

## VII. Municipal Wastewater Management Chapters

### Borough of Carteret

#### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan (WMP) prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15, Water Quality Management Planning, amended July 7, 2008.

#### **Regional Context and Special Considerations**

The Borough of Carteret is located in the northeast corner of Middlesex County. The northern border is formed by the Rahway River and Linden in Union County, the eastern boundary by the Arthur Kill and Staten Island, NY. Adjacent Woodbridge forms the western and southern boundaries. Carteret's population was 22,844 in 2010, approximately a 10 percent increase above the 20,612 population of 2000, according to US Census data. Carteret is densely developed with commercial, industrial and residential uses. From a pre-colonial agricultural and maritime landing past, the Borough developed into an important center of commerce for storage of raw materials, petroleum products, and warehousing of imports. Aided by extensive transportation infrastructure and transit opportunities, these industries continue to flourish in Carteret.

A key asset is the Borough's deepwater port, fronting on two miles of the Arthur Kill, in the same shipping lanes used by ships servicing Port Newark, Port Elizabeth and all New York ports. The Borough is only nine miles from Newark Airport and 15 miles from New York City. These and other locations are easily accessed by New Jersey Turnpike Exit 12 in Carteret. Though there are a number of rail freight lines, no passenger train lines serve Carteret. A number of bus lines do serve the Borough. New Jersey Transit's Avenel Station, in neighboring Woodbridge Township, is slightly more than a mile from the Borough's borders.

Large portions of Carteret are part of a New Jersey Urban Enterprise Zone (UEZ). In addition to other benefits to encourage employment within the zone, shoppers can take advantage of a reduced three and a half percent sales tax rate (versus the seven percent rate charged statewide). Since the creation of the Carteret UEZ, numerous businesses have participated and taken advantage of the many UEZ program benefits. These companies have invested more than \$536,083,394 million in their businesses. Now, there are more than 100 firms that actively employ more than 3,534 full time workers. Over 1,200 new jobs have been created through the program investments. Carteret's Urban Enterprise Zone designation was renewed for 15 additional years in 2010, an extension borough officials say could net the borough up to \$1.5 million in tax revenue annually over the next five years. (Carteret Urban Enterprise Program website)

For wastewater management planning purposes, Carteret Borough is considered a NJDEP "urbanized municipality", meeting criteria established in N.J.A.C. 7:15 and outlined below. This designation allows for future wastewater flow estimates based upon incremental population increase projected within a 25-year planning horizon rather than preparing an environmental build out analysis based upon current municipal zoning.

#### **Considerations for Future Municipal Planning Goals**

Carteret's current planning includes development of transit villages with high-density residential, commercial, retail and office uses. NJDEP approved the 105 acre Chrome Waterfront Development Area, situated along the Arthur Kill as a Brownfield Development Area (BDA) in 2007. As part of its development, a transit village with a mix of high-density residential, mixed commercial and office uses will be developed. There also are plans to begin a ferry service to Manhattan from the Chrome Redevelopment site in the future. The waterfront areas of Carteret are subject to NJ Coastal Zone Management Rules.

Borough of Carteret (continued)

**Considerations for Future Municipal Planning Goals (continued)**

Carteret has created a number of development and redevelopment plans, listed in Appendix J. While some future development sites present challenges due to prior contamination issues, a number of these sites are otherwise attractive waterfront properties. Some properties within redevelopment districts were successfully developed in response to the warehouse and distribution needs of nearby international port facilities. Additionally, these lands are within close proximity to sanitary sewer service.

Carteret has responded to development of the Middlesex County Wastewater Management Plan future sewer service area (SSA) by removing apparent environmentally sensitive lands from the redevelopment areas. The borough anticipates and will support a revision to the WMP to add lands to a sewer service area when appropriate development proposals are presented with more precise environmental documentation. Carteret Borough may petition for access to sewer service for these developable lands to further advance the goals of the adopted redevelopment plans. As a NJDEP “urbanized municipality”, expansions of the SSA for development proposals supported by the Borough and proven to conform to environmental regulations and available treatment capacity will be consistent for minor revisions to the WMP.

Carteret Borough has significant county and municipal parks and open space areas. While some portions of these sites are within the SSA of the WMP, future improvement plans that may include comfort stations (restroom facilities) should be favorably considered as minor revisions to the SSA where connection to existing sewer is feasible.

**Significant Action List**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 213 acres were removed from the previously approved sewer service area in Carteret. Also, 26 acres that were not part of the previously approved sewer service area were added in Carteret based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

All of Carteret Borough is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. Carteret is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 3.219 million gallons per day.

<b>Table 25A-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Carteret</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	2.083
	Employment	0.394
	Inflow and Infiltration	0.742
	<b>Total</b>	<b>3.219</b>

Borough of Carteret (continued)

### **Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Carteret Borough is entirely within the Rahway River/Woodbridge Creek HUC 11 watershed and existing zoning provisions are consistent with HUC 11 averaging for the watershed. The HUC 11 averaging approach results in a balance of zoning and environmental build-out equivalent units for Carteret within the sub-watershed and no negative impact on existing zoning provisions in the municipalities of this HUC 11. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. See discussion of the HUC 11 Averaging analysis is found at page 5-5 in the first volume of this report, detailed in Appendix D.

Carteret Borough’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures*) (Appendix H) as a prerequisite to municipal adoption of the revised zoning provisions.

### **Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. “Clean Water Act” became the Act’s common name with amendments in 1977. Section 201 of the Clean Water Act, 22 U.S.C. §§ 1251 et seq. defines funding and physical conditions for federal assistance in the development and implementation of waste treatment plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The sewer service area of Carteret is subject to the Environmentally Sensitive Area (ESA) grant condition prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area. Itemized abstracts of the approximate documentation shall be available from the New Jersey Department of Environmental Protection, Division of Land Use Management.

While these restrictions must be upheld for a period of 50 years from the grant approval, there are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above.

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## Township of Cranbury

### Introduction

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### Regional Context and Special Considerations

The Township of Cranbury is 13.4 square miles, mostly rural, community located at the southern end of Middlesex County, adjacent to Mercer County. In 2010 the total population of Cranbury was estimated to be 3,857 persons, an increase over the year 2000 population of 3,207. The Township is bordered by four other townships: Plainsboro to the west, South Brunswick to the north, Monroe to the east and East Windsor to the south. Cranbury is characterized by relatively flat terrain. Several water courses pass through the Township, including Cranbury Brook (which drains into Brainerd Lake), Cedar Brook and the Millstone River<sup>1</sup>.

It is important to note that Cranbury Township is designated as a non-urbanized municipality by NJDEP criteria for WMP planning consideration, that is, a municipality that has less than 90 percent of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are required for the future sanitary sewer service areas (SSAs) and for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems (See discussions, below).

### Considerations for Future Municipal Planning Goals

Cranbury Village, a nationally-recognized historic downtown area focused along Main Street, consists of small retail and service establishments and densely developed residential lots surrounding the commercial core. The historic ambiance of the Village center is augmented by preserved farmland along its edges which denotes the Township's historic, agricultural character. As established by the New Jersey State Development and Redevelopment Plan of 2001, the Township of Cranbury contains lands within the Suburban Planning Area, the Rural Planning Area, and the Rural/Environmentally Sensitive Planning Area, and is a Designated Village (1996).

Cranbury Township is a mature community with specific planned development objectives focusing on preserving agricultural uses as a viable industry and the historic village character of the downtown, establishing an open space and greenway network, providing pedestrian connections, and using major transportation corridors to provide development sites for ratable land uses. These objectives do not appear to conflict with the objectives of the MC WMP regarding established future sanitary sewer service areas (SSAs) and Septic Areas (SAs) areas in Cranbury Township. If any increased density provisions are introduced in new zoning proposals for the municipality, it will be necessary to review these conditions for consistency with HUC 11 averaging validation for SA lands of the associated watershed and/or reviewing treatment capacity provisions for SSAs.

Cranbury Township's public open space consists of municipal parks. While some portions of these sites are within the SSA, future improvement plans that may include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

In addition to parkland, farmland preservation is an important issue in Cranbury. Actual preserved farmland totals 2,749 acres among 30 individual farms, achieved through a combination of farmland easement programs, fee simple and non-profit grants, and municipal cluster easements (See Appendix A in the *Middlesex County Comprehensive Farmland Preservation Plan, 2008*).

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<sup>1</sup> 2010 Master Plan for the Township of Cranbury, Middlesex County, New Jersey, Phillips Preiss Grygiel, LLC

Township of Cranbury (continued)

**Significant Action List**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 188 acres were removed from the previously approved sewer service area in Cranbury. Also, 312 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Environmental Build-Out Analysis**

As a component of the coordinated planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in relation to sanitary sewer facilities capabilities and septic system suitability, to be used solely to consider development carrying capacity within the watersheds of Middlesex County and adequacy of existing zoning provisions in non-urbanized municipalities. For the regional planning analysis prepared within this report, the NJDEP has established an "Equivalent Dwelling Unit" a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an "environmental build-out" analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis for non-sewer areas, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

- **Municipal Build-Out Estimate Summary** - The entire area of Cranbury is within the New Jersey American Water Company Service Area. The sanitary sewer service area (SSA) of the Township is in the Middlesex County Utilities Authority Service Area. Additionally, two non-contiguous areas of the municipality are in non-sewer septic areas (SA). The municipal build-out estimated total of 2,559 equivalent dwelling units is shown on the following table:

<b>Table 25B-1 Summary of Build-out by Wastewater Treatment Areas Township of Cranbury</b>	
<b>Sewer Service and Non-Sewer Areas</b>	<b>Build-out Estimate by Equivalent Dwelling Unit</b>
Middlesex County Utilities Authority	2,465
Non-sewered area	94

- **Environmental Build out for Sanitary Sewer Service Areas** - For Sanitary Sewer Service Areas (SSA) in non-urbanized municipalities an environmental build out involves projection of the potential ultimate development allowed by municipal zoning provisions. 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. The projected data is then aggregated by the receiving wastewater treatment plant and authority, as shown above. A 30 percent discount for development configuration constraints was applied to all development density results to account for development configuration constraints (A detailed discussion and associated tables are found at page 5-5, Municipal Demand Projections in Non-Urban Municipalities and Table 20A).

The total Equivalent Dwelling Unit Yield allowed by existing zoning provisions for the SSA in Cranbury Township developable lands is 2,465 additional units.

Township of Cranbury (continued)

**Environmental Build-Out Analysis (continued)**

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging** - Nitrate dilution analysis (NDA), part of an environmental build-out, was performed for each HUC 11 watershed. In order to determine the adequacy of zoning provisions to meet nitrate dilution analysis (NDA) standards in Septic Areas (SAs) within a specific watershed, NJDEP regulations allow for averaging the minimum land area per equivalent ISSDS unit throughout the entire HUC 11 watershed (HUC 11 averaging). Outlined below, a detailed discussion of the HUC 11 averaging analysis for all HUC 11 areas within Middlesex County is found at page 6-5, Adequacy of Nitrate Dilution to Meet Future Non-Sewer Service Area Demand in the first volume of this report and detailed in Appendix D.

Lands with development potential within the septic area were compiled from vacant land areas and, underdeveloped lands with subdivision potential (where determinable) not constrained by environmentally sensitive areas. A 30 percent discount for development configuration constraints was applied to all development density results.

To accurately assess adequacy of existing zoning provisions for those areas of municipalities within each HUC 11, the selection of nitrate dilution areas available for NDA averaging included the undeveloped lands noted above, areas of dedicated open space not encumbered with wetlands, lands in farmland preservation easements and lands in Sanitary Sewer Service Areas (SSAs). SSAs can contribute to the nitrate dilution potential without negative impact upon development in the SSA. For this exercise, permeable surfaces offering infiltration within the SSA area were determined and factored as contributing to groundwater replenishment and nitrate dilution. Where HUC 11 averaging does not achieve SA zoning density consistency with NDA densities within a HUC 11 watershed, the municipality must review existing zoning for resolution of the inconsistency.

Located entirely within the Millstone River above Carnegie Lake, HUC 11 #02030105100 sub-watershed; Cranbury Township zoning provisions are consistent with HUC 11 averaging. Preservation of existing municipal zoning provisions in Cranbury has no negative impact on existing zoning provisions in the other municipalities of this HUC 11. A summary of environmental build-out analysis per NJDEP regulations for non-sewer Septic Areas in Cranbury Township is provided below and detailed at the end of this Chapter and in tables grouping municipalities by HUC 11 in Appendix D.

<b>Table 25B-2 Summary of Environmental Build-out within Non-Sewer Septic Areas Expressed in Terms of Equivalent Dwelling Units Township of Cranbury</b>			
<b>HUC 11 Subwatershed</b>	<b>Environmental Yield</b>	<b>Zoning Yield</b>	<b>Environmental Build-out Result</b>
Millstone River above Carnegie Lake #02030105100	814	94	Consistent

Cranbury Township's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning, Division of Comprehensive Planning, and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

Township of Cranbury (continued)

**Environmental Build-Out Analysis (continued)**

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Dunellen

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The Borough of Dunellen is 1.1 square miles in total area, with a population of over 7,227 (2010 Census), with approximately 1,700 families in about 2,500 households compared to a 2000 U.S. Census population count of 6,836. Dunellen, located in the northwestern portion of Middlesex County, is bordered by four municipalities, Piscataway to the south, Middlesex Borough to the west, Green Brook Township in Somerset County to the north and the City of Plainfield in Union County to the east. The main channel of the Green Brook forms the northern boundary of the Borough with Bound Brook at the Middlesex Borough boundary. Seasonal flooding is a major concern within the Green Brook sub-basin (See discussion, below).

Dunellen is connected to major transportation thoroughfares by NJ Route 28 crossing the town from southwest to northeast and Washington Avenue a north/south local road leading to Route 22 and Interstate 287. Dunellen's most valuable transportation asset, historically and today, is the railroad station (originally called New Market Junction) and right-of-way now used by the NJ Transit Raritan Valley Line. The early economic and industrial growth of Dunellen was directly related to the rail station. The active rail station is a focal point to bring redevelopment to Dunellen in the future.

Today, the rail station and adjacent commuter parking area anchors the southern boundary of Dunellen's retail downtown on North Avenue (NJ Route 28). Redevelopment of a mixed use transit village character around the train station and including the closed Art Color factory site has been a recurrent municipal goal. This focus on redevelopment is further discussed below.

### **Considerations for Municipal Planning Goals**

The Borough of Dunellen is termed a Metropolitan Planning Area within the current version of the New Jersey State Development and Redevelopment Plan (2004). This status emphasizes economic growth for the community in recognition of available existing infrastructure and transit opportunities, supported by an accessible network of roads and highways. In line with this status, Dunellen has undertaken a number of redevelopment projects, detailed in Appendix J. These projects notably aim to emphasize development around the train station, in line with Transit Oriented Development (TOD) concepts.

A key concern of Dunellen is flood control. In response to severe flooding in 1971 and 1973, Dunellen became a municipal member of the Green Brook Flood Control Commission. Aiming to create comprehensive solutions to flooding issues affecting 13 municipalities in three counties, the commission has already constructed levees with limited floodwall sections in nearby Bound Brook. Similar portions are planned for the Green Brook alignment within Dunellen.

Generally, these planning considerations are consistent with MC WMP assessments and objectives regarding environmentally sensitive areas. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within the Dunellen downtown. As a NJDEP "urbanized municipality", expansions of the future sanitary sewer service areas (SSAs) for development proposals supported by Dunellen Borough and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

Borough of Dunellen (continued)

**Considerations for Municipal Planning Goals (continued)**

Dunellen Borough’s public open space is in municipal parks. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 26 acres were removed from the previously approved sewer service area in Dunellen. No area was added to the SSA. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Dunellen Borough is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. Dunellen is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 0.78 million gallons per day.

<b>Table 25C-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Dunellen</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.624
	Employment	0.049
	Inflow and Infiltration	0.107
	<b>Total</b>	<b>0.780</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Borough of Dunellen (continued)

### **Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

Dunellen Borough is entirely within the Raritan River Lower Lawrence to Millstone, HUC 11 watershed and existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Dunellen Borough's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

### **Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

### **Municipal Ordinance Review and Adoption**

As a component of acceptance of its Municipal Chapter, a municipality is required to address the natural resource protection ordinances listed in Table 26C-2 and adopt each when conditions that require such protections exist within municipal boundaries. Copies of the specific adopted ordinances are required for municipal acceptance of the Municipal Chapter. Where a municipal ordinance is inapplicable due to the absence of the specific condition, a confirming review letter prepared by the Municipal Engineer shall be required to complete municipal acceptance of the Municipal Chapter.

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## Township of East Brunswick

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Special Considerations**

The Township of East Brunswick is 22.4 square miles and located in the center of Middlesex County. The town is primarily a suburban community. It is bordered by 11 municipalities all of which are in Middlesex County: New Brunswick, Edison, Sayreville, South River, Old Bridge, Spotswood, Helmetta, Monroe, South Brunswick, Milltown, and North Brunswick. Several small bodies of water are located within the township and East Brunswick borders the Raritan River at its northeastern boundary. According to the 2010 Census, the population of East Brunswick was 47,512 representing a slight increase over the 2000 population of 46,885. Although mainly suburban, East Brunswick also has concentrated commercial development along major roadway corridors. Three major roadways traversing East Brunswick provide access for commerce to diverse destinations within the State of New Jersey as well as regional routes to neighboring states: NJ Route 18, the New Jersey Turnpike and US Interstate Route 95.

It is important to note that East Brunswick Township is designated as a non-urbanized municipality by NJDEP criteria for WMP planning consideration, that is, a municipality that has less than 90 percent of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are required for the future sanitary sewer service areas (SSAs) and for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Township of East Brunswick is comprised of four planning areas: the Metropolitan Planning Area, Rural Planning Area, Environmentally Sensitive Planning Area, and Parks and Natural Areas. The historic Old Bridge area is a Designated Village (2004). The township's northern border is on the tidal Lower Raritan River making it subject to NJ Coastal Zone Management Rules.

Conservation is a major concern for future development in East Brunswick. Both environmentally sensitive areas and established residential communities, including single family, townhouse, and multifamily structures are given special consideration. Particular attention is given to wetlands, steep slopes and areas served by septic systems with seasonally high water tables. In addition, agricultural areas are also encouraged to remain in the township.

Development of a town center is encouraged in proximity to the existing Civic Center and municipal complex. Permitted types of development will include but are not limited to recreation and open space; governmental and educational offices; and civic, cultural, social and community services. Intensive development (specifically higher density housing) will be encouraged around public transportation nodes.

The township plans to address a perceived regional need for industry and transportation facilities while conserving remaining open space. In the Route 18 corridor, a major commercial retail area, East Brunswick seeks to tightly define the extent of commercially zoned land to preserve the character of outlying neighborhoods. The township redevelopment agency efforts are in the northeast quadrant of the municipality, notable for being the site of the Golden Triangle Redevelopment area. This municipally adopted redevelopment area and others in East Brunswick can be reviewed in Appendix J. In municipally adopted redevelopment areas, expansions of the SSA for development proposals supported by the Township and proven to conform to environmental regulations and available treatment capacity will be consistent for minor revisions to the WMP.

Township of East Brunswick (continued)

**Considerations for Future Municipal Planning Goals (continued)**

The western and southwestern portions of East Brunswick are largely undeveloped and rural. The township wishes to retain this by limiting the introduction of growth inducing infrastructure. Furthermore, the township hopes to promote conservation of open space through public acquisition.

East Brunswick Township’s public open space is in county and municipal parks and private open space. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

In addition to parkland, farmland preservation is a factor in East Brunswick, though not yet a significant percentage of the municipality (1.7 percent). Actual preserved farmland totals 81 acres between two individual farms, achieved through a county farmland easement purchase program (See Appendix A in the *Middlesex County Comprehensive Farmland Preservation Plan, 2008*).

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 403 acres were removed from the previously approved sewer service area in East Brunswick. Also, 292 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Environmental Build-Out Analysis**

As a component of the coordinated planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in relation to sanitary sewer facilities capabilities and septic system suitability, to be used solely to consider development carrying capacity within the watersheds of Middlesex County and adequacy of existing zoning provisions in non-urbanized municipalities. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis for non-sewer septic areas (SA) and by sanitary sewer service area (SSA) for each municipality, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

- **Municipal Build-out Estimate** - The entire sewer service area of East Brunswick is within the Middlesex County Utilities Authority and the Middlesex Water Company Service Areas. The estimated build-out breakdown of 21,720 additional equivalent dwelling units is shown below:

<b>Table 25D-1 Summary of Build-out by Wastewater Treatment Areas Township of East Brunswick</b>	
<b>Sewer Service and Non-Sewer Septic Areas</b>	<b>Build-out Estimate by Equivalent Dwelling Unit</b>
Middlesex County Utilities Authority	21,481
Non-sewer septic area	239

Township of East Brunswick (continued)

**Environmental Build-Out Analysis**

- **Environmental Build out for Sanitary Sewer Service Areas** - For Sanitary Sewer Service Areas (SSA) in non-urbanized municipalities an environmental build out involves projection of the potential ultimate development allowed by municipal zoning provisions. 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. The projected data is then aggregated by the receiving wastewater treatment plant and authority, as shown above. A 30 percent discount for development configuration constraints was applied to all development density results to account for development configuration constraints (A detailed discussion and associated tables are found at page 5-5, Municipal Demand Projections in Non-Urban Municipalities and Table 20B). The total Equivalent Dwelling Unit Yield allowed by existing zoning provisions for the SSA in East Brunswick Township developable lands is 21,481 additional units.
- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging** - Nitrate dilution analysis (NDA), part of an environmental build-out, was performed for each HUC 11 watershed. In order to determine the adequacy of zoning provisions to meet nitrate dilution analysis (NDA) standards in Septic Areas (SAs) within a specific watershed, NJDEP regulations allow for averaging the minimum land area per equivalent ISSDS unit throughout the entire HUC 11 watershed (HUC 11 averaging). Outlined below, a detailed discussion of the HUC 11 Averaging analysis for all HUC 11 areas within Middlesex County is found at page 6.5 Adequacy of Nitrate Dilution to Meet Future Non-Sewer Service Area Demand in the first volume of this report and detailed in Appendix D.

Lands with development potential within the septic area were compiled from vacant land areas and underdeveloped lands with subdivision potential (where determinable) not constrained by environmentally sensitive areas. A 30 percent discount for development configuration constraints was applied to all development density results.

To accurately assess adequacy of existing zoning provisions for those areas of municipalities within each HUC 11, the selection of nitrate dilution areas available for NDA averaging included the undeveloped lands noted above, areas of dedicated open space not encumbered with wetlands, lands in farmland preservation easements and lands in Sanitary Sewer Service Areas (SSAs). SSAs can contribute to the nitrate dilution potential without negative impact upon development in the SSA. For this exercise, permeable surfaces offering infiltration within the SSA area were determined and factored as contributing to groundwater replenishment and nitrate dilution. Where HUC 11 averaging does not achieve SA zoning density consistency with NDA densities within a HUC11 watershed, the municipality must review existing zoning for resolution of the inconsistency.

East Brunswick Township's land area is within the Lawrence Brook HUC 11 #02030105130, Manalapan Brook HUC 11 #02030105140 and Lower Raritan River below Lawrence HUC 11 #02030105160 sub-watersheds. The environmental build-out found East Brunswick zoning provisions are consistent with HUC 11 averaging in each of these sub-watersheds. Preservation of existing municipal zoning provisions in East Brunswick has no negative impact on existing zoning provisions in the other municipalities of this HUC 11. A summary of environmental build-out analysis per NJDEP regulations for non-sewer Septic Areas in East Brunswick Township is provided below and detailed at the end of this Chapter and in tables grouping municipalities by HUC 11 in Appendix D.

Township of East Brunswick (continued)

**Environmental Build-Out Analysis**

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging (continued)**

<b>Table 25D-2 Summary of Environmental Build-out within Non-Sewer Septic Areas Expressed in Terms of Equivalent Dwelling Units Township of East Brunswick</b>			
<b>HUC 11 Subwatershed</b>	<b>Environmental Yield</b>	<b>Zoning Yield</b>	<b>Environmental Build-out Result</b>
<b>Lawrence Brook #02030105130</b>	692	147	Consistent
<b>Manalapan Brook #02030105140</b>	316	19	Consistent
<b>Raritan R Lower below Lawrence #02030105160</b>	136	85	Consistent

East Brunswick Township's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

## Township of Edison

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

The Township of Edison is 30.6 square miles in total area with a population of 99,967 in 2010, an increase from 97,623 in 2000. Located in the north central portion of Middlesex County, Edison is contiguous to eight Middlesex County municipalities: South Plainfield, and Piscataway to the West, Highland Park, New Brunswick, East Brunswick, and Sayreville to the South, and Woodbridge to the East. The Borough of Metuchen is entirely encompassed by the township. To the North, Edison is bordered by the Union County municipalities of Scotch Plains and Clark.

Several major road networks, including the NJ Turnpike and US Routes 1, NJ 27, and Interstate 287 traverse Edison, providing the municipality with excellent regional highway access to other parts of the state and surrounding states. Edison has a rail station on the NJ Transit Northeast Corridor and is accessible to the Metro Park rail station in Woodbridge for the Amtrak regional passenger train service.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan, the Township of Edison is a Metropolitan Planning Area and also contains land within the Environmentally Sensitive Planning Area, as well as Parks and Natural Areas. Edison's southern border is on the tidal Lower Raritan River, making it subject to NJ Coastal Zone Management Rules.

Edison is considered to be an urbanized municipality and has no significant developable areas outside of sewer service areas (SSAs). Edison intends to encourage New Urbanism and Smart Growth patterns for more compact development patterns within areas of existing infrastructure, including the SSA, through new development methods described in their most recent municipal master plan. The township also aims to develop several parcels that are currently zoned for civic uses in the area of Menlo Park, J.F.K. Medical Center, and Roosevelt Care Center. Though the above have necessitated additions to the SSA, there are also environmentally sensitive areas in the Dismal Swap and along the Raritan River that will be removed from the prior SSA. Additionally, the Township has several areas for redevelopment and planned business development, detailed in Appendix J. All are largely within the SSA.

Edison Township's public open space is in county and municipal parks and private open space. There are several areas where the Township aims to build bathroom facilities for parks that are outside the current SSA, including Roosevelt Park and Central Avenue/Pappianni Lake. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

Generally, these planning considerations are consistent with MC WMP assessments and objectives regarding environmentally sensitive areas. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within Edison. As a NJDEP "urbanized municipality", expansions of the SSA for development proposals, proven to conform to environmental regulations and supported by Edison Township, would be consistent for minor revisions to the MC WMP.

Township of Edison (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 1471 acres were removed from the previously approved sewer service area in Edison. Also, 496 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Edison Township is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. Edison is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality are estimated to be approximately 13.552 million gallons per day.

<b>Table 25E-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Township of Edison</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	7.901
	Employment	2.373
	Inflow and Infiltration	3.146
	Equister Chemicals	0.132
	<b>Total</b>	<b>13.552</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs. In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Edison Township is within the Raritan River Lower Lawrence to Millstone, HUC 11 #02030105120, Raritan River Lower below Lawrence, HUC 11 # 02030105160 and Rahway River/Woodbridge Creek HUC 11 # 02030104050 watersheds. Existing zoning provisions are consistent with HUC 11 averaging for Middlesex County municipalities within the watershed.

Township of Edison (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

Edison's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning Division of Comprehensive Planning and the Environment.

If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Helmetta

### Introduction

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### Regional Context and Special Considerations

Helmetta is a 0.9 square mile municipality in the southern half of Middlesex County. It is bordered by three municipalities: East Brunswick to the north, Spotswood to the east, and Monroe to the south.

In 2010 Helmetta had a population of 2,178, the smallest municipal population in Middlesex County. This represents an increase of 19 percent over its 1,830 population in 2000. No major highways run through this municipality, though County Route 615 connects the Borough to Monroe and Spotswood. The New Jersey Turnpike (Route 95) is accessible in neighboring Monroe Township at Exit 8A.

Helmetta's main landmark is the large, abandoned Helme Products Inc. plant that sits adjacent to the Camden and Amboy Railroad alignment running through town. The Helme family were major early benefactors to the early settlement. The G. W. Helme Snuff Mill District is a classic example of a late 1800s mill town, and was named to the New Jersey Register of Historic Places on February 1, 1980, and to the National Register of Historic Places listings in Middlesex County, New Jersey on August 15, 1980. The district consists of the George Washington Helme Snuff Mill, housing for employees, accessory buildings, St. George Episcopal Church, Holy Trinity Roman Catholic Church, and Helmetta Pond, which at one time served as a source of power for the mill. Given the small size of the town and the prominence of the district, future development prospects are intimately entwined with the fate of the Mill district.

### Considerations for Future Municipal Planning Goals

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of Helmetta is comprised of three planning areas: the Metropolitan Planning Area, Suburban Planning Area, and Parks and Natural Areas.

Development in Helmetta is subject to a number of constraints and opportunities. Though some undeveloped parcels do exist, Helmetta contains large areas that are environmentally sensitive, historically significant, or protected as parkland. Redevelopment and adaptive reuse of existing historic buildings are strong components of Helmetta's planning agenda. These efforts largely revolve around redevelopment plans detailed in Appendix J. Helmetta currently has no significant developable areas outside of the sewer service area (SSA).

The nature of future development in Helmetta is now being considered in a new master planning process now underway. As the smallest municipality in Middlesex County, Helmetta wishes to encourage future development that will complement the overall character of the borough as well as taking into account surrounding development in nearby municipalities. The borough is proceeding to more clearly define areas where development can be concentrated and reevaluating the adequacy of current municipal zoning. Future development must not conflict with environmental constraints of the area or impede on existing open space areas. The current flood hazard/conservation zone is to be maintained. New parcels are to be identified for conservation and preservation.

The master plan process may result in a major overhaul of municipal zoning. One logical planning strategy focuses on adaptation to changing economic and market conditions to direct the redevelopment of historic sites in the municipality.

Borough of Helmetta (continued)

**Considerations for Future Municipal Planning Goals (continued)**

Helmetta Borough’s public open space is in solely in County parkland. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 37 acres were removed from the previously approved sewer service area in Helmetta. Also, 50 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Helmetta Borough is within the service areas of the Middlesex County Utilities Authority and the Middlesex Water Company. Helmetta is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality is estimated to be approximately 0.247 million gallons per day.

<b>Table 25F-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Helmetta</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.225
	Employment	0.004
	Inflow and Infiltration	0.018
	<b>Total</b>	<b>0.247</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs. In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non-sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Borough of Helmetta (continued)

### **Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

Helmetta Borough is entirely within the Manalapan Brook HUC 11 watershed, and existing zoning provisions are consistent with HUC 11 Averaging for this watershed.

Helmetta Borough's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures- Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

### **Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA), originally entitled the Federal Water Pollution Control Act, establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1977. Section 201 of the Clean Water Act, 22 U.S.C. §§ 1251 et seq. defines funding and physical conditions for federal assistance in the development and implementation of waste treatment plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The sewer service area in Helmetta is subject to the Environmentally Sensitive Area (ESA) grant condition prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area. Itemized abstracts of the approximate documentation shall be available at the New Jersey Department of Environmental Protection, Division of Land Use Management.

While these restrictions must be upheld for a period of 50 years from the grant approval, there are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above.

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## Borough of Highland Park

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Special Considerations**

Highland Park is a primarily urban municipality of 1.8 square miles with a population of 13,982 according to the 2010 Census, remaining relatively stable since the 2000 Census. Highland Park is located between Edison, to the north and northeast, New Brunswick, across the Raritan River to the south, and Piscataway, Highland Park's western border. NJ Route 27 runs through Highland Park connecting it to New Brunswick and Edison as well as other towns throughout central and northern New Jersey. US Route 1 and the New Jersey Turnpike pass within a mile and a half of the town's eastern border.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of Highland Park is a Metropolitan Planning Area. Mainly an urban municipality with an established downtown urban core, Highland Park will continue to focus development on their main commercial corridor flanking Route 27. Highland Park's southern border is on the tidal Lower Raritan River, making it subject to NJ Coastal Zone Management Rules.

Municipal planning aims to maintain a "small town" village character within the urban corridor and preserve the current conditions in surrounding neighborhoods. These goals have been pursued by policies that clearly define the core (such as supporting a vibrant "Main Street, NJ" program), while preserving open space around the municipality's periphery. A municipally adopted Downtown Redevelopment area, noted in Appendix J, will help rehabilitate underutilized core properties.

Generally, these planning considerations are consistent with MC WMP assessments and objectives regarding environmentally sensitive areas. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within the Highland Park downtown. As an NJDEP "urbanized municipality" (see below), expansions of the SSA for development and redevelopment proposals supported by the Borough and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

Highland Park Borough's public open space is in county and municipal parks. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

### **Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 10 acres were removed from the previously approved sewer service area in Highland Park. Also, 47 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

Borough of Highland Park (continued)

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Highland Park Borough is within the service areas of the Middlesex County Utilities Authority and the Middlesex Water Company. Highland Park is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 1.886 million gallons per day.

<b>Table 25G-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Highland Park</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	1.155
	Employment	0.119
	Inflow and Infiltration	0.612
	<b>Total</b>	<b>1.886</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs. In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

The Borough of Highland Park is entirely within the Raritan River Lower (Lawrence to Millstone) HUC 11 # 02030105120 sub-watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Highland Park’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

Borough of Highland Park (continued)

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Jamesburg

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The Borough of Jamesburg is 0.9 square miles, and a population of 5,915 according to the 2010 Census. This represents an increase in population from the 2000 US Census when it stood at 5,760. It is located in the southern portion of Middlesex County and is entirely surrounded by the Township of Monroe. No major highways run through Jamesburg, although New Jersey Turnpike (I-95) Exit 8A in Monroe is less than a mile to the west of the Borough. Several locally important county roads traverse the Borough. They include County Route 522, County Route 612, County Route 615, and County Route 625 (Perrineville Road).

The Borough is primarily urban/suburban arising from an agrarian and early industrial past featuring a grist mill, major factory and two railroad main lines and a roundhouse.

Because of its small size and long established village center character, Jamesburg has no significant developable areas not served by sanitary sewers.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of Jamesburg is a Suburban Planning Area.

Because of its small size, Jamesburg has little room for development and is instead focused on preservation policies. Owner occupation of all single family homes is strongly encouraged, and the demolition or conversion of existing structures to multifamily units is heavily discouraged. Deteriorating buildings are addressed with code enforcement and rehabilitation plans. Age-restricted housing is encouraged, as are mixed land uses, in the form of second floor residential units above commercial properties. Similar concerns apply to commercial properties. Having a successful small downtown retail and service area, Jamesburg seeks to limit its expansion to preserve its pedestrian “walkable” character and prevent commercial uses from encroaching into residential areas.

In addition to the preservation of existing residential properties, preservation of open space is also encouraged to promote the Borough’s image as a village community of tree-lined streets, adequate open space and recreation opportunities. As a response to concerns about seasonal flooding, new development will be subject to strict environmental performance standards, local drainage patterns are to be improved through the utilization of modern water runoff control techniques, and development of a Borough-wide “green belt” is encouraged.

Jamesburg Borough’s public open space is in county and municipal parks. While portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

### **Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 13 acres were removed from the previously approved sewer service area in Jamesburg. Additionally, 2 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives and satisfaction of environmental sensitivity review. For a list of blocks affected by these actions see Appendix F.

Borough of Jamesburg (continued)

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Jamesburg Borough is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. Jamesburg is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 0.733 million gallons per day.

<b>Table 25H-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Jamesburg</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.577
	Employment	0.075
	Inflow and Infiltration	0.081
	<b>Total</b>	<b>0.733</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

The Borough of Jamesburg is entirely within the Manalapan Brook HUC 11 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Jamesburg’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

Borough of Jamesburg (continued)

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Metuchen

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The Borough of Metuchen is 2.8 square miles. Surrounded by Edison Township, Metuchen is primarily an urban community in the north central portion of Middlesex County. Several transportation routes of local and national importance cross near or through Metuchen. I-287 borders Metuchen to the south and intersects with U.S. Route 1 at its southern tip. NJ 27 also traverses Metuchen, connecting it to Newark in the north and Princeton in the south. The New Jersey Turnpike passes within a mile of the Borough, while the Garden State Parkway comes within a mile and a half of its western boundary. The MetroPark train station on the NJTransit/Amtrak Northeast Corridor Line is in nearby Woodbridge Township.

In 2010 the population of Metuchen was 13,574. This represents a slight increase over its 2000 population of 12,801. Metuchen is mainly urban with a commercial strip that runs through the center of town. As an urban municipality Metuchen has no significant developable areas outside of the sewer service area.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of Metuchen is a Designated Town within a Metropolitan Planning Area and contains a small section of land (Dismal Swamp) within the Environmentally Sensitive Planning Area. Metuchen is designated both as a "Town Center" and a "Transit Village" by the State of New Jersey. These designations influence planning decisions in some notable ways. Metuchen plans on upgrading the area around the train station. The Borough has developed several Smart Growth plans for some of their main streets with a focus on traffic calming and pedestrian infrastructure in order to combat persistent problems with traffic. Metuchen must address issues of aging housing stock, infrastructure, and community facilities. Water supply, stormwater management, and sewerage systems in the Borough are capable of handling increased demand and development in the downtown core, which is encouraged by local planning.

Metuchen has about five and a half acres of open space per 1,000 residents. The most significant potential for increased open space is the Lehigh Valley railroad right-of-way (Middlesex Greenway). This has the potential to increase open space by 40 percent.

Metuchen Borough's public open space is in county and municipal parks. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist that do not negatively impact environmental resources.

Borough of Metuchen (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 23 acres were removed from the previously approved sewer service area in Metuchen. Also, 14 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Metuchen Borough is within the service areas of the Middlesex County Utilities Authority and the Middlesex Water Company. Metuchen is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 1.514 million gallons per day.

<b>Table 25I-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Metuchen</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.998
	Employment	0.177
	Inflow and Infiltration	0.339
	<b>Total</b>	<b>1.514</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs. In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

The Borough of Metuchen is entirely within the Raritan River Lower (Lawrence to Millstone) HUC 11 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Metuchen’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit

Borough of Metuchen (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Middlesex

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

The Borough of Middlesex is 3.5 square miles and located at the northwest corner of Middlesex County. Within Middlesex County, the borough is bordered by Piscataway and Dunellen to the south and east respectively. The Borough is also bordered by Green Brook to the north and Bridgewater, Bound Brook and South Bound Brook to the west, all located in neighboring Somerset County. The channels of the Green Brook and Raritan River are the Borough's respective northern and western boundaries.

NJ Route 28 traverses Middlesex Borough, connecting the borough to Somerset County and Union County. This once primary east/west roadway passes through Middlesex Borough and Dunellen forming a downtown corridor for these towns and many other towns along its alignment, giving rise to the existing network of high volume highways now providing regional access to the area. The borough is also served by bus transit.

Currently, Middlesex has a population of 13,635 according to the 2010 Census. This represents a one percent decrease in population from 2000 when it stood at 13,723. As a primarily urban municipality, Middlesex has no significant developable areas outside of the sewer service area.

### **Considerations for Future Municipal Planning Goals**

Middlesex Borough is within the Metropolitan Planning Area, as established by the New Jersey State Development and Redevelopment Plan of 2001. Like several other borough municipalities in Middlesex County, Middlesex Borough is a small, urban municipality. Middlesex Borough plans to preserve existing residential neighborhoods by promoting infill development within the existing development patterns.

For future development, the borough plans to maintain land use designations which reflect existing development character. Middlesex also notes that it plans to encourage smooth transitions between residential and non-residential land uses. Future development is apt to be mainly in rehabilitation of existing buildings and infill projects.

Middlesex Borough has outlined certain recommendations for future development. The town intends to designate a town center in order to concentrate commercial development. Land use in industrial zones will also be reevaluated and adjusted accordingly. Currently shopping centers are permitted in industrial zones in the borough. Specific rehabilitation and redevelopment plans feature the Lincoln Boulevard corridor in the borough. Through the rehabilitation and redevelopment process, the town intends to encourage a healthy mix of office, residential, and retail uses in order to create lively, sustainable neighborhoods.

Provisions for recreation and open space will be incorporated into the Borough Master Plan with the adoption of a combined Recreation and Conservation Plan Element document. Preservation and protection of environmentally sensitive areas will be a fundamental priority. Substantial floodplains in Middlesex Borough limit the ability of the land to support development. Future development will be restricted from designated floodplain areas.

Middlesex Borough's public open space is in municipal parks. While portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

Borough of Middlesex (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 243 acres were removed from the previously approved sewer service area in Middlesex. Also, 43 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Middlesex Borough is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. Middlesex is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The total of trend projection wastewater flows for the entire municipality is estimated to be approximately 1.729 million gallons per day.

<b>Table 25J-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Middlesex</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	1.080
	Employment	0.232
	Inflow and Infiltration	0.417
	<b>Total</b>	<b>1.729</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Middlesex Borough is entirely within the Raritan River Lower Lawrence to Millstone, HUC 11 #02030105120 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Borough of Middlesex (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

Middlesex Borough's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Milltown

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The Borough of Milltown is 1.6 square miles. Milltown is located in the southern portion of Middlesex County and is bordered by North Brunswick, to the north and west and East Brunswick, to the east and south. No major highways connect directly to Milltown. However, major highways in the neighboring municipalities of East Brunswick and North Brunswick (U.S. Route 1 and the New Jersey Turnpike) are easily accessed from Milltown. Main Street in Milltown eventually intersects U.S. 1, after crossing into North Brunswick.

The population in Milltown according to the 2010 US Census is 6,893 representing a slight decrease from the 2000 population of 6,967. Milltown is considered to be an urban municipality and has no significant developable areas outside of the sewer service area.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of Milltown is a Designated Town. Milltown is a geographically small area with a developed urban/suburban character. As such, future development will be consistent with what is already in place. Any infill projects will have to be consistent with both surrounding land use (single family homes in the case of residential areas) and environmental constraints such as steep slopes. While “teardowns” of existing homes to construct new homes can occur in the borough, Milltown is currently researching applicable ordinances to limit these occurrences.

Mixed use development currently exists in the downtown area, specifically along Main Street. The proposed mixed use development of the Ford Avenue Brownfield Development Area (BDA), approved by NJDEP in 2004 is made up of 22 acres of land, intended to establish open space and develop residential housing units. This development can be expected to support the Main Street commercial properties, thus enhancing the downtown. This redevelopment plan is noted in Appendix J. The borough will continue to pursue Main Street enhancement programs specifically focusing on Smart Growth to enhance the downtown. As a NJDEP “urbanized municipality”, expansions of the SSA for development proposals supported by Milltown Borough and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

In respect to open space in the municipality, Milltown plans to adopt an Open Space and Recreation Plan. This will identify land suitable for bike and walking paths. Existing open space areas of note are along Mill Pond and Lawrence Brook.

Milltown Borough’s public open space is in municipal parks. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

### **Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 42 acres were removed from the previously approved sewer service area in Milltown. Also, three acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

Borough of Milltown (continued)

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Milltown Borough is within the service areas of the Middlesex County Utilities Authority and the New Brunswick Water Company. Milltown is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality is estimated to be approximately 0.879 million gallons per day.

<b>Table 25K-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Milltown</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.520
	Employment	0.052
	Inflow and Infiltration	0.307
	<b>Total</b>	<b>0.879</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

The Borough of Milltown is entirely within the Lawrence Brook HUC 11 #02030105130 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Milltown’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see Middlesex County *Wastewater Management Plan Revision and Amendment Procedures- Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

Borough of Milltown (continued)

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Township of Monroe

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

The Township of Monroe is a 42.2 square mile municipality located at the southern most portion of Middlesex County. This total land area renders Monroe the largest municipality in Middlesex County. The 2010 population for Monroe is 39,132. The township is bordered by Cranbury and South Brunswick Townships to the west, East Brunswick Township, Helmetta and Spotswood Boroughs to the north, Old Bridge and Manalapan Townships to the east, and East Windsor, Mercer County and Millstone Townships, Monmouth County to the south. Monroe also surrounds the Borough of Jamesburg.

Monroe Township is located in two NJDEP Watershed Management Areas: # 9 " Raritan River, Mainstem, Lawrence Brook, South River, Manalapan Brook, Matchaponix Brook, Green Brook, Middle Brook, D&R Canal (lower part)" and #10 "Millstone River, Stony Brook, D&R Canal (upper part)". The Millstone River itself is a tributary of the Raritan River. Several significant streams traverse Monroe Township. Matchaponix Brook, Manalapan Brook (aka South River) and Manalapan Lake, Wigwam Brook and unnamed tributaries form a stream network, eventually leading to the Raritan River, in the central portion of the Township. Cranbury Brook, the Millstone River, Bentley Brook and associated tributaries are located in the southwest portion of Monroe.

It is important to note that Monroe Township is designated as a non-urbanized municipality by NJDEP criteria for WMP planning consideration. A non-urbanized municipality is a municipality that has less than 90 percent of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are required for the future sanitary sewer service areas (SSAs) and for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems (See discussions, below).

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Township of Monroe is largely a Suburban Planning Area, including lands labeled as Rural Planning Area, Metropolitan Planning Area, Parks and Natural Area, and Environmentally Sensitive Planning Area.

Monroe is an attractive location for future development due to its proximity to arterial roadways and areas of underdeveloped properties. This has led to a rapid increase in residential development over the past few years, especially near the NJ Turnpike. Warehouse construction has also been on the rise in the area around County Route 535/Exit 8A. With the northern section of Monroe Township largely developed, most new development in Monroe is taking place in the southern portion of the township. Monroe is also the location of several redevelopment sites, which are detailed in Appendix J. Lands available for development in Monroe Township account for 11 percent of the municipal acreage, approximately 2,847 acres.

Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

Monroe Township's public open space is in state, county and municipal parks and private open space. While some portions of these sites are within the SSA, future improvement plans that may include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

Township of Monroe (continued)

**Considerations for Future Municipal Planning Goals (continued)**

In addition to parkland, farmland preservation is an important issue in Monroe. Actual preserved farmland totals 1,218 acres among 12 individual farms, achieved through a combination of farmland easement programs, fee simple and non-profit grants, and municipal cluster easements (See Appendix A, *Middlesex County Comprehensive Farmland Preservation Plan, 2008*).

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 5377 acres were removed from the previously approved sewer service area in Monroe. Also, 171 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Environmental Build-Out Analysis**

As a component of the coordinated planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in relation to sanitary sewer facilities capabilities and septic system suitability, to be used solely to consider development carrying capacity within the watersheds of Middlesex County and adequacy of existing zoning provisions in non-urbanized municipalities. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis for non-sewer septic areas (SA) and by sanitary sewer service area (SSA) for each municipality, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

**Municipal Build-out Estimate Summary**

The sewer service area of Monroe Township is within the Middlesex County Utilities Authority Service Area. The entire township is in the New Jersey American Water Company Service Area. The estimated potential build-out of 13,251 equivalent dwelling units arranged by SSA and SA is shown in the following table:

<b>Table 25L-1 Summary of Build-out by Wastewater Treatment Areas Township of Monroe</b>	
<b>Sewer Service and Non-Sewer Area</b>	<b>Build-out Estimate by Equivalent Dwelling Unit</b>
Middlesex County Utilities Authority	12,633
Non-sewered area	618

- **Environmental Build out for Sanitary Sewer Service Areas**

For sanitary sewer service areas (SSA) in non-urbanized municipalities an environmental build out involves projection of the potential ultimate development allowed by municipal zoning provisions. 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. The projected data is then aggregated by the receiving wastewater treatment plant and authority, as shown above. A 30 percent discount for development configuration constraints was applied to all development density results to account for development configuration constraints.

Township of Monroe (continued)

**Municipal Build-out Estimate Summary (continued)**

- **Environmental Build out for Sanitary Sewer Service Areas (continued)**

A detailed discussion and associated tables are found at page 5-5, Municipal Demand Projections in Non-Urban Municipalities and Table 20C). The total Equivalent Dwelling Unit Yield allowed by existing zoning provisions for the SSA in Monroe Township developable lands is 12,633 additional units.

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging**

Nitrate dilution analysis (NDA), part of an environmental build-out, was performed for each HUC 11 watershed. In order to determine the adequacy of zoning provisions to meet nitrate dilution analysis (NDA) standards in Septic Areas (SAs) within a specific watershed, NJDEP regulations allow for averaging the minimum land area per equivalent ISSDS unit throughout the entire HUC 11 watershed (HUC 11 averaging). Outlined below, a detailed discussion of the HUC 11 Averaging analysis for all HUC 11 areas within Middlesex County is found at page 6-5 Adequacy of Nitrate Dilution to Meet Future Non-Sewer Service Area Demand in the first volume of this report and detailed in Appendix D.

Lands with development potential within the septic area were compiled from vacant land areas and underdeveloped lands with subdivision potential (where determinable) not constrained by environmentally sensitive areas. A 30 percent discount for development configuration constraints was applied to all development density results.

To accurately assess adequacy of existing zoning provisions for those areas of municipalities within each HUC 11, the selection of nitrate dilution areas available for NDA averaging included the undeveloped lands noted above, areas of dedicated open space not encumbered with wetlands, lands in farmland preservation easements and lands in Sanitary Sewer Service Areas (SSAs). SSAs can contribute to the nitrate dilution potential without negative impact upon development in the SSA. For this exercise, permeable surfaces offering infiltration within the SSA area were determined and factored as contributing to groundwater replenishment and nitrate dilution. Where HUC 11 averaging does not achieve SA zoning density consistency with NDA densities within a HUC11 watershed, the municipality must review existing zoning for resolution of the inconsistency.

The lands of Monroe Township are within the Manalapan Brook HUC 11 # 02030105140, Matchaponix Brook HUC 11 # 02030105150 and Millstone River above Carnegie Lake HUC 11 #02030105100 sub-watersheds. The environmental build out found Monroe Township zoning provisions are consistent with HUC 11 averaging in each of these sub-watersheds. Preservation of existing municipal zoning provisions in Monroe has no negative impact on existing zoning provisions in the other municipalities of this HUC 11 (detailed in tables grouping municipalities by HUC 11 in Appendix D).

Township of Monroe (continued)

**Municipal Build-out Estimate Summary (continued)**

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging**

The results of the environmental build-out analysis per NJDEP regulations for non-sewer Septic Areas in Monroe Township are provided below and detailed in Appendix E:

<b>Table 25L-2 Summary of Environmental Build-out within Non-Sewer Septic Areas Expressed in Terms of Equivalent Dwelling Units Township of Monroe</b>			
<b>HUC 11 Subwatershed</b>	<b>Environmental Yield</b>	<b>Zoning Yield</b>	<b>Environmental Build Out Result</b>
<b>Manalapan Brook #02030105140</b>	1,141	168	Consistent
<b>Matchaponix Brook # 02030105150</b>	319	144	Consistent
<b>Millstone River above Carnegie Lake #02030105100</b>	777	306	Consistent w/ HUC 11 averaging

Monroe Township's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 Averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA), originally entitled the Federal Water Pollution Control Act, establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 201 of the Clean Water Act, 33 U.S.C. §§ 1251 et seq. defines funding and physical conditions for federal assistance in the development and implementation of wastewater treatment plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The Manalapan Brook Interceptor service area of Monroe is subject to the Environmentally Sensitive Area (ESA) grant conditions prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area in 1980. These restrictions must be upheld for a period of 50 years from the grant approval (2030). There are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above. Itemized abstracts of the approximate documentation are available at the New Jersey Department of Environmental Protection, Division of Land Use Management.

## City of New Brunswick

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The City of New Brunswick is a 5.8 square mile urban regional center, located along the Raritan River and the Delaware and Raritan Canal. The city is traversed by major highways U.S. Route 1, State Route 18, State Route 27, and the New Jersey Turnpike. The city is bordered by the municipalities of Piscataway, Edison, and Highland Park to the north and across the Raritan River, Edison and East Brunswick to the east, North Brunswick to the south, and Franklin Township (Somerset County) to the west.

Established in 1730, New Brunswick is home to many historic landmarks reflecting its long history as a center for commerce and government. New Brunswick serves as the Middlesex County government seat, as well as home to Rutgers University and numerous health care facilities. The City of New Brunswick's population in U.S. Census Year 2010 was 55,181, 14 percent above its 48,600 population in Year 2000.

A majority of New Brunswick's commercial and retail businesses are located within an Urban Enterprise Zone (UEZ), an area allowing a reduced sales tax and offering grants, encouraging new business and supporting retention of existing businesses and employment opportunities for struggling inner-city areas. The City's northern border is on the tidal Lower Raritan River, making it subject to NJ Coastal Zone Management Rules.

### **Considerations for Future Municipal Planning Goals**

As established by the current New Jersey State Development and Redevelopment Plan of 2001, the City of New Brunswick is an Urban Center (1992) within the Metropolitan Planning Area. New Brunswick City government encourages planning for new development to complement the city's prime location, status as a regional employment center, access to a well maintained network of multi-modal transportation and transit alternatives, and extensive existing infrastructure. New Brunswick's policies aim to enhance the quality of life for its residents while preventing the loss of significant historic structures and areas. To this end a number of redevelopment plans have begun, detailed in Appendix E.

New Brunswick is considered an urbanized municipality and has no significant developable area outside of the sewer service area (see discussion, below). Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

New Brunswick's public open space is in municipal parks. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

City of New Brunswick (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 256 acres were removed from the previously approved sewer service area in New Brunswick. Also, 77 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire developable area of the City of New Brunswick is within the service areas of the Middlesex County Utilities Authority and the New Brunswick Water Company. New Brunswick is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality are estimated to be approximately 8.251 million gallons per day.

<b>Table 25M-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 City of New Brunswick</b>		
<b>Sewer Service and Non-Sewer Area</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	5.343
	Employment	0.874
	Inflow and Infiltration	2.034
	<b>Total</b>	<b>8.251</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

The City of New Brunswick is within the Raritan River Lower (Lawrence to Millstone) HUC 11 watershed as well as the Lawrence Brook HUC 11 watershed, and existing zoning provisions are consistent with HUC 11 averaging for these watersheds.

City of New Brunswick (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

New Brunswick's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts within the related watershed by the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Township of North Brunswick

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

North Brunswick is a 12.3 square mile municipality located in the eastern central section of Middlesex County, with a 2010 population of 40,742. The Township of North Brunswick is bordered by South Brunswick to the south, Franklin Township in Somerset County to the west, East Brunswick and Milltown to the east and New Brunswick to the north.

North Brunswick enjoys an extensive transportation network, being traversed by US Route 1 and US Route 130, State Highways 26, 27, 91, and 171, as well as County Routes 606 (Milltown Road), 608, 620, 680, 682, 694, 695, and 696. New Jersey Transit passenger rail service can be accessed in neighboring New Brunswick. Plans are currently underway for a New Jersey Transit rail station to be added to the Northeast Corridor line at the former Johnson and Johnson site located along Route 1 in North Brunswick.

North Brunswick experienced a population growth of 5,000 persons (16 percent growth) between the years of 1990 and 2000, which was greater than the population growth experienced by both Middlesex County (11.7 percent) and the State of New Jersey (8.9 percent) for the respective years.

### **Considerations for Future Municipal Planning**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Township of North Brunswick is a Metropolitan Planning Area, and also contains a section of land along the southeastern portion that falls within an Environmentally Sensitive Planning Area.

Land use policies within North Brunswick are aimed toward providing a balance of appropriately located land uses in order to serve the needs of both residents and businesses. As North Brunswick strives to maximize its economic base, widespread enhancements to the township take root that are centered on redevelopment. As a mature suburban municipality, most major redevelopment initiatives will take place through the reuse and infill of existing development. As such North Brunswick has a number of redevelopment sites, detailed in Appendix J.

Current planning procedures also analyze sewerage facilities in order to determine if any known constraints exist that would affect development and redevelopment sites within the township. North Brunswick contains 223 developable acres within non-sewer septic areas. Where an area is designated for sewer service, but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

Rutgers University property will be within the proposed sewer service area, with the understanding that all state environmental regulations will be adhered to in the event of future development of University property.

Township of North Brunswick (continued)

**Considerations for Future Municipal Planning (continued)**

Generally, these planning considerations are consistent with MC WMP assessments and objectives regarding environmentally sensitive areas. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within North Brunswick. As an NJDEP “urbanized municipality”, expansions of the SSA for development proposals supported by North Brunswick Township and proven to conform to environmental regulations and treatment capacity would be consistent for minor revision to the MC WMP.

North Brunswick Township’s public open space is in county and municipal parks and private open space. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 842 acres were removed from the previously approved SSA in North Brunswick. Also, 245 acres that were not part of the previously approved SSA have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of North Brunswick Township is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. North Brunswick is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 5.962 million gallons per day.

<b>Table 25N-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Township of North Brunswick</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	4.155
	Employment	0.675
	Inflow and Infiltration	1.132
	<b>Total</b>	<b>5.962</b>

Township of North Brunswick (continued)

### **Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix E.

North Brunswick Township is within the Lawrence Brook HUC 11 # 02030105130 watershed and the Millstone River below and including Carnegie Lake, HUC 11 # 02030105110 watershed. Existing zoning provisions are consistent with HUC 11 Averaging for these watersheds.

North Brunswick Township’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures- Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

### **Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Township of Old Bridge

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

The Township of Old Bridge is a 38.7 square mile suburban municipality located in the southeastern portion of Middlesex County. According to the 2010 Census, Old Bridge has a population of 65,375, ranking it the third most densely populated municipality in the county, after Edison and Woodbridge. Old Bridge includes the Census Designated Places (CDPs) of Laurence Harbor and Cliffwood Beach.

Old Bridge is bordered by Sayreville Borough to the north, Spotswood Borough, East Brunswick Township, and Monroe Township to the west, Manalapan and Marlboro Townships of Monmouth County to the south, and Aberdeen Township and Matawan Borough of Monmouth County to the east. The township also has an extensive border along the Arthur Kill and Atlantic Ocean and is subject to NJ Coastal Zone Management Rules and Coastal Areas Facilities Review Act regulation on its eastern shore. The township is home to many streams and rivers, including Raritan Bay, South River, Deep Run, Cheesequake Creek, Matchaponix Brook, Barclay Brook, and Tennents Brook. As established by the New Jersey State Development and Redevelopment Plan, the Township of Old Bridge contains land within the Suburban Planning Area, Metropolitan Planning Area, Environmentally Sensitive Planning Area, and Parks and Natural Areas.

Old Bridge is highly accessible by vehicle, traversed by an extensive network of major highways and county roads, including the Garden State Parkway, U.S. Route 9, State Route 18, State Route 34, and State Route 35. County Routes (CR) running through the township include CR 516, CR 520, CR 527, CR 626, CR 645, CR 687, CR 689, CR 690, and CR 699. The nearby New Jersey Turnpike can be easily accessed from Route 18. Passenger rail service is available in neighboring Monmouth County via the Aberdeen-Matawan NJ Transit Station. NJ Transit also provides connecting bus service to the Township of Old Bridge.

It is important to note that Old Bridge Township is designated as a non-urbanized municipality by NJDEP criteria for WMP planning consideration. A non-urbanized municipality is a municipality that has less than 90 percent of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are required for the future sanitary sewer service areas (SSAs) and for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems (See discussions, below).

### **Considerations for Future Municipal Planning Goals**

As established by the current New Jersey State Development and Redevelopment Plan of 2001, the Township of Old Bridge contains land within the Metropolitan Planning Area, Suburban Planning Area, Environmentally Sensitive Planning Area, and Parks and Natural Areas.

Planning goals established by the Township of Old Bridge aim to reduce the intensity of development throughout the town in order to protect environmentally sensitive areas, watersheds, and farmland preservation. The township also aims to foster development in the Lawrence Harbor area and incorporate past regional planning recommendations for the corridors of Route 9 and Route 18 into its land use regulations. Old Bridge has several redevelopment areas, as detailed in Appendix J. In municipally adopted redevelopment areas, expansions of the future sanitary sewer service areas (SSAs) for development proposals supported by the township and proven to conform to environmental regulations and available treatment capacity will be consistent for minor revisions to the WMP.

## Township of Old Bridge (continued)

### **Considerations for Future Municipal Planning Goals (continued)**

Sewer service is presently available in portions of the municipality where both commercial uses and varying density residential development has been developed or approved. Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

Old Bridge Township's public open space is in state, county and municipal parks and private open space areas. While some portions of these sites are within the SSA, future improvement plans that may include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

In addition to parkland, farmland preservation is an issue in Old Bridge, though little significant headway has been made to date. Actual preserved farmland totals 71 acres among two individual farms, achieved through the county farmland development easement purchase program (See the Middlesex County Comprehensive Farmland Preservation Plan, 2008).

### **Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 3,601 acres were removed from the previously approved SSA in Old Bridge. Also, 1,134 acres that were not part of the previously approved sewer service area have been added to the SSA based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

### **Environmental Build-Out Analysis**

As a component of the coordinated planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in relation to sanitary sewer facilities capabilities and septic system suitability, to be used solely to consider development carrying capacity within the watersheds of Middlesex County and adequacy of existing zoning provisions in non-urbanized municipalities. For the regional planning analysis prepared within this report, the NJDEP has established an "Equivalent Dwelling Unit" a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an "environmental build-out" analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis for non-sewer septic areas (SA) and by sanitary sewer service area (SSA) for each municipality, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

Township of Old Bridge (continued)

**Environmental Build-Out Analysis (continued)**

- **Municipal Build-out Estimate** – The entire township is within the Old Bridge/Middlesex Water Company Supply Area. Service areas within the township are serviced by the Middlesex County Utilities Authority and the Western Monmouth Utilities Authority in a small area in the southeastern portion of the municipality. The total estimated build-out of 21,466 equivalent dwelling units is broken down by how many units are within the sewer service area and how many units are projected to be developed outside of the sewer service area. This breakdown is shown below:

<b>Table 250-1 Summary of Build-out by Wastewater Treatment Areas Township of Old Bridge</b>	
<b>Sewer Service and Non-Sewer Areas</b>	<b>Build-out Estimate by Equivalent Dwelling Unit</b>
Middlesex County Utilities Authority	20,937
Western Monmouth Utilities Authority	84
Non-Sewer Septic Area	445

- **Environmental Build out for Sanitary Sewer Service Areas** - For Sanitary Sewer Service Areas (SSA) in non-urbanized municipalities an environmental build out involves projection of the potential ultimate development allowed by municipal zoning provisions. 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. The projected data is then aggregated by the receiving wastewater treatment plant and authority, as shown above. A 30 percent discount for development configuration constraints was applied to all development density results to account for development configuration constraints (A detailed discussion and associated tables are found at page 5-5, Municipal Demand Projections in Non-Urban Municipalities and Table 20D).

The total Equivalent Dwelling Unit Yield allowed by existing zoning provisions for the SSA in Old Bridge Township developable lands is 21,021 additional units.

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging** - Nitrate dilution analysis (NDA), part of an environmental build-out, was performed for each HUC 11 watershed. In order to determine the adequacy of zoning provisions to meet nitrate dilution analysis (NDA) standards in Septic Areas (SAs) within a specific watershed, NJDEP regulations allow for averaging the minimum land area per equivalent ISSDS unit throughout the entire HUC 11 watershed (HUC 11 averaging). Outlined below, a detailed discussion of the HUC 11 averaging analysis for all HUC 11 areas within Middlesex County is found at page 6-5 Adequacy of Nitrate Dilution to Meet Future Non-Sewer Service Area Demand in the first volume of this report and detailed in Appendix D.

Lands with development potential within the septic area were compiled from vacant land areas and, underdeveloped lands with subdivision potential (where determinable) not constrained by environmentally sensitive areas. A 30 percent discount for development configuration constraints was applied to all development density results.

To accurately assess adequacy of existing zoning provisions for those areas of municipalities within each HUC 11, the selection of nitrate dilution areas available for NDA averaging included the undeveloped lands noted above, areas of dedicated open space not encumbered with wetlands, lands in farmland preservation easements and lands in sanitary sewer service areas (SSAs). SSAs can contribute to the nitrate dilution potential without negative impact upon development in the SSA. For this exercise, permeable surfaces offering infiltration within the SSA area were determined and factored as contributing to groundwater replenishment and nitrate dilution. Where HUC 11 averaging does not achieve SA zoning density

Township of Old Bridge (continued)

**Environmental Build-Out Analysis (continued)**

• **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging (continued)**

consistency with NDA densities within a HUC11 watershed, the municipality must review existing zoning for resolution of the inconsistency.

The lands of Old Bridge Township are within the Matchaponix Brook HUC 11 # 02030105150, Raritan Bay / Sandy Hook Bay HUC 11 #02030104910 and Raritan / Sandy Hook Bay tributaries HUC 11 #02030104060 sub-watersheds. The environmental build out found Old Bridge zoning provisions are consistent with HUC 11 averaging in each of these sub-watersheds. Preservation of existing municipal zoning provisions in Old Bridge has no negative impact on existing zoning provisions in the other municipalities of this HUC 11. A summary of environmental build-out analysis per NJDEP regulations for non-sewer Septic Areas in Old Bridge Township is provided below and detailed in tables grouping municipalities by HUC 11 in Appendix D:

<b>Table 25O-2 Summary of Environmental Build-out within Non-Sewer Septic Areas Expressed in Terms of Equivalent Dwelling Units Township of Old Bridge</b>			
<b>HUC 11 Subwatershed</b>	<b>Environmental Yield</b>	<b>Zoning Yield</b>	<b>Environmental Build-out Result</b>
<b>Matchaponix Brook #02030105150</b>	262	14	Consistent
<b>Raritan Bay/Sandy Hook Bay #02030104910</b>	N/A	N/A	Consistent
<b>Raritan/Sandy Hook Bay tributaries #020304060</b>	428	122	Consistent
<b>Lower Raritan River below Lawrence #02030105160</b>	991	309	Consistent

Old Bridge Township’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 201 of the Clean Water Act, 33 U.S.C. §§ 1251 et seq. (originally entitled the Federal Water Pollution Control Act) defines funding and physical conditions for federal assistance in the development and implementation of wastewater treatment plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

Township of Old Bridge (continued)

**Clean Water Act Section 201 Grant Limitation Area (continued)**

The Lawrence Harbor service area of Old Bridge Township is subject to Environmentally Sensitive Area (ESA) grant conditions through a pump station/force main project that began in 1985 to service the Lawrence Harbor area of Old Bridge, situated along the Garden State Parkway. Cheesequake State Park (approximately 1,000 acres) is within this service area, as well as other portions of the planning area considered to be environmentally sensitive, including the beach along the Raritan Bay, wetlands, and 100-year floodplains to the east of the Garden State Parkway. Specifically, the grant conditions prohibit any acceptance of wastewater flows into this system from any building, facility or other manner of construction which is erected on any area mapped as wetlands in the National Wetlands Maps prepared by the U.S. Fish and Wildlife Service or within the 100-year floodplain as defined by the Department of Housing and Urban Development (HUD) and/or the Federal Emergency Management Agency (FEMA). Itemized abstracts of the appropriate documentation are available from the New Jersey Department of Environmental Protection, Division of Land Use Management.

While these restrictions must be upheld for a period of 50 years from the grant approval (2035), there are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above.

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## City of Perth Amboy

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The City of Perth Amboy is a 5.2 square mile historic former provincial capital of New Jersey, located in Middlesex County. The population of Perth Amboy, as of the 2010 US Census, is 50,814, a 7.4 percent increase over its 2000 US Census count of 47,309. Perth Amboy is located north of South Amboy and Sayreville, east of Woodbridge, and west of Staten Island.

The city is separated from Staten Island by the Arthur Kill, and from Sayreville and South Amboy by the Raritan River and Bay, giving rise to the nickname “City by the Bay”. As such, these areas are subject to NJ Coastal Zone Management Rules. These deep waterways historically fostered Perth Amboy’s status as a major seaport. Perth Amboy is also traversed by NJ Routes 9 and 35, the Garden State Parkway, and US Route 440. These are all regionally important, high capacity highways. Route 440, whose western terminus is in Perth Amboy, is particularly important as the access route to the Outerbridge Crossing Bridge to Staten Island and points north. The Victory Bridge carries NJ Route 35 across the Raritan to shore points, a vestige of the city’s resort past. A number of county roads also traverse the city, as does the New Jersey Transit Coast Line, which stops at the Perth Amboy Rail Station. The city is also served by a number of NJ Transit bus routes.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the City of Perth Amboy is a Metropolitan Planning Area.

A primary planning goal for Perth Amboy is to establish the city as a major waterfront destination. This entails increasing public access to the waterfront and promoting waterfront activities through targeting redevelopment projects, taking steps to improve water quality, as well as by implementing projects aimed toward improving nearby roads and public transportation networks. The city also seeks to encourage development and redevelopment of the city’s vacant and underutilized areas, including remediation and redevelopment of Brownfield sites. These efforts have found fruition in the establishment of a number of redevelopment plans, detailed in Appendix J. As an Urban Enterprise Zone (UEZ), the continued support of Perth Amboy’s businesses and the ability to attract new ones is a key component of the city’s goals.

Utility plan objectives also hold influence over the urban behavior of Perth Amboy. This includes protecting the public water supply, and maintaining existing infrastructure including public water, sanitary sewer, and storm water facilities, while planning and implementing new utility infrastructure to replace the obsolete systems, as well as to aid in redevelopment areas. Reducing/eliminating combined sewer overflows (CSOs) and providing separated systems for sanitary and storm sewers are ongoing initiatives. Such separated systems are also to be utilized in redevelopment areas.

All redevelopment areas in Perth Amboy are within the sewer service area. Perth Amboy is considered an urban municipality and has no significant developable area outside of the sewer service area. As such, nitrate dilution analysis for septic system requirements is not necessary (See discussion, below). Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

City of Perth Amboy (continued)

**Considerations for Future Municipal Planning Goals (continued)**

The City of Perth Amboy’s public open space is in a state historic property and municipal parks. While most portions of these sites are within the future sanitary service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, four acres were removed from the previously approved SSA in Perth Amboy. Also, 17 acres that were not part of the previously approved SSA have been added based on property owner requests, local planning objectives, and environmental sensitivity review. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of the City of Perth Amboy is within the service areas of the Middlesex County Utilities Authority and the Middlesex Water Company. Perth Amboy is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality are estimated to be approximately 5.860 million gallons per day.

<b>Table 25P-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 City of Perth Amboy</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	4.588
	Employment	0.468
	Inflow and Infiltration	0.804
	<b>Total</b>	<b>5.860</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

City of Perth Amboy (continued)

### **Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

The City of Perth Amboy is entirely within the Raritan River Lower below Lawrence HUC 11 #02030105160 watershed and existing zoning provisions are consistent with HUC 11 Averaging for the watershed.

Perth Amboy's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures- Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

### **Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 201 of the Clean Water Act, 33 U.S.C. §§ 1251 et seq. originally entitled the Federal Water Pollution Control Act defines funding and physical conditions for federal assistance in the development and implementation of wastewater treatment plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The sewer service area of Perth Amboy is subject to the Environmentally Sensitive Area (ESA) grant condition prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area. These restrictions must be upheld for a period of 50 years from the grant approval. There are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above. Itemized abstracts of the approximate documentation shall be available at the New Jersey Department of Environmental Protection, Division of Land Use Management.

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## Township of Piscataway

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

Piscataway Township is a 19 square mile suburban municipality located in the northwestern portion of Middlesex County. With a 2010 population of 56,044, Piscataway is the fourth most densely populated municipality in the county (after Woodbridge, Edison, and Old Bridge). Piscataway is bordered by the Boroughs of Middlesex and Dunellen to the northwest, South Plainfield Borough to the northeast, Edison Township to the southeast, Highland Park Borough and the City of New Brunswick to the south, Franklin Township in Somerset County to the southwest, and South Bound Brook Borough in Somerset County to the west. Piscataway's southern boundary along the tidal Lower Raritan River is subject to NJ Coastal Zone Management Rules.

Piscataway Township is known for being home to numerous advanced research and education facilities as well as many Fortune 500 companies. The township's proximity to many transportation routes makes it a desirable location for both residents and businesses. Piscataway is traversed by Interstate Route 287 and State Route 18, both providing direct access to the municipality. Interstate Route 287 connects with the Garden State Parkway, New Jersey Turnpike, and U.S. Route 1 to the east and south and with Interstate Route 78 and Interstate Route 80 to the west and north. The New Jersey Turnpike (Interstate 95) can be accessed in neighboring Edison Township. Various county routes also traverse the township, including County Route 501 along the South Plainfield border (New Durham Road), County Route 514, and County Route 529 (Washington Avenue), County Route 622 (River Road), County Route 529/665 (Stelton Road), County Route 647 (New Brunswick Avenue), County Route 601 (West Seventh Avenue/Vail Avenue), County Route 678 (Walnut Street), County Route 665 (South Washington Avenue), County Route 665 Spur (Cumberland Road), County Route 609 (Metlars Lane), and County Route 609 (Landing Lane).

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Township of Piscataway is within a Metropolitan Planning Area.

The Township of Piscataway seeks to practice and promote planning policies that aid in protecting environmentally sensitive areas and open space wherever possible. Additionally, Piscataway is looking to exercise land use development that is framed around energy efficiency. To this end Piscataway has undertaken two redevelopment studies, which are detailed in Appendix J. It should be noted that, according to county records, neither project has moved beyond designating the area to be in need of redevelopment.

Piscataway is considered an urbanized municipality and has no significant developable area outside of the sewer service area (see discussion, below). Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

Generally, these planning considerations are consistent with MC WMP assessments and objectives regarding environmentally sensitive areas. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within Piscataway Township. As an NJDEP "urbanized municipality" expansions of the future sanitary sewer service areas (SSAs) for development proposals supported by the Township and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

Township of Piscataway (continued)

**Considerations for Future Municipal Planning Goals (continued)**

Piscataway Township’s public open space is in state historic property, county and municipal parks and private open space. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 716 acres were removed from the previously approved sewer service area in Piscataway. Also, 390 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Piscataway is within the service areas of the Middlesex County Utilities Authority and the Middlesex Water Company Service Area. Piscataway is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in septic areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality are estimated to be approximately 9.106 million gallons per day.

<b>Table 25Q-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Township of Piscataway</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	5.064
	Employment	1.526
	Inflow and Infiltration	2.188
	Union Carbide	0.328
	<b>Total</b>	<b>9.106</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in Septic Areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection.

Township of Piscataway (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

Performed on a HUC11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Piscataway Township is entirely within the Raritan River Lower Lawrence to Millstone HUC 11 # 02030105120 watershed and existing zoning provisions are consistent with HUC 11 Averaging for the watershed.

Piscataway Township's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within the municipality.

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## Township of Plainsboro

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The Township of Plainsboro is a 12.1 square mile town located in the southeastern portion of Middlesex County, with a 2010 population of 22,999. Plainsboro borders South Brunswick to the north, Cranbury to the east, West and East Windsor to the south, and Princeton Township to the west. Plainsboro is traversed by Route 1 in the northwestern portion of the town, as well as County Route 614 which passes through the center of the town.

Plainsboro, a community that was once entirely rural, has evolved into a diverse area with a variety of services and uses over the past 30 years. The present focus of Plainsboro's planning objectives is largely to concentrate development in appropriate areas of the township while protecting the existing farmland from pressures to convert to more intense development and incompatible uses.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan, the Township of Plainsboro exists within four different planning areas: the Suburban Planning Area, Rural Planning Area, Parks and Natural Areas, and Environmentally Sensitive Planning Area. Plainsboro Township is the only Middlesex County municipality to gain Municipal Plan Endorsement from the State Planning Commission, confirming the planning goals and objectives of the Township to be consistent with state planning initiatives.

Plainsboro is planning for growth that features balanced land uses in careful development patterns in order to prevent economic burdens that arise from haphazard sprawl development. Accordingly, Plainsboro zoning techniques will enable new housing development in proximity to existing utility infrastructure, including sewer lines. The town's balanced and strategic development goals encourage the responsible growth of industrial, office, research, and commercial uses, including service and retail. The town's development and redevelopment efforts have resulted in several redevelopment plans, which are discussed further in Appendix J.

Plainsboro is establishing a long-range capital improvement program for provision, maintenance, and expansion of sewer facilities, as well as maintenance of existing on-site septic systems and other sewer alternatives. In areas where on-site septic systems are problematic, sewer lines will be extended to remediate the issue. These facilities will be installed or modified in accordance with NJDEP policies, and will be sufficient to ensure accommodation of future growth. Where possible, the use of low water or waterless systems will be encouraged for use in the treatment of human wastes. In areas not served by sewer utility, Plainsboro may prohibit subdivisions where the soil percolation is inadequate for proper septic drainage, and minimum lot sizes will be enforced to protect such areas. With regards to on-site septic systems, the New Jersey State Planning Commission nitrate dilution model and NJDEP target water quality standards will be utilized.

To deal with stormwater runoff, Plainsboro will initiate a town-wide stormwater runoff study and will utilize modern runoff control techniques. Such techniques include large, shared retention basins, porous pavements, reduced pavement widths, protected open spaces for permeable absorption, and the use of natural evaporation and plant infiltration. Natural drainage lines including stream corridors will be protected as part of open spaces.

Township of Plainsboro (continued)

### **Considerations for Future Municipal Planning Goals (continued)**

Plainsboro is considered an urbanized municipality and has no significant developable area outside of the sanitary sewer service area (see discussion, below). Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

Plainsboro's public open space is in municipal parks. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

In addition to parkland, farmland preservation is an important issue in Plainsboro. Actual preserved farmland totals 580 acres among six individual farms, achieved through a combination of county farmland easement purchase programs and a donation to the county (See Appendix A, *Middlesex County Comprehensive Farmland Preservation Plan, 2008*).

### **Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 1,608 acres were removed from the previously approved sewer service area in Plainsboro. Also, 189 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

### **Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Plainsboro Township is within the service areas of the Middlesex County Utilities Authority and the Jersey American Water Company. Plainsboro is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in septic areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 3.219 million gallons per day.

Township of Plainsboro (continued)

**Projections of Future Municipal Wastewater Flow Volumes (continued)**

<b>Table 25R-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Township of Plainsboro</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.021
	Employment	0.008
	Inflow and Infiltration	0.004
	<b>Total</b>	<b>0.033</b>
Stony Brook Regional Sewerage Authority	Population	0.739
	Employment	0.283
	Inflow and Infiltration	0.137
	<b>Total</b>	<b>1.159</b>
United Water Princeton Meadows	Population	1.294
	Employment	0.494
	Inflow and Infiltration	0.239
	<b>Total</b>	<b>2.027</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non-sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Plainsboro Township is within the Millstone River above Carnegie Lake HUC 11 #02030105100 watershed and the Millstone River below and including Carnegie Lake HUC 11 # 02030105110 watershed. Existing zoning provisions are consistent with HUC 11 averaging for these watersheds.

Plainsboro Township’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

Township of Plainsboro (continued)

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within the municipality.

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## Borough of Sayreville

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15 WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

The Borough of Sayreville is a 17.6 square mile municipality with a 2010 population of 42,704. Sayreville is located along the South and Raritan Rivers, as well as Raritan Bay and the Cheesequake Creek. As such the waterfronts are subject to NJ Coastal Zone Management Rules and Coastal Facilities Review Act regulations. The Borough is bordered by Old Bridge to the south, South River and East Brunswick to the west, South Amboy and Staten Island/Raritan Bay to the east, and Edison, Perth Amboy, and Woodbridge to the north. Despite the large number of surrounding towns, Sayreville only shares land borders with Old Bridge and South Amboy, and only South River, Perth Amboy, and Woodbridge can be directly accessed from Sayreville by bridge.

Sayreville contains extensive transportation infrastructure. In addition to the historically important water bodies that nearly encompass the town, Sayreville is traversed by the Garden State Parkway, US Route 9, and State Route 35. Several County Routes also traverse the municipality, including County Routes 535, 615, 670, and 675. New Jersey Transit operated bus service is also available, as is train service in nearby South Amboy.

It is important to note that Sayreville Borough is designated as a non-urbanized municipality by NJDEP criteria for WMP planning consideration, that is, a municipality that has less than 90 percent of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. Lands available for development in Sayreville account for 12 percent of the municipal acreage, approximately 1,181 acres. As such, environmental build-out projections of wastewater flows are required for the future sanitary sewer service areas (SSAs) and for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems (See discussions, below).

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan, the Borough of Sayreville is a Metropolitan Planning Area and also contains sections of land that are labeled as Parks and Natural Areas and Environmentally Sensitive Planning areas.

The Borough of Sayreville seeks to promote a balanced variety of residential, commercial, industrial, recreational, public and conservation land uses in order to ensure a stable community tax base and employment opportunities. Planning procedures also target aesthetic and site improvements within the borough's major commercial and industrial areas, and aim to guide redevelopment and development of the borough's remaining large parcels and vacant sites within its residential areas. Municipal planning goals strive to regain both underutilized and constrained areas for productive use, as well as to recognize and utilize Sayreville's waterfront area for appropriate uses. Preservation of environmentally sensitive areas and natural systems and providing for open space and the enhancement of existing parks are also primary goals of Sayreville.

Despite being an attractive location for future development due to its proximity to arterial roadways and areas of underdeveloped properties, Sayreville is challenged with prime locations contaminated with process waste from past industrial use, resulting in a number of Brownfield sites. In response, Sayreville has created a number of redevelopment plans to help return these sites to productive use. These areas are detailed in Appendix J.

Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. Those developments will be connected to the sewer system as line capacity is constructed.

Borough of Sayreville (continued)

**Considerations for Future Municipal Planning Goals (continued)**

Sayreville Borough’s public open space consists of state, county and municipal parks and private open space. While some portions of these sites are within the SSA, future improvement plans that may include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 1,918 acres were removed from the previously approved sewer service area in Sayreville. Also, 210 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Environmental Build-Out Analysis**

As a component of the coordinated planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in relation to sanitary sewer facilities capabilities and septic system suitability, to be used solely to consider development carrying capacity within the watersheds of Middlesex County and adequacy of existing zoning provisions in non-urbanized municipalities. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis for non-sewer areas, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

- **Municipal Build-out Estimate Summary**

Sayreville has sewer service areas within the Middlesex County Utilities Authority Service Area. The entire borough is within the Middlesex Water Company Service Area. The total estimated potential build-out of 26,647 equivalent dwelling units arranged by SSA and SA is shown in the following table:

<b>Table 25S-1 Summary of Build-out by Wastewater Treatment Areas Borough of Sayreville</b>	
<b>Sewer Service and Non-Sewer Areas</b>	<b>Build-out Estimate by Equivalent Dwelling Unit</b>
Middlesex County Utilities Authority	25,818
Non-sewer area	829

- **Environmental Build out for Sanitary Sewer Service Areas**

For Sanitary Sewer Service Areas (SSA) in non-urbanized municipalities an environmental build-out involves projection of the potential ultimate development allowed by municipal zoning provisions. 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. The projected data is then aggregated by the receiving wastewater treatment plant and authority, as shown above. A 30 percent discount for development configuration constraints was applied to all development density results to account for development configuration constraints (A

Borough of Sayreville (continued)

### **Environmental Build-Out Analysis (continued)**

- **Environmental Build out for Sanitary Sewer Service Areas (continued)**

detailed discussion and associated tables are found at page 5-5, Municipal Demand Projections in Non-Urban Municipalities and Table 20E).

The total Equivalent Dwelling Unit Yield allowed by existing zoning provisions for the SSA in Sayreville Borough developable lands is 25,818 additional units.

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging**

Nitrate dilution analysis (NDA), part of an environmental build-out, was performed for each HUC 11 watershed. In order to determine the adequacy of zoning provisions to meet nitrate dilution analysis (NDA) standards in Septic Areas (SAs) within a specific watershed, NJDEP regulations allow for averaging the minimum land area per equivalent ISSDS unit throughout the entire HUC 11 watershed (HUC 11 averaging). Outlined below, a detailed discussion of the HUC 11 Averaging analysis for all HUC 11 areas within Middlesex County is found at page 6-5 Adequacy of Nitrate Dilution to Meet Future Non-Sewer Service Area Demand in the first volume of this report and detailed in Appendix D.

Lands with development potential within the septic area were compiled from vacant land areas and, underdeveloped lands with subdivision potential (where determinable) not constrained by environmentally sensitive areas. A 30 percent discount for development configuration constraints was applied to all development density results.

To accurately assess adequacy of existing zoning provisions for those areas of municipalities within each HUC 11, the selection of nitrate dilution areas available for NDA averaging included the undeveloped lands noted above, areas of dedicated open space not encumbered with wetlands, lands in farmland preservation easements and lands in Sanitary Sewer Service Areas (SSAs). SSAs can contribute to the nitrate dilution potential without negative impact upon development in the SSA. For this exercise, permeable surfaces offering infiltration within the SSA area were determined and factored as contributing to groundwater replenishment and nitrate dilution. Where HUC 11 averaging does not achieve SA zoning density consistency with NDA densities within a HUC11 watershed, the municipality must review existing zoning for resolution of the inconsistency.

The lands of Sayreville Borough are within the Raritan Bay / Sandy Hook Bay HUC 11 #02030104910 and Raritan / Sandy Hook Bay tributaries HUC 11 #02030104060 sub-watersheds. The environmental build out found Sayreville zoning provisions are consistent with HUC 11 averaging in each of these sub-watersheds. Preservation of existing municipal zoning provisions in Sayreville has no negative impact on existing zoning provisions in the other municipalities of this HUC 11 (detailed in tables grouping municipalities by HUC 11 in Appendix D).

The results of the environmental build-out analysis per NJDEP regulations for non-sewer Septic Areas in Sayreville Borough are provided below and detailed in Appendix D:

Borough of Sayreville (continued)

**Environmental Build-Out Analysis (continued)**

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging (continued)**

<b>Table 25S-2 Summary of Environmental Build-out within Non-Sewer Septic Areas Expressed in Terms of Equivalent Dwelling Units Borough of Sayreville</b>			
<b>HUC 11 Subwatershed</b>	<b>Environmental Yield</b>	<b>Zoning Yield</b>	<b>Environmental Build Out Result</b>
<b>Raritan Bay/Sandy Hook Bay #02030104910</b>	NA	NA	Consistent
<b>Raritan/Sandy Hook Bay tributaries HUC 11 #02030104060</b>	119	28	Consistent
<b>Lower Raritan below Lawrence #02030105160</b>	508	801	Consistent w/ HUC 11 averaging

Sayreville Borough’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning, Division of Comprehensive Planning, Parks, and Environment. If the proposed zoning is determined to be inconsistent, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*) as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. “Clean Water Act” became the Act’s common name with amendments in 1977. Section 201 of the Clean Water Act, 33 U.S.C. §§ 1251 et seq., defines funding and physical conditions for federal assistance in the development and implementation of wastewater treatment management plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The Middlesex County Utilities Authority service area involving the South Bay Project in Sayreville Borough is subject to the Environmentally Sensitive Area (ESA) grant condition prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area (EPA Project #C-340326-03 and #C-34036-05). Itemized abstracts of the approximate documentation shall be available at the New Jersey Department of Environmental Protection, Division of Land Use Management.

While these restrictions must be upheld for a period of 50 years from the grant approval, there are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above.

## City of South Amboy

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

South Amboy is a two square mile urban municipality located along the Raritan Bay in Middlesex County. As such, the eastern waterfront is subject to NJ Coastal Zone Management Rules. According to the 2010 US Census, South Amboy has a population of 8,631, an increase of nine percent over the 2000 US Census count of 7,931. Surrounded by Sayreville to the east and south, Perth Amboy is across the Raritan River to the north, and Staten Island is across the Arthur Kill to the east.

South Amboy is an older community with a strong commuter transit component. Traversed by US Route 9 and State Route 35, as well as many county routes, South Amboy's western border is only around 900 feet from the Garden State Parkway. South Amboy is also home to the South Amboy Train Station, which is utilized by the NJ Transit rail service on the North Jersey Coast Line heading towards NYC, as well as numerous bus routes. These factors combined give South Amboy designation as a Transit Village.

The city is considered an urban municipality and has no significant developable areas outside of the sanitary sewer service areas. As such, nitrate dilution analysis for septic system requirements is not necessary. There are no significant developable areas outside of sewer service areas. Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the City of South Amboy is a Metropolitan Planning Area.

The land development planning policies in South Amboy encourage the continuous upgrading of existing commercial and industrial areas in order to provide for the expansion of South Amboy's economic and tax bases while ensuring environmental protection and encouraging sustainability. As an urban municipality that is predominantly built-out, redevelopment projects are an important mechanism for seeing these goals to fruition. These projects are detailed in Appendix J. As an NJDEP "urbanized municipality", expansions of the future sanitary sewer service areas (SSAs) for development proposals supported by South Amboy and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

Key environmental goals for the city are creating more recreational space, ensuring the adequacy of infrastructure, and shoreline protection along the flood-prone mouth of the Lower Raritan River.

South Amboy's public open space is in county and municipal parks and private open space. While most portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

City of South Amboy (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, six acres were removed from the previously approved sewer service area in South Amboy. Additionally, 14 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives and environmental sensitivity review. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of South Amboy is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. South Amboy is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in septic areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flows of the entire municipality is estimated to be approximately 0.938 million gallons per day.

<b>Table 25T-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 City of South Amboy</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.700
	Employment	0.128
	Inflow and Infiltration	0.110
	<b>Total</b>	<b>0.938</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an "Equivalent Dwelling Unit" a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an "environmental build-out" analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Land area of the City of South Amboy is entirely within the Raritan/Sandy Hook Bay & Tributaries HUC 11 # 02030104060 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

City of South Amboy (continued)

### **Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

South Amboy's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

### **Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1977.

Section 201 of the Clean Water Act, 33 U.S.C. §§ 1251 et seq. originally entitled the Federal Water Pollution Control Act defines funding and physical conditions for federal assistance in the development and implementation of wastewater treatment management plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The Middlesex County Utilities Authority service area involving the South Bay Project in South Amboy is subject to the Environmentally Sensitive Area (ESA) grant condition prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area in 1985.

These restrictions must be upheld for a period of 50 years from the grant approval (2035). There are opportunities for new projects to be served through revisions prompted by more accurate delineation of the ESA component or waivers granted by the EPA. Both NJDEP and US Army Corps regulations will also control development within the ESA areas noted above. Itemized abstracts of the approximate documentation are available from the New Jersey Department of Environmental Protection, Division of Land Use Management.

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## Township of South Brunswick

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

South Brunswick is a 41 square mile town with a 2010 population of 43,417. It is bordered by Plainsboro and South Brunswick to the south, Monroe to the east, East Brunswick and North Brunswick to the north, and Franklin Township (Somerset County) and Princeton Township (Mercer County) to the west.

South Brunswick is an attractive location for future development due to its proximity to arterial roadways, a large capacity commuter “park and ride” facility and areas of underdeveloped properties. Highway corridors traversing South Brunswick include Interstate 95 (NJ Turnpike), U.S. Route 1, U.S. Route 130, Route 27, Route 32, as well as numerous County roads. Interstate Route 287 is accessible in nearby Franklin. The New Jersey Turnpike Authority established, and expanded to 934 parking spaces, the “NJ Turnpike Exit 8A Bus Park and Ride facility” managed by NJDOT, actually fronting on Route 130 near its intersection with Route 32. There commuters can subscribe parking spaces and board buses to the Port Authority Bus Terminal in Midtown Manhattan. Lands available for development in South Brunswick account for 12 percent of the municipal acreage, approximately 25,775 acres.

It is important to note that South Brunswick Township is designated as a non-urbanized municipality by NJDEP criteria for WMP planning consideration, that is, a municipality that has less than 90 percent of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are required for the future sanitary sewer service areas (SSAs) and for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems (See discussions, below).

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Township of South Brunswick is located within a Suburban Planning Area with sections of land within the Environmentally Sensitive Planning Area and the Parks and Natural Areas designations. Additionally, South Brunswick shares the Designated Village of Kingston (2001) with Franklin Township, in Somerset County. South Brunswick seeks to encourage growth and development while also preserving open space and critical environmental features. Open space is to be protected by clustering development in wooded areas, by creating buffers between residential and non-residential uses, and by preserving farmland and environmentally sensitive areas. Additionally, the Township aims to continue recognition of its existing villages and hamlets and to enhance all villages with “Main Street” aspects and encourage mixed uses, according to their respective scale. New development at the village and hamlet scale is also encouraged, including the recommendation of Little Rocky Hill and Franklin Park to be identified as “hamlets” in the hierarchy of the current State Development and Redevelopment Plan.

The Township intends “to amend the wastewater management plan to align with the South Brunswick Master Plan, as well as the State Development and Redevelopment Plan”, as stated in its Master Plan. South Brunswick also intends to allow for the improvement and expansion of utilities to meet the Township’s present and future needs. Future needs include the provision of new restroom facilities at community recreation centers in accordance with community facilities goals in the Master Plan.

Township of South Brunswick (continued)

**Considerations for Future Municipal Planning Goals (continued)**

South Brunswick Township's public open space is in state park and forest and natural areas, county and municipal parks and private open space. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

In addition to parkland, farmland preservation is an important issue in South Brunswick. Actual preserved farmland totals 581 acres among seven individual farms, achieved through a combination of county farmland easement purchase programs and a donation to the county (See Appendix A, *Middlesex County Comprehensive Farmland Preservation Plan, 2008*).

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 3,249 acres were removed from the previously approved sewer service area in South Brunswick. Also, 255 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Environmental Build-Out Analysis**

As a component of the coordinated planning exercises within the WMP, NJDEP requires an environmental build-out analysis in non-urbanized municipalities, comparing estimates of the ultimate highest development yield of local zoning district provisions in relation to sanitary sewer facilities capabilities and septic system suitability, to be used solely to consider development carrying capacity within the watersheds of Middlesex County and adequacy of existing zoning provisions. For the regional planning analysis prepared within this report, the NJDEP has established an "Equivalent Dwelling Unit" a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an "environmental build-out" analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis for non-sewer areas, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

- **Municipal Build-out Estimate Summary** - The sewer service areas of South Brunswick are within both the Middlesex County Utilities Authority and Stony Brook Sewer Authority Service Areas. The entire township is within the New Jersey American Water Company Service Area. The total municipal estimated build-out is 33,253 equivalent dwelling units. The breakdown is shown below.

<b>Table 25U-1 Summary of Build-out by Wastewater Treatment Areas Township of South Brunswick</b>	
<b>Sewer Service and Non-Sewer Areas</b>	<b>Build-out Estimate by Equivalent Dwelling Unit</b>
Middlesex County Utilities Authority	16,972
Stony Brook Regional Sewerage Authority	15,011
Non-sewered Septic Area	1,270

Township of South Brunswick (continued)

- **Environmental Build out for Sanitary Sewer Service Areas** - For Sanitary Sewer Service Areas (SSA) in non-urbanized municipalities an environmental build out involves projection of the potential ultimate development allowed by municipal zoning provisions. 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. The projected data is then aggregated by the receiving wastewater treatment plant and authority, as shown above. A 30 percent discount for development configuration constraints was applied to all development density results to account for development configuration constraints (A detailed discussion and associated tables are found at page 5-5, Municipal Demand Projections in Non-Urban Municipalities and Table 20F).

The total Equivalent Dwelling Unit Yield allowed by existing zoning provisions for the SSA in South Brunswick Township developable lands is 31,983 additional units.

The SSA build out for South Brunswick when added to the Stony Brook Regional Sewerage Authority (SBRSA) NJ0031119 may exceed the present permitted capacity P.L. 2011, c.203, current at the time of adoption of this WMP, permits “the inclusion of land within a sewer service area notwithstanding that existing treatment works may not currently have the assured capacity to treat wastewater from such land without infrastructure improvements or permit modifications.” Middlesex County is not requiring the modification of municipal zoning or other additional steps to address the potential capacity limitations at the SBRSA STP. Note that inclusion of land in the SBRSA service area does not guarantee the provision of wastewater treatment or the approval of any permits from the NJ Department of Environmental Protection.

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging** - Nitrate dilution analysis (NDA), part of an environmental build-out, was performed for each HUC 11 watershed. In order to determine the adequacy of zoning provisions to meet nitrate dilution analysis (NDA) standards in Septic Areas (SAs) within a specific watershed, NJDEP regulations allow for averaging the minimum land area per equivalent ISSDS unit throughout the entire HUC 11 watershed (HUC 11 averaging). Outlined below, a detailed discussion of the HUC 11 averaging analysis for all HUC 11 areas within Middlesex County is found at page 6-5 Adequacy of Nitrate Dilution to Meet Future Non-Sewer Service Area Demand in the first volume of this report and detailed in Appendix D.

Lands with development potential within the septic area were compiled from vacant land areas and underdeveloped lands with subdivision potential (where determinable) not constrained by environmentally sensitive areas. A discount for development configuration constraints was applied to all development density results based upon existing conditions within each related HUC 11.

To accurately assess adequacy of existing zoning provisions for those areas of municipalities within each HUC 11, the selection of nitrate dilution areas available for NDA averaging included the undeveloped lands noted above, areas of dedicated open space not encumbered with wetlands, lands in farmland preservation easements and lands in Sanitary Sewer Service Areas (SSAs). SSAs can contribute to the nitrate dilution potential without negative impact upon development in the SSA. For this exercise, permeable surfaces offering infiltration within the SSA area were determined and factored as contributing to groundwater replenishment and nitrate dilution. Where HUC 11 averaging does not achieve SA zoning density consistency with NDA densities within a HUC11 watershed, the municipality must review existing zoning for resolution of the inconsistency.

South Brunswick Township’s land area is within four HUC 11 watersheds: Lawrence Brook HUC 11 #02030105130, Manalapan Brook, HUC 11 #02030105140, Millstone River above Carnegie Lake HUC 11 #02030105100 and Millstone River below/including Carnegie Lake HUC 11 #02030105110. A summary of environmental build-out analysis per NJDEP regulations for non-sewer Septic Areas in South Brunswick Township is provided below and detailed in tables grouping municipalities by HUC 11 in Appendix D.

Township of South Brunswick (continued)

**Environmental Build-Out Analysis (continued)**

- **Local Impact of Nitrate Dilution Analysis and HUC 11 Averaging (continued)**

<b>Table 25U-2 Summary of Environmental Build-out within Non-Sewer Septic Areas Expressed in Terms of Equivalent Dwelling Units Township of South Brunswick</b>			
<b>HUC11 Sub-watershed</b>	<b>Environmental Yield</b>	<b>Zoning Yield</b>	<b>Environmental Build Out Result</b>
Lawrence Brook #02030105130	827	583	Consistent w/ HUC11 averaging
Manalapan Brook #02030105140	53	0	Consistent
Millstone River above Carnegie Lake #02030105100	440	84	Consistent
Millstone River below Carnegie Lake #02030105100	535	603	Consistent w/ HUC 11 averaging

Existing municipal zoning provisions are inconsistent with environmental build out yields within the Lawrence Brook HUC 11 area of the Township, only, resulting in a potential excess of 1,492 equivalent dwelling units if developed as presently zoned.

The Nitrate Dilution Analysis (NDA) for Lawrence Brook HUC 11 #02030105130 is not consistent with the 2mg/l due primarily to the zoning of a portion of South Brunswick in that sub watershed. NJDEP regulations require Department review of non residential projects that exceed 2,000 GPD and residential projects exceeding six units in a non-urbanized municipality where existing zoning is not consistent with NDA capacities for the overall HUC 11.

Where HUC 11 averaging does not achieve SA zoning yield consistent with NDA yield within municipality within a specific HUC 11 watershed, the municipality is advised to consider a review of existing zoning provisions and sanitary sewer extension plans for resolution of the inconsistency. Resolution may involve rezoning of township lands at lower development intensity for consistency with NDA yield (utilizing HUC 11 averaging where feasible), a request to revise SSA boundaries or a combination of both strategies.

South Brunswick Township's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed resolution involves extension of sanitary sewer, the municipality must make an application and receive approval from the Middlesex County Planning Board for a MC WMP revision or amendment (see Middlesex County Wastewater Management Plan Revision and Amendment Procedures –Appendix H) as a prerequisite to municipal adoption of the revised zoning provision.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within the municipality.

## Borough of South Plainfield

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

South Plainfield is an 8.3 square mile municipality located in the northern portion of Middlesex County. As of the 2010 Census, South Plainfield has a population of 23,385. South Plainfield is bordered by Piscataway Township to the west, Edison Township to the east, and the City of Plainfield (Union County) to the north. South Plainfield is traversed by Interstate 287 as well as numerous county routes. Residents also have nearby access to NJ Transit passenger rail service in neighboring Plainfield, Metuchen and Edison, and both NJ Transit and Amtrak service at the Metro Park in Woodbridge; NJ Transit buses also serve South Plainfield.

South Plainfield is considered an urban municipality and has no significant developable area outside of the sewer service area. The designated non-sewer areas are predominantly environmentally constrained. As such, nitrate dilution analysis for septic system requirements is not necessary. Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of South Plainfield is a Metropolitan Planning Area, and also contains a section of land within an Environmentally Sensitive Planning Area (Dismal Swamp).

As an urbanized municipality (see discussion, below), South Plainfield has reached its threshold of build-out potential. As such, development of new lands is greatly limited, with vacant lands often limited by environmental constraints. The redevelopment of underutilized lands and existing facilities will play a critical role in the borough's future economic development. These redevelopment projects are noted in Appendix J. As an NJDEP "urbanized municipality", expansions of the future sanitary sewer service areas (SSAs) for development proposals supported by the borough and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

South Plainfield seeks to preserve environmentally sensitive areas throughout the borough including wetlands, flood plains, and the Highland Woods Preserve (which is to be expanded where possible). Providing for adequate open space and the conservation of environmental resources and energy are also encouraged planning goals throughout the municipality.

South Plainfield Borough's public open space is in municipal parks. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

Borough of South Plainfield (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 371 acres were removed from the previously approved sewer service area in South Plainfield. Also, 103 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of South Plainfield Borough is within the service areas of the Middlesex County Utilities Authority and the New Jersey American Water Company. South Plainfield is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in septic areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 3.552 million gallons per day.

<b>Table 25V-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of South Plainfield</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	2.021
	Employment	0.779
	Inflow and Infiltration	0.752
	<b>Total</b>	<b>3.552</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non-sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

South Plainfield Borough is entirely within the Raritan River Lower (Lawrence to Millstone) HUC 11 # 02030105120 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Borough of South Plainfield (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

South Plainfield Borough's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of South River

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Considerations**

South River is a 2.9 square mile municipality located in the center of Middlesex County bordered to the east by the South River and Sayreville, west by East Brunswick and north by the Raritan River and Edison. According to the 2010 Census, South River has a population of 16,008.

The Borough of South River is traversed by County Route 527, County Route 535, County Route 675, and County Route 677, as well as the old Raritan River Railway, now owned by CSX, a national rail freight carrier. The South River waterway, the township's eastern boundary, was once important for shipping, but is now used mainly for recreational boating. As such, South River is subject to NJ Coastal Zone Management Rules.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of South River is in a Metropolitan Planning Area, and also contains a section of land within an Environmentally Sensitive Planning Area.

As a whole, South River Borough planning encourages creation of sustainable land uses in terms of both environmental impacts and use of infrastructure, responsible economic growth, balancing residential tax demands, addressing flooding issues, increasing access to safe recreational open space, and improving the borough's aesthetic appeal. South River is a small municipality with little remaining developable areas, but with many areas suitable for potential redevelopment. The municipality's waterfront, once the focus for much shipping and industry, has become dilapidated and unsafe for use in some areas. The historic properties of the Main Street/ Ferry Street corridor are also in need of protection.

Though the municipality has only started the process of identifying and creating redevelopment areas, it is likely that these two corridors will be the focus of future redevelopment efforts. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within South River. As an NJDEP "urbanized municipality" (see discussion, below), expansions of the future sanitary sewer service areas (SSAs) for development proposals supported by the borough and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

South River Borough's public open space is in municipal parks. While some portions of these sites are within the SSA, future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

Borough of South River (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 154 acres were removed from the previously approved sewer service area in South River. Also, 17 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of South River Borough is within the service areas of the Middlesex County Utilities Authority and the New Brunswick Water Company. South River is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in septic areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 1.951 million gallons per day.

<b>Table 25W-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of South River</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	1.432
	Employment	0.074
	Inflow and Infiltration	0.445
	<b>Total</b>	<b>1.951</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an "Equivalent Dwelling Unit" a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an "environmental build-out" analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

South River Borough is entirely within the Raritan River Lower (below Lawrence) HUC 11 #02030105160 watershed. Existing zoning provisions are consistent with HUC 11 Averaging for the watershed.

Borough of South River (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

South River Borough's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Borough of Spotswood

### **Introduction**

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### **Regional Context and Special Conditions**

The Borough of Spotswood is a 2.4 square mile municipality located in Middlesex County. As of the 2010 Census, Spotswood has a population of 8,257, making it the sixth least densely populated municipality in the county. Spotswood is bordered by East Brunswick Township to the north, Old Bridge Township to the east, Monroe Township to the south, and Helmetta Borough to the west. Spotswood is traversed by County Route 613 and County Route 615.

### **Considerations for Future Municipal Planning Goals**

As established by the New Jersey State Development and Redevelopment Plan of 2001, the Borough of Spotswood is a Metropolitan Planning Area, and also contains smaller sections of land within the Environmentally Sensitive Planning Area and the Parks and Natural Areas sector.

As a small municipality, Spotswood has little land not already developed or environmentally sensitive. Spotswood's planning goals encourage sustainable projects on remaining vacant lands that will not over-tax existing infrastructure or detract from current land uses, and a mix of development that is economically viable. To this end, Spotswood encourages residential development, the main use in the borough, but recognizes certain opportunities for industrial development. Other municipal goals include encouraging the development of recreational opportunities in open space areas, and improving the local circulation network for the free-flow of traffic.

Spotswood is considered an urban municipality and has no significant developable area outside of the sewer service area (see discussion, below). The designated non-sewer areas are predominantly environmentally constrained. Where an area is designated for sewer service but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

Generally, these planning considerations are consistent with MC WMP assessments and objectives regarding environmentally sensitive areas. As development proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within Spotswood. As an NJDEP "urbanized municipality", expansions of the SSA for development proposals supported by the borough and proven to conform to environmental regulations and treatment capacity would be consistent for minor revisions to the MC WMP.

Spotswood Borough's public open space is in municipal parks. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

Borough of Spotswood (continued)

**Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 146 acres were removed from the previously approved sewer service area in Spotswood. Also, 43 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

**Projections of Future Municipal Wastewater Flow Volumes**

The entire area of Spotswood Borough is within the service areas of the Middlesex County Utilities Authority and the New Brunswick Water Company. Spotswood is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. A NJDEP urbanized municipality has 90 percent or more of the municipality's developable land area appearing as "Urban Lands" in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in Septic Areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 3.176 million gallons per day.

<b>Table 25X-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Borough of Spotswood</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	0.696
	Employment	0.055
	Inflow and Infiltration	0.045
	Schweitzer-Mauduit	2.380
	<b>Total</b>	<b>3.176</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an "Equivalent Dwelling Unit" a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an "environmental build-out" analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Borough of Spotswood (continued)

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging (continued)**

Spotswood Borough is within the Manalapan Brook HUC 11 # 02030105140 watershed and the Raritan River Lower below Lawrence HUC 11 # 02030105160 watershed. Existing zoning provisions are consistent with HUC 11 averaging for the watershed.

Spotswood Borough's adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures –Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

There are no EPA 201 Grant limitation areas within this municipality.

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## Township of Woodbridge

### Introduction

This municipal chapter is an element of the Middlesex County Wastewater Management Plan prepared by the Middlesex County Office of Planning with NJDEP oversight in accordance with N.J.A.C. 7:15. WATER QUALITY MANAGEMENT PLANNING, last amended July 7, 2008 and subsequent NJDEP guidance.

### Regional Context and Special Conditions

Woodbridge Township is a 24 square mile community located in the northeast section of Middlesex County with a 2010 population of 99,585. It is the second most populous municipality in the County after Edison Township (99,967). The oldest original township in the State, this historically significant municipality is subdivided into 10 uniquely distinct sections: Avenel, Colonia, Fords, Hopelawn, Iselin, Keasbey, Menlo Park Terrace, Port Reading, Sewaren, and Woodbridge Proper.

Woodbridge Township is bordered by Clark Township, the City of Rahway, the City of Linden (all in Union County) to the north, and the Borough of Carteret to the northeast, the Arthur Kill and the City of Perth Amboy to the east, the Raritan River and Sayreville to the south, and Edison Township to the west. The Township's waterfront along the Arthur Kill is subject to NJ Coastal Zone Management Rules. Woodbridge is the only Township in the State of New Jersey where the Garden State Parkway and New Jersey Turnpike intersect, making it among the most accessible municipalities in the State. NJ Route 27 and several around routes also traverse the Township. The NJ Transit/Amtrak rail station is within the Iselin section of Woodbridge and NJ Transit bus routes serve the township.

### Considerations for Future Municipal Planning Goals

According to the New Jersey State Development and Redevelopment Plan of 2001, Woodbridge Township is a Metropolitan Planning Area. Among the established planning goals set forth by the Township of Woodbridge are maintaining and providing "sufficient residential opportunities", encouraging commercial development, strengthening its downtown commercial shopping area, controlling industrial development, and encouraging the preservation and conservation of environmentally sensitive areas and open space/recreation areas.

Providing all residences and businesses with adequate sanitary sewer service, as well as determining the need for future improvements by analyzing sanitary sewerage, public water and public stormwater facilities is a key planning goal in Woodbridge Township.

Woodbridge is considered an urban municipality and has no significant developable area outside of the sewer service area. Where an area is designated for sewer service, but trunk lines or collection mains have not yet been constructed, dry sewer lines may be required by the municipality for each new development. The developments will be connected to the sewer system as line capacity is constructed.

As a fully mature developed municipality, redevelopment is utilized as a means of improving the appearance, quality, and economic base of Woodbridge. There are currently many existing and proposed redevelopment areas in Woodbridge Township. These are detailed in Appendix J. Additionally, as a municipal pioneer in implementing sustainable practices, the Township of Woodbridge established a far-reaching Sustainable Community Plan and Climate Action Plan (2010) in order to guide the township's advancement towards reaching a sustainable municipal-wide vision.

The "*Water Management, Trees, and Open Space*" component of the municipal sustainability plan includes a comprehensive approach to conservation of the township's potable water, management of wastewater and stormwater, securing the township's water supply and protecting open space and creating greenways. An extensive set of objectives has been established to achieve these goals, and the indicators used to measure their performance include annual water consumption, acreage of protected wetlands, as well as acreage of park

Township of Woodbridge (continued)

### **Considerations for Future Municipal Planning Goals (continued)**

areas and total length of recreational trails within the township. Under the auspices of this plan, the township has undertaken a variety of efforts, including the remediation of wetlands, the planting of trees, and a rain garden workshop. The “*Greening Downtown and Other Large Multi-Use Redevelopment Projects*” component of the sustainability plan includes an array of elements aimed toward “greening” the processes, programs, and design standards utilized in the township’s redevelopment process. As redevelopment proposals approach the implementation phase, it will be necessary to review the development outcomes and determine the adequacy of sanitary sewer facilities to accommodate new populations within Woodbridge Township. As an NJDEP “urbanized municipality”, expansions of the SSA for development proposals supported by Woodbridge Township and proven to conform to environmental regulations and treatment capacity would be consistent for minor revision to the MC WMP.

Woodbridge Township’s public open space is in county and municipal parks and private open space. While some portions of these sites are within the future sanitary sewer service areas (SSAs), future improvement plans that include restroom facilities should be favorably considered as minor revisions to the SSA when feasible connections to sewer exist.

### **Summary of Significant Actions**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008 [40 N.J.R. 4000(a)] necessitated a modification to certain sewer service areas based on environmental sensitivity. In accordance with the regulatory requirement, 969 acres were removed from the previously approved sewer service area in Woodbridge. Also, 170 acres that were not part of the previously approved sewer service area have been added based on property owner requests, local planning objectives, and satisfaction of an environmental sensitivity agreement. For a list of blocks affected by these actions see Appendix F.

### **Projections of Future Municipal Wastewater Flow Volumes**

Woodbridge Township is within the sewer service areas of the Middlesex County Utilities Authority and Rahway Valley Sewerage Authority. The entire township is within the Middlesex Water Company Service Area. Woodbridge is defined as an urbanized municipality, per NJDEP regulations for wastewater management planning. An NJDEP urbanized municipality has 90 percent or more of the municipality’s developable land area appearing as “Urban Lands” in the NJDEP GIS database. As such, environmental build-out projections of wastewater flows are not required for the future sanitary sewer service areas (SSAs) or for consistency with NJDEP nitrate dilution parameters in septic areas (SAs), which are non-sewer areas to be served by on-site septic disposal systems. Instead, NJDEP requires estimated future municipal wastewater flows by applying the incremental population increase (population trend) projected within a 25-year planning horizon (2035) and adding any known new nonresidential flows. The trend projection wastewater flow of the entire municipality is estimated to be approximately 12.531 million gallons per day.

Township of Woodbridge (continued)

**Projections of Future Municipal Wastewater Flow Volumes (continued)**

<b>Table 25Y-1 Summary of Trend Analysis by Wastewater Treatment Areas to 2035 Township of Woodbridge</b>		
<b>Sewer Service and Non-Sewer Areas</b>	<b>Type</b>	<b>Trend Estimate by MGD</b>
Middlesex County Utilities Authority	Population	4.410
	Employment	0.866
	Inflow and Infiltration	1.517
	Chemtura	0.180
	<b>Total</b>	<b>6.973</b>
Rahway Valley Sewerage Authority	Population	3.608
	Employment	0.708
	Inflow and Infiltration	1.242
	<b>Total</b>	<b>5.558</b>

**Local and Regional Impact of Nitrate Dilution Analysis, HUC 11 Averaging**

As a component of coordinated watershed-based planning exercises within the WMP, NJDEP requires an environmental build-out analysis, comparing estimates of the ultimate highest development yield of local zoning district provisions in septic areas for consistency with septic system suitability, as expressed in a nitrate dilution analysis (NDA). These analyses are to be used solely to consider development carrying capacity within the watersheds of Middlesex County. For the regional planning analysis prepared within this report, the NJDEP has established an “Equivalent Dwelling Unit” a common metric with conversion factors for both residential and commercial uses, so that results are aggregated for potential development allowed by municipal land use zoning determined by an “environmental build-out” analysis required by NJDEP regulations (N.J.A.C. 7:15-5.25). As such, the Equivalent Dwelling Unit is not to be confused with any population or households projection. Performed on a HUC 11 watershed basis, this analysis is general in nature and not to be utilized for projections of possible deficiencies in local housing needs or municipal service needs.

In the case of this municipality, a nitrate dilution and environmental build-out analysis for septic system requirements in non sewer areas was performed for these regional planning purposes. The results of this analysis are expressed in tables found in Appendix D.

Woodbridge Township is within the Raritan River Lower below Lawrence HUC 11 #02030105160 watershed and the Rahway River/Woodbridge Creek HUC 11 # 02030104050 watershed. Existing zoning provisions are consistent with HUC 11 Averaging for these watersheds.

Woodbridge Township’s adoption of its MC WMP municipal chapter establishes acceptance of HUC 11 averaging as a binding condition for consideration in any future municipal zoning proposals. The municipality must submit future zoning proposals within SAs for a consistency determination of HUC 11 averaging impacts regarding the NDA minimum area standard within the related watershed to the Middlesex County Office of Planning, Division of Comprehensive Planning and the Environment. If the proposed zoning is determined to be inconsistent, the municipality must make subsequent application for a MC WMP revision or amendment (see *Middlesex County Wastewater Management Plan Revision and Amendment Procedures – Appendix H*), to be reviewed and approved by the Middlesex County Planning Board as a prerequisite to municipal adoption of the revised zoning provisions.

**Clean Water Act Section 201 Grant Limitation Area**

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 201 of the Clean Water Act, 33 U.S.C. §§ 1251 et seq. originally entitled the Federal Water Pollution Control Act defines funding and

Township of Woodbridge (continued)

**Clean Water Act Section 201 Grant Limitation Area (continued)**

physical conditions for federal assistance in the development and implementation of wastewater treatment management plans and practices and grants for construction of treatment works. These grants contain conditions that limit construction of sewer facilities in Environmentally Sensitive Areas.

The Interceptor and Force Main Project in the sewer service area of Woodbridge Township is subject to the Environmentally Sensitive Area (ESA) grant condition prohibiting sewer hookups from new development in wetlands and the 100-year floodplains through a construction grant awarded for this service area in 1980. The Environmental Protection Agency granted waivers from ESA conditions in this service area in 1981. Both NJDEP and US Army Corps regulations will control development within the ESA areas noted above. Itemized abstracts of the approximate documentation are available at the New Jersey Department of Environmental Protection, Division of Land Use Management.

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