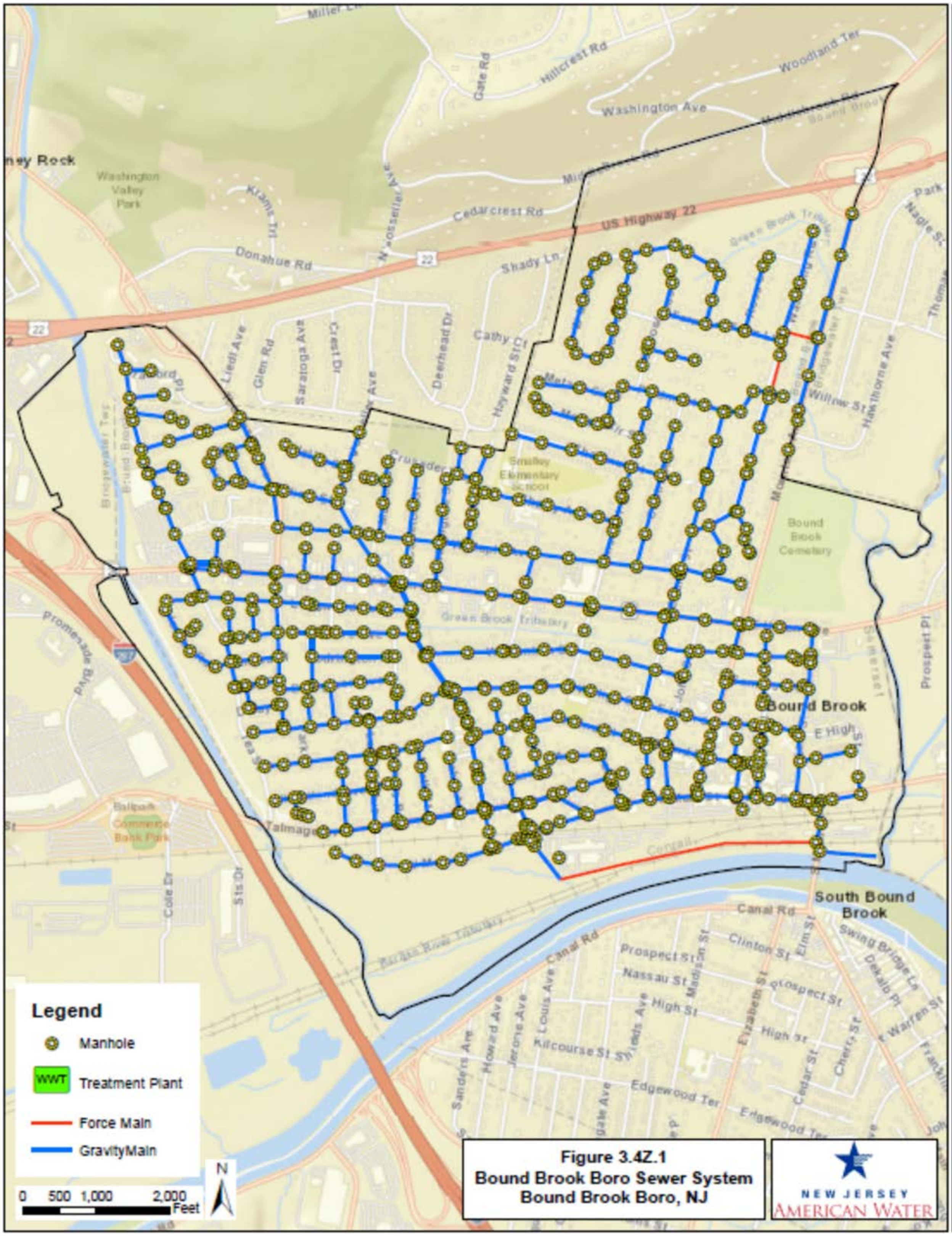
System Description

The Bound Brook Wastewater System is a municipal-wide wastewater collection system that provides wastewater collection services to Bound Brook, Somerset County, comprising approximately 2,900 service connections. NJAWC completed the acquisition of the system on August 11, 2022. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. The collection system also includes one (1) lift station that pumps to an adjacent wastewater basin. All wastewater flows to the regional sewer authority; the Middlesex County Utilities Authority (MCUA).

Collection System

Most of the Bound Brook sewer system was constructed prior to 1931 and almost all was installed before 1955. The sewer system is comprised of approximately 24.9 miles of mostly vitrified clay pipe (VCP) gravity sewers ranging in diameter from 8- to 20-inch and approximately one (1) mile of force main. Being an older system, there are significant I&I issues that need to be addressed. Similarly, the lift station was built in the mid-1980s and needs to be rehabilitated as it is approximately 40 years old. The general layout of the collection system area is shown in Figure 3.4Z.1.

Figure 3.4Z.1 – Collection System Map (Bound Brook)



AA. SOMERSET COUNTY – EDC WASTEWATER SYSTEM (NPDES-ID: NJ0033995)

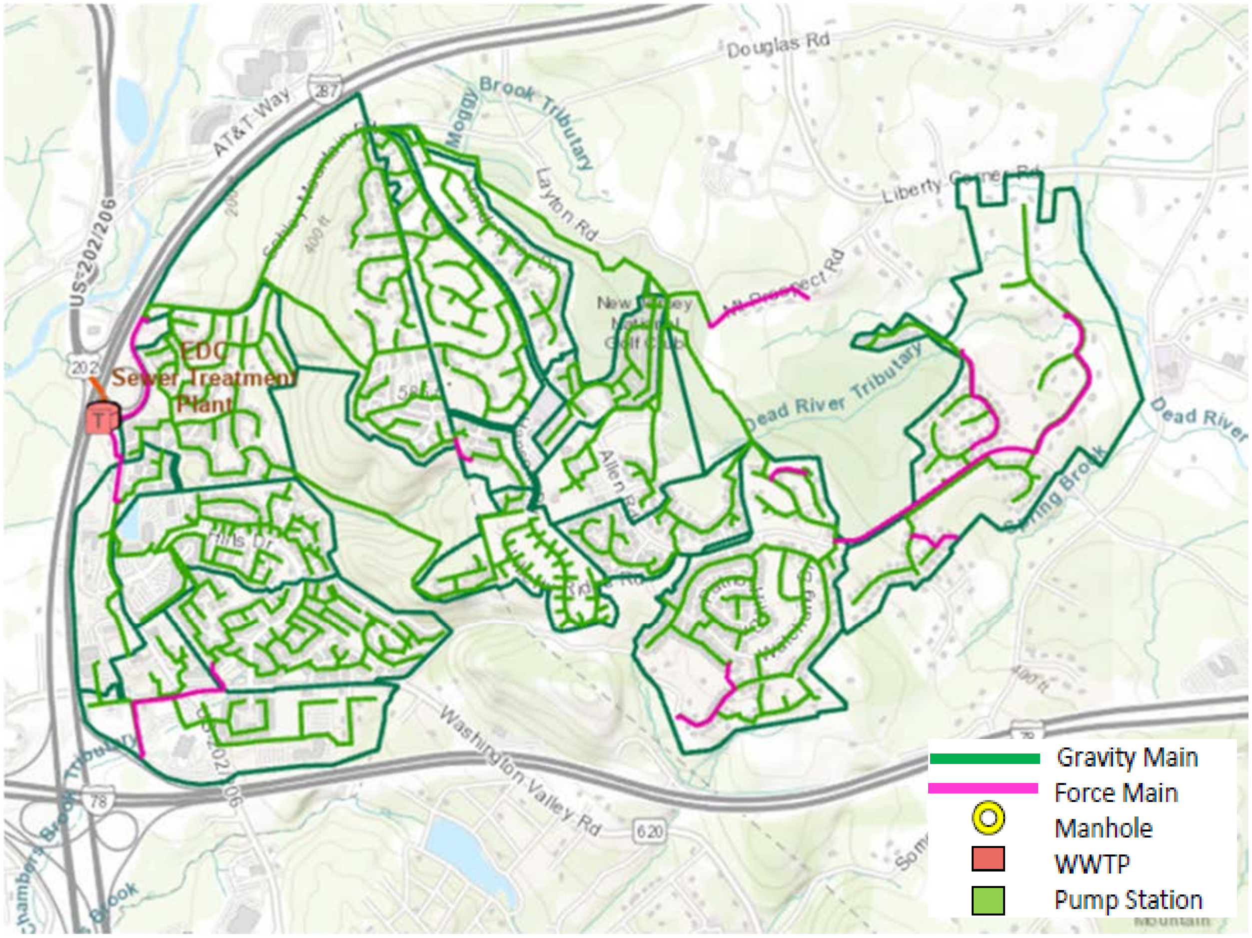
System Description

The EDC Wastewater System provides wastewater services to approximately 5,400 customers in Bedminster and Bernards townships in Somerset County, New Jersey. The collection system consists of approximately 39 miles of collection mains, approximately 1,200 manholes, and nine pump stations. Approximately 35.5 miles of main are gravity mains and 3.5 miles are force mains. Flow through the collection system averages 1.1 to 1.2 MGD. Collected sewage is sent to the EDC wastewater treatment plant (WWTP) where it is treated before discharging to surface water.

Collection System

Most mains in the EDC system were installed in the 1980s with a few installed in the early 2000s. The EDC system is almost completely built out, so minimal growth is projected. There are approximately 35.5 miles of gravity mains with diameters ranging from 6- to 24-inch. Force mains span 3.5 miles with diameters between 3- and 20-inch. The gravity mains are primarily made from PVC and force mains are mostly made of ductile iron. The EDC collection system has relatively high I&I in certain areas. The last collection system inspection was conducted around 2005. Sewer pipe inspection (e.g., smoke testing, camera inspection) and manhole inspection are necessary to evaluate the condition of pipes, manholes, and laterals, identify sources of I&I, and develop a plan for I&I reduction. Six of the nine (9) pump stations are in fair condition and the other three in good or excellent condition. The general layout of the collection system area is shown in Figure 3.4AA.1.

Figure 3.4AA.1 – Collection System Map (EDC)



Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation. One was using the EPA threshold criteria, as shown in Table 3.4AA.1, to determine whether excessive infiltration and/or inflow exist in the system. In this study, dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. The average dry weather and wet weather flow per capita in the EDC system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the EDC system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2015 to 2020 was used for the analysis. The average wet weather peaking factor in the last six (6) years was calculated to be 1.7. Though excessive infiltration and inflow was not identified for the overall EDC collection system using the EPA method, peaking factor analysis for each subbasin was conducted and I&I were found in several subbasins in the collection system.

Table 3.4AA.1 – Inflow and Infiltration (EDC)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
970	1,102,888	86	72%	No	1,724,573	134	49%	No

Recommendations

The EDC collection system has a relatively high I&I in eight (8) of 15 wastewater collection subbasins. It is recommended to conduct smoke testing and TV inspection in the eight (8) wastewater collection subbasins with high I&I to identify cracks and mains in poor condition.

BB. SOMERSET COUNTY – HILLSBOROUGH CHASE WASTEWATER SYSTEM (NPDES-ID: NJ0146102)

System Description

The Hillsborough Chase Wastewater System is a small community wastewater system that provides wastewater services to a development in Hillsborough Township, Somerset County, comprising approximately 104 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of mostly gravity mains. Collected sewage flows by gravity to wastewater treatment plant (WWTP), where it is purified before discharge to ground water.

Collection System

Due to the relatively recent installation of the infrastructure (2005), all pipes are PVC. There is approximately 2.4 miles of gravity mains with diameters of 6-inches, and approximately 0.1 miles of force mains of unknown diameter. The Hillsborough collection system also has approximately 27 manholes. Customers in this system have septic tanks on their properties and the collection system accepts the effluent directly from the residences. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4BB.1.

Figure 3.4BB.1 – Collection System Map (Hillsborough Chase)

Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Hillsborough Chase system. One was using the EPA threshold criteria as shown in Table 3.4BB.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Hillsborough Chase system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Hillsborough Chase system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Hillsborough Chase in the last five years was calculated to be 1.57, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Hillsborough Chase WWTP is 38,100 gpd. Figure 3.4Y.2 shows the monthly average and daily maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. However, there has been a steady rise in flow so I&I improvements may need to be implemented soon. Table 3.4BB.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system is at its buildout capacity while the average flow is less than the rated plant capacity.

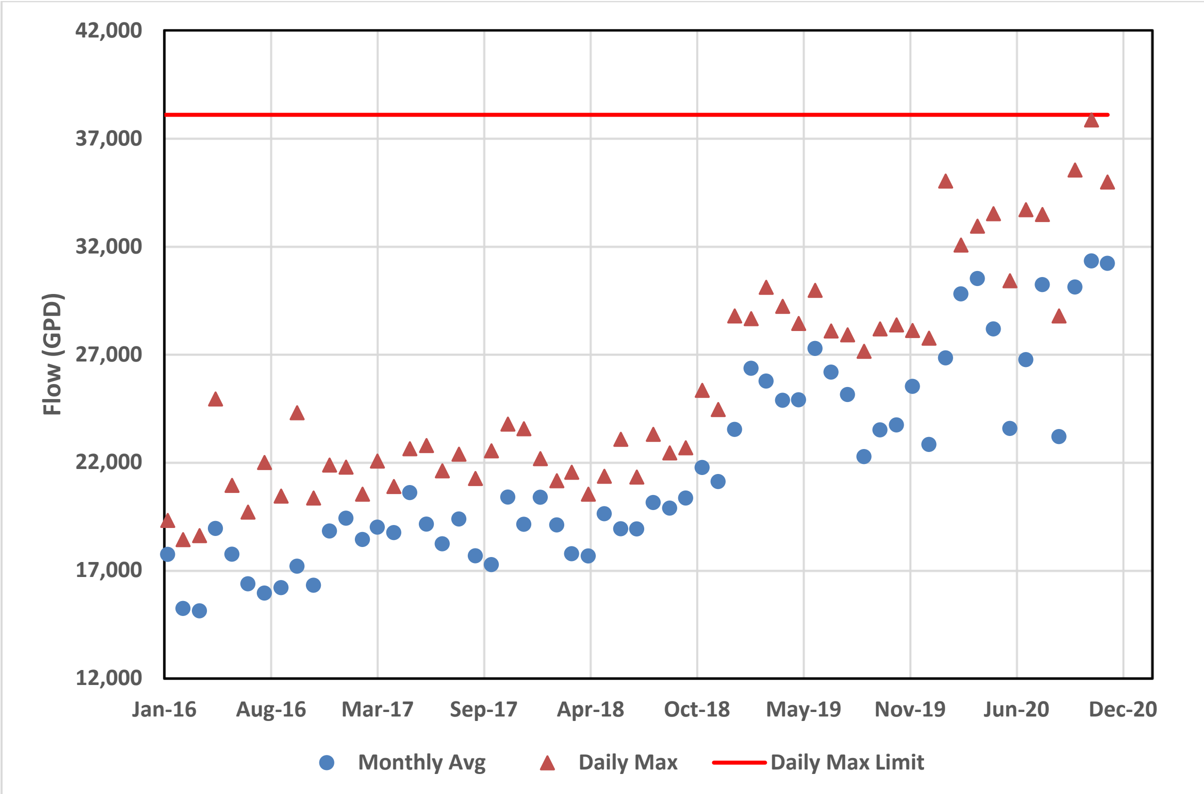
Table 3.4BB.1 – Inflow and Infiltration (Hillsborough Chase)

Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			gpd	gpcd		
260	21,917	84	70%	No	34,315	132	48%	No

Table 3.4BB.2 – Flow Projection vs Plant Capacity (Hillsborough Chase)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)	Rated Plant Capacity	Plant Capacity Adequacy
104	104	100%	21,655	208.2	21,655	38,100	Adequate

Figure 3.4Y.2 – Plant Flow (Hillsborough Chase)



CC. SOMERSET COUNTY – SOMERVILLE WASTEWATER SYSTEM (NPDES-ID: N/A)

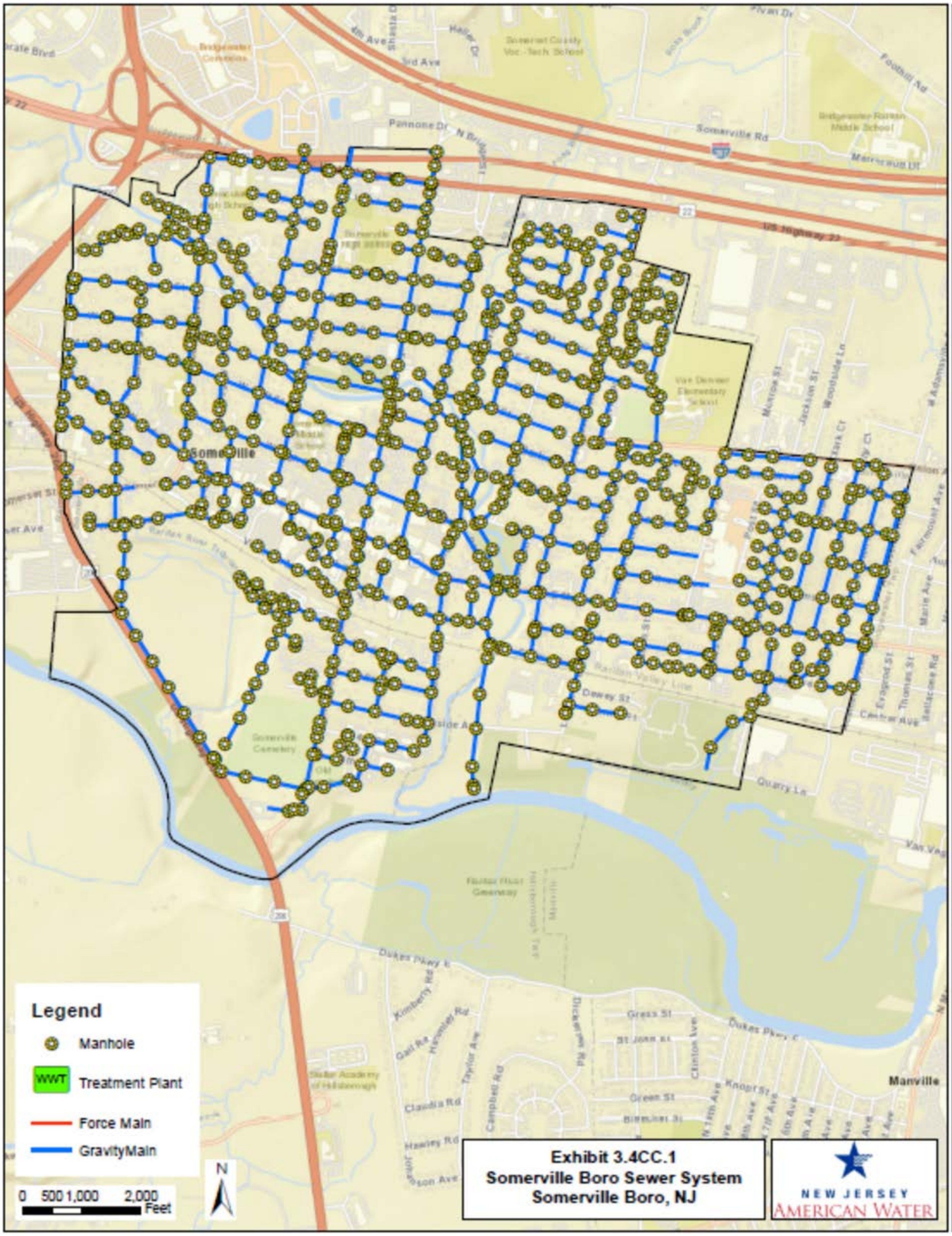
System Description

The Somerville Wastewater System is a municipality-wide wastewater system that provides wastewater collection services to Somerville Borough, Somerset County, comprising approximately 3,800 service connections. NJAWC completed the acquisition of the system on October 3, 2023. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains. All the collected sewage is treated by the Somerset Raritan Valley Sewerage Authority.

Collection System

The collection system piping in the Somerville system primarily consists of vitrified clay pipe (VCP). Being an older system, there are significant I&I issues that need to be addressed. There are no lift stations in the system. The general layout of the collection system area is shown in Figure 3.4CC.1.

Figure 3.4CC.1 – Collection System Map (Somerville)



DD. WARREN COUNTY – HAWK POINTE WASTEWATER SYSTEM (NPDES-ID: NJ0136336)

System Description

The Hawk Pointe Wastewater System is a small community wastewater system that provides wastewater services to a development in Washington Township, Warren County, comprising approximately 125 service connections. Wastewater is removed from individual premises via service laterals connected to a collection system composed of gravity mains and two lift stations. Collected sewage flows by gravity to wastewater treatment plant (WWTP), where it is purified before discharging to groundwater via rapid infiltration basins..

Collection System

Due to the relatively recent installation dates of the infrastructure (2003), all pipes in the Hawk Pointe collection system are made of PVC. There are approximately 2 miles of gravity mains with diameters ranging from 8-inch to 10-inch, and approximately 0.7 miles of force mains of either 3- or 4-inch diameters. The collection system also has two pump stations and approximately 66 manholes. No significant collection system capacity, blockage, or condition issues were reported for this system. The general layout of the collection system area is shown in Figure 3.4DD.1.

Figure 3.4DD.1 – Collection System Map (Hawk Pointe)

Inflow and Infiltration

Two different methods were used to evaluate the Inflow and Infiltration ("I&I") situation in the Hawk Pointe system. One was using the EPA threshold criteria as shown in Table 3.4DD.1 to determine whether excessive infiltration and/or inflow exist in the system. Dry weather flow was the average daily flow with no rainfall in the previous two (2) days and the current day. Wet weather flow was the average of the highest five (5) daily flows on rainy days in each year. Excessive infiltration exists in the system if the average dry weather flow is higher than 120 gallons per capita per day (gpcd), and excessive inflow exists if the average wet weather flow is higher than 275 gpcd. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average dry weather and wet weather flow per capita in the Hawk Pointe system was lower than the dry and wet weather EPA threshold criteria.

A wet weather peaking factor (a ratio of maximum wet weather daily flow to average dry weather daily flow) method was also used to analyze if the Hawk Pointe system could be hydraulically overloaded during rainfall events. Dry and wet weather flow data from 2016 to 2020 was used for the analysis. The average wet weather peaking factor for Hawk Pointe in the last five years was calculated to be 1.73, which was relatively low, indicating that there are no significant I&I issues.

Wastewater Treatment Plant – Capacity and Flow

The rated capacity of the Hawk Pointe WWTP is 82,000 gpd. The NJPDES permit allows for discharge of 150,000 gpd but will require expansion of the WWTP and the addition of one Infiltration and Percolation (I/P) disposal bed. Figure 3.4DD.2 shows the monthly average and monthly maximum day flows in the system over the available historic period based on data submitted to NJDEP. As shown, the average monthly flow was consistently less than the plant's rated capacity. New houses are under construction in the development during the CPS. There is a proposal to upgrade the plant with additional membranes and permeate pumps; this project is under way and will increase the plant capacity from 82,000 gpd to 90,100 gpd. This project includes the addition of eight (8) new membranes along with a third permeation pump and associated electrical and I&C additions. Furthermore, a recently signed contract for a major expansion of the plant has been signed with NSU. This contract will expand the plant from 90,100 gpd to 150,000 gpd. It is currently in the preliminary engineering phase. Table 3.4DD.2 shows the current number of customers in the system, the anticipated number of customers at buildout, and the projected system flow at buildout. As shown, the system has not reached buildout capacity but when it does, the WWTP will be at capacity.

Table 3.4DD.1 – Inflow and Infiltration (Hawk Pointe)

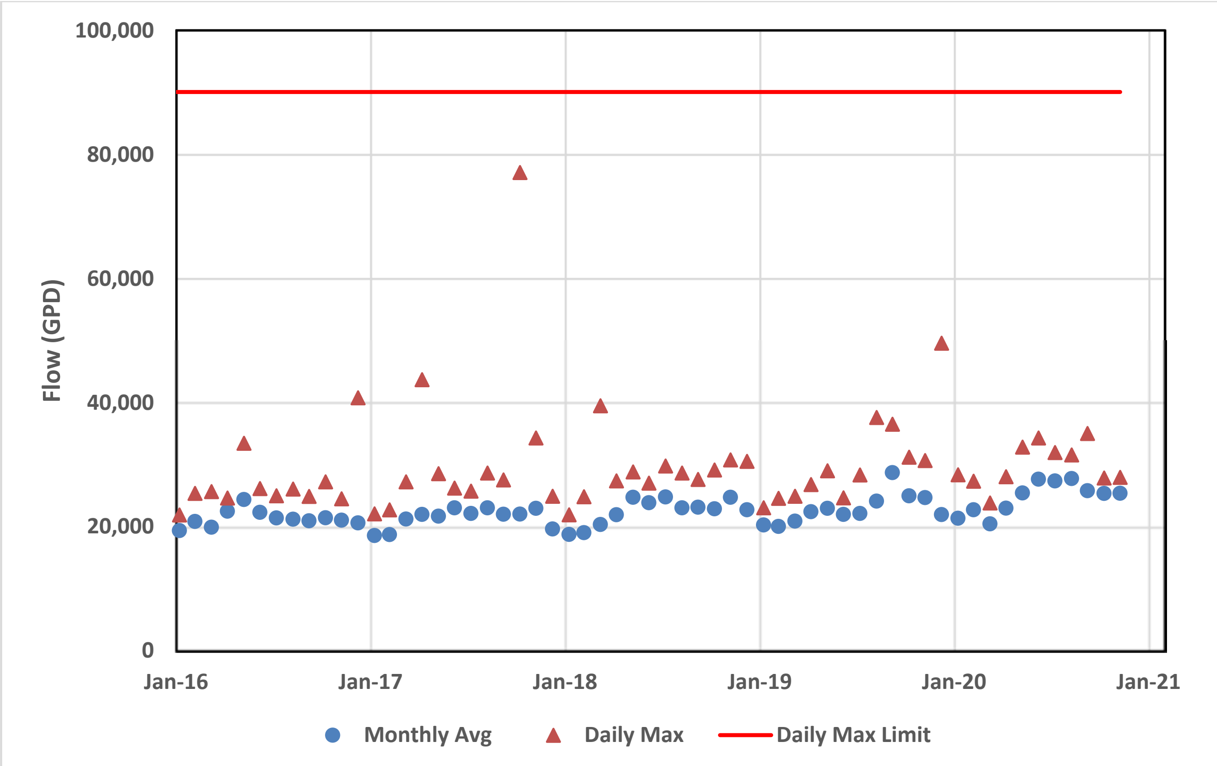
Population	Non-Excessive Infiltration				Non-Excessive Inflow			
	Dry Weather Flow		% of Non-Excessive Infiltration (120 gpcd)	Excessive Infiltration	Wet Weather Flow		% of Non-Excessive Inflow (275 gpcd)	Excessive Inflow
	gpd	gpcd			Gpd	gpcd		
290	22,044	76	63%	No	38,041	131	48%	No

Table 3.4DD.2 – Flow Projection vs Plant Capacity (Hawk Pointe)

# Customers	# Buildout Customers	% Built Out	Average Flow (gpd)	Flow Per Customer (gpd/cust)	Projected Buildout Flow (gpd)[1]	Rated Plant Capacity	Plant Capacity Adequacy
122	239	51%	22,511	184.5	90,100	82,000	Inadequate

[1] The plant is under agreement to be expanded additionally to a full buildout of 150,000 GPD as part of a second phase of construction.

Figure 3.4DD.2 – Plant Flow (Hawk Pointe)



3.5 PROPOSED WSIC PROJECTS, 2024-2027

Over 200 wastewater projects, or 70 miles of sewer main, have been identified as being in need of renewal. The scope and location of the identified projects are presented in Appendix A of this report.

Id	Municipality	Project Title	NJAWC Funded (dollars)	Project Type	Prop. Length (feet)	Prop. Dia. (inches)	Proposed Pipe Material	Ex. Dia. (inches)	Existing Pipe Material	Decade Installed	Accelerated Asset Investment Category	Est Project Duration (Days)	Estimated In Service Quarter
11319	BOUND BROOK BOROUGH	Talmage Avenue	$1,000,000	Replace	530	10	PVC	8	VCP	UNK	Safety and Reliability	60	2024Q4
11372	EGG HARBOR CITY	10th Terrace (Campe Street to Beethoven Street)	$508,000	Replace	1,270	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	2026Q4
11373	EGG HARBOR CITY	11th Terrace (Campe Street to Beethoven Street)	$640,000	Replace	1,600	8	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2026Q4
11374	EGG HARBOR CITY	12th Terrace (Campe St to Beethoven St), Buerger St (12th Terr to 14th Terr) & 13th Terrace	$1,052,000	Replace	2,630	8	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2026Q4
11368	EGG HARBOR CITY	5th Terrace from Diesterweg Street to Buerger Street	$832,500	Replace	1,860	8	PVC	8	VCP	1940	Safety and Reliability/Structural	75	2024Q4
11367	EGG HARBOR CITY	6th Terrace (Claudius Street to Buerger Street)	$567,000	Replace	1,260	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	2024Q4
11363	EGG HARBOR CITY	8th Terrace from Claudius St to Beethoven St - Sewer Main	$900,000	Replace	2,000	16	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2024Q4
11371	EGG HARBOR CITY	9th Terrace (Campe Street to Beethoven Street)	$500,800	Replace	1,270	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	2026Q4
11366	EGG HARBOR CITY	Beethoven St (8th Terr to 5th Terr), 5th Terrace (Beethoven to Arago St), Arago St (5th Terr to 3rd Terr)	$1,115,000	Replace	2,700	16	PVC	10	VCP	1940	Safety and Reliability/Structural	120	2025Q4
11365	EGG HARBOR CITY	Beethoven Street from 8th Terrace to 12th Terrace	$947,000	Replace	1,660	16	PVC	10	VCP	1940	Safety and Reliability/Structural	90	2024Q4
11375	EGG HARBOR CITY	Claudius St (8th Terr to 10th Terr), 9th and 10th Terr (Claudius St to Campe St)	$800,000	Replace	2,000	8	PVC	8	VCp	1940	Safety and Reliability/Structural	90	2025Q4
11376	EGG HARBOR CITY	Diesterweg Street (Chicago Ave to 10th Terr), 9th & 10th Terr & Saint Louis Ave	$760,000	Replace	1,900	8	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2025Q4
11369	EGG HARBOR CITY	Liverpool Ave (Claudius St to Campe St), Campe Street (Liverpool to 3rd Terr), 4th Terrace (Claudius to Buerger)	$1,075,000	Replace	2,500	12	PVC	10	Brick	1940	Safety and Reliability/Structural	95	2025Q4
11370	EGG HARBOR CITY	London Ave and 3rd Terrace (Campe St to Buerger St), Buerger Street (1st Terr to London Ave)	$920,000	Replace	2,300	8	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2025Q4
11228	HADDONFIELD	Elm - Woodland - N. Atlantic	$250,000	Replace	1,026	8	PVC	8	VCP	1930	Safety and Reliability	60	2027Q4
11217	HADDONFIELD	Haddonfield - Homestead Avenue & Barberry Lane	$525,000	Replace	1,500	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	2027Q4
11219	HADDONFIELD	Haddonfield - Patco	$143,500	Replace	410	8	PVC	8	VCP	1930	Safety and Reliability/Structural	30	2027Q4
11218	HADDONFIELD	Haddonfield - Westmont Avenue	$245,000	Replace	700	8	PVC	8	VCP	1930	Safety and Reliability/Structural	60	2027Q4
11136	LAKEWOOD	11th Ave & Clifton Ave from Madison Ave to Clifton Ave	$308,440	Replace	701	8	PVC	8	VCP	1939	Safety and Reliability/Structural	60	2024Q4
11176	LAKEWOOD	12th St from Monmouth Ave to Squankum Rd	$598,400	Replace	1,360	8	PVC	8	VCP	1949/1954	Safety and Reliability/Structural	60	2026Q4
11194	LAKEWOOD	12th St Sewer from Clifton to Monmouth	$386,320	Replace	878	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2024Q4
11145	LAKEWOOD	1st St from Madison Ave to Monmouth Ave	$641,080	Replace	1,457	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11166	LAKEWOOD	2nd St from Madison Ave to Monmouth Ave	$704,440	Replace	1,601	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2026Q4
11167	LAKEWOOD	3rd St from Madison Ave to Monmouth Ave	$700,040	Replace	1,591	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2026Q4
11168	LAKEWOOD	4th St from Madison Ave to Princeton Ave	$1,056,440	Replace	2,401	8	PVC	8	VCP	1949	Safety and Reliability/Structural	90	2026Q4
11170	LAKEWOOD	5th St from Madison Ave to Marys Lane	$1,166,440	Replace	2,651	8	PVC	8	VCP	1949	Safety and Reliability/Structural	90	2026Q4
10832	LAKEWOOD	5th St from Rt9 to Lexington Ave	$500,000	Replace	1,135	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2024Q4
11171	LAKEWOOD	6th St from Madison Ave to Marys Lane	$1,238,160	Replace	2,814	8	PVC	8	VCP/UNK/PVC	1970	Safety and Reliability/Structural	90	2026Q4
11172	LAKEWOOD	7th St from Madison Ave to Marys Lane	$1,359,160	Replace	3,089	8	PVC	12/10/8	VCP/UNK/PVC	1970	Safety and Reliability/Structural	90	2026Q4
11174	LAKEWOOD	8th St from Princeton Ave to terminus	$451,440	Replace	1,026	8	PVC	8	PVC/VCP	1970	Safety and Reliability/Structural	60	2026Q4
10834	LAKEWOOD	8th St from Rt9 to Clifton Ave	$244,000	Replace	555	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2024Q4
11137	LAKEWOOD	Caranetta Drive from Harrison Place to Kimball Road	$257,840	Replace	586	8	PVC	8/36	PVC	2020	Safety and Reliability/Structural	60	2024Q4
11177	LAKEWOOD	Carey St from Clifton Ave to Monmouth Ave	$451,440	Replace	1,026	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2026Q4
11175	LAKEWOOD	Carey St from Monmouth Ave to Squankum Rd	$508,200	Replace	1,155	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2026Q4
11178	LAKEWOOD	Clifton Ave from 12th St to 6th St	$1,082,840	Replace	2,461	8	PVC	8/10	PVC/VCP	1970	Safety and Reliability/Structural	90	2026Q4
11169	LAKEWOOD	Clifton Ave from 5th St to Main St	$819,280	Replace	1,862	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2026Q4
11164	LAKEWOOD	Congress St from Woehr St to Bruce St	$146,960	Replace	334	8	PVC	8	VCP	1949	Safety and Reliability/Structural	30	2025Q4
11163	LAKEWOOD	Cottage Pl/Pearl St from E 4th St to Ocean Ave	$623,920	Replace	1,418	8	PVC	8	PVC/VCP	1949/1989	Safety and Reliability/Structural	60	2025Q4
11181	LAKEWOOD	Davis Road from Central Ave to S Lake Dr	$177,760	Replace	404	8	PVC	8	VCP	1949	Safety and Reliability/Structural	30	2027Q4
11162	LAKEWOOD	E 4th St from Windsor Ct to Negba St	$523,160	Replace	1,189	8	PVC	8	PVC/VCP	1949/1989	Safety and Reliability/Structural	60	2025Q4
10833	LAKEWOOD	E 5th St from Ridge 4th St to Manetta Ave	$537,000	Replace	1,220	10	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2024Q4
11159	LAKEWOOD	E 5th St from Ridge 4th St to Manetta Ave	$551,320	Replace	1,253	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11158	LAKEWOOD	E 5th St to School St to Clover St to Bergen St (circled roads)	$669,240	Replace	1,521	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11144	LAKEWOOD	E County Line Rd (CR526) from Madison Ave to Princeton Ave	$1,531,200	Replace	2,320	8	PVC	8	AC	1970	Safety and Reliability/Structural	90	2024Q4
7136	LAKEWOOD	Hackett St Sewer (MLK 562 to Ridge)	$65,000	Replace	325	8	PVC	8	PVC	1980	Safety and Reliability/Structural	30	2025Q4
11155	LAKEWOOD	Harvard St from Apple St to Park Pl	$430,760	Replace	979	8	PVC	8	AC	1970	Safety and Reliability/Structural	60	2025Q4
11211	LAKEWOOD	Hudson St sewer from MLK845 to Washington PL	$96,800	Rehab	220	8	Other	8	AC	1970	Safety and Reliability/Structural	30	2024Q4
11179	LAKEWOOD	Lexington Ave from 6th St to Main St	$886,600	Replace	2,015	8	PVC	8	VCP	1949	Safety and Reliability/Structural	90	2027Q4
7388	LAKEWOOD	Lexington Ave from 9th st to 10th st	$100,000	Replace	365	10	PVC	8	PVC	1989	Safety and Reliability	30	2026Q4
11134	LAKEWOOD	Lexington Ave from Hudson St to 7th St	$1,111,000	Replace	2,525	8	PVC	8	VCP/AC	1939	Safety and Reliability/Structural	90	2024Q4
11149	LAKEWOOD	Liden Ave from Somerset Ave to Ocean Ave	$440,880	Replace	1,002	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
10831	LAKEWOOD	Main St from Clifton Ave to Lexington Ave	$952,000	Replace	680	10	PVC	10	VCP	1949	Safety and Reliability/Structural	60	2024Q4
10830	LAKEWOOD	Main St from Clifton Ave to Terminus	$427,000	Replace	305	8	PVC	8/10	VCP	1949	Safety and Reliability/Structural	30	2024Q4
11180	LAKEWOOD	Monmouth Ave from 12th St to 2nd St	$1,734,920	Replace	3,943	8	PVC	8/10/12	VCP	1949	Safety and Reliability/Structural	90	2027Q4
11212	LAKEWOOD	Myrtle Pl sewer from Valley Dr to S Lake Dr	$178,200	Replace	405	12	PVC	8	VCP/AC	1950	Safety and Reliability/Structural	30	2024Q4
11160	LAKEWOOD	Negba St from Ridge Ave to E 4th Ave	$343,640	Replace	781	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11143	LAKEWOOD	North Lake Drive from Lakewood Ave to South Clifton Ave	$1,716,000	Replace	3,900	12	PVC	12	VCP	1949	Safety and Reliability/Structural	90	2024Q4
11146	LAKEWOOD	Ocean Ave from Linden Ave to Clover St	$532,400	Replace	1,210	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2024Q4
11157	LAKEWOOD	Ocean Ave/Main St from Clover St to Madison Ave	$1,848,000	Replace	4,200	16	PVC	10/12/15/16	VCP	1949	Safety and Reliability/Structural	90	2025Q4
11165	LAKEWOOD	Park Ave/Maple Ave from Ridge Ave to Hackett St	$662,640	Replace	1,506	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11139	LAKEWOOD	Prospect St & Havenwood Ct from Xst Wood Ave to Havenwood Dead-end	$708,840	Replace	1,611	12	PVC	8	PVC	1989	Safety and Reliability/Structural	60	2024Q4
11138	LAKEWOOD	Ridge Ave & Negba St from Park Ave to E 4th St	$875,600	Replace	1,990	10	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2024Q4
11161	LAKEWOOD	Ridge Ave from E 5th St to Dena Ct	$686,400	Replace	1,560	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11156	LAKEWOOD	Ridge Ave from Somerset Ave to Manetta Ave	$399,960	Replace	909	8	PVC	8	VCP	1949	Safety and Reliability/Structural	60	2025Q4
11141	LAKEWOOD	River Ave (Rt9) from Buttell Ave to Henry St	$165,000	Replace	250	12	PVC	8	PVC	1989	Safety and Reliability/Structural	30	2024Q4
11183	LAKEWOOD	S Lake Dr from Myrtle Pl to Bradshaw Rd	$828,960	Replace	1,884	8	PVC	8/36	PVC/VCP	1949	Safety and Reliability/Structural	60	2027Q4
11151	LAKEWOOD	Shafto Ave from E County Line Rd to Squankum Rd	$371,800	Replace	845	8	PVC	8	PVC/VCP	1949	Safety and Reliability/Structural	60	2025Q4
11150	LAKEWOOD	Somerset Ave from E 7th Street to E Bergen Ave	$1,604,240	Replace	3,646	8	PVC	8	VCP	1949	Safety and Reliability/Structural	90	2025Q4
11142	LAKEWOOD	South Lake Dr from Myrtle Pl to Bradshaw Rd	$883,520	Replace	2,008	12	PVC	8/36	PVC/VCP	1949	Safety and Reliability/Structural	90	2024Q4
11135	LAKEWOOD	Squankum Road from East County Line Road to Princeton Ave	$937,200	Replace	2,130	8	PVC	8	PVC/AC	1970	Safety and Reliability/Structural	90	2024Q4
11182	LAKEWOOD	Sunset Road from Central Ave to S Lake Dr	$328,680	Replace	747	8	PVC	8	PVC/VCP	1949	Safety and Reliability/Structural	60	2027Q4
11213	MT EPHRAIM	Mount Ephraim - 2nd & 3rd Avenue	$972,000	Replace	2,775	8	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2027Q4
11184	MT EPHRAIM	Mount Ephraim - East Kings Highway	$5,000,000	Replace	1,720	8	PVC	8	VCP	1920	Safety and Reliability/Structural	60	2027Q4
11215	MT EPHRAIM	Mount Ephraim - Linden Avenue	$280,000	Replace	800	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	2027Q4
11214	MT EPHRAIM	Mount Ephraim - Lowell Avenue & Bell Road	$623,000	Replace	1,780	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	2027Q4
11216	MT EPHRAIM	Mount Ephraim - Valley Road - Kings Highway	$840,000	Replace	2,400	8	PVC	8	VCP	1940	Safety and Reliability/Structural	90	2027Q4

Id	Municipality	Project Title	NJAWC Funded (dollars)	Project Type	Prop. Length (feet)	Prop. Dia. (inches)	Proposed Pipe Material	Ex. Dia. (inches)	Existing Pipe Material	Decade Installed	Accelerated Asset Investment Category	Est Project Duration (Days)	Estimated In Service Quarter
11185	MT EPHRAIM	Mount Ephraim - West Kings Highway	$800,000	Replace	2,300	8	PVC	8	VCP	1920	Safety and Reliability/Structural	90	2027Q4
11096	MT EPHRAIM	Mt. Ephraim - Cleveland / Roosevelt / Jefferson	$3,000,000	Replace	4,000	8	PVC	8	VCP	1930	Safety and Reliability	60	2027Q4
11312	MT EPHRAIM	Mt. Ephraim - Thompson / Rudderow sewer main crossing	$1,000,000	Replace	1,000	8	Ductile Iron	8	VCP	1940	Crossing Risk Reduction	60	2027Q4
11261	OCEAN CITY	20th Street (West/Asbury alley to Central/Wesley Alley)	$300,000	Replace	570	12	PVC	12	VCP	1910	Safety and Reliability/Structural	25	2024Q4
11386	OCEAN CITY	24th Street Sewer (Wesley to West Ave), 23rd to 24th Wesley/Central Alley	$464,000	Replace	1,160	12	PVC	12	VCP	1940	Safety and Reliability/Structural	60	2026Q4
11265	OCEAN CITY	28th Street (West/Asbury Alley to Wesley Ave)	$395,500	Replace	740	12	PVC	12	VCP	1910	Safety and Reliability/Structural	30	2025Q4
11316	OCEAN CITY	300 Block Simpson/Haven Alley	$276,750	Replace	615	8	PVC	6	PVC	1990	Safety and Reliability/Structural	45	2026Q2
11293	OCEAN CITY	Asbury Road and Central Road between Battersea Road and North Street	$770,000	Replace	1,400	8	PVC	8	VCP	1910	Safety and Reliability/Structural	90	2026Q4
11260	OCEAN CITY	Asbury/Central Alley (18th St to 21st Street)	$930,000	Replace	1,860	8	PVC	6	VCP	1910	Safety and Reliability/Structural	45	2024Q4
11306	OCEAN CITY	Asbury/Central alley from 36th St to 38th Street	$690,500	Replace	1,120	8	PVC	8	AC	1940	Safety and Reliability/Structural	60	>2027
11269	OCEAN CITY	Bayfront/Bay alley (11th St to 12th St)	$341,000	Replace	620	8	PVC	8	VCP	1910	Safety and Reliability/Structural	40	>2027
11264	OCEAN CITY	Central/Wesley Alley (22nd Street to 23rd Street)	$300,000	Replace	520	8	PVC	6	VCP	1910	Safety and Reliability/Structural	30	2026Q4
11297	OCEAN CITY	Central/Wesley alley from 16th Street to 19th Street	$859,000	Replace	1,380	8	PVC	6	VCP	1910	Safety and Reliability/Structural	75	>2027
11298	OCEAN CITY	Central/Wesley alley from 18th St to 20th St	$473,000	Replace	860	8	PVC	6	VCP	1910	Safety and Reliability/Structural	45	>2027
11292	OCEAN CITY	Crescent Road from W. Inlet Road to Gardens Parkway	$586,000	Replace	1,080	8	PVC	6	VCP	1910	Safety and Reliability/Structural	60	>2027
11291	OCEAN CITY	E. Inlet Road and E. Seaspray Road from Gardens Parkway	$629,550	Replace	1,400	8	PVC	8	VCP	1910	Safety and Reliability/Structural	60	>2027
11290	OCEAN CITY	E. Seabright Road from Wesley Rd to A185	$396,000	Replace	800	8	PVC	8	VCP	1910	Safety and Reliability/Structural	50	2026Q4
11301	OCEAN CITY	Haven Ave from 22nd St to 23rd St, Including 22nd St and Simpson/Haven alley	$795,000	Replace	1,325	8	PVC	8	AC	1940	Safety and Reliability/Structural	65	2025Q4
11300	OCEAN CITY	Haven/West alley from 21st Street to 23rd Street, Including 22nd Street	$840,000	Replace	1,400	8	PVC	8	AC	1940	Safety and Reliability/Structural	75	2025Q4
11317	OCEAN CITY	Haven/West alley from 2nd St to 5th St and 5th St to West Ave	$800,000	Replace	1,775	8	PVC	6	VCP	1910	Safety and Reliability/Structural	75	2026Q2
11318	OCEAN CITY	Haven/West Alley from 6th St to 8th St	$513,000	Replace	1,140	8	PVC	6	VCP	1910	Safety and Reliability/Structural	60	2026Q4
10837	OCEAN CITY	Moorlyn Terrace from Ocean Ave to Atlantic Ave	$155,250	Replace	345	8	PVC	8	VCP	1910	Safety and Reliability/Structural	30	>2027
6344	OCEAN CITY	OC Sewer - 12th Street between Pleasure and West (HMM)	$300,000	New	1,200	8	PVC	8	PVC		Safety and Reliability/Structural	45	>2027
11268	OCEAN CITY	Ocean/Atlantic alley (3rd Street to 5th Street) and 5th St to Ocean Avenue	$876,500	Replace	1,230	8	PVC	6	VCP	1910	Safety and Reliability/Structural	60	2027Q4
11295	OCEAN CITY	Ocean/Atlantic alley from 1st St to 2nd St, including 2nd Street from Atlantic to Ocean Avenues	$491,500	Replace	900	8	PVC	6	VCP	1910	Safety and Reliability/Structural	60	>2027
11296	OCEAN CITY	Ocean/Atlantic alley from North Street to 1st Street	$395,000	Replace	540	8	PVC	6	VCP	1910	Safety and Reliability/Structural	45	>2027
11294	OCEAN CITY	Ocean/Atlantic alley from Pennlyn Place to 3rd Street and Pennlyn Place from Ocean to Atlantic Ave	$354,200	Replace	660	8	PVC	6	VCP	1910	Safety and Reliability/Structural	60	>2027
11289	OCEAN CITY	Pinnacle Road from Battersea Road to Gull Road & Hollytree Road	$628,200	Replace	1,400	8	PVC	6	VCP	1910	Safety and Reliability	60	2026Q4
11263	OCEAN CITY	Wesley Avenue (18th St to 22nd St), 19th St (Central to Wesley) and 20th St (Central/Wesley alley to Wesley Ave)	$1,015,000	Replace	2,230	8	PVC	6	VCP	1910	Safety and Reliability/Structural	90	2024Q4
11305	OCEAN CITY	Wesley Avenue (Alley) from 34th Street to 36th Street	$694,000	Replace	1,080	8	PVC	8	VCP	1940	Safety and Reliability/Structural	60	>2027
11299	OCEAN CITY	Wesley Avenue from 16th St to 18th St, Wesley/Ocean alley, St. Albans Pl and 17th St from Central/Wesley alley to Boardwalk	$1,392,000	Replace	2,320	8	PVC	6	VCP	1910	Safety and Reliability/Structural	90	>2027
11267	OCEAN CITY	Wesley/Ocean Alley (7th St MH-C19 to 9th St)	$595,000	Replace	930	8	PVC	6	VCP	1910	Safety and Reliability/Structural	45	2026Q4
10767	OCEAN CITY	West Ave from 14th Street to 16th Street New Sewer Main	$650,000	New	1,100	18	PVC	12	PVC		Safety and Reliability/Structural	60	>2027
11266	OCEAN CITY	West/Asbury alley (16th Street to mid-block 17th & 18th St)	$465,000	Replace	930	8	PVC	8	PVC	1990	Safety and Reliability/Structural	60	2026Q4
11304	OCEAN CITY	West/Asbury alley from 35th St to 36th St	$800,000	Replace	1,200	18	PVC	8	VCP	1940	Safety and Reliability/Structural	60	>2027
11238	TEWKSBURY TWP	Sewer Main Rehab Project 1	$125,000	Rehab	1,200	8	CIPP	8	ACP	1960	Water Quality	60	2024Q4
11239	TEWKSBURY TWP	Sewer Main Rehab Project 2	$100,000	Rehab	1,000	8	CIPP	8	ACP	1960	Water Quality	60	2025Q2
11240	TEWKSBURY TWP	Sewer Main Rehab Project 3	$90,000	Rehab	760	8	CIPP	8	ACP	1960	Water Quality	60	2025Q4
11241	TEWKSBURY TWP	Sewer Main Rehab Project 4	$110,000	Rehab	1,025	8	CIPP	8	ACP	1960	Water Quality	60	2026Q2
11242	TEWKSBURY TWP	Sewer Main Rehab Project 5	$75,000	Rehab	600	8	CIPP	8	ACP	1960	Water Quality	60	2026Q4
		Total Projects	$81,517,310										

New Jersey - American Water Company, Inc. **Schedule A**
WSIC Foundational Filing - No. 2 (2024)
Scenario 1 - Includes Post Test Year WSIC Eligible Additions

		WSIC Surcharge Filing #1 7/1/2024 to 4/30/25	WSIC Surcharge Filing #2 5/1/2025 to 10/31/2025	WSIC Surcharge Filing #3 11/1/2025 to 4/30/2026	WSIC Surcharge Filing #4 5/1/2026 to 10/31/2026	Total	
Total Proposed WSIC Additions		$ 10,213,302	$ 6,470,378	$ 6,470,378	$ 6,470,378	$ 29,624,436	
Less: Base Expenditures		(855,992)	(855,992)	(855,992)	(855,992)	(3,423,966)	
Eligible Investment (Qualified WSIC Additions to UPIS During WSIC Period)		9,357,311	5,614,386	5,614,386	5,614,386	26,200,470	(A)
Less: Accum Depr		(55,499)	(86,578)	(126,537)	(166,496)	(435,108)	(B)
Less: Deferred Tax		(21,096)	(32,910)	(48,099)	(63,288)	(165,392)	(C)
Eligible Net Investment (net WSIC Additions to UPIS During WSIC Period)		9,280,716	5,494,899	5,439,751	5,384,603	25,599,970	
Times Pre-Tax ROR	X	9.5077%	9.5077%	9.5077%	9.5077%	9.5077%	(D)
Pre-Tax Return on Investment		882,379	522,437	517,193	511,950	2,433,959	
Add: Depreciation		133,196	79,918	79,918	79,918	372,950	
Revenue Recovery		1,015,576	602,354	597,111	591,868	2,806,909	
Revenue Factor		$1.166581	$1.166581	$1.166581	$1.166581	$1.166581	(E)
Total WSIC Revenue Requirement Recovery Amount		1,184,751	702,695	696,578	690,462	3,274,486	
WSIC Surcharge Recovery Amount - Annual		1,184,751	702,695	696,578	690,462	3,274,486	
WSIC Revenue Requirement Recovery Amount - Monthly		**$98,729**	**$58,558**	**$58,048**	**$57,538**	**$272,874**	

UPIS ADDITIONS SUMMARY
(A) - Includes actual WSIC eligible projects closed to UPIS during WSIC Period

Asset Category	7/1/2024 to 4/30/25	5/1/2025 to 10/31/2025	11/1/2025 to 4/30/2026	5/1/2026 to 10/31/2026
Proposed WSIC Eligible Additions	9,357,311	5,614,386	5,614,386	5,614,386
Base Spend	855,992	855,992	855,992	855,992
Subtotal	**$10,213,302**	**$6,470,378**	**$6,470,378**	**$6,470,378**

(B) - Accumulated Depreciation:	7/1/2024 to 4/30/25	5/1/2025 to 10/31/2025	11/1/2025 to 4/30/2026	5/1/2026 to 10/31/2026
WSIC Eligible projects closed to UPIS	9,357,311	$5,614,386	$5,614,386	$5,614,386
Composite Depreciation rate	1.423%	1.423%	1.423%	1.423%
Annual Depreciation Expense	133,196	79,918	79,918	79,918
Cumulative Depreciation Expense	55,499	86,578	126,537	166,496

(C) - Deferred Taxes:	7/1/2024 to 4/30/25	5/1/2025 to 10/31/2025	11/1/2025 to 4/30/2026	5/1/2026 to 10/31/2026
WSIC Eligible projects closed to UPIS	$9,357,311	$5,614,386	$5,614,386	$5,614,386
MACRS Rate	4.00%	4.00%	4.00%	4.00%
Annual Tax Depreciation	374,292	224,575	224,575	224,575
Cumulative Tax Depreciation	155,955	243,290	355,578	467,866
Less: Book Depreciation	55,499	86,578	126,537	166,496
Tax Depr Greater than Book	100,457	156,712	229,041	301,370
Deferred Taxes at 21%	$21,096	$32,910	$48,099	$63,288

(D) - Pre-Tax Rate of Return:

	Ratios	Cost Rate	Weighted Average Cost of Capital	Pre-Tax ROR
Long Term Debt[1]	43.70%	4.23%	1.8466%	1.8466%
Common Equity	56.30%	10.75%	6.0523%	7.6611%
Subtotal Return on Rate Base	100.00%		7.8988%	9.5077%

[1] Cost of Capital as per Docket WR19121516

(E) - Revenue Factor:

Dollar of Revenue	$1.000000	
Less: GRT Tax	($0.136034)	Docket No. WR24010056
Less: Bad Debts & Reg Assessments	($0.004128)	Docket No. WR24010056
Less: BPU Assessment	($0.002130)	(per 2023 recent assessment)
Less: DRC Assessment	($0.000502)	(per 2023 recent assessment)
Revenue remaining after taxes, bad debts, and assessments	$0.857206	
Revenue [Gross-up] Factor	$1.166581	

(F)- Revenue Requirement:

Please note that the revenue requirement is limited by the WSIC-cap. For example if the Company's annual revenues established in their last base rate case were $100,000,000, then the WSIC-cap would be calculated as follows:

Total annual revenues from most recent base rate case of $100,000,000 X 5.00% = $5,000,000

The Company's revenue requirement in the above example can not be greater than $5,000,000 per year.

Monthly cost per 5/8th Inch Meter - Typical Residential Customer -	**$4.16**
WSIC Revenue as a % of total Water Revenue $65,489,729	**5.00%**

New Jersey - American Water Company, Inc. **Schedule A**
WSIC Foundational Filing - No. 2 (2024)
Scenario 2 - Excludes Post Test Year DSIC Eligible Additions

		WSIC Surcharge Filing #1 1/1/2025 to 4/30/25	WSIC Surcharge Filing #2 5/1/2025 to 10/31/2025	WSIC Surcharge Filing #3 11/1/2025 to 4/30/2026	WSIC Surcharge Filing #4 5/1/2026 to 10/31/2026	Total	
Total Proposed WSIC Additions		$ 5,599,008	$ 7,970,516	$ 7,970,516	$ 7,970,516	$ 29,510,555	
Less: Base Expenditures		(855,992)	(855,992)	(855,992)	(855,992)	(3,423,966)	
Eligible Investment (Qualified WSIC Additions to UPIS During WSIC Period)		4,743,016	7,114,524	7,114,524	7,114,524	26,086,589	(A)
Less: Accum Depr		(11,252)	(59,075)	(109,711)	(160,347)	(340,385)	(B)
Less: Deferred Tax		(4,277)	(22,455)	(41,703)	(60,950)	(129,386)	(C)
Eligible Net Investment (net WSIC Additions to UPIS During WSIC Period)		4,727,487	7,032,994	6,963,111	6,893,227	25,616,818	
Times Pre-Tax ROR	X	9.5077%	9.5077%	9.5077%	9.5077%	9.5077%	(D)
Pre-Tax Return on Investment		449,477	668,679	662,034	655,390	2,435,580	
Add: Depreciation		67,514	101,272	101,272	101,272	371,329	
Revenue Recovery		516,991	769,950	763,306	756,662	2,806,909	
Revenue Factor		$1.166581	$1.166581	$1.166581	$1.166581	$1.166581	(E)
Total WSIC Revenue Requirement Recovery Amount		603,112	898,209	890,458	882,707	3,274,487	
WSIC Surcharge Recovery Amount - Annual		603,112	898,209	890,458	882,707	3,274,487	
WSIC Revenue Requirement Recovery Amount - Monthly		**$50,259**	**$74,851**	**$74,205**	**$73,559**	**$272,874**	

UPIS ADDITIONS SUMMARY
(A) - Includes actual WSIC eligible projects closed to UPIS during WSIC Period

Asset Category	1/1/2025 to 4/30/25	5/1/2025 to 10/31/2025	11/1/2025 to 4/30/2026	5/1/2026 to 10/31/2026	Schedule
Proposed WSIC Eligible Additions	4,743,016	7,114,524	7,114,524	7,114,524	Schedule D
Base Spend	855,992	855,992	855,992	855,992	Schedule D
Subtotal	**$5,599,008**	**$7,970,516**	**$7,970,516**	**$7,970,516**	

(B) - Accumulated Depreciation:	1/1/2025 to 4/30/25	5/1/2025 to 10/31/2025	11/1/2025 to 4/30/2026	5/1/2026 to 10/31/2026
WSIC Eligible projects closed to UPIS	$4,743,016	$7,114,524	$7,114,524	$7,114,524
Composite Depreciation rate	1.423%	1.423%	1.423%	1.423%
Annual Depreciation Expense	67,514	101,272	101,272	101,272
Cumulative Depreciation Expense	11,252	59,075	109,711	160,347

(C) - Deferred Taxes:	1/1/2025 to 4/30/25	5/1/2025 to 10/31/2025	11/1/2025 to 4/30/2026	5/1/2026 to 10/31/2026
WSIC Eligible projects closed to UPIS	$4,743,016	$7,114,524	$7,114,524	$7,114,524
MACRS Rate	4.00%	4.00%	4.00%	4.00%
Annual Tax Depreciation	189,721	284,581	284,581	284,581
Cumulative Tax Depreciation	31,620	166,006	308,296	450,587
Less: Book Depreciation	11,252	59,075	109,711	160,347
Tax Depr Greater than Book	20,368	106,931	198,585	290,240
Deferred Taxes at 21%	$4,277	$22,455	$41,703	$60,950

(D) - Pre-Tax Rate of Return:

	Ratios	Cost Rate	Weighted Average Cost of Capital	Pre-Tax ROR
Long Term Debt[1]	43.70%	4.23%	1.8466%	1.8466%
Common Equity	56.30%	10.75%	6.0523%	7.6611%
Subtotal Return on Rate Base	100.00%		7.8989%	9.5077%

[1] Cost of Capital as per Docket WR19121516

(E) - Revenue Factor:

Dollar of Revenue	$1.000000	
Less: GRT Tax	($0.136034)	Docket No. WR24010056
Less: Bad Debts & Reg Assessments	($0.004128)	Docket No. WR24010056
Less: BPU Assessment	($0.002130)	(per 2023 recent assessment)
Less: DRC Assessment	($0.000502)	(per 2023 recent assessment)
Revenue remaining after taxes, bad debts, and assessments	$0.857206	
Revenue [Gross-up] Factor	$1.166581	

(F)- Revenue Requirement:
Please note that the revenue requirement is limited by the WSIC-cap. For example if the Company's annual revenues established in their last base rate case were $100,000,000, then the WSIC-cap would be calculated as follows:
Total annual revenues from most recent base rate case of $100,000,000 X 5.00% = $5,000,000
The Company's revenue requirement in the above example can not be greater than $5,000,000 per year.

Monthly cost per 5/8th Inch Meter - Typical Residential Customer -	**$4.16**
WSIC Revenue as a % of total Water Revenue $65,489,729	**5.00%**

New Jersey - American Water Company, Inc.
WSIC Foundational Filing - No. 2 (2024)
Calculation of Composite Depreciation Rate for WSIC

UPIS Account	NARUC Account	Balance	Weight	Depreciation Rate	Weighted Rate	District
Service Connections, Traps & Accessories	320	$1,080,243	19.78%	2.25%	0.4452%	Statewide
Collecting Mains & Accessories	321	$1,495,242	27.39%	1.03%	0.2821%	Statewide
Force Mains	323	$154,524	2.83%	1.28%	0.0362%	Statewide
Service Connections, Traps & Accessories	320	$2,730,009	50.00%	1.32%	0.6600%	EDC
Collecting Mains & Accessories	321	$0	0.00%	1.32%	0.0000%	EDC
Force Mains	323	$0	0.00%	1.32%	0.0000%	EDC
Total		$5,460,018	100.00%		1.4234%	

New Jersey - American Water Company, Inc.
WSIC Foundational Filing - No. 2 (2024)
Calculation of Annual Base Spend Requirement

Depreciation Group	Depreciation Account	(a) Total Depreciation 2022 BPU Report	(b) Amortization CIAC	(c= a+b) Net Depreciation	(d) Percentage* WSIC Eligible Depreciation	(e= c*d) Total Base Spend
Service Connections, Traps & Accessories	320	$1,255,262	($175,019)	$1,080,243	57.64%	$622,663
Collecting Mains & Accessories	321	1,977,115	(481,873)	1,495,242	62.52%	934,796
Force Mains	323	154,524		154,524	100.00%	154,524
Total		3,386,901	(656,892)	$2,730,009		$1,711,983

* - Percentage DSIC Eligible depreciation based on 5 year average of DSIC additions

5 YEAR AVERAGE DSIC PERCENTAGE

Collecting Mains	**62.52%**	**Service Connections**	**57.64%**

2022

Collecting Mains		Service Connections	
WSIC Eligible B Line	27.88%	WSIC Eligible B Line	0.61%
WSIC Eligible C Line	16.96%	WSIC Eligible C Line	0.19%
WSIC Eligible F Line	4.06%	WSIC Eligible F Line	0.45%
WSIC Eligible H Line	2.66%	WSIC Eligible H Line	54.15%
Sub-Total WSIC Eligible	51.57%	**Sub-Total WSIC Eligible**	55.41%
Non-WSIC Eligible	48.43%	Non-WSIC Eligible	44.59%
	100.00%		100.00%

2021

Collecting Mains		Service Connections	
WSIC Eligible B Line	46.69%	WSIC Eligible B Line	9.10%
WSIC Eligible C Line	30.51%	WSIC Eligible C Line	0.96%
WSIC Eligible F Line	5.75%	WSIC Eligible F Line	0.11%
WSIC Eligible H Line	5.08%	WSIC Eligible H Line	50.00%
Sub-Total WSIC Eligible	88.02%	**Sub-Total WSIC Eligible**	60.17%
Non-WSIC Eligible	11.98%	Non-WSIC Eligible	39.83%
	100.00%		100.00%

2020

Collecting Mains		Service Connections	
WSIC Eligible B Line	68.36%	WSIC Eligible B Line	11.82%
WSIC Eligible C Line	11.57%	WSIC Eligible C Line	4.73%
WSIC Eligible F Line	7.90%	WSIC Eligible F Line	0.00%
WSIC Eligible H Line	5.39%	WSIC Eligible H Line	37.59%
Sub-Total WSIC Eligible	93.22%	**Sub-Total WSIC Eligible**	54.14%
Non-WSIC Eligible	6.78%	Non-WSIC Eligible	45.86%
	100.00%		100.00%

2019

Collecting Mains		Service Connections	
WSJC ElJgJble B LJne	17.06%	WSJC ElJgJble B LJne	7.58%
WSJC ElJgJble C LJne	2.52%	WSJC ElJgJble C LJne	0.12%
WSJC ElJgJble F LJne	4.89%	WSJC ElJgJble F LJne	0.00%
WSJC ElJgJble H LJne	1.28%	WSJC ElJgJble H LJne	45.88%
Sub-Total WSJC ElJgJble	25.76%	**Sub-Total WSJC ElJgJble**	53.59%
Non-WSJC ElJgJble	74.24%	Non-WSJC ElJgJble	46.41%
	100.00%		100.00%

2018

Collecting Mains		Service Connections	
WSIC Eligible B Line	36.07%	WSIC Eligible B Line	9.11%
WSIC Eligible C Line	15.21%	WSIC Eligible C Line	4.33%
WSIC Eligible F Line	1.46%	WSIC Eligible F Line	0.00%
WSIC Eligible H Line	1.28%	WSIC Eligible H Line	51.46%
Sub-Total WSIC Eligible	54.02%	**Sub-Total WSIC Eligible**	64.89%
Non-WSIC Eligible	45.98%	Non-WSIC Eligible	35.11%
	100.00%		100.00%

Monthly WSIC Charge Based on Meter Size and % Increase (B)

Meter Size	5/8" Equivalent (A)	0.50%	1.00%	1.50%	2.00%	3.00%	4.00%	5.00%
5/8	**1.0**	$0.42	$0.83	$1.25	$1.66	$2.50	$3.33	$4.16
3/4	**1.5**	$0.62	$1.25	$1.87	$2.50	$3.75	$4.99	$6.24
1	**2.5**	$1.04	$2.08	$3.12	$4.16	$6.24	$8.32	$10.40
1-1/2	**5.0**	$2.08	$4.16	$6.24	$8.32	$12.48	$16.65	$20.81
2	**8.0**	$3.33	$6.66	$9.99	$13.32	$19.98	$26.63	$33.29
3	**15.0**	$6.24	$12.48	$18.73	$24.97	$37.45	$49.94	$62.42
4	**25.0**	$10.40	$20.81	$31.21	$41.62	$62.42	$83.23	$104.04
6	**50.0**	$20.81	$41.62	$62.42	$83.23	$124.85	$166.46	$208.08
8	**80.0**	$33.29	$66.59	$99.88	$133.17	$199.76	$266.34	$332.93
10	**100.0**	$41.62	$83.23	$124.85	$166.46	$249.69	$332.93	$416.16
12	**125.0**	$52.02	$104.04	$156.06	$208.08	$312.12	$416.16	$520.20
16	**200.0**	$83.23	$166.46	$249.69	$332.93	$499.39	$665.85	$832.31

(A) Based on American Water Works Association ("AWWA") flow rates. A 5/8-inch meter is equivalent to one (1)unit, whereas a 1-inch meter is equivalent to 2.5 units based on the amount of water that will flow through the meter size.

(B) Please note that the WSIC surcharge will be implemented on a monthly basis, after the approval of the Foundational Filing listing all of the projects; the completion of approved projects that are providing utility service to the customer ; and the submission of the semi-annual filing documenting the completion, location, timing, and cost of the individual project. The maximum surcharge is 5.0%; however the surcharge will be implemented in semi-annual increments as the approved projects are placed in service. The Company may never reach the allowed maximum amount of 5.0%, and if it does, it will most likely take 24 - 36 months to do so.

New Jersey - American Water Company, Inc.
WSIC Foundational Filing - No. 2 (2024)

WSIC SURCHARGE BILL IMPACT

NEW JERSEY-AMERICAN WATER COMPANY

BASIS FOR ALLOCATING METER COSTS TO CUSTOMER CLASSIFICATIONS

Meter Size	5/8" Equivalent	GMS Number of Meters*	GMS Weighting	Resale Number of Meters*	Resale Weighting	Exempt Number of Meters*	Exempt Weighting**	Total Number of Meters*	Total Weighting
5/8	1.0	44,288	44,288	0	0	0	0	44,288	44,288
3/4	1.5	257	386	0	0	0	0	257	386
1	2.5	2,518	6,295	0	0	0	0	2,518	6,295
1-1/2	5.0	180	900	0	0	0	0	180	900
2	8.0	482	3,856	0	0	0	0	482	3,856
3	15.0	9	135	0	0	0	0	9	135
4	25.0	26	650	0	0	0	0	26	650
6	50.0	2	100	0	0	0	0	2	100
8	80.0	112	8,960	0	0	0	0	112	8,960
10	100.0	0	0	0	0	0	0	0	0
12	125.0	0	0	0	0	0	0	0	0
16	200.0	0	0	0	0	0	0	0	0
Total		47,874	65,570	0	0	0	0	47,874	65,570
									(c)

*Meter Count as of 1/31/2024, including unmetered accounts of approximately 1,860 which are classified as 5/8"
**Weighting deducts impact of GRAFT of 0.8639665

PROOF OF REVENUE (Monthly Charge)

Annual Revenue @ 5% cap	$3,274,486	*(a)*
Monthly Revenue	$272,874	*(b)= (a)/12*
Weighted No of Meters	65,570	*(c)*
5/8"Meter Monthly Charge	$4.16	*(d)=(b)/(c)*

Meter Size	5/8" Equivalent	GMS Charge	GMS Charge x Meters	Resale Charge	Resale Charge x Meters	Exempt Charge	Exempt Charge x Meters	Total Revenue
5/8	1.0	$4.16	$184,307.43	$4.16	$0.00	$3.60	$0.00	$184,307.43
3/4	1.5	6.24	1,604.28	6.24	0.00	5.39	0.00	1,604.28
1	2.5	10.40	26,197.06	10.40	0.00	8.99	0.00	26,197.06
1-1/2	5.0	20.81	3,745.41	20.81	0.00	17.98	0.00	3,745.41
2	8.0	33.29	16,047.00	33.29	0.00	28.76	0.00	16,047.00
3	15.0	62.42	561.81	62.42	0.00	53.93	0.00	561.81
4	25.0	104.04	2,705.02	104.04	0.00	89.89	0.00	2,705.02
6	50.0	208.08	416.16	208.08	0.00	179.77	0.00	416.16
8	80.0	332.93	37,287.63	332.93	0.00	287.64	0.00	37,287.63
10	100.0	416.16	0.00	416.16	0.00	359.55	0.00	0.00
12	125.0	520.20	0.00	520.20	0.00	449.43	0.00	0.00
16	200.0	832.31	0.00	832.31	0.00	719.09	0.00	0.00
Total			$272,871.79		$0.00		$0.00	$272,871.79

Note (a)

Base Wastewater Revenue (proposed per WR24010056)		$47,760,643
Total PSTAC Revenue per WR23110791 (per Stipulation)		17,729,086
Subtotal		$65,489,729
	5% Cap	$3,274,486

NOTICE OF PUBLIC HEARINGS
NEW JERSEY-AMERICAN WATER COMPANY, INC.

NEW JERSEY-AMERICAN WATER COMPANY, INC.
NOTICE OF FILING OF A PETITION FOR APPROVAL OF A WASTEWATER SYSTEM IMPROVEMENT CHARGE
BPU Docket No. WR2403____

TO OUR CUSTOMERS:

PLEASE TAKE NOTICE that on March 26, 2024, New Jersey-American Water Company, Inc. ("Company") filed with the New Jersey Board of Public Utilities ("Board"), seeking approval of a Foundational Filing to implement a Wastewater System Improvement Charge ("WSIC"), pursuant to N.J.A.C. 14:9-11.1 et seq. A WSIC is a rate recovery mechanism to encourage and support accelerated rehabilitation and replacement of certain non-revenue producing, critical wastewater collection system components. Such projects include the replacement or rehabilitation of wastewater mains (including structural and non-structural lining projects), grouting and sealing of wastewater line joints; replacement or rehabilitation of wastewater laterals, manholes, and force mains; and relining or relocation of wastewater lines, manholes, and wastewater laterals (or other utility owned wastewater assets) stemming from coordination with government entities. Its purpose is to enhance safety, reliability, public health, effluent quality, and/or conservation. A WSIC rate is interim, subject to refund, until the subsequent base rate case.

Any rate adjustments with resulting changes in bill impacts found by the Board to be just and reasonable as the result of the Company's petition may be modified and/or allocated by the Board in accordance with the provisions of N.J.S.A. 48:2-21 and for other good and legally sufficient reasons to any class or classes of customers of the Company. Therefore, the described charges may increase or decrease based upon the Board's decision. The Petition and applicable attachments as well as the Public Hearing Notice for this proceeding can be viewed on the Company's website at www.newjerseyamwater.com by first selecting Customer Service and then Your Water and Wastewater Rates.

The maximum proposed monthly WSIC rates are contained in the petition filed with the Board, as set forth below. The maximum revenues will be set in the Company's currently pending base rate case, BPU Docket No. WR24010056.

PROPOSED WSIC SURCHARGE RATES BASED ON
METER SIZE OR EQUIVALENT

General Metered Service
Maximum Monthly WSIC Surcharge:

Size of Meter	5/8" Equivalent*	Proposed Rate
5/8	1.0	$4.16
3/4	1.5	6.24
1	2.5	10.40
1-1/2	5.0	20.81
2	8.0	33.29
3	15.0	62.42
4	25.0	104.04
6	50.0	208.08
8	80.0	332.93
10	100.0	416.16
12	125.0	520.20
16	200.0	832.31

*Based on American Water Works Association flow rates. A 5/8" meter is equivalent to one unit, whereas a 1-inch meter is equivalent to 2.5 units based on the amount of water that will flow through the meter size.

PLEASE TAKE FURTHER NOTICE the virtual public hearings will be conducted on the following date and times so that members of the public may present their views on the Petition:

Date: _______________, 2024
Times: 4:30 and 5:30 pm
Link: ________________
Dial-In Number: 1-862-294-2638
Phone Conference ID: __________
Meeting ID: ______________
Passcode: _________

Representatives from the Company, Board Staff, and the New Jersey Division of Rate Counsel will participate in the virtual public hearings. Members of the public are invited to participate by utilizing the link or dial-in information set forth above to express their views on the Petition. All comments will be made part of the final record of the proceeding to be considered by the Board. In order to encourage full participation in this opportunity for public comment, please submit any requests for needed accommodations, such as interpreters and/or listening assistance, at least 48 hours prior to the above hearing to the Board Secretary at board.secretary@bpu.nj.gov.

Comments may be submitted directly to the specific docket listed above using the "Post Comments" button on the Board's Document Search tool, https://publicaccess.bpu.state.nj.us. Comments are considered public documents for purposes of the State's Open Public Records Act. Only submit public documents using the "Post Comments" button on the Board's Public Document Search tool. Any confidential information should be submitted in accordance with the procedures set forth in N.J.A.C. 14:1-12.3. In addition to hard copy submissions, confidential information may be filed electronically via the Board's e-filing system or by email to the Secretary of the Board, Sherri L. Golden. Please include "Confidential Information" in the subject line of any email. Instructions for confidential e-filing are found on the Board's webpage, https://www.nj.gov/bpu/agenda/efiling/.

Emailed and/or written comments may also be submitted to:

Sherri L. Golden, Secretary of the Board
44 South Clinton Ave., 1st Floor
PO Box 350
Trenton, NJ 08625-0350
Email: board.secretary@bpu.nj.gov

BY: MARK K. McDONOUGH
President
NEW JERSEY-AMERICAN WATER COMPANY, INC.
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Camden, NJ 08102