Ocean County
Wastewater Management Plan

Replacing All Previously Adopted Wastewater Management Plans

Submitted By

The Ocean County Department of Planning | January 8, 2015

Approved By

The New Jersey Department of Environmental Protection | December 30, 2015

Amended By

The Ocean County Board of Chosen Freeholders | December 22, 2017

Amending Volume 1 of 2 Environmental Analysis and 2 of 2 Municipal Chapters to 1 of 4 and 2 of 4 to add the nitrate dilution analysis for HUCs 02040301020 and 02040301030; adding Volume 3 of 4 Strategies to Mitigate Potential Capacity Deficiencies; and adding Volume 4 of 4 Septic Maintenance Program

Approved By

The New Jersey Department of Environmental Protection |

VOLUME 1 of 4 ENVIRONMENTAL ANALYSIS

The following pages in Volume 1 of the Ocean County Wastewater Management Plan adopted in December 2015 were not updated to reflect the adoption of the nitrate dilution analysis for HUCs 02040301020 and 02040301030: pages 6 and 39; however, upon adoption of this amendment, the nitrate dilution analysis for these two HUCs is now adopted.

VOLUME 2 of 4 MUNICIPAL CHAPTERS

The following pages in Volume 2 of the Ocean County Wastewater Management Plan adopted in December 2015 were not updated to reflect the adoption of the nitrate dilution analysis for HUCs 02040301020 and 02040301030: pages 11-18, 11-19, 14-8, and 14-9; however, upon adoption of this amendment, the nitrate dilution analysis for these two HUCs is now adopted.

VOLUME 3 of 4 STRATEGIES TO MITIGATE POTENTIAL CAPACITY DEFICIENCIES

This section contains the potential strategies to address any identified wastewater treatment capacity deficiencies or nitrate dilution carrying capacity deficiencies

VOLUME 4 of 4 SEPTIC MAINTENANCE PROGRAM

This section contains a septic maintenance program plan for the county.

Prepared By

The Ocean County Department of Planning
129 Hooper Avenue, P.O. Box 2191
Toms River, NJ 08754-2191
(732) 929-2054

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VOLUME 1 of 4
OCEAN COUNTY WASTEWATER MANAGEMENT PLAN
ENVIRONMENTAL ANALYSIS

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STRATEGIES TO MITIGATE POTENTIAL CAPACITY DEFICIENCIES

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VOLUME 4 of 4
SEPTIC MAINTENANCE PROGRAM

Submitted By
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129 Hooper Avenue, P.O. Box 2191
Toms River, NJ 08754-2191
(732) 929-2054

Septic Maintenance Program

Component of the Ocean County Wastewater Management Plan

Submitted By

The Ocean County Department of Planning | December 22, 2017

Approved By

The New Jersey Department of Environmental Protection |

Prepared By

The Ocean County Department of Planning
129 Hooper Avenue, P.O. Box 2191
Toms River, NJ 08754-2191
(732) 929-2054

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I. ISSDS Inventory

This Septic Maintenance Program (SMP) was prepared in accordance with the New Jersey Water Quality Management (WQM) Planning Rules (N.J.A.C. 7:15), which were adopted by the New Jersey Department of Environmental Protection (NJDEP) on November 7, 2016. As per N.J.A.C. 7:15-4.5(c)1vi, all designated Water Quality Management Planning Agencies are required to "demonstrate that areas to be served by individual subsurface disposal systems are subject to a mandatory maintenance program, such as an ordinance, which ensures that all individual subsurface disposal systems are inspected at a frequency to adequately determine if they are functioning properly." The Ocean County Board of Chosen Freeholders is the designated Water Quality Management Planning Agency for Ocean County and those portions of Monmouth County which lie within the Metedeconk River Basin. The Ocean County Board of Chosen Freeholders has identified the Ocean County Department of Planning as the county agency charged with Wastewater Management Plan (WMP) preparation and maintenance.

On May 17, 2017, the NJDEP provided funding to the County of Ocean in the form of a federal grant for the purpose of developing a SMP. Also, on May 17, 2017, the County of Ocean entered into an Intergovernmental Services Agreement (ISA) with the Ocean County Board of Health for the development of this SMP.

Creation of Current ISSDS Inventory

The Ocean County Health Department (OCHD), in cooperation with the Ocean County Department of Planning, has created an inventory of all individual subsurface disposal systems (ISSDSs) in Ocean County. While the installation of new ISSDSs is increasingly uncommon in Ocean County, septic systems are still prevalent in the more rural areas of the county, including but not limited to sections of Eagleswood, Jackson, Lakewood, Little Egg Harbor, and Manchester Townships. As the only Ocean County municipality not served by the Ocean County Utilities Authority (OCUA), all of Plumsted Township (outside of Joint Base McGuire-Dix-Lakehurst) is currently on septic; this will continue unless and until a planned sewer treatment works is constructed in the New Egypt downtown area. Conversely, ISSDSs are less common in the more urbanized areas of the County, and several barrier island communities do not have any active septic systems. The efforts of Ocean County Health Department and the Ocean County Department of Planning have produced the first comprehensive inventory of the county's ISSDSs.

The inventory in its present form includes a record for each of the approximately 30,000 ISSDSs in Ocean County. Each record contains all currently available data on the street address, block and lot, and relevant file number.

Accessing the ISSDS Inventory

Copies of the Ocean County ISSDS Inventory can be obtained from the Ocean County Board of Health. The entire inventory, in digital format, is available for official use upon request. Site-specific inquiries will be handled by the Ocean County Health Department on a case-by-case basis.

In the future, the OCHD will continue to update the inventory as new information is made available. Specific procedures for keeping the inventory's records up to date are detailed in the following sections.

II. Current Septic Management Practices

The septic management practices now implemented by this SMP are multifarious. The following sections identify the procedures which are currently in place and will soon be enacted to ensure compliance with N.J.A.C. 7:15. Areas of specific concern are identified for prioritization of septic management efforts. The process by which new ISSDSs are permitted is also detailed. System maintenance requirements, as well as the procedures for updating the ISSDS inventory, keeping the public informed, responding to complaints and failures, and reporting to the NJDEP are also covered.

Priority Areas

There are presently three "priority areas" in Ocean County, in which there are a preponderance of failing ISSDSs. Each priority area is unique in its contributing factors, current status, and potential remedies. It should be noted that there are also probable areas of failing ISSDSs which are expected to be identified through execution of this Septic Management Plan.

The most crucial area of failing ISSDSs in the County is Lakewood Township. Due to the significant population growth, age of existing neighborhoods, and the use of existing structures for non-residential purposes, the amount of effluent actually generated per day often far exceeds the engineered capacity of era-appropriate ISSDS design. This area is under increasing pressure, and ISSDS waste overflows are frequent and pose a significant public health threat. While modern technologies are being incorporated more often to handle the waste volumes for newer structures, there are no near-term remedies for existing stressed systems.

Another area of historically failing ISSDSs is the Pine Lake Park section of Manchester Township. Caused, in general, by the high density of residential systems, the age of construction, and outdated technology, an elevated amount of ISSDS repair permits have been filed in recent years. This area has undergone significant system repair and replacement, with modern technologies rarely utilized. Execution of this Septic Management Plan is expected to improve the long-term effectiveness of repaired systems such as these in the future.

Health Department complaint and ISSDS permit data have indicated that the area of Plumsted Township surrounding Oakford Lake and the downtown/Main Street area have long experienced ISSDS failure and overflow. This is caused by a dense concentration of older ISSDS construction in areas of high water tables. As the Township moves forward with plans to extend sanitary sewer facilities throughout the area, including the construction of a wastewater treatment facility, this area is expected to vastly improve in the near future.

Permitting Process for ISSDSs

As the local Administrative Authority for all of Ocean County except for the six municipalities that comprise Long Beach Island, the Ocean County Health Department provides all ISSDS design review, construction inspection, certification, and complaint investigation for ISSDSs within Ocean County. The only exception to this is Treatment Works Approvals, which are overseen by the NJDEP. As per Ocean County Health Department Ordinances 83-1 and 94-1, ISSDS permitting and construction is managed and administered consistently throughout each municipality, and fees are collected to offset the allocation of necessary resources.

ISSDS construction permits are filed and contain, at a minimum, soil logs, sealed engineered design of all system components, and all applicable local approvals. Wetlands documentation, Pinelands documentation, and local utility documentation are also necessary for review at times.

ISSDS repair permits are filed under emergent as well as routine conditions. Sealed engineering documents, site drawings, and permit documentation are required for approval, and are cross-referenced with existing files for any parcel applying for ISSDS repair. ISSDS alterations can be filed and permitted through similar means.

It should be noted that many areas of Ocean County are within Pinelands-regulated zones. ISSDSs in these areas often employ the use of advanced technologies. Approval is required by Pinelands authorities as well as the Ocean County Health Department.

Alternatives to standard ISSDS design are reviewed by the Ocean County Health Department for a number of reasons. These may include fitting fields into undersized lots, site conditions that do not allow standard technology, etc. These systems are approved on a case-by-case basis.

Maintenance Requirements for ISSDS Owners/Operators

Previously, correspondence to ISSDS owners/operators has not been completed on any regular schedule. With the implementation of this SMP, all owners/operators of properties with ISSDSs will be contacted with a letter containing standard operation and maintenance recommendations. The letter will also include a link to a newly created page on the OCHD website where users will find more in-depth information related to ISSDS basics and technical guidance.

Following the initial mailing, and through long-term execution of the SMP, triennial mailings will continue. Newly constructed and approved systems will be placed on the triennial schedule as well. Resources posted to the OCHD website will be reviewed and updated annually to ensure proper guidance and accurate information.

Additional Maintenance Requirements

There are no municipal or County maintenance requirements for functioning ISSDSs at this time. When reports of malfunctioning systems are received and verified by OCHD field staff, pump-outs and ISSDS repair work can be mandated. If warranted, ISSDS owners are issued Notices of Violation. Court action will then follow if corrective actions are not taken by the owners.

In Pinelands areas, the Pinelands Comprehensive Management Plan (CMP) requires a five-year warranty from when an alternate design system is first installed. The requirement does not apply to all new ISSDSs. The CMP also requires that the system have a renewable operation and maintenance agreement for the life of the system (N.J.A.C. 7:50-6.85b).

Education/Outreach on Proper Maintenance

To date, additional outreach and education programs have only been performed sporadically. As a part of this SMP—and currently in development—are frequently asked questions and answers posted to the OCHD website. Also, the OCHD will be recording videos explaining the permit submission and approval process. All of this information and media will be added to the OCHD website in the near future. The OCHD is also planning "Ask an Inspector" night programs to be hosted at government buildings as well as other community-based facilities.

Record Creation and Maintenance

A comprehensive inventory of all ISSDSs in Ocean County has not been compiled prior to this SMP. However, as part of this SMP, an editable inventory has been created. Future use of the inventory includes noting abandonments, adding new systems, and noting repairs and alterations to existing ISSDSs in Ocean County. The long-term goal of the inventory system is to create a database capable of tracking changes to inventory, as well as targeting areas with known ISSDS failures.

Response Actions to Complaints

All complaints received are investigated by OCHD field staff. All violations of public health regulations and ISSDS design and construction are enforced through issuance of Notices of Violation. OCHD staff order repairs, pump-outs, and alterations with reasonable deadlines. Failure of any responsible party to comply with a Notice of Violation is cited with the municipal court of the jurisdiction and court action follows.

Remedial Actions Required for Failing ISSDSs

After verifying a failing or malfunctioning system, a Notice of Violation is issued by the OCHD, remedial actions are outlined (ranging from pumping of a tank to redesign of a system), and a timetable is given for remedial actions to be taken. Failure of a system owner to act in accordance with the Notice of Violation leads to the signing of municipal summons and municipal court action.

Execution of this SMP and using the newly created inventory for reference is expected to lead to more effective remediation in the future. More and accurate information on system age and historic complaints and repairs provides a better understanding for the OCHD to recommend significant, long-term remedial actions when failing ISSDSs are verified.

Reporting to NJDEP

OCHD regularly communicates with the NJDEP, and in the future will report the number of systems installed, the number of failing systems, and the total number of systems in the County inventory in accordance with all applicable rules and regulations. With completion of the inventory and execution of this SMP, these data are expected to become more accurate over time as quality control measures are enhanced.

To date, OCHD staff have conferred with the NJDEP regarding issues and questions that arise during design and construction reviews. Policies are often agreed upon jointly and are executed by OCHD management after discussion with the NJDEP. Recent examples include basement ejector pump installation procedure, and how to handle oversight of these systems. OCHD regularly issues and receives referrals regarding the Treatment Works unit at NJDEP.

III. Proposed Improvements to Current Septic Management Practices and Plan to Complete ISSDS Inventory

The Ocean County ISSDS Inventory and the septic management practices it supports are intended to be continually reviewed and updated to maximize accuracy and efficacy. This section details the means by which this objective is to be pursued.

Existing But Yet Unaccounted-For ISSDSs

Community outreach in the form of public presentations and mailings are expected to identify systems that have been abandoned, as well as systems that are not currently known to OCHD. Cross-referencing of repair and alteration permits, complaint investigations, and sewer service area records will identify parcels that have no records in the OCHD filing system and will need to be added to the septic inventory.

Enhanced review of ISSDS permits in the future will include neighboring parcel reviews to determine non-sewered areas and the number of known systems. This will be used to ensure that unaccounted-for systems are added to the inventory and ISSDSs which are inactive are noted as such in the inventory.

Other Strategies to Augment/Complete the Inventory

While the inventory was in the form of a spreadsheet, data manipulation was limited. Ongoing conversion of the inventory from a spreadsheet format to a database will be a top priority. OCHD's intention is to create a database with a management tool that can be utilized to easily reference and link to complaints. Future data entry is expected to be far less rigorous than adding lines to a spreadsheet, making the inventory a more user-friendly, dependable tool.

Furthermore, the attribute fields, "date of installation or approximate age," "ISSDS type," "date of last known activity," "description of last known activity," "last inspection," and "last pump out" have been added to the inventory. The cells in these fields will be populated as development of the inventory continues. Additional attributes may be added to the database at the direction of the NJDEP and/or as conditions dictate.

Improvements to Tracking and Notification Process

The frequency of mailings is expected to increase in the future, as the newly created inventory is utilized to contact system owners and operators. Enhancing the suite of guidance documents and resources available on the OCHD website combined with mailings will far more effectively link ISSDS owners and operators to modern, vetted information.

Through execution of this SMP, communication between OCHD and municipal officials will be critical. Enhancing communication will lead to a more accurate inventory, inform OCHD of local planning changes, and create an environment where more effective strategies can be used when identifying trouble areas. More specifically, local officials will be able to report abandonments to the OCHD, refer areas where failing ISSDSs may be found, and better identify non-sewered areas. OCHD will, in turn, maintain a more accurate inventory, mandate more effective repairs for failing ISSDSs, and connect with system owners to provide more abundant and modern guidance for system management.

Additional Educational Opportunities

To further augment the effectiveness of current outreach efforts, the OCHD will host informational sessions for the general public at local and County facilities. The OCHD will enhance its suite of guidance documents available on its website and in mailings to system owners/operators and municipal officials. Outreach to non-governmental organizations will also be initiated. OCHD's current partnerships and relationships with local Non-Governmental Organizations (NGOs) will be used to schedule additional public meetings, where guidance can be presented and questions can be answered by OCHD staff. These current partners may include the Barnegat Bay Partnership, Clean Ocean Action, Save Barnegat Bay, and other organizations with which the County and OCHD already cooperate.

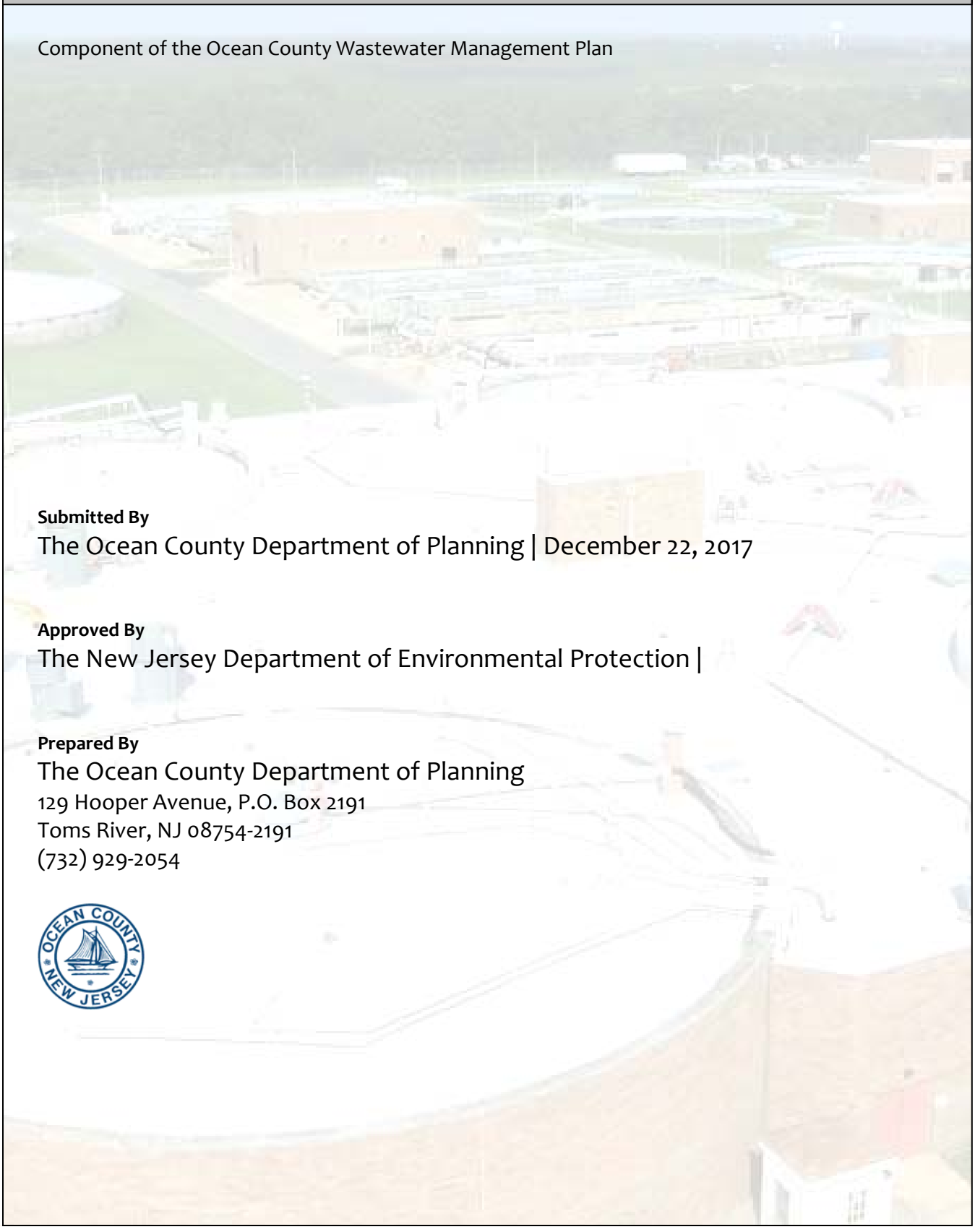
Charting Future Progress

With the creation of the new ISSDS inventory and execution of this SMP, estimates of ISSDSs per municipality are established. There remains a significant amount of work necessary to ensure that the inventory is accurate. Responses from mailings should be used to adjust the current estimates of active ISSDSs when received. Within the same time frame, updated resources and guidance pertaining to ISSDS maintenance and operation is to be posted on the OCHD website and made available to all ISSDS owners in the County.

Within two years of the effective date of this SMP, full conversion of the ISSDS inventory from spreadsheet format to a database is crucial. This will enable data entry, verification, report generation, and reference to occur more easily and quickly. This step may require securing an outside contractor to complete conversion. Also, within two years of SMP adoption, areas of frequently failing ISSDSs must be targeted and identified by the OCHD. This information will be used when mandating repairs for failing systems.

Strategies to Mitigate Potential Capacity Deficiencies

Component of the Ocean County Wastewater Management Plan



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129 Hooper Avenue, P.O. Box 2191
Toms River, NJ 08754-2191
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I. Strategies to Mitigate Potential Capacity Deficiencies in Sewer Service Areas

Existing Facilities

Where a sewage treatment plant does not have sufficient remaining capacity to meet the future wastewater needs of the sewer service area, the WMP agency shall identify and evaluate strategies for addressing the potential capacity deficiencies, including management approaches and infrastructure improvements. As part of this evaluation, the County of Ocean has considered the growth trajectory for the three planning areas which constitute the sewer service area using municipal population projections provided by the North Jersey Transportation Planning Authority (NJTPA) for the year 2035.

Strategies identified take into account the size of the identified potential capacity deficiency and the time frame within which the estimated need is anticipated to exceed the current permitted flow. For example, a small capacity deficiency may reasonably be addressed without the need for new treatment infrastructure. This may be possible because of the conservative nature of flow estimation, wherein projected flows are routinely more than realized, which has the effect of exaggerating the magnitude of the projected deficiency, or because planned programs, such as plans for water conservation or infiltration and inflow reduction, will result in less than expected wastewater generation. For larger deficiencies, known plans to expand or build new centralized sewage treatment infrastructure are identified. Or, where known plans do not address the deficiency, the capacity analysis is the means to alert a region that new infrastructure or other alternatives must be considered. No immediate action needs to be taken to fill a deficiency if the development growth trajectory for the sewer service area is flat. On the other hand, if the development growth trajectory of a community is steep, it is appropriate for the local government, planning agency, and sewage treatment plants to take a more active role in addressing the deficiency.

Through the build-out and capacity analysis, the Northern Water Pollution Control Facility (NWPCF) in Brick Township was identified as a treatment facility with potential capacity deficiency based on the current NJDPES permit for the plant. While the NWPCF is currently operating within the limits of its assigned NJPDES permit, according to the parameters applied to potential (zoned) future development flows, this plant could eventually lack permitted capacity and measures would have to be taken to address that deficiency. Table 1 shows the NWPCF's current, permitted, and projected flows.

Table 1: Treatment Facilities with Potential Capacity Deficiency

Facility	Domestic (D) or Industrial (I)	DGW/ DSW	Existing Flow (MGD)	Existing Permitted Flow (MGD)	Future Flow Projection (MGD)
NWPCF	D	DSW	23.370	32.000	30.169

Additionally, to ensure that wastewater capacity planning is conducted early enough to avoid unnecessary stress on treatment facilities and to allow sufficient time for permitting, financing, design, and construction, when the existing flow of a facility reaches 80 percent or more of permitted flow, N.J.A.C. 7:15-4.5(b)5 requires the WMP agency to coordinate with the NJDEP and the entity responsible for the wastewater treatment facility to determine if the projected growth will result in a capacity deficiency, and to determine effective strategies, at the time of WMP development, to address that need.

As shown in Table 2, only the NWPCF is currently operating close to 80% capacity.

Table 2: Plants Currently Operating at or Approaching 80% of Permitted Capacity

Facility	Existing Permitted Capacity (MGD)	80% of Permitted Capacity (MGD)	Existing Flow (MGD)
NWPCF	32.000	25.600	23.370

Growth Trajectories

For the existing NWPCF, a growth trajectory was used to project the time frame in which the estimated need is anticipated to exceed the current permitted flow. Municipal population projections provided by the NJTPA served as the basis for this estimation. As identified in Table 3, the NWPCF currently treats approximately 23.370 MGD, and has a permitted flow of 32.000 MGD. To reach the currently permitted capacity, the NWPCF would need an additional 8.630 MGD of wastewater flow. Assuming wastewater generation of 75 GPD per person, this equates to approximately 115,067 additional persons in the Northern Planning Area. The population of the Northern Planning Area is expected to grow as follows:

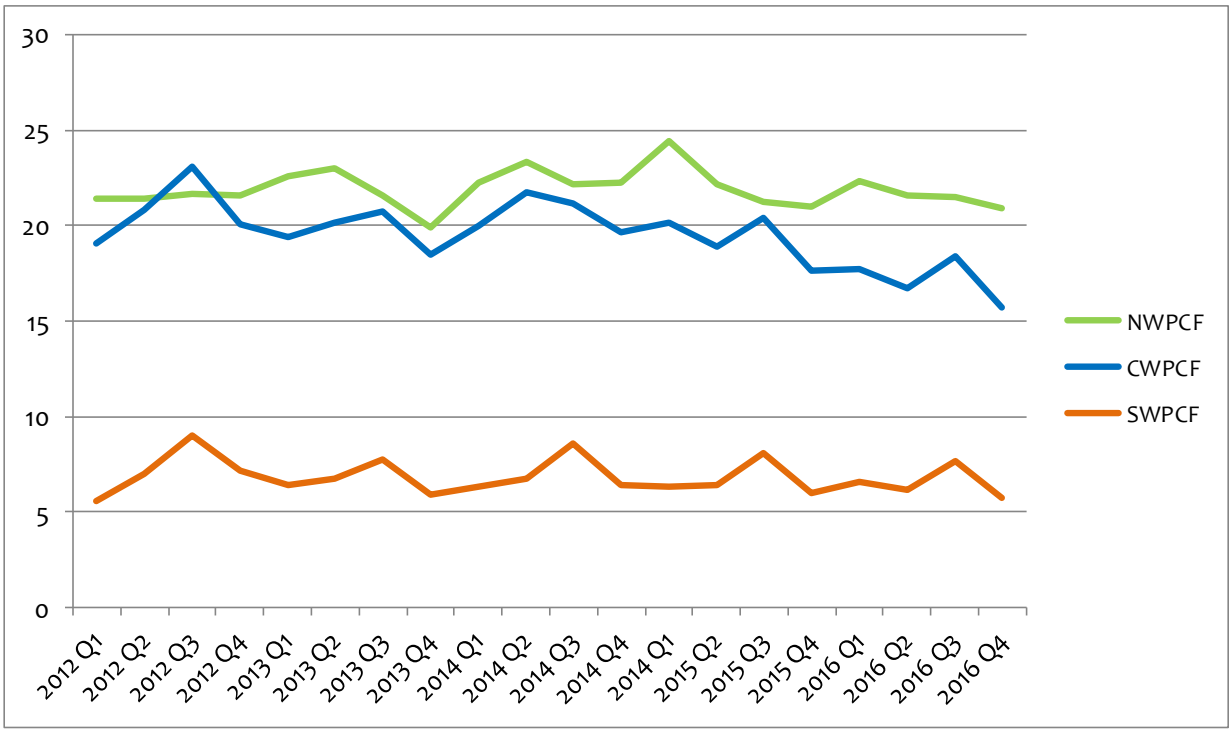
Table 3: NJTPA Population Projections for the Northern Planning Area*	
2010 Population	313,618
2015 Population	326,858
2020 Population	340,744
2025 Population	355,309
2030 Population	370,589
2035 Population	386,623
2040 Population	404,579
*Extrapolations from 2040 RTP data using annualized % population change 2010-2040	

As seen in the above table, there is no imminent need to address the potential capacity deficiency of the NWPCF based on this metric, as the population of the Northern Planning Area is projected to grow by 90,961 people by 2040. However, because the NWPCF will be approaching 80% of its current capacity, the OCUA continues to monitor growth and influent flows and will continue to consider modification necessary to ensure that the NWPCF capacity remains above projected annual average daily flows.

Facility Influent Data 2012-2016

The OCUA has provided data to the County of Ocean detailing monthly totals of influent flow for each of its three treatment plants over a five year period from 2012 through 2016. These data show that, even as population has increased in all three planning areas over this time, average daily flows (ADF) of influent to the NWPCF, CWPCF, and SWPCF have mostly held steady or decreased. According to the Authority, improved sewerage collection and conveyance facilities have reduced the amount of inflow and infiltration somewhat, potentially offsetting sewage generation increases resulting from population growth. Furthermore, the OCUA anticipates that inflow and infiltration will continue to decrease as the modernization of its collection and conveyance system progresses. This promises to be another mitigating factor on the criticality of rerating and expanding the NWPCF.

Table 4: Quarterly Averages of OCUA Water Pollution Control Facility Influent, 2012-2016 (MGD)



Proposed Facilities

For any unassigned sewer service area, the entire wastewater demand constitutes a potential capacity deficiency. While there are no unassigned sewer service areas in Ocean County, the portion of Plumsted Township which lies within the County's adopted sewer service area is currently assigned to flow to a facility which has not yet been built. Much of the New Egypt Town Center (NETC) of Plumsted Township is within the adopted sewer service area, but, at the time of this writing, is served by onsite septic systems. The Plumsted Township Municipal Utilities Authority has estimated that the total domestic wastewater flow which would be generated from the existing NETC, if sewered, would be approximately 0.300 MGD. A treatment plant has been proposed by the Plumsted Township MUA which would be designed to accommodate treatment of wastewater flows in excess of the total build-out flow—projected by the Plumsted Township MUA to be approximately 0.600 MGD. In anticipation of the construction of this treatment plant, the NJDEP has issued a New Jersey Pollution Discharge Elimination System (NJPDES) permit (NJ0226271). Completion of the proposed plant is expected by mid-2019, as per the Plumsted Township MUA. The potential capacity deficiency present in the NETC would be thusly addressed.

Table 5: Unassigned Sewer Service Area Wastewater Demand

Proposed Facility or SSA Name	Wastewater Discharge Type (DGW of DSW)	Municipality	Total Build-Out Flow (MGD)
Plumsted Township Wastewater Treatment Plant	DSW	Plumsted Township	0.600*

*Data supplied by Plumsted MUA

Pinelands

All Pinelands Regional Growth Management Areas, Pinelands Towns, and Pinelands Villages are considered to be eligible for sewer service. Within these areas, the extension of sewers may be permitted. At the time of this writing there are no current plans to do so within Ocean County. If an applicant intended to extend sewers and/or construct a treatment works facility, the applicant would be required to apply for all necessary permits and approvals. Those applications would include, but may not be limited to, applications to

the Pinelands Commission, the NJPDES program at NJDEP, and any local permits and approvals. The delineation of the adopted sewer service area does not, in and of itself, constitute a permit to construct new sewer lines or treatment works facilities.

Future Expansions of the Sewer Service Area

No expansion of the Ocean County sewer service area, besides site-specific amendments, is planned at this time. However, while there are no current plans for large sewer service area expansions, it may become necessary to connect any concentrated areas of development that currently rely on septic systems. At present, there are areas in Jackson and Lakewood Townships with development over several units per acre that should ultimately be connected to sanitary sewer systems. Areas that currently surpass allowable septic density should also be considered for future sewer service area expansion in the future. These areas are addressed in the following pages.

Should circumstances call for the expansion of the sewer service area, the Water Quality Management Planning rules shall govern this process. Under the Water Quality Management Planning rules, it is not necessary to lay out the methods or specific expansion plans to accommodate additional projected flow from newly designated sewer service areas, but strategies must be included in any proposed expansion that would address any resulting capacity deficiencies at specific facilities. Though no immediate action is required, any new facility, by working in concert with the affected municipalities and the County of Ocean, will address those needs through the NJPDES permit process if, or when, the projections are realized. The delineation of future sewer service areas does not, in and of itself, constitute a permit to construct sewer lines or treatment works facilities in these areas. Additional permits and approvals may be required.

II. Strategies to Mitigate Capacity Deficiency in Non-Sewer Service Areas

As noted previously in this WMP and tabulated in Tables 6(f) and 6(g) below, there are two HUC11 watersheds in Ocean County where the potential number of equivalent dwelling units under zoned build-out will exceed the nitrate dilution. As zoned, these sub-watersheds have been found to not meet the groundwater quality standard for nitrate of two parts per million or less. The WQM Planning Rules require that municipalities, in concert with the County and the NJDEP, develop strategies to prevent the build-out from exceeding the available dilution capacity of the remaining undeveloped lands in those watersheds.

Partial List of Potential Strategies for Mitigating Deficiency

Strategies to mitigate deficiency in specific watersheds and zoning districts are outlined below. Potential strategies to reduce the number of equivalent dwelling units might include:

- Identifying areas appropriate for expansion of the sewer service area
- Requiring ISSDS to reach a higher level of treatment
- Acquiring open space (or preserving undeveloped land to restrict areas that are eligible for development)
- Changing local zoning to reduce the potential square footage of future development, reduce floor area ratio and/or density, or increase lot size for development served by onsite septic systems

Nitrate Dilution Analysis

The County's nitrate dilution analysis identified two HUC11 watersheds which do not meet their assimilative capacities. The results of the analyses for these two HUC11 watersheds is shown in the tables below. The NJDEP had advised the County to not include septic dilution projections for those municipalities which are situated in HUC11s initially projected to exceed their cumulative nitrate targets. This applies to Lakewood Township (for HUC11 02040301020) and Jackson Township (for HUC11 02040301030).

Table 6(f): Septic System Densities and Allocations for Municipalities

HUC11 - 02040301020

County	Municipality	Zoning Acres	% of HUC11	Zoning Units	Allowed Units
Ocean	Jackson	116.74	0.48%	39.11	41.59
	Lakewood	63.85	0.26%	181.22	54.65
Monmouth	Freehold	167.97	0.69%	34.99	111.90
	Howell	1,518.50	6.20%	1,081.86	377.72
	Millstone	27.80	0.11%	9.27	5.45
total		1,894.86	0.08	1,346.45	591.31
total wastewater projected (MGD)				0.67	0.30

Table 6(g): Septic System Densities and Allocations for Municipalities

HUC11 - 02040301030

County	Municipality	Zoning Acres	% of HUC11	Zoning Units	Allowed Units
Ocean	Jackson	747.53	3.79%	1,332.49	741.96
	Lakewood	17.67	0.09%	49.30	55.86
Monmouth	Freehold	165.90	0.84%	24.74	146.88
total		931.10	0.05	1,406.53	944.70
total wastewater projected (MGD)				0.70	0.47

Lakewood Township

The nitrate dilution analysis revealed that portions of HUC11 02040301020 in Lakewood Township are zoned for a greater intensity of septic development than can be accommodated through dilution. The same analysis indicated that portions of Howell and Millstone Townships in Monmouth County may also be over-zoned. Together, these localized deficiencies in Monmouth County and Lakewood Township contribute to this HUC11 exceeding its cumulative nitrate target.

According to the nitrate dilution analysis, HUC11 02040301020 would exceed its assimilative capacity by 126.57 future residential equivalent units. To correct this deficiency, it is recommended that developers seeking to develop parcels located outside of the sewer service area in this HUC11 apply for amendments to include the proposed development in the sewer service area. Additionally, it is recommended that the Township of Lakewood develop a plan to connect all existing development that is currently on septic in the sewer service area.

Table 7: Nitrate Target – Lakewood Township

HUC 11	Septic Density	Acres	New Units Nitrate Dilution	New Units Zoning
02040301020	5.1	278.73	54.65	181.22
02040301030	4.9	273.72	55.86	49.30
02040301040	6.4	46.91	7.33	0.00
02040301050	6.5	230.54	35.46	23.19
02040301060	4.6	0.00	0.00	0.00

Jackson Township

After running the NJDEP's nitrate dilution model, it was determined that the amount of future development zoned in HUC11 02040301030 would exceed the assimilative capacity of this subwatershed. The current zoning would permit an overage of 590.53 future residential equivalent units and includes both residential and commercial development. While there is some concern that the NJDEP model overestimates commercial flow, the numbers were accepted in the absence of an acceptable alternative model.

Subsequently, a thorough overview was conducted of the remaining developable land in HUC11 02040301030. The analysis was performed by Ocean County Planning GIS staff in consultation with staff and consultants from Jackson Township and the Jackson Township MUA. This analysis resulted in a proposed course of action for this HUC11 to meet its nitrate dilution target, which consists of four components.

First, this analysis identified two specific areas that have high projected flow numbers but should not be developed on septics due to the zoning. One is commercially zoned and one would allow the extension of an adjacent mobile home park currently on sewers. The NJDEP model projected a flow from these areas equal to approximately 272 residential equivalent units. These two identified areas are also located adjacent to existing sewer service. Since the Township is desirous of retaining the current zoning in accordance with its master plan, it believes the properties should be included in a future sewer service area. The property owners would be responsible for requesting and receiving sewer service revisions and/or amendments as part of the development approval process. The owners would also be responsible for providing the NJDEP with all required documentation, including but not limited to wetland delineations and habitat surveys. The following areas are therefore proposed for inclusion in the sewer service area, and should not be developed on septics as currently zoned:

- The Fountainhead Mobile Home Park Extension, located at Block 9001, Lot 20, off of North Cooks Bridge Road, south of Route 526 in Jackson Township
- The "Tomaron" commercial area located at Block 4302, Lots 10 and 47, and Block 4603, Lot 72, southeast of the intersection of Routes 526 and 638 in Jackson Township

The corresponding amount of residential equivalent units removed from the projected discharge is approximately 117 from the Fountainhead Mobile Home Park Extension and approximately 155 from the "Tomaron" commercial area.

Second, the Ocean County Department of Planning will pursue the acquisition and preservation of undeveloped tracts of land in this HUC11 which are outside the sewer service area, as appropriate, through its Natural Lands Trust Fund. At the time of this writing, a number of commercially zoned properties in this HUC11 are being considered for acquisition. Preservation of these properties could potentially remove hundreds of equivalent dwelling units from HUC11 02040301030's total groundwater discharge.

Third, it is hereby proposed that the Township of Jackson seek and apply for amendments to the sewer service area, so as to include existing residential developments located adjacent to the sewer service area. Existing residential developments such as those along Frank Applegate Road are good candidates for connection to sewer service.

Fourth, it is recommended that the Township of Jackson adopt a municipal ordinance requiring all new commercial development in HUC11 02040301030 to connect to local sewers. Such an ordinance would deter commercial septic flows which were found, through the nitrate dilution analysis, to be the primary cause of this HUC11 missing its nitrate dilution target.

If some or all of these four proposals are implemented, HUC11 02040301030 will likely meet its threshold for nitrogen dilution, and the Township of Jackson will comply with the septic dilution requirements.

Table 8: Nitrate Target – Jackson Township

HUC 11	Septic Density	Acres	New Units Nitrate Dilution	New Units Zoning
02040201040	7.1	9.33	1.06	0.00
02040201050	5.3	1,193.00	187.80	312.46
02040202020	5.2	9.80	0.00	0.00
02040301020	5.1	166.73	41.59	39.11
02040301030	4.9	4,646.66	741.96	1,332.49
02040301060	4.6	7,771.90	1,689.46	1,294.51
02040301070	4.6	600.02	1,468.52	411.10