

OCEAN COUNTY WASTEWATER MANAGEMENT PLAN

Replacing All Previously Adopted Wastewater Management Plans

VOLUME 3 of 4
STRATEGIES TO MITIGATE POTENTIAL CAPACITY DEFICIENCIES

Submitted By

The Ocean County Board of Chosen Freeholders | January 8, 2015

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

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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 | March 26, 2020

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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.

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.

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 , 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:

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	

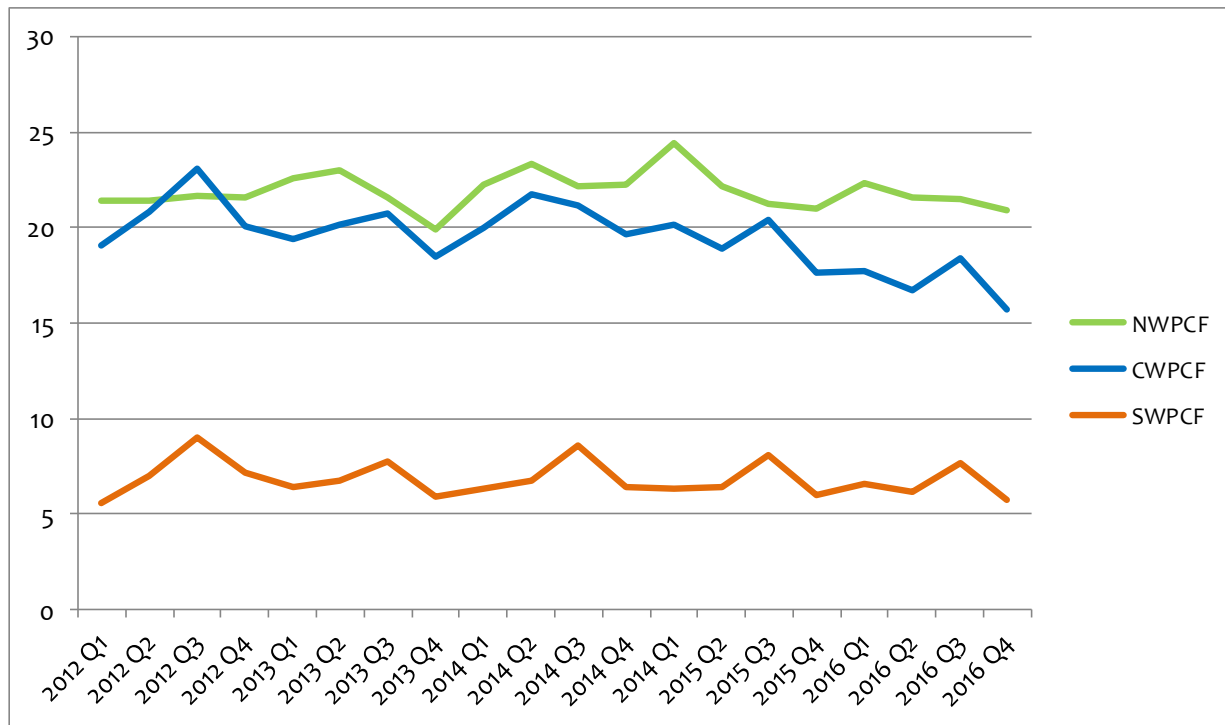
As seen in the above table, there is no imminent need to address the potential capacity deficiency of the NWPCF based on this metric, as the population of the Northern Planning Area is projected to grow by 90,961 people by 2040. However, because the NWPCF will be approaching 80% of its current capacity, 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 sewerred, 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.

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 septic due to the zoning. One is commercially zoned and one would permit 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 cannot be developed on septic 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, Block 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