# 12. LACEY TOWNSHIP

Component of the Ocean County Wastewater Management Plan Replacing All Previously Adopted Wastewater Management Plans

## **Submitted By**

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

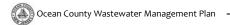
## Approved By

The New Jersey Department of Environmental Protection

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## I. Overview of Municipality

The Township of Lacey is located in central Ocean County. The Township was incorporated in 1871, and fronts on Barnegat Bay to the east. It is bordered on land by Berkeley Township to the north, Manchester Township to the northwest, Burlington County to the west, and Barnegat and Ocean Townships to the south. With a land area of 84.60 square miles, Lacey is the second largest municipality in Ocean County, after Jackson Township. All land west of the Garden State Parkway (about 66.93% of the municipality's total area) is located within the Pinelands Comprehensive Management Plan Area. The Balance of Lacey's land area is within the CAFRA region to the east. Lacey Township is also the location of the Oyster Creek Nuclear Generating Station, which is a major energy generator in the area.

As of 2010, Lacey had a population of 27,644 people. The U.S. Census that year also counted were 11,573 housing units, of which 1,390 were vacant. 973 of these vacant units were seasonal vacancies. NJTPA projects that Lacey's population will grow by 16.82% to 33,234 residents by the year 2035. The municipal wastewater conveyance infrastructure is expected to continue to handle seasonal fluctuations and future growth in population.

## II. Environmental and Other Land Features

Map 1 depicts the environmental features that are required for determining future sewer service areas. In accordance with NJDEP policy, only existing development and vacant land that is not affected by regulated environmental constraints may be included in the sewer service area.

65.60 square miles of Lacey Township is within the Pinelands Comprehensive Management Plan Area—more than any other municipality in the County. As such, a great amount of Lacey's total area is forested, especially west of the Garden State Parkway. Much of Lacey's land is within Natural Heritage Priority Sites, including the Forked River Mountain Natural Heritage Priority Site. Along the shore of the Barnegat Bay to the east, the Township is dotted by emergent wetlands. Additional wetlands stretch far inland along the branches of Cedar Creek, Forked River, Oyster Creek, and other small streams. There is no preserved agricultural land in the Township.

Table 1 provides a breakdown of the Township's land area where further growth is constrained by environmental features. In accordance with NJDEP policy, the Township maintains a number of Ordinances intended to protect these environmentally sensitive features. Table 2 provides a listing of the municipal plans and ordinances required for consideration in designating sewer service areas in accordance with NJDEP policy. A more detailed description of the NJDEP policies governing the designation of sewer service areas is included in the County Document of this WMP.

Table 1: Environmental Features						
Environmental Feature	Acreage	Percent of Municipality				
Wetlands	10,393.77	16.29%				
Public Open Space/Recreational Areas	27,008.95	42.34%				
Habitat T&E	45,158.11	70.79%				
Natural Heritage Priority Sites	27,684.95	43.40%				
Riparian Zones	2,717.53	4.26%				
Preserved Agriculture	0.00	0.00%				
Surface Water	10,087.56	15.81%				

Table 2: Status of Municipal Ordinances						
Ordinance Code Date Adopted						
Zoning	Chapter 335	12/1/1978				
Master Plan		12/10/2012				
Stormwater [County - MSWMP]	Chapter 353, Article II	5/2/2005 [3/7/2008]				
Riparian Zone	N/A	N/A				
Septic System Maintenance	N/A	N/A				
Dry Conveyance	N/A	N/A				
Septic Connections Chapter 404 7/3/1974						
Source: http://www.ecode360.com/LA0472?#LA0472						

## III. Existing Infrastructure and Areas Served By Wastewater Facilities

All existing development in Lacey Township east of the Garden State Parkway is connected to the existing sewer system. Wastewater is collected through the Township's lateral lines, which connect to an OCUA line that runs roughly tracks the course of Route 9. This OCUA interceptor enters the Township at the boundary with Ocean Township to the south, running north along a disused railroad right-of-way. This interceptor converts to a force main north of the Forked River, then back to an interceptor near Musket Road, passing through the Lacey-Middle Branch Lift Station (CPS-11) and the Lacey-Parker Avenue Pump Station (CPS-6) along the way. The OCUA line leaves Lacey at the municipal boundary with Berkeley Township to the north. From there, wastewater is conveyed to OCUA's CWPCF in Berkeley Township.

## **Existing Areas Served By Wastewater Facilities**

Map 2 presents the areas actively served by existing wastewater facilities. "Sewered Areas" denotes that collection lines exist in the indicated areas and that these properties are either connected, or have all regulatory approvals necessary to be connected. Sewer service areas may include industrial businesses that discharge process and/or sanitary wastewater to the collection system for treatment by a facility not owned by that business.

## **Areas to Be Served By Wastewater Facilities**

Map 3 presents the adopted sewer service area. There are 3,646.07 acres of developable land, of which 736.01 acres are zoned as residential, 283.21 acres are zoned as commercial, and 733.94 acres are zoned as industrial. The remaining 1892.91 acres are zoned for other uses.

Much of Lacey's sewer service area has remained unchanged. The largest areas which have been removed are located in the southeast portion of the Township, and include parcels owned by the Exelon Generation Company and the federal government. Sewer service will also be added to three designated Pinelands Village areas situated along Lacey Road (Route 614), consistent with the MOA between the NJDEP and the Pinelands Commission.

All development west of the Garden State Parkway is under the jurisdiction of the Pinelands Commission. Local zoning is presented in Map 4, while Map 5 displays the boundaries of both the Pinelands and CAFRA. The Delta Map displays the changes to Lacey's sewer service area.

## Septic Systems (Individual Subsurface Sewage Disposal Systems)

All of the developed and developable land in the Township is included in the designated sewer service area. Nearly all of the land excluded from the sewer service area lies to the in the Pinelands region to the west of the Garden State Parkway. Although uncommon, smaller scale large lot developments are usually served by septic systems. Because Lacey is a non-urban municipality according to NJDEP standards, a nitrate dilution model analysis has been conducted (See Section V).

## **Existing Areas Served By Public Water Supply Facilities**

Lacey's drinking water is derived from seven wells, five which draw from the Atlantic City 800-Foot Sand Aquifer, and two which draw from the Kirkwood-Cohansey Aquifer. The system is operated by the Lacey Township MUA, and is capable of pumping 3.816 MGD. Map 6 shows the Township's current potable water conveyance system. The area covered by blue cross-hatching denotes that distribution lines exist, and that these properties are either connected to the corresponding public water purveyor or have all regulatory approvals necessary to be connected with no further review.

## IV. On-Site, Non-Industrial Wastewater Facility Tables

There are no NJPDES permitted facilities which discharge to ground water located in this municipality.

## V. Future Wastewater and Water Demand

## **Municipal Zoning**

Table 3: Summar	ry of Zones			
Zone Name	Zone Description	Municipal Area (ac)	Available Land (ac)	
A-RPURD	Age-Restricted Planned Unit Residential Development	206.88	81.87	
C-100	Marine Commercial	684.73	135.66	
C-150	Highway Business	331.44	67.83	
C-200	Limited Business	144.72	46.13	
C-300	Limited Business	31.18	14.33	
FA	Forest Area	24237.60	1516.26	
M-1	Business Park	645.33	267.53	
M-2	Limited Industrial	171.30	140.85	
M-6	Industrial	736.29	325.56	
ML-OFF	Municipal Land/Office	25.77	4.03	
O-C	Office Commercial	84.46	15.23	
PA	Preservation Area	16562.20	341.22	
R-100	Residential	2015.09	309.69	
R-100A	Residential	33.19	0.00	
R-150	Residential	385.64	1.88	
R-75	Residential	2591.83	131.14	
R-75A	Residential	74.67	0.00	
R-75B	Residential	85.46	2.30	
R-80	Residential	179.10	36.83	
RD	Rural Development	260.85	35.43	
RO-100	Residential and Office	18.80	5.52	
RO-150	Residential and Office Park	21.50	10.60	
RRCD	Residential Retirement Cluster Development	849.42	107.15	
SGF	State Game Farm Property	508.68	0.00	
VR	Village Residential	568.94	49.03	

"Municipal Area" includes both developed and undeveloped parcels. "Available Land" parcels are those where no development exists and the land has not been restricted by regulation or dedicated open space or agricultural preservation programs.

## **Calculating Future Wastewater and Water Supply Needs and Capacity**

Using the information provided above regarding existing wastewater and water supply facilities, sewer service area delineation, environmentally sensitive areas, and municipal zoning to formulate growth projections, an analysis of wastewater and water supply demands was performed to determine whether existing infrastructure capacity or zoning is the constraining factor. Where zoning is more restrictive than wastewater and water supply capacity and does not conflict with the environmentally sensitive areas, no further action is needed. Where the demand projections exceed available wastewater treatment or water supply capacity, either the projections must be reduced (such as through a reduced sewer service area or reduction in zoning density) or capacity increased.

Table 4: Wastewater Flow Directed to OCUA Facilities				
CWPCF				
Source	(MGD)			
Existing Flow	2.061			
Projected Residential	0.619			
Projected Commercial	0.201			
Total Future Planning Flow	2.881			

## **Municipal Demand Projections (Non-Urban)**

Following NJDEP protocol for determining urbanized areas, Lacey Township was found to be non-urban. In non-urban municipalities, it is anticipated that development of vacant land will be the predominant factor in determining future wastewater treatment needs. Further, because external market and economic forces, such as interest rates, are a dominant factor in determining the rate of construction, this analysis assesses the ability to provide wastewater treatment while protecting surface and ground water quality for the entire projected build-out allowable by zoning.

#### **Future Wastewater from Sewer Service Areas**

In designated sewer service areas, the following features have been removed prior to the application of zoning to the undeveloped land area because they are unlikely to generate wastewater in the future: wetlands, riparian zones, permanently preserved farmland, permanently preserved open space, and cemeteries. The existing zoning is then applied to the remaining developable land area within the sewer service areas to project a build-out condition for use in estimating the future wastewater management needs of each sewer service area. The build-out data is then converted to a projected future wastewater flow by applying the planning flow criteria from N.J.A.C. 7:14A based on the type of development projected.

Table 6 provides a breakdown of the acreage of land available for development (i.e., either undeveloped or underdeveloped, and not constrained due to environmentally sensitive areas) by Planning Area, based on the build-out analysis.

Table 5: Additional Development at Build Out (Sewer)							
Planning Area Developable Residential Area # of Units Commercial Area Area (Acres) (Acres) Residential (Square Feet)							
Central	649.48	526.79	2,063.43	5,344,628.98			

#### Septic System Development within the Sewer Service Areas

Individual subsurface sewage disposal systems (ISSDS) for individual residences can only be constructed in depicted sewer service areas if legally enforceable guarantees are provided, before such construction, that use of such systems will be discontinued when the depicted sewer service becomes available. This applies to ISSDS that require certification from the Department under the Realty

Improvement Sewerage and Facilities Act (N.J.S.A. 58:11-23) or individual Treatment Works Approval or New Jersey Pollutant Discharge Elimination System Permits (under N.J.A.C. 7:14A). It also applies to ISSDS which require only local approvals. Lacey Township's municipal ordinance applicable to septic connection was adopted in 1974 (See Table 2).

#### **Future Wastewater Outside of Sewer Service Areas**

All lands not mapped within the sewer service area are designated as septic areas, and must demonstrate that the zoning meets the nitrate planning standard of 2 mg/L on a HUC11 basis. The total acreage available for future septic development was determined through GIS analysis by subtracting the sewer service area, developed parcels, NJPDES permitted sites, and all environmentally sensitive lands including critical habitat, wetlands, and riparian zones. The total new septic units allowable under current zoning regulations were then determined by applying each zoning district's density standards to the developable septic area parcels. Commercial acreage was converted to units by first expressing acreage as square feet, then applying the following formula:

#### Formula: Calculating New Septic Non-Residential Units

New Septic Non-Residential Units = ((Square Feet) x (Building Lot Coverage)) x (0.125 Gallons/Day)
500

The results of this analysis, which are further broken out by HUC11, are as follows:

Table 6: Additional Development at Build Out (Septic)									
HUC 11	Residential Area (Acres)	# of Units Residential	Commercial Area (Acres)	# of Units Commercial	Total Acres	Total New Units			
02040202030	0.00	0.00	0.00	0.00	0.00	0.00			
02040301080	3.92	3.92	0.00	0.00	3.92	3.92			
02040301090	5,026.48	1,124.32	2.50	10.91	5,028.98	1,135.23			
02040301100	7.76	36.15	10.10	44.00	17.86	80.15			
02040301110	3,885.81	755-93	670.43	2611.28	4,556.24	3,367.21			
02040301180	120.54	23.44	0.00	0.00	120.54	23.44			
02040301190	80.73	14.63	0.00	0.00	80.73	14.63			
Totals	9,125.24	1,958.39	683.03	2666.19	9,808.27	4,624.58			

## **Nitrate Dilution Analysis**

To determine the number of additional septic units each HUC11 can accommodate, the County utilized a nitrate dilution model developed by the NJDEP, which like the septic build out calculations, also involved GIS analysis. The nitrate dilution analysis was performed in similar fashion except that preserved land and publicly owned open space were included in the build-out analysis. This is due to the fact that while these areas will not be developed, they still contribute to the dilution of nitrate in groundwater. Factors such as marginal soils or topography for all lands were taken into consideration when calculating the maximum average density allowable.

This analysis used NJDEP's nitrate-nitrogen target of 2 mg/L, with the assumption that all ammonium and other nitrogen compounds are converted to nitrate within the property, and that the nitrate concentrations dilute evenly across the HUC11. These assumptions are implicit in the nitrate dilution model developed by the NJDEP. The results of the nitrate dilution analysis are shown in the following table:

Table 7: Nitrate Target							
HUC 11	HUC 11 Septic Density		New Units Nitrate Dilution	New Units Zoning			
02040202030	4.4	1,137.55	258.53	0.00			
02040301080	4.9	953.59	211.91	3.92			
02040301090	4.5	20,899.26	4,644.28	1,135.23			
02040301100	6.6	328.22	49.73	80.15			
02040301110	4.6	9,061.00	1,969.78	3,367.21			
02040301180	4.5	2,968.38	659.64	23.44			
02040301190	4.5	204.19	45.38	14.63			

The Township, the County of Ocean, and the NJDEP are aware of the discrepancy between current municipal zoning regulations and nitrate dilution capacity in Lacey's portion of HUC11 02040301100 and 02040301110. However, rezoning or other restrictions on future septic development in these areas may not be necessary. For the purposes of this analysis, it is inconsequential if one municipality's zoning exceeds its allocation, provided that the larger HUC11 does not exceed the total sustainable development. This is the case in 02040301100; the cumulative number of non-sewered units allowed by current municipal zoning throughout the HUC11, inclusive of Lacey Township, is less than the HUC11's total capacity for development while maintaining optimal nitrate dilution.

According to the NJDEP's nitrate dilution model, several industrial and commercially zoned parcels in the vicinity of the Oyster Creek Nuclear Generating Station are projected to discharge far more than their proportional share of the total assimilative capacity of 02040301110, and would cause this HUC11 to exceed its nitrate target if developed as zoned. However, the actual nitrate discharge from the Oyster Creek area will be far less than projected at build out. At the time of this writing, Oyster Creek Nuclear Generating Station is still operational and will start decommissioning in 2019—a process that is expected to take several years. No development is expected to occur in this area until the decommissioning is complete, and any future development in this area is almost certainly to be either NJPDES permitted or added to the sewer service area through amendment. Furthermore, it is anticipated that a significant percentage of the remaining area in question will be designated for preservation in the course of decommissioning. The NJDEP model used to produce these results—and all nitrate dilution projections in this WMP—incorporates the Equivalent Dwelling Unit (EDU) formula, which, lacking specific development parameters such as type of non-residential development, square footage of floor space, number of floors, etc., may project nitrate discharges from non-residential zones that are several times greater than those from residential zones. For these reasons, the standard septic dilution is not applicable for this area.

Information on each HUC11's septic build out projections, including zoning and assimilative capacity for each component municipality, is presented in the County Document of this WMP.

## **Public Water Supply Availability**

Public water purveyance infrastructure is presently capable of providing potable water to the Township's residents in excess of daily, monthly, and yearly demands. Current infrastructure capacity will continue to prove sufficient in the foreseeable future.

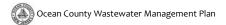


Table 8 Public Water Purveyor Capacity								
Lacey Township MUA								
Dai	Daily (MGD) Monthly (MGM) Yearly (MGY)							
Capacity	Peak	Surplus	Capacity	Peak	Surplus	Capacity	Peak	Surplus
4.176 3.535 0.641 112.700 99.554 13.146 1,027.500 858.831 168.669								
Source: NJDEP Division of Water Supply & Geoscience								

## VI. Mapping Requirements

Please see the following pages for all municipal mapping requirements.



