

# Wastewater Management Plan for Morris County

Amending the Following Areawide Water Quality Management Plans:

Upper Raritan, Northeast, Upper Delaware and Sussex County

Submitted by the Board of Chosen Freeholders of Morris County

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# **I. Introduction**

Wastewater Management Planning is part of the continuing planning process required by the New Jersey Water Quality Planning Act (N.J.S.A. 58:11A-1 et seq.) and Section 208 of the federal Clean Water Act. The intent of the continuing planning process is to align federal, state, regional and local land use planning to ensure that these land use plans do not conflict with each other.

The provision of environmental infrastructure, in particular centralized sewer service, has a profound influence on development patterns and intensity. The wastewater management planning process is intended to assign an appropriate wastewater management treatment alternative to geographic areas based on environmental sensitivity and other land use planning objectives such as regional center-based development or open space preservation. The extension of public sewers into areas designated for protection by federal, State, regional or local land use plans would be inconsistent with those protection objectives.

## **Alternative Assignment of Wastewater Management Planning Responsibility**

As of the date of submittal, wastewater management planning responsibility for the entire County remains with the County Board of Chosen Freeholders, except for the Township of Washington. The Township of Washington is currently the entity responsible for the wastewater management planning in that municipality as per NJAC 7:15-5.13. (See Appendix A)

The Morris County Board of Chosen Freeholders has identified the Morris County Department of Planning and Development (MCP&D) as the county agency charged with Wastewater Management Plan (WMP) preparation and maintenance. Any proposed revisions or amendments to this wastewater management plan shall be submitted to MCP&D.

## **Previously Approved WMPs within Morris County**

The WMP for Morris County incorporates or replaces part or all of a variety of previously approved WMPs prepared by municipalities and wastewater authorities.

The Water Quality Management Plan (WQMP) rule provides that any local WMP previously approved by the New Jersey Department of Environmental Protection (NJDEP) may remain in force and effect until six (6) years from the date of the adoption of this plan. In Morris County, only the Township of Washington and the Borough of Florham Park have currently valid WMPs as listed in Table 1.

Table 1 lists previously adopted WMPs. The information from the Florham Park Borough adopted WMP is incorporated by reference in this WMP for Morris County. The remaining municipalities, for which Morris County is the responsible wastewater management planning agency, are represented by the municipal chapters found in Volume II of the WMP. This WMP will be updated as individual municipal chapters are adopted.



**Table 1 - Current WMPs That Remain in Effect**

WMP Planning Area	Municipality (or parts thereof)	Adoption Date
Florham Park Borough	Florham Park Borough Morris Twp. East Hanover Twp. Hanover Twp.	February 23, 2012
Washington Township	Washington Township	July 24, 2012

The WMP for Morris County - Volume II includes a chapter for Chatham Township and Florham Park Borough. Municipalities that are not part of this WMP for Morris County are listed in **Table 2** below.

**Table 2 - Municipalities Not Addressed in this WMP for Morris County**

Boonton Town	Boonton Township
Butler Borough	Chatham Borough
Chester Borough	<b>Chester Township *</b>
Denville Township	Dover Town
East Hanover Township	Hanover Township
Harding Township	Jefferson Township
<b>Kinnelon Borough *</b>	Lincoln Park Borough
Madison Borough	Mendham Borough
Mendham Township	Mine Hill Township
Montville Township	Morris Township
Morris Plains Borough	Morristown Town
Mountain Lakes Borough	Mt Arlington Borough
Mt Olive Township	Netcong Borough





<b>Parsippany-Troy Hills Township *</b>	Long Hill Township
Pequannock Township	<b>Randolph Township *</b>
Riverdale Borough	Rockaway Borough
<b>Rockaway Township *</b>	Roxbury Township
Victory Gardens Borough	<b>Wharton Borough *</b>

Note: Municipalities listed in bold with an asterisk are conforming to the Highlands RMP. Those chapters are being developed cooperatively by the Highlands Council and the municipality. This table will be updated as individual municipal chapters are adopted.

## Overview of Morris County

Morris County, located in north-central New Jersey, occupies an area of approximately 481 square miles or 308,000 acres. The County has developed since the 1700s, moving from east to west along canals, railways and later, major roadways, following the availability of vacant land. Development concentrated in the eastern portion of the County, where land is relatively level, spreading from metropolitan areas to the east. Early patterns of development focused in well-defined towns such as Morristown, where commercial and high density residential uses were clustered, with lower density residential and agricultural uses fanning out from the center. The development of the towns like Netcong, Dover, Montville and Boonton has been comparable, where industrial facilities, often located in proximity to the Morris Canal (and later railways), functioned to create centers with decreasingly intense uses located around them.

Development patterns post-WWII have been influenced largely by increased automobile ownership and the construction of new roadways, which opened up greater opportunities for commercial development, workforce commuting and access to formerly rural areas of the County for residential and other development. Also driving changing land use patterns was the introduction of single use zoning outside of existing centers, a practice which separated residential, commercial and industrial uses, increasing land requirements, creating modern suburbs and hastening the development of marginal farms for other uses. This conversion of rural to suburban development began in earnest in the 1960's.

The progress of this ongoing conversion has slowed substantially in the last decade. Significant factors include a reduction in the availability of wastewater treatment capacity and the dwindling supply of vacant, developable land. The current economic downturn has hindered new applications for development, except in the northern and southwestern portions of the county, where significant development in the Highlands Preservation areas has virtually stopped as a result of the passage of the Highlands Water Protection and Planning Act.



Present development patterns reflect both historic trends and modern zoning requirements. Higher density residential use is focused in traditional centers and urbanized areas found principally in the eastern portion of the County or in centers located along major transportation corridors (Route 10, Route 46 and Route 80) which bisect the County's northern and southern areas. The availability of existing wastewater infrastructure remains a principal determinant of this higher density development, which is reflected in Morristown's current building boom and in recent plans for downtown redevelopment in the Town of Dover. Lower density, large lot single family housing is focused primarily in the northern and northwest and in the southern and southwestern portions of the County, where the availability of infrastructure is limited; where topography has made development more difficult and where larger lot zoning has been more prevalent.

Areas of commercial development remain in historic centers, within traditional downtown shopping districts, many of which are connected by rail. With few exceptions, the amount of such use continues to fall or focus increasingly on local service needs. Newer industrial, office and major retail uses are found in greatest concentrations straddling Routes 10 and 46, or in the vicinity of Routes 80 or 287, which typically connect older historic centers. Following national trends, larger retail malls and big box centers focus on these roadways, as do large office or office/industrial uses or campuses. Modern commercial development demands proximity to these major transportation corridors for easy access to commuting employees and to regional markets and customers.

As per the recent Decennial Census from the U.S. Census Bureau, Morris County's population in 2010 was 492,276. The most recent estimate places the county's population as of July 1, 2012 at 497,999 (U.S. Census Bureau, 2012 Population Estimates Program), a 5.9% increase since 2000. The county's rate of population growth is somewhat higher than the State's rate of 5.4%, and ranks near the middle compared to the other 20 counties which range from a high of 13.6% (Ocean) to a low of -5.9% (Cape May)<sup>1</sup>.

## **Overview of Current Wastewater Service**

Centralized wastewater treatment systems in Morris County serve approximately 41% of the total County area and approximately 70% of the total County population. Centralized wastewater treatment systems treat flow collected from within their designated SSA. SSAs may include industrial businesses that discharge process wastewater to the collection system for treatment by a facility not owned by that business. The wastewater collection and treatment infrastructure generally serve the more densely populated urban and suburban communities. Details of these existing systems are presented in Section II.

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<sup>1</sup> SOURCE: <http://www.morrisplanning.org/databook/Population/Pop-Trends-Counties-1970-2012.xls>



Rural and less densely developed areas not served by SSAs are defined as General Service Areas (GSAs) and are predominantly served by septic systems, also referred to in this WMP as Individual Subsurface Sewage Disposal Systems (ISSDS).

There are no combined sewers that include both storm water and wastewater in the same system within Morris County.

## **Overview of Current Water Supply Service**

Public community water supply systems in Morris County serve approximately 55 percent of the total County area and approximately 85 percent of the total County population. The water supply infrastructure generally serves areas that are also served by sewers. Individual onsite wells generally serve the more rural and less densely developed areas in the County.

Details on these existing water supply systems are presented in Section II –Existing Infrastructure and VII – Future County Water Supply.

## **Overview of Major Environmental, Regional and Local Considerations to Wastewater Service**

The Water Quality Management Planning Rules (N.J.A.C. 7:15) generally exclude the extension of sewer service into large contiguous areas, defined as 25 acres or more of the following environmentally sensitive features:

- Wetlands;
- Riparian zones: (300-feet in width) along both sides of a Category One (C1) waterway; 150 feet in width along trout producing/trout maintenance, etc; and 50 foot along all other waterways (N.J.A.C. 7:13)
- Natural Heritage Priority Sites; and/or
- State and Federal threatened and endangered species habitat as depicted in NJDEP Landscape Project Area database (Rank 3, 4, 5).

A more detailed discussion of these environmental considerations is presented in Section III, Environmental and Other Land Features. Additional regional and local land use planning objectives used in delineating appropriate areas for public sewer service are discussed in the Section IV – Delineation of Service Areas and Planning Integration and in each individual municipal chapter included in this WMP.



## Overview of Future Wastewater Service Areas

### Sewer Service Areas (SSA)

Sewer service areas (SSA) are those lands from which generated wastewater is designated to flow to a domestic treatment works or industrial treatment works, i.e. a sewage treatment plant. The NJDEP delineated the SSA, with input from Morris County, municipalities and the public, by reviewing the previously approved SSAs and removing contiguous environmentally sensitive areas of 25 acres or more pursuant to the sewer service area delineation criteria at NJAC 7:15-5.24.

The following facilities are seeking approval to increase their NJPDES permit effluent limits to reflect either existing or future expected wastewater flow to these facilities.

- There are none at this time.

### General Service Areas (GSA)

All areas not in a SSA, including those areas withdrawn from the SSA as described above, are designated as General Service Areas, Planning Flows of 2,000 Gallons per Day (GPD) or less, and are served by individual subsurface sewage disposal systems (ISSDS), i.e. septic systems.

Proposed developments with anticipated discharge to groundwater (DGW) planning flows greater than 2,000 gpd that require a New Jersey Pollution Discharge Elimination System (NJPDES) permit, or that proposed significant modifications to an existing NJPDES permitted facility, will require amendment of this WMP and subsequent adoption by NJDEP.

It should be noted that flow is not a permit limit per se, but is the basis on which NJPDES effluent limits are calculated. Section V – Future County Wastewater Demand and Facilities presents the results of the build-out analysis for each SSA and the associated sewage treatment plants.

## Summary of Significant Actions

The Water Quality Management Planning Rules adopted on July 7, 2008 necessitated a modification to certain SSAs based on environmental sensitivity and local planning objectives as described in this document. Map 2M and 3M in each municipal chapter shows the changes in SSA as a result of this wastewater management plan. Maps with the designation “M” are municipally based (i.e. 2M, 3M, 4M) versus the county-wide maps which are numbered 1, 2, 3, 4, 5a, 5b, 6. Municipally based maps will be created for each municipal chapter that is developed.



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- Chatham Main (Chatham WPCP #1 [NJ0020290]) and Chatham Glen (Chatham WPCP #2 [NJ0052256]) are being combined. This is necessitated as per an Administrative Consent Order (ACO) between the NJDEP and Chatham Township dated June 26, 2003 to address Total Dissolved Solids (TDS) effluent limitations that Chatham Main is unable to meet. All flow from Chatham Glen will be pumped to Chatham Main to be treated. The outfall from Chatham Main will be relocated to a new location in the main stem of the Passaic River near the current Chatham Glen outfall upon an adopted amendment to the Northeast New Jersey WQMP (this WMP). The proposed discharge point will be downstream from the location where the Black Brook enters the Passaic River.

Upon relocation of the outfall pipe to discharge treated combined wastewater from these two facilities, the NJDPES permit for Chatham Glen NJDPES/DSW Permit No. NJ0052256 will no longer be required and will be terminated.



## II. Existing Infrastructure

This section addresses wastewater and water supply infrastructure and facilities within the County.

### Wastewater Collection System Infrastructure

Major interceptors, trunk lines and pumping stations within the various SSAs for public wastewater treatment facilities are shown on a municipal basis on Map 2M found in each individual municipal chapter.

### Major Wastewater Treatment Facilities

Table 3 below lists the major domestic wastewater treatment facilities and the municipality or municipalities they serve. There are 25 major facilities serving Morris County. For the purpose of this WMP, major facilities are generally considered to fall into one the following categories:

- Non-industrial facilities that provide treatment to an entire municipality or
- A regionalized treatment plant serving two or more municipalities in one or more counties or:
- Residential or multi-use facilities serving distinct areas within municipalities where the potential for additional wastewater generation could occur.

Existing SSAs served by these wastewater facilities are shown on a county-wide basis on Map 2 and on a municipal basis on Map 2M found in each individual municipal chapter. Future SSAs proposed for each wastewater facility are shown on a county-wide basis on Map 3 and on a municipal basis on Map 3M found in each individual municipal chapter. Tables in Appendix C provide detailed information on each facility.

Existing wastewater infrastructure within the County was delineated with the use of collaborating information from municipalities, previous wastewater management plans, existing infrastructure documentation, and input from local wastewater entities.

SSAs may include industrial businesses that discharge process wastewater to the collection system for treatment by a facility not owned by that business.

**Table 3 - Major Wastewater facilities and Municipalities Served**

Wastewater Utility	Municipalities Served
Ajax Terrace Water Pollution	Roxbury Township



<b>Wastewater Utility</b>	<b>Municipalities Served</b>
Control Plant	
Chatham Township WPCP #1 (Chatham Main)	Chatham Township
Chester Borough Wastewater Treatment Plant	Chester Borough
Clover Hill Sewage Treatment Plant	Mount Olive Township
Florham Park Sewerage Utility	Borough of Florham Park East Hanover Township Morris Township
Greystone Park Psych. Hospital	Denville Township Parsippany-Troy Hills Township
Hackettstown Municipal Utilities Authority Sewage Treatment Plant	Mount Olive Township Washington Township Hackettstown (Warren County) Independence (Warren County) Mansfield (Warren County)
Hanover Municipal Utilities Authority Sewage Treatment Plant	East Hanover Township Hanover Township Morris Plains Borough Morris Township Parsippany-Troy Hills Township
Hercules Company WPCP	Roxbury Township
Long Hill Township Sewage Treatment Plant	Long Hill Township
Mendham Borough Sewage Treatment Plant	Mendham Borough
Molitor Water Pollution Control Facility (Madison-Chatham Joint Meeting)	Chatham Borough Chatham Township Madison Borough
Moosepac Pond Sewage Treatment Plant/Water's Edge	Jefferson Township
Morris Township (Butterworth Sewage Treatment Plant and Woodland Sewage Treatment Plant)	Florham Park Borough Madison Borough Harding Township Morris Township Morris Plains Borough



Wastewater Utility	Municipalities Served
	Morristown Town Parsippany Troy-Hills Township Randolph Township
Morristown Sewer Utility Sewage Treatment Plant	Hanover Township Morris Township Morristown Town
Mount Olive Villages Sewer Company Sewage Treatment Plant	Mount Olive Township
Musconetcong Sewerage Authority Sewage Treatment Plant	Mount Arlington Borough Mount Olive Township Netcong Borough Roxbury Township Jefferson Township Bryam (Sussex County) Hopatcong (Sussex County) Stanhope (Sussex County)
Parsippany-Troy Hills Sewage Treatment Plant	Denville Township East Hanover Township Montville Township Livingston Township (Essex County) Mountain Lakes Borough Parsippany-Troy Hills Township
Rockaway Valley Regional Sewerage Authority Sewage Treatment Plant	Boonton Town Boonton Township Denville Township Dover Town Mine Hill Township Montville Township Parsippany-Troy Hills Township Randolph Township Rockaway Borough Rockaway Township Victory Gardens Borough Wharton Borough
Two Bridges Wastewater	Butler Borough





Wastewater Utility	Municipalities Served
Treatment Plant	Kinnelon Borough Lincoln Park Borough Pequannock Township Riverdale Borough Bloomingdale (Passaic County) Fairfield (Essex County) North Caldwell (Essex County) West Caldwell (Essex County)
United Water Mid-Atlantic (Arlington Hills) Sewage Treatment Plant	Mount Arlington Borough Roxbury Township
Washington Township (Schooley's Mountain Wastewater Treatment Plant, Long Valley Wastewater Treatment Plant)	Washington Township
White Rock Lake Sewage Treatment Plant	Jefferson Township

## Minor Wastewater Treatment Facilities

All facilities that are not classified as major facilities described above were categorized as a minor facility.

### On-site, Non-industrial Wastewater Facilities

These minor facilities serve single developments, sites or other properties under single ownership, but do not treat industrial flows. These facilities typically provide wastewater treatment for apartment complexes, commercial properties and businesses where regional sewerage is not available. Tables 1a (DGW) and 1b (DSW), found in each municipal chapter, list all existing on-site, non-industrial treatment facilities that discharge 2,000 gallons per day or more of domestic wastewater and are regulated under a NJPDES permit. Details of these facilities can be found within the municipal chapters and are shown on municipal map 3M and facility tables are included in Appendix C.

### Industrial Treatment Works for Process Wastes and Sanitary Sewage

These minor facilities serve industrial land uses with independent wastewater treatment facilities that treat and discharge manufacturing process waste or sanitary sewage, rather than other types of effluent such as non-contact cooling water. They may be discharged to groundwater or to surface water. Tables 1a (DGW) and 1b (DSW), found in the municipal



chapters, list all existing industrial treatment works that discharge 2,000 gallons per day or more of process and wastewater and are regulated under a NJPDES permit. Details of these facilities can be found within the municipal chapters and facility tables are included in Appendix C.

## Public Water Supply Facilities

Table 4 lists the 65 (PWSIDs) public community water supply facilities and the municipality or municipalities they serve. The areas served by existing public water supply facilities are depicted on Map 6.

Existing public water supply facilities within the County were delineated with the use of municipal and parcel boundaries in correlation with previous water supply data, existing infrastructure documentation, and input from local water supply entities.

**Table 4 - Water Supply Utilities - Municipalities Served**

PWSID#	Water Supplier	Municipalities Served
712001	New Jersey American Water Company	Chatham Township
		Florham Park Borough
		Harding Township
		Mendham Borough
		Mendham Township
		Long Hill Township
1401001	Boonton Town	Boonton
1401002	Boonton Town	Boonton Township
1402001	Merry Heart of Boonton	Boonton Township
1403001	Butler Borough Water Department	Butler Borough
		Kinnelon Borough
1404001	Chatham Boro Water Department	Chatham Borough



<b>PWSID#</b>	<b>Water Supplier</b>	<b>Municipalities Served</b>
1406001	NJAW(Elizabethtown Water Co)	Chester Borough
1406002	NJAW(Elizabethtown Water Co)	Chester Borough
1407001	Four Seasons	Chester Township
1408001	Denville Township Water Department	Denville Township
1409001	Dover Water Department	Dover Town
		Randolph Township
		Rockaway Township
		Victory Gardens Borough
1410001	East Hanover	East Hanover Township
1411001	Florham Park Water Utility	Florham Park Borough
1413001	Lakeshore Water Company	Harding Township
1414003	Jefferson Township MUA	Jefferson Township
1414006	Loziers Trailer Park	Jefferson Township
1414008	Oak Ridge Mobile Home Park	Jefferson Township
1414009	Mountain Shore Water Supply	Jefferson Township
1414011	Jefferson Township Water Utility (Lake Hopatcong)	Jefferson Township
1414013	Sun Valley Park Company	Jefferson Township
1414014	Sandy Point Mobile Home Park	Jefferson Township
1415001	Fayson Lake Water Co	Kinnelon Borough
1416001	Passaic Valley Water Commissioners	Lincoln Park Borough
		Pequannock Township



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PWSID#	Water Supplier	Municipalities Served
1416004	Pequannock Township Water Dept	Kinnelon Borough
		Lincoln Park Borough
1417001	Madison Borough	Florham Park Borough
		Madison Borough
1418002	NJAW	Mendham Borough
1419001	Roxiticus Water Company	Mendham Township
1420001	Mine Hill Township Water Dept	Mine Hill Township
1421003	Montville Township	Montville Township
1421004	Plausha Park Inc	Montville Township
1422001	NJAW	Florham Park Borough
		Morris Township
1424001	Southeast Morris County MUA	Chatham Township
		Hanover Township
		Harding Township
		Mendham Township
		Morris Township
		Morris Plains Borough
	Morristown	
1425001	Mountain Lakes Water Dept	Mountain Lakes Borough
1426004	United Water	Mount Arlington Borough
1427001	Mount Olive Villages (NJ Vasa)	Mount Olive Township



<b>PWSID#</b>	<b>Water Supplier</b>	<b>Municipalities Served</b>
1427002	Mount Olive Water Dept (High Ridge)	Jefferson Township
		Mount Olive Township
1427003	Mount Olive Water Dept (Indian Spring)	Mount Olive Township
1427005	Mount Olive Water Dept (Clover Hill)	Mount Olive Township
1427006	Mount Olive Water Dept (Sand Shore)	Mount Olive Township
1427007	Mount Olive Water Dept (Village Green)	Mount Olive Township
1427008	Mount Olive Water Dept (Juckett/Pine Crest)	Mount Olive Township
		Mount Olive Township
1427012	Mount Olive Water Dept (Lynwood)	Mount Olive Township
1427014	Mount Olive Water Dept (Carlton Hills)	Mount Olive Township
1427015	Mount Olive Water Dept (Tinc Farm)	Mount Olive Township
1428001	Netcong Borough Water Dept	Netcong Borough
1429001	Par-Troy Hills Water Dept	Parsippany-Troy Hills Township
1431001	Pequannock Township Water Dept	Kinnelon Borough
		Lincoln Park Borough
		Pequannock Township
1432001	MCMUA	Chester Borough
		Denville Township
		Jefferson Township
		Mine Hill Township
		Mount Arlington Borough



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PWSID#	Water Supplier	Municipalities Served
		Mendham Borough
		Parsippany-Troy Hills Township
		Randolph Township
		Roxbury Township
		Wharton Borough
1432003	Randolph Township	Randolph Township
1433001	Riverdale Borough and PVWC	Riverdale Borough
1434001	Rockaway Borough Water Dept	Rockaway Borough
		Rockaway Township
1435001	Hoffman Homes	Rockaway Township
1435002	Rockaway Township Water Dept	Rockaway Township
1435003	Picatinny Arsenal	Jefferson Township
		Rockaway Township
1436002	Roxbury Water Company	Roxbury Township
1436003	Roxbury Township Water Dept	Mount Arlington Borough
		Roxbury Township
1436006	Roxbury Township Water Dept	Roxbury Township
1436007	Roxbury Township Water Dept	Roxbury Township
1438001	Cliffside Park Association	Washington Township
1438003	Washington Twp MUA (Hager-Long Valley)	Washington Township



PWSID#	Water Supplier	Municipalities Served
1438004	Washington Twp MUA (Schooly's Mountain)	Washington Township
1438006	Sherwood Mobile Home Park	Washington Township
1815001	New Jersey American Water	Chester Township
1911002	Lake Stockholm Inc	Jefferson Township
2108001	Hackettstown MUA	Washington Township

### III. Environmental and Other Land Features

This section includes a description of environmental and other land features used as constraints in preparation of this WMP. These features are significant to wastewater management planning for three reasons: they may influence the delineation of SSAs, they may reduce the potential future wastewater generation due to existing regulatory programs, or they may be subject to federal grant limitations that prohibit the extension of sewer service into these areas. These features have been used in the development of maps of environmentally sensitive areas of 25 acres or more (ESA 25) where the extension of SSAs is restricted (see Section IV - [Delineation of Service Areas](#), below). Environmentally Sensitive Areas are defined as any contiguous area of 25 acres or larger consisting of any of the following features alone or in combination:

- State and Federal Threatened and Endangered Species Habitat as shown on the NJDEP’s Landscape Project (Ranks 3, 4, 5) database.
- Natural Heritage Priority Sites excluding urban lands as identified by NJDEP using 2002 Land Use/Land Cover geographical information systems database as amended and updated.
- Category One waters and their tributaries. Surface waters that are designated Category One are listed in the Surface Water Quality Standards at N.J.A.C. 7:9B.
- Wetlands as mapped pursuant to 2007 Land Use/Land Cover shapefile available from NJDEP.

Figure 5A shows hydrologic features and related areas. Figure 5B shows other natural resources and land features. These features are summarized below. Most of these features



are based on mapped data provided by the NJDEP, and the County has not verified the mapping of these areas. The location of these NJDEP mapped areas should be considered only in the context of this WMP. Site specific investigations and delineations may be necessary in connection with other projects.

## **Environmental Features**

### **Surface Waters and Classifications**

Map 5A shows the surface waters as mapped by NJDEP, and within the Highlands Region as modified by the NJ Highlands Council.

Surface waters designated as Category One are listed in the Surface Water Quality Standards at N.J.A.C. 7:9B. All waterways in the Highlands Preservation Area are classified as Category One. The Department's "Surface Water Quality Standards" GIS data layer was utilized to determine these waters.

Compliance with the riparian zone standards have been demonstrated by the adoption of Ordinances for Riparian Zone Protection by municipalities, which have been updated to be in compliance with the Flood Hazard Control Act Rules (N.J.A.C. 7:13) and Water Quality Management Rules (N.J.A.C. 7:15).

### **Freshwater Wetlands**

Freshwater wetlands as mapped by the NJDEP based on 2007 LULC are shown on Map 5A. Freshwater Wetlands are regulated under the Freshwater Wetlands Protection Act Rules, which place stringent limits on development within these areas. The larger wetlands complexes are located in the Piedmont physiographic province and include Bog and Vly Meadows, Great Piece Meadows, Black Brook Meadows and Troy Meadows. There are roughly 46,000 acres of wetlands representing 15% of the land in Morris County as per NJDEP Freshwater Wetlands mapping data.

### **Suitable Habitat for Threatened and Endangered Species**

For purposes of this WMP, areas identified by the NJDEP as being suitable habitat for threatened and endangered species are shown on Map 5B. This area includes Landscape Project Areas (Ranks 3, 4 and 5) through the Landscape Project as described below. Four of the five available habitat types were used – forests, forested wetlands, emergent wetlands and grasslands. The coastal beaches and dunes habitat type is not applicable to the County. Approximately 167,000 acres or 54% of the land in Morris County falls within NJDEP's Landscape Project Areas Rank 3, 4, and 5 coverage.

### **Natural Heritage Priority Sites**

Natural Heritage Priority Sites coverage identifies rare plant species and rare ecological communities. Map 5B shows the Natural Heritage Priority Sites mapped by NJDEP. There





are approximately 12,500 acres or 4% of the lands in Morris County are designated as Natural Heritage Priority Sites.

## Steep Slopes

The steep slopes were determined through an analysis performed by County staff in accordance with the regulations. It is intended to be used for guidance purposes and on site investigations and surveys should be used to confirm the actual field conditions.

Steep slopes are defined as means any slope equal to or greater than 20 percent as measured over any minimum run of 10 feet. Steep slopes are determined based on contour intervals of two feet or less.

Map 5B show the steep slopes defined as those slopes with a 20% slope or greater. These slopes are mapped using Morris County's 4 Foot DEM derived from 2005 LiDAR Data. The development potential development of steep slopes is reduced by the Water Quality Management Planning Rules, The Highlands Water Protection and Planning Act Rules and by municipal ordinance.

## Mapping of Environmentally Sensitive Areas

Mapping of Environmentally Sensitive Areas (ESAs) is shown on Maps 5A and 5B. Both maps include municipal boundaries, wastewater management planning area and major roadways (county, state and federal) in the County.

Map 5A shows Hydrologic Features in Morris County including:

- NJDEP 2007 Wetlands
- Lakes/Waterbodies
- FEMA DFIRMS
- SWQS Classifications (C-1 waters, etc)

Map 5B shows Environmental Features in Morris County including:

- Landscape Project Data
- Natural Heritage Priority Sites
- Steep Slopes
- Lakes/Waterbodies

This data was taken largely from datasets available through the NJDEP's Bureau of Geographic Information Systems (<http://www.state.nj.us/dep/gis/download.htm>).



## **IV. Delineation of Service Areas and Planning Integration**

This chapter provides the methodology used to delineate SSAs based on gathered data, mapping of environmentally sensitive areas, and consistency with other regional plans.

### **Sewer Service Area Delineation**

#### **Introduction**

Sewer Service Areas were delineated by collaborating data from previous wastewater management plans, existing infrastructure documentation, and input from local wastewater entities and municipalities. Acquired data was analyzed and utilized to identify parcels currently being served by wastewater treatment facilities in the County. Future SSAs were determined by NJDEP and were subsequently provided to the County at the start of the WMP preparation process in March 2008. The County used this map as the basis for making technical corrections discussed below.

#### **Draft Sewer Service Areas Created By NJDEP**

Under the Water Quality Management Planning Rules, large contiguous ESAs, generally defined as 25 acres or greater in size were excluded from SSAs except under certain circumstances such as providing service to development that has already secured prior approvals or center based development approved by the Department of Environmental Protection through the Plan Endorsement process. Map 5A and 5B show the final results for the mapping of ESAs, based on the information described in the previous section and the WQMP rules.

NJDEP's Draft SSA maps reflected the removal of areas subject to pre-existing grant conditions and ESAs described in Section III – Environmental and Other Land Features.

#### **Sewer Service Areas in Environmentally Sensitive Areas**

Morris County performed technical corrections to the Draft SSAs provided by NJDEP. In some cases, this involved showing ESAs within the SSA. Such technical corrections generally fell into the following categories:

- Areas that were already sewerred
- Developments had secured permits such as a Treatment Works Approval, or in accordance with Municipal Land Use Law.
- More current site assessment or onsite data (i.e. Habitat Suitability, Letters of Interpretation, Flood Hazard Permit) was made available to the NJDEP



The WQMP rules allow for inclusion of environmentally sensitive areas under limited conditions. Some of these conditions are described below.

- Where environmentally sensitive areas are bordered on either side by areas with existing sewer service, and where the infill development would generate 2,000 gpd or less of sewage based on existing zoning and where the area to be included does not include habitat critical to the recovery potential or the survival of a local population of an endangered or threatened species.
- Where sewer service is necessary to support center based development under an endorsed plan through the State Planning Commission relative to the State Development and Redevelopment Plan provided and would not remove habitat critical to endangered or threatened species. While possible, Morris County this criteria was not used in this WMP to delineate a SSA.
- Where necessary to create a linear boundary that related to recognizable geographic features and would not remove habitat critical to the recovery potential or the survival of a local population of an endangered or threatened species.

These exceptions are described more fully in NJAC 7:15-5.24 et seq.

## Planning Integration

### Highlands Water Protection and Planning Act

The NJDEP enforces compliance with the Highlands Act through regulations at NJAC 7:38. The Highlands Act prohibits SSA extensions in the Preservation Area, with exceptions only for previously approved projects, exempt projects, redevelopment waivers or for the projects eligible for a waiver from NJAC 7:38. In addition, the Highlands Regional Master Plan includes recommendations for different zones where sewer service is or is not appropriate within the Highlands Planning Area. These latter requirements are voluntary for adoption by municipalities that wish to “opt in” for conformance with the Regional Master Plan.

Thirty-two of the thirty-nine municipalities within Morris County are in the Highlands Region. Thirteen municipalities have areas that are in the Planning Area or Preservation Area and 19 municipalities are solely within the Planning Area. Those municipalities having land within the Preservation Area are required to meet the standards of the Highlands Act for those areas. Lands within the Planning Area are not subject to standards set forth by the Act; however, the RMP sets forth guidance for areas for municipalities chose to conform to the plan.

**Table 5** below lists those municipalities who have elected to conform to the Highlands Regional Master Plan.



**Table 5 - Municipalities Intending to Conform**

<b>Municipality</b>
Chester Township
Kinnelon Borough
Parsippany-Troy Hills Township
Randolph Township
Rockaway Township
Washington Township
Wharton Borough

Although Morris County will remain the Wastewater Management Planning entity for the County, individual WMP chapters for conforming municipalities are being developed cooperatively between the Highlands Council and the municipalities. Once these chapters have been completed, they will be incorporated into this WMP. Washington Township's WMP has been completed and was adopted on July 24, 2012. Washington Township is currently its own Wastewater Management Planning Entity (Appendix A).

### **Delaware River Basin Commission**

The Delaware River Basin Commission (DRBC) regulates the discharge of pollutants into, and the withdrawal of water from, the Delaware River Basin; therefore, wastewater and water supply decisions affecting the Delaware River Basin must be coordinated with the Commission. A small portion of the Delaware River Basin exists along the western border of Morris County. It is contained within the boundaries of six Morris County municipalities including Washington Township, Mount Olive Township, Roxbury Township, Mount Arlington Borough, Roxbury Township, and Jefferson Township, and all of Netcong Borough.

A comment and confer letter was sent to the DRBC offering them the ability to comment on our plan. To date, Morris County has not been contacted by them. Once the plan goes to Public Notice then, they along with other potentially affected entities will have the ability to provide input, if they choose not to do so sooner.

# V. Future County Wastewater Demand and Facilities

This chapter describes the build-out methodology used to project future wastewater treatment demand for future SSAs and GSAs within the WMP for Morris County.

There are two methods used for projecting future wastewater management needs: a 20-year projection for urbanized municipalities and a build out based on existing zoning for non-urbanized municipalities described below.

## Future Wastewater Generation in Sewer Service Areas Wastewater Projections in Urbanized Municipalities

The Water Quality Management Planning rules identify urbanized municipalities as those municipalities where 90 percent or more of the total land is considered urban. Parks, preserved lands and open space areas have been considered in these calculations. Morris County performed further analysis on municipalities within the County performing technical corrections to the urban land classification. This approach consisted of the following:

- Removed all lands classified as water/wetlands and preserved land from the calculations.
- Reclassified barren or forested land on fully developed parcels, streets, and railroads ROWs as urban. **Table 6** presents the compilation of all urban municipalities based on the subsequent analysis performed by Morris County.

**Table 6 - Urban Municipalities**

Municipality	% Urbanized	Municipality	% Urbanized
Boonton Town*	92.1%	Madison Borough**	90.0%
Chatham Borough**	95.7%	Morristown Town**	91.4%
Dover Town**	91.7%	Netcong Borough*	94.2%
East Hanover Township**	93.0%	Rockaway Borough*	92.7%
Long Hill Township**	90.4%	Victory Gardens Borough**	95.7%

\* Calculations based on NJDEP 2002 Land Use/Land Cover feature class; URBAN LANDS classified by the Anderson Classification 1000 series; Revised Total Area does not include wetlands/water (2002 LU/LC) and does not include properties identified as parkland in the MC GIS open space database.



\*\* Calculations based on NJDEP 2007 Land Use/Land Cover feature class; URBAN LANDS classified by the Anderson Classification 1000 series; Revised Total Area does not include wetlands/water (2007 LU/LC) and does not include properties identified by NJDEP as preserved open space.

Future wastewater flows for the listed urbanized municipalities were calculated based on 20-year growth projections.

Table 7 below shows the 20 year wastewater flow projections and method used for each urbanized municipality.

**Table 7 - 20 Year Wastewater Flow Projections for Urbanized Municipalities<sup>1</sup>**

Urbanized Municipality	20 Year Projected Residential Flow (gpd)	20 Year Projected Non-Residential Flow (gpd)	Projected Total Flow (gpd)
Boonton Town			
Chatham Borough			
Dover Town			
East Hanover Township			
Long Hill Township			
Madison Borough			
Morristown Town			
Netcong Borough			
Rockaway Borough			
Victory Gardens Borough			

<sup>1</sup>Projections will be updated as municipal chapters are updated.

### Wastewater Generation Projections in Non-urban Municipalities

In the remaining municipalities it is anticipated that undeveloped and underdeveloped land will be the predominant factor in determining future wastewater treatment needs.



In designated SSAs, the environmentally sensitive areas were delineated as discussed in Section III and Section IV. In this case, ESA 25 composite areas were removed from the SSAs and placed in the GSAs. The existing zoning was then applied to the developable vacant and sub-dividable lots within the SSA to project a build-out condition for use in estimating the future wastewater generation for each SSA. The build-out data was then converted to a projected future wastewater flow by applying the planning flow criteria from N.J.A.C. 7:14A based on the type of development projected. Zoning maps are included for each individual municipality, as map 4M, generalized county wide zoning map (Map 4) is part of this county-wide summary.

For example, single-family residential development was assumed to consist of houses having three or more bedrooms per house, and each projected new house was multiplied by 300 gallons per day to predict the future wastewater generated. For non-residential land uses the anticipated floor area was multiplied by 0.1 gallon per day to predict future wastewater generation. The projected wastewater data is shown by wastewater treatment plant in **Table 8** in the following section for comparison to the existing permitted capacity of each facility. Build-out results are also found in Table 2a located in each individual municipal chapter.

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

Septic systems, or individual subsurface sewage disposal systems (ISSDS), for individual residences can only be constructed within depicted SSAs if legally enforceable guarantees are provided to ensure that the use of such systems will be discontinued when the depicted sewer service becomes available. This applies to ISSDS that require certification from the NJDEP under the Realty Improvement Sewerage and Facilities Act (N.J.S.A. 58:11-23) or individual Treatment Works Approval or New Jersey Pollutant Discharge Elimination System Permits (under N.J.A.C. 7:14A). It also applies to ISSDS which require only local approvals if the WMP acknowledges adequate arrangements for enforcement of the requirement (such as through a municipal or sewerage authority ordinance).

For purposes of this WMP, all septic systems within a SSA are assumed to eventually be connecting to its appropriate facility. Future flows attributed to these existing septic systems are accounted for in each municipal chapter, as well as the appropriate Facility Table found in Appendix C. Flow at each facility has been accounted for these existing septic systems and can be found in Table 2a in each municipal chapter.

### **Future Wastewater Generation in General Service Areas Wastewater Generation Projections in Urban Municipalities**

For the purpose of this WMP, general service areas have not been evaluated for urbanized municipalities. This evaluation will be updated as individual municipal chapters are included into the Morris County WMP when they are adopted.



## Wastewater Generation Projections in Non-urbanized Municipalities

In designated GSAs, the existing zoning was applied to the developable vacant and subdividable lots within the GSA to project a build-out condition for use in estimating the future wastewater demand for each GSA. The build-out data was then converted to a projected future wastewater flow by applying the planning flow criteria from N.J.A.C. 7:9A-7.4 based on the type of development projected.

For example, single-family residential development was assumed to consist of houses having three or more bedrooms per house, and each projected new house was multiplied by 350 gallons per day to predict the future wastewater generated. For non-residential land uses the anticipated floor area was multiplied by 0.125 gallon per day per square foot to predict future wastewater generation. The projected wastewater data, expressed as equivalent dwelling units, is shown by HUC14 on Table 3 of the applicable municipal chapter.

### Nitrate Dilution Analysis

In areas that are not designated as SSAs, the default wastewater management alternative to support development is a GSA, and is defined as discharge to groundwater less than 2,000 gallons per day. The nitrate dilution analysis for septic systems was performed for GSAs county-wide in similar fashion to that conducted for SSAs. While certain areas may be unbuildable, such as riparian zones or steep slopes, they still contribute to the overall available dilution of nitrate in groundwater. So, these areas were used when analyzing the available dilution on a HUC 11 and HUC 14 basis used to establish the maximum number of units that can be built in a watershed and continue to meet the 2 ppm nitrate target. Thus while some areas may contribute less overall groundwater recharge, due to factors such as soils or topography, these limitations have already been taken into consideration when calculating the maximum average density allowable.

This analysis used NJDEP's nitrate ( $\text{NO}_3^-$ ) target of 2 mg/L, with the assumption that all ammonium and other nitrogen compounds are converted to nitrate within the property, and that the nitrate concentrations dilute evenly across the HUC11 and HUC14. These assumptions are implicit in the nitrate dilution model developed by NJDEP. The County ran the analysis using annual average recharge. These values are by HUC14, requiring aggregation up to the HUC11 level. The WMP for Morris County recognizes that in the Highlands Preservation Area the NJDEP's Highlands rules at N.J.A.C. 7:38 will apply, using a much more stringent nitrate target.



## VI. Wastewater Capacity Analysis

The next step in the wastewater management planning process is to assess whether there is sufficient wastewater treatment capacity to meet the needs of the County based on the projections described above. For SSAs this requires the aggregation of municipal wastewater generation projections by sewage treatment plant to the existing permitted capacity of each facility. In GSAs, the default wastewater management alternative is discharge to groundwater less than 2,000 gallons per day, commonly referred to as septic systems. The assessment of water quality impacts from development on septic systems relies on nitrate concentration as determined by the nitrate dilution analysis.

### Sewer Service Area Wastewater Capacity Analysis

For the Sewer Service Areas, this analysis required the aggregation of municipal wastewater projections by sewage treatment plant and a comparison of the projected future demand to the existing permitted capacity of the sewage treatment plant. This was done by delineating SSA and determining build-out in each SSA as described in the previous sections of this WMP.

Existing SSAs served by these wastewater facilities are shown on a county-wide basis on Map 2 and on a municipal basis on Map 2M found in each individual municipal chapter. Future SSAs proposed for each wastewater facility are shown on a county-wide basis on Map 3 and on a municipal basis on Map 3M found in each individual municipal chapter.

**Table 8 - Sewer Service Area Evaluation by Facility and Municipality** is a summary of committed, anticipated future flows, and permitted or allocated wastewater flows by sewage treatment facility, with a subsequent breakdown by municipality. Additional details are included within the municipal chapters that are presented in Volume II and in the facility tables located in Appendix C.



**Table 8 - Sewer Service Area Evaluation by Facility and Municipality**

Facility	NJPDES Permit	Facility Type (DGW/ DSW)	Municipality	Committed Flow (mgd)	Build-out or 20 Year Projected Flow (mgd)	Permitted / Allocated Flow (mgd)
Greystone Park Psych. Hospital STP	NJ0026689	DSW	<b>Facility Totals</b>			
			Denville Township			
			Parsippany-Troy Hills Township			
Hanover Sewerage Authority STP	NJ0024902	DSW	<b>Facility Totals</b>			
			East Hanover Township			
			Hanover Township			
			Parsippany-Troy Hills Township			
			Morris Plains Borough			
Hackettstown Municipal Utilities Authority WPCP	NJ0021369	DSW	<b>Facility Totals</b>			
			Mount Olive Township			
			Washington Township			
Molitor WPCF (Madison-Chatham Joint Meeting)	NJ0024937	DSW	<b>Facility Totals</b>			
			Chatham Borough			(1)
			Chatham Township	0.007	0.010	(1)
Madison Borough			(1)			
Morristown Sewer Utility STP	NJ0025496	DSW	<b>Facility Totals</b>			



Wastewater Management Plan for Morris County  
 Future County Wastewater Demand and Facilities

Facility	NJPDES Permit	Facility Type (DGW/ DSW)	Municipality	Committed Flow (mgd)	Build-out or 20 Year Projected Flow (mgd)	Permitted / Allocated Flow (mgd)
			Hanover Township			
			Morris Township			
			Morristown Town			
Butterworth STP	NJ0024911	DSW	<b>Facility Totals</b>			
			Morris Township			
			Morris Plains			
			Parsippany-Troy Hills			
			Randolph Township			
Woodland STP	NJ0024929	DSW	<b>Facility Totals</b>			
			Morris Township			
			Morristown Town			
			Harding Township			
			Florham Park Borough			
			Madison Borough			
Musconetcong Sewerage Authority Sewage STP	NJ0027821	DSW	<b>Facility Totals</b>			
			Mount Arlington Borough			
			Mount Olive Township			
			Netcong Borough			
			Roxbury Township			
			Jefferson Township			
Parsippany-Troy Hills STP	NJ0024970	DSW	<b>Facility Totals</b>			
			Denville Township			
			East Hanover Township			
			Montville Township			



Wastewater Management Plan for Morris County  
County-Wide Summary

Facility	NJPDES Permit	Facility Type (DGW/ DSW)	Municipality	Committed Flow (mgd)	Build-out or 20 Year Projected Flow (mgd)	Permitted / Allocated Flow (mgd)
			Mountain Lakes Borough			
			Parsippany-Troy Hills Township			

Rockaway Valley Regional Sewerage Authority STP	NJ0022349	DSW	<b>Facility Totals</b>			
			Boonton Town			
			Boonton Township			
			Denville Township			
			Dover Town			
			Mine Hill Township			
			Parsippany-Troy Hills Township			
			Randolph Township			
			Rockaway Borough			
			Rockaway Township			
			Rockaway Township - Picatinny Arsenal			
			Victory Gardens Borough			
			Wharton Borough			
Two Bridges Sewerage Authority WWTP	NJ0029386	DSW	<b>Facility Totals</b>			
			Butler Borough			



Wastewater Management Plan for Morris County  
 Future County Wastewater Demand and Facilities

Facility	NJPDES Permit	Facility Type (DGW/ DSW)	Municipality	Committed Flow (mgd)	Build-out or 20 Year Projected Flow (mgd)	Permitted / Allocated Flow (mgd)
			Kinnelon Borough			
			Lincoln Park Borough			
			Pequannock Township			
			Riverdale Borough			
Ajax Terrace Water Pollution Control Plant	NJ0022675	DSW	Roxbury Township			
Chatham Township Water Pollution Control Plant #1 (Chatham Main) <sup>2</sup>	NJ0020290	DSW	Chatham Township	0.811	0.99	1.155
Chester Borough WWTP	NJ0054101	DGW	Chester Borough			
Clover Hill STP	NJ0021954	DSW	Mount Olive Township			
Long Hill Township STP	NJ0024465	DSW	Long Hill Township			
Mendham Borough STP	NJ0021334	DSW	Mendham Borough			
Moosepac Pond STP	NJ0081086	DGW	Jefferson Township			
Mount Olive Villages STP	NJ0099538	DGW	Mount Olive Township			
United Water Mid-Atlantic STP	NJ0065226	DGW	Mount Arlington Borough			
White Rock Lake STP	NJ0026867	DSW	Jefferson Township			
Hercules Company WPCP	NJ0000876	DSW	Roxbury Township			

<sup>1</sup> Facility has no allocation for this municipality.

<sup>2</sup> The Chatham Township WPCP #1 (Chatham Main (NJPDES NJ0020290)) facility includes Chatham Township WPCP #2 flows (Chatham Glen Facility (NJPDES NJ0052256)). These facilities are being combined into one SSA.

Note: This table will be updated as individual municipal chapters are adopted.



## Discussion of Sewer Service Area Wastewater Capacity Analysis

Table 9 shows the following facilities have a calculated deficiency in wastewater treatment capacity based on build-out estimates and their NJDPES permit flow value. All facilities listed are publically owned treatment works (POTWs).

At this point **there** are no facilities under review for the Morris County WMP.

## General Service Area Evaluation

Using a nitrate dilution analysis, Total Systems Allowed (Nitrate Dilution) was calculated for each HUC 14 and municipality with a target of 2 ppm nitrate concentration and based on the overall dilution available in the watershed. Only non-hydric soil types were considered in this analysis.

For comparison purposes, Total Systems Allowed (Zoning) was also calculated for these same areas. It is based on the potential wastewater flow in the GSAs expressed as the number of equivalent 3 bedroom single family homes generating 350 gpd each.

Table 9 compares the allowable units within each HUC 11 and 14 on a municipal basis and a HUC basis to the number of units that could be built under the existing zoning within that watershed. The zoning within the GSA for discharges to ground water equal to or less than 2,000 gallons per day (i.e., septic systems or individual subsurface sewage disposal systems, ISSDS) for the municipality was compared to the allowable densities as determined through nitrate dilution analysis. For the purposes of this analysis it is inconsequential if one municipality's zoning exceeds its allocation provided that the HUC 11 or 14 does not exceed the total sustainable development. Where a municipal chapter does not exist, the WMP for Morris County removes that municipality's land area from the analysis. This evaluation will be updated as individual municipal chapters are included into the Morris County WMP when they are adopted. NJDEP will use its regulatory authority under NJAC 7:15 and other laws to ensure compliance with the 2 ppm nitrate dilution standard or the Highlands rules at NJAC 7:38, whichever is more stringent, for any development regulated by NJDEP. Developments in such municipalities that do not require any NJDEP approval will not be affected.

Existing GSAs are shown on a county-wide basis on Map 2 and on a municipal basis on Map 2M found in each individual municipal chapter. Future GSAs are shown on a county-wide basis on Map 3 and on a municipal basis on Map 3M found in each individual municipal chapter. The delineation of GSAs include any area that are not specified as a SSA.

Table 9 - General Service Area Evaluation by HUC11, HUC14 and Municipality <sup>2</sup>

HUC 11	HUC 14	Municipality <sup>1</sup>	Municipal Nitrate Dilution by HUC14	Total Nitrate Dilution by HUC14	Municipal Build-out by HUC 14 (Equivalent Homes)	Total Build-out by HUC 14 (Equivalent Homes)	Municipal Surplus/ Deficit by HUC 14 (Equivalent Homes)	Total Surplus/ Deficit by HUC 14 (Equivalent Homes)
02030103010	02030103010010	Harding Township						
		Mendham Borough						
		Mendham Township						
	02030103010020	Harding Township						
	02030103010030	Harding Township						
	02030103010040	Chatham Township	52.92		10.00		42.92	
		Harding Township						
	02030103010050	Harding Township						
	02030103010060	Chatham Township	84.74		84.00		0.74	
		Harding Township						
	02030103010070	Harding Township						
	02030103010110							
	02030103010120	Chatham Township	2.83		0.00		2.83	
	02030103010130	Chatham Township	12.28		9.00		3.28	
02030103010150	Chatham Township	0.00		0.00		0.00	0.00	
<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>								<b>49.77</b>
02030103020	02030103020010	Mendham Township						
		Randolph Township						

HUC 11	HUC 14	Municipality <sup>1</sup>	Municipal Nitrate Dilution by HUC14	Total Nitrate Dilution by HUC14	Municipal Build-out by HUC 14 (Equivalent Homes)	Total Build-out by HUC 14 (Equivalent Homes)	Municipal Surplus/ Deficit by HUC 14 (Equivalent Homes)	Total Surplus/ Deficit by HUC 14 (Equivalent Homes)
	02030103020020	Harding Township						
		Mendham Township						
	02030103020030	Denville Township						
		Morris Plains Borough						
		Parsippany-Troy Hills						
	02030103020040	Mendham Township						
		Morris Plains Borough						
		Parsippany-Troy Hills						
		Randolph Township						
	02030103020050	Hanover Township						
	02030103020060	Hanover Township						
		Parsippany-Troy Hills						
	02030103020070	Hanover Township						
	02030103020080	Denville Township						
		Mountain Lakes Borough						
		Parsippany-Troy Hills						
	02030103020090	Hanover Township						
		Parsippany-Troy Hills						
02030103020100	Hanover Township							
	Parsippany-Troy Hills							
<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>								
02030103030	02030103030030	Rockaway Township						
		Jefferson Township						
	02030103030040	Roxbury Township						



HUC 11	HUC 14	Municipality <sup>1</sup>	Municipal Nitrate Dilution by HUC14	Total Nitrate Dilution by HUC14	Municipal Build-out by HUC 14 (Equivalent Homes)	Total Build-out by HUC 14 (Equivalent Homes)	Municipal Surplus/ Deficit by HUC 14 (Equivalent Homes)	Total Surplus/ Deficit by HUC 14 (Equivalent Homes)
	02030103030060	Rockaway Township						
	02030103030070	Mine Hill Township						
		Randolph Township						
		Rockaway Township						
		Roxbury Township						
		Wharton Borough						
	02030103030080	Denville Township						
		Randolph Township						
	02030103030090	Denville Township						
		Randolph Township						
		Rockaway Township						
	02030103030110	Denville Township						
		Rockaway Township						
	02030103030120	Denville Township						
		Mountain Lakes Borough						
		Parsippany-Troy Hills						
		Randolph Township						
	02030103030130	Boonton Township						
		Montville Township						
		Rockaway Township						
	02030103030140	Boonton Township						
		Denville Township						
		Mountain Lakes Borough						
	02030103030150	Boonton Township						

HUC 11	HUC 14	Municipality <sup>1</sup>	Municipal Nitrate Dilution by HUC14	Total Nitrate Dilution by HUC14	Municipal Build-out by HUC 14 (Equivalent Homes)	Total Build-out by HUC 14 (Equivalent Homes)	Municipal Surplus/ Deficit by HUC 14 (Equivalent Homes)	Total Surplus/ Deficit by HUC 14 (Equivalent Homes)
		Mountain Lakes Borough						
		Parsippany-Troy Hills						
	02030103030160	Boonton Township						
		Montville Township						
	02030103030170	Montville Township						
		Parsippany-Troy Hills						
	<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>							
02030103040	02030103040010	Lincoln Park Borough						
		Montville Township						
	<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>							
02030103050080	02030103050080	Butler Borough						
		Kinnelon Borough						
		Pequannock Township						
		Riverdale Borough						
	<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>							
02030103100070	02030103100070	Pequannock Township						
<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>								
02030103110	02030103110010	Kinnelon Borough						
		Lincoln Park Borough						
		Montville Township						
		Pequannock Township						
	02030103110020	Lincoln Park Borough						
		Pequannock Township						

HUC 11	HUC 14	Municipality <sup>1</sup>	Municipal Nitrate Dilution by HUC14	Total Nitrate Dilution by HUC14	Municipal Build-out by HUC 14 (Equivalent Homes)	Total Build-out by HUC 14 (Equivalent Homes)	Municipal Surplus/ Deficit by HUC 14 (Equivalent Homes)	Total Surplus/ Deficit by HUC 14 (Equivalent Homes)
<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>								
02030105010	02030105010010	Mt Arlington Borough						
		Roxbury Township						
	02030105010020	Mt Olive Township						
		Roxbury Township						
		Washington Township						
	02030105010030	Mt Olive Township						
	02030105010040	Washington Township						
	02030105010050	Washington Township						
	02030105010060	Washington Township						
<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>								
02030105020	02030105020010	Washington Township						
02030105050	02030105050010	Mine Hill Township						
		Mt Arlington Borough						
		Randolph Township						
		Roxbury Township						
	02030105050020	Randolph Township						
		Roxbury Township						
	02030105050030	Chester Borough						
		Washington Township						
	02030105050040	Washington Township						
02030105050070	Washington Township							
02030105050080	Washington Township							
<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>								

HUC 11	HUC 14	Municipality <sup>1</sup>	Municipal Nitrate Dilution by HUC14	Total Nitrate Dilution by HUC14	Municipal Build-out by HUC 14 (Equivalent Homes)	Total Build-out by HUC 14 (Equivalent Homes)	Municipal Surplus / Deficit by HUC 14 (Equivalent Homes)	Total Surplus / Deficit by HUC 14 (Equivalent Homes)
02030105060	02030105060010	Mendham Borough						
		Mendham Township						
		Randolph Township						
	02030105060020	Chester Borough						
		Chester Township						
		Mendham Township						
		Randolph Township						
	02030105060030	Chester Township						
		Mendham Borough						
		Mendham Township						
	02030105060040	Mendham Township						
	02030105060050	Chester Borough						
		Mendham Township						
	<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>							
02030105150	02040105150020	Jefferson Township						
		Mt Arlington Borough						
		Roxbury Township						
	02040105150030	Mt Olive Township						
		Roxbury Township						
	02040105150070	Mt Olive Township						
	02040105150080	Mt Olive Township						
	02040105150090	Washington Township						
	02040105150100	Washington Township						
	<b>Total Surplus / Deficit by HUC 11(Equivalent Homes)</b>							

<b>HUC 11</b>	<b>HUC 14</b>	<b>Municipality <sup>1</sup></b>	<b>Municipal Nitrate Dilution by HUC14</b>	<b>Total Nitrate Dilution by HUC14</b>	<b>Municipal Build-out by HUC 14 (Equivalent Homes)</b>	<b>Total Build-out by HUC 14 (Equivalent Homes)</b>	<b>Municipal Surplus/ Deficit by HUC 14 (Equivalent Homes)</b>	<b>Total Surplus/ Deficit by HUC 14 (Equivalent Homes)</b>
02030105160	02040105160010	Washington Township						
	02040105160020	Washington Township						
	<b>Total Surplus/ Deficit by HUC 11(Equivalent Homes)</b>							

<sup>1</sup> The following municipalities have conformed to the Highlands Regional Master Plan for the planning area and build-out will be provided by the Highlands Council; Chester Township, Kinnelon Borough, Parsippany-Troy Hills Township, Randolph Township, Rockaway Township, Washington Township, and Wharton Borough.

<sup>2</sup> Values will be updated as each municipal chapter is updated. Surpluses and deficits will change as each municipal chapter is updated. Non-Highlands towns are analyzed on a HUC11, while Highlands’s towns are analyzed on a HUC14.



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## Discussion of General Service Area Results

The GSA Capacity Analysis will remain incomplete for those HUC14s which include municipalities which have filed a petition to conform to the Highlands RMP. The results for these HUCs will be finalized once applicable data has been supplied by the Highlands Council.

### Table 11 – HUCs Subject to Further Review

At this point there are no HUCs under review for Morris County.

## Compliance with Environmental Protection Standards

One important purpose of the WMP is to help ensure that proposed wastewater service areas are properly located to minimize primary and secondary environmental impacts. The WQMP rules require that development densities and aggregated demands or impacts remain within thresholds. Where the thresholds are exceeded, either the size or development density of a SSA or the development density of a GSA must be reduced, or the impact must be mitigated. This plan has demonstrated compliance with these capacity constraints.

However, there are other environmental considerations regarding pollutant loadings, water supply and other factors. In some cases (e.g., riparian zones and steep slopes) the WQMP rules require that municipal ordinance ensure protection of these areas regardless of their wastewater service area. Further, the WQMP rules establish that avoidable development within these areas is inconsistent with the Statewide Water Quality management plans and the Department cannot issue any permits or approvals for development of these areas.

## Environmental Protection Ordinances

Table 12 –addresses the status of requirements for municipal ordinances regarding the protection of steep slopes, riparian zones and the maintenance of septic systems as addressed in the municipal chapters.

**Table 12 - Status of Municipal Ordinances and Master Plan**

Municipality	Zoning Ordinance	Stormwater Ordinance	Riparian Zone Ordinance	Steep Slope Ordinance	Septic System Maintenance
Chatham Township	NA	6/25/2006	6/25/2009	7/18/13	12/8/09

Note: This table will be updated as individual municipal chapters are adopted.





## VII. Future County Water Supply

### Future Water Demand

**Table 13** provides estimates for each HUC14 regarding anticipated incremental water demand based on build-out for each water purveyor, municipality, and wastewater treatment facility. Incremental water demand was calculated by adding [potential residential EDU's \* 320 (gpd)] + [potential non-residential square footage \* 0.125 (gpd)].

Water demand for Highlands Conforming municipalities has not been generated by the County. Water demand will be developed as municipalities go through the Highlands Council Plan Conformance process which is a cooperative effort between the Highlands Council and the municipality. Please see those municipal chapters for information on water demand. Municipalities in **bold** in **Table 13** are conforming and are listed in **Table 5**.

As municipal chapters are updated, water demand calculations will be updated to reflect the current build-out analysis.



Table 13- Incremental Water Demand by PWSID and Municipality<sup>1</sup>

PWSID	Water Purveyor Name	Water Allocation Permit (MGM)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential				
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total		
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)		
None	None	None	Boonton Township	GSA	GSA								
				NJ0022349	ROCKAWAY VALLEY REG SA								
			Butler Borough	GSA	GSA								
			<b>Chester Township</b>	GSA	GSA								
			Denville Township	GSA	GSA								
				NJ0022349	ROCKAWAY VALLEY REG SA								
				NJ0024970	PARSIPPANY TROY HILLS								
			Hanover Township	GSA	GSA								
			Jefferson Township	GSA	GSA								
				NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY								
			<b>Kinnelon Borough</b>	GSA	GSA								
				NJ0029386	TWO BRIDGES WASTEWATER TREATMENT PLANT								
Lincoln Park Borough	GSA	GSA											
Mendham Borough	GSA	GSA											

PWSID	Water Purveyor Name	Water Allocation Permit (MGM)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential		
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)
				NJ0021334	MENDHAM BORO						
			Mendham Township	GSA	GSA						
			Montville Township	GSA	GSA						
				NJ0024970	PARSIPPANY TROY HILLS						
			Mt Arlington Borough	GSA	GSA						
			Mt Olive Township	GSA	GSA						
				NJ0021954	CLOVERHILL STP						
				NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY						
				NJPDES2	NJPDES2						
			Parsippany-Troy Hills	GSA	GSA						
				NJ0024970	PARSIPPANY TROY HILLS						
			Riverdale Borough	GSA	GSA						
				NJ0029386	TWO BRIDGES WASTEWATER TREATMENT PLANT						
			Rockaway Township	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						
			Roxbury Township	GSA	GSA						
				NJ0000876	HERCULES INC - KENVIL						

PWSID	Water Purveyor Name	Water Allocation Permit (MGM)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential		
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)
				NJ0022675	ROXBURY TOWNSHIP						
				NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY						
1401002	Boonton Town	6.224	Boonton Township	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						
1403001	Butler Boro	52.148	Butler Borough	GSA	GSA						
				NJ0029386	TWO BRIDGES WASTEWATER TREATMENT PLANT						
1406001	Chester Boro Water Utility	N/A	Chester Borough	GSA	GSA						
				NJ0054101	CHESTER BOROUGH WTF						
1408001	Denville Twp Water Dept	22.105	Boonton Township	GSA	GSA						
			Denville Township	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						
				NJ0024970	PARSIPPANY TROY HILLS						
			NJ0026689	GREYSTONE PARK PSYCH HOSPITAL							
1409001	Dover Water Dept	12.851	<b>Randolph Township</b>	NJ0022349	ROCKAWAY VALLEY REG SA						
			<b>Rockaway Township</b>	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						

PWSID	Water Purveyor Name	Water Allocation Permit (MGM)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential		
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)
1413001	Lakeshore Water Company	1.361	Harding Township	GSA	GSA						
1414003	Jefferson Twp MUA	1.617	Jefferson Township	GSA NJ0027821	GSA MUSCONETCONG SEWERAGE AUTHORITY						
1414009	Mountain Shore Water Supply	N/A	Jefferson Township	NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY						
1414011	Jefferson Twp Water Utility (Lake Hopatcong)	10.736	Jefferson Township	NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY						
1416001	Lincoln Park Water Department	3.700	Lincoln Park Borough	GSA NJ0029386	GSA TWO BRIDGES WASTEWATER TREATMENT PLANT						
1416004	Lincoln Park Jacksonville System	N/A	<b>Kinnelon Borough</b> Lincoln Park Borough	GSA GSA	GSA GSA						
1418002	Sisters of Christian Charity	N/A	Mendham Borough	NJPDES3	NJPDES3						
1419001	Roxiticus Water Company	N/A	Mendham Township	GSA	GSA						

PWSID	Water Purveyor Name	Water Allocation Permit (MG/M)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential			
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total	
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	
1420001	Mine Hill Twp Water Dept	2.190	Mine Hill Township	GSA	GSA							
				NJ0022349	ROCKAWAY VALLEY REG SA							
1421003	Montville Twp MUA	34.952	Montville Township	GSA	GSA							
				NJ0024970	PARSIPPANY TROY HILLS							
1424001	Southeast MCMUA	140.1	Chatham Township	NJ0020290	Chatham Main	93,750	93,750		0	640		
				GSA	GSA	0		640				
			Hanover Township	GSA	GSA							
				NJ0024902	HANOVER SEWERAGE AUTHORITY							
			Harding Township	GSA	GSA							
				NJ0024929	WOODLAND WATER POLLUTION CONTROL UTILITY(WPCU							
			Mendham Township	GSA	GSA							
			Morris Plains Borough	GSA	GSA							
NJ0024911	BUTTERWORTH WATER POLLUTION CONTROL UTILITY											
1425001	Mountain Lakes Water Dept	1.992	Mountain Lakes Borough	GSA	GSA							
				NJ0024970	PARSIPPANY TROY HILLS							

PWSID	Water Purveyor Name	Water Allocation Permit (MG/M)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential		
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)
1426004	United Water Arlington Hills	0.430	Mt Arlington Borough	GSA	GSA						
				NJ0065226	UNITED WATER ARLINGTON HILLS SEWERAGE CO INC						
1427005	Mount Olive Water Dept	24.648	Mt Olive Township	GSA	GSA						
				NJ0021954	CLOVERHILL STP						
1429001	Par-Troy Hills Water Dept	55.867	Parsippany-Troy Hills	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						
				NJ0024970	PARSIPPANY TROY HILLS						
				NJ0026689	GREYSTONE PARK PSYCH HOSPITAL						
1431001	Pequannock Twp Water Dept	52.708	Lincoln Park Borough	GSA	GSA						
			Pequannock Township	GSA	GSA						
				NJ0029386	TWO BRIDGES WASTEWATER TREATMENT PLANT						
1432001	MCMUA	58.075	Denville Township	GSA	GSA						
			Mt Arlington Borough	GSA	GSA						
				NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY						
				NJ0065226	UNITED WATER ARLINGTON HILLS SEWERAGE CO INC						

PWSID	Water Purveyor Name	Water Allocation Permit (MG/M)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential		
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)
			Randolph Township	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						
			Roxbury Township	NJ0024911	BUTTERWORTH WATER POLLUTION CONTROL UTILITY						
				GSA	GSA						
			Wharton Borough	NJ0022675	ROXBURY TOWNSHIP						
				GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						
1432003	Randolph Twp Water Diversion	5.138	Randolph Township	GSA	GSA						
1433001	Riverdale Boro Water Department	13.387	Riverdale Borough	GSA	GSA						
				NJ0029386	TWO BRIDGES WASTEWATER TREATMENT PLANT						
1434001	Rockaway Boro Water Dept	4.635	Rockaway Township	NJ0022349	ROCKAWAY VALLEY REG SA						
1435002	Rockaway Twp Water Dept	13.589	Rockaway Township	GSA	GSA						
				NJ0022349	ROCKAWAY VALLEY REG SA						



PWSID	Water Purveyor Name	Water Allocation Permit (MGM)	Municipality	Facility NJPDES Permit #	Facility Name	Nonresidential			Residential			
						Facility Net Nonresidential Buildout Total	Muni Net Nonresidential Buildout Total	Purveyor Net Nonresidential Buildout Total	Facility Net Residential Buildout Total	Muni Net Residential Buildout Total	Purveyor Net Residential Buildout Total	
						(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	(gpd)	
1436002	Roxbury Water Company	11.118	Mine Hill Township	GSA	GSA							
			Roxbury Township	GSA	GSA							
				NJ0022675	ROXBURY TOWNSHIP							
1436003	Roxbury Twp Water Dept (Shore Hills)	9.352	Mt Arlington Borough	NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY							
			Roxbury Township	GSA	GSA							
				NJ0022675	ROXBURY TOWNSHIP							
				NJ0027821	MUSCONETCONG SEWERAGE AUTHORITY							
712001	NJAW (Short Hills)	370.4	Chatham Township	GSA	GSA	125	4,896		26,560	62,720		
				NJ0020290	CHATHAM TWP MAIN SIP	2,271			35,840			
				NJ0024937	MOLITOR WATER POLLUTION CONTROL FACILITY	2,500			320			
			Harding Township	GSA	GSA							
				Pending5	Pending5							
			Long Hill Township	GSA	GSA							
				NJ0024465	LONG HILL TOWNSHIP STP							
			Mendham Borough	GSA	GSA							
NJ0021334	MENDHAM BORO											
Mendham Township	GSA	GSA										

Note: This table will be updated as individual municipal chapters are adopted.



In addition to these values, the NJDEP Highlands Rules restricts development densities and the extension of public water service into the Highlands Preservation Area to development types specified in the Highlands Water Protection and Planning Act.

## **Sufficiency of Water Supply**

Pursuant to N.J.A.C. 7:15-5.25(f), a water supply analysis for Morris County is required to demonstrate that the water supply needs associated with existing and future development do not conflict with the current New Jersey State Water Supply Plan. The current New Jersey State Water Supply Plan was adopted in August 1996.

Insufficient water supply information is available at this time to make any firm determinations on the sufficiency of water supply. This evaluation will be updated as individual municipal chapters are adopted. However, based on the information in Table 13 above, there is no information indicating that there is a shortage of water supply. Further, there are no significant water supply issues identified in the current State Water Supply Plan for the planning areas impacting Morris County.<sup>2</sup>

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<sup>2</sup> As indicated by NJDEP analysis.

# Appendices



## **Appendix A - Alternative Assignment of WMP Responsibility**

Documentation of any alternative assignments of WMP responsibility is included in this Appendix, based on the following listing:

<b>Table A1 - Alternative Assignment of WMP Responsibility</b>		
<b>Municipality</b>	<b>Assigned To</b>	<b>Assignment Date</b>
Washington Township	Washington Township	February 1, 2012



## **Appendix B - USEPA Section 201 Map Revisions or Grant Waivers**

Grant Waivers are required for the following facilities in Morris County:

- Denville Township
- East Hanover Township
- Florham Park Sewerage Utility
- Musconetcong Sewerage Authority
- Pequannock River Basin Regional Sewerage Authority
- Rockaway Valley Regional Sewerage Authority

This list is available at <http://www.epa.gov/region2/water/sewer.html>.





## Appendix C – Wastewater Facility Tables

The wastewater facility tables for all sanitary and/or process wastewater discharge to surface water facilities and those sanitary/ and/or process wastewater discharge to groundwater facilities discharging greater than 2,000 gallons per day (i.e., requiring NJPDES permits) are listed below, based on whether they are domestic or industrial wastewater treatment facilities, and whether they have service areas that affect more than one municipality.

**Facility Tables for each of the municipalities is as follows:**

→ Chatham Township facilities tables are shown in tables C1405-1 through C1405-6

*\*Infiltration/Inflow (I/I): Existing I/I should be identified. However, additional future I/I may not be projected. (The NJPDES Treatment Works Approval regulations make numerical allowances for I/I). The existing I/I can be carried-over and accounted for in the total future wastewater flow.*



<b>Table C1405-1 DOMESTIC TREATMENT FACILITY SERVING ONE MUNICIPALITY</b>		
1. Existing facility:	Chatham Main STP (Chatham WPCP #1)	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0020290	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Passaic River	
5. Classification of receiving water or aquifer:	FW2-NT(C2)	
6. Owner of facility:	Chatham Township	
7. Operator of facility:	Chatham Township	
8. Co-Permittee of facility ( <i>where applicable</i> ):	N/A	
9. Location of facility:		
a. Municipality & County	Chatham Township, Morris County	
b. Street address	Tanglewood Lane, Chatham, NJ 07928	
c. Block(s) and Lot(s)	Block 18 Lot 92	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74° 23' 53.1" W b. Latitude 40° 43' 04.3" N c. State Plane Coordinates X: 520374 Y: 686603	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	1.155 MGD	
*12. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2010) Population	Build-out or 20-Year Future (Year 2030)
Municipality: Chatham Township	9,880	10,897
<b>Total</b>		
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a	Current Flow (in MGD)	Build-out (in MGD)
Municipality: Chatham Township		
Residential flow	0.561	0.595
Commercial flow	0.036	0.075
Industrial flow	0.000	0.000
Infiltration/Inflow	0.214	0.214
Municipal Total - Actual / Actual with Build-out	<b>0.811</b>	<b>0.884</b>
Approved TWA's	0.078	0.078
Municipal Total - Committed Flow	<b>0.889</b>	
Septics in the SSA		0.028
Municipal Total - Projected Flow		<b>0.990</b>
<b>Facility Total - Actual Flow</b>	<b>0.811</b>	
<b>Facility Total - Committed Flow</b>	<b>0.889</b>	
<b>Facility Total - Projected Flow</b>		<b>0.990</b>



<b>Table C1405-2 DOMESTIC TREATMENT FACILITY SERVING MULTIPLE MUNICIPALITIES</b>		
1. Existing facility:	Molitor WPCF (Madison Chatham Joint Meeting)	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0024937	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Passaic River	
5. Classification of receiving water or aquifer:	FW2-NT(C2)	
6. Owner of facility:	Madison-Chatham Joint Meeting	
7. Operator of facility:	Christopher Manak, Superintendent	
8. Co-Permittee of facility ( <i>where applicable</i> ):		
9. Location of facility:		
a. Municipality & County	Chatham Borough, Morris County	
b. Street address	214 North Passaic Avenue, Chatham, NJ 07928	
c. Block(s) and Lot(s)	Block 42 Lot 4	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74° 22' 10" W	
	b. Latitude 40° 44' 58"N	
	c. State Plane Coordinates X: 528002 Y: 698055	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	3.5 MGD	
*12. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2010) Population	Build-out or 20-Year Future (Year 2030)
Municipality: Chatham Township	50	55
<b>Total</b>		
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 2008) Flow (in MGD)	Build-out or 20-Year Future (Year 2030) (in MGD)
Municipality: Chatham Township		
Residential flow	0.007	0.007
Commercial flow	0.000	0.002
Industrial flow	0.000	0.000
Infiltration/Inflow	0.000	0.000
Municipal Total - Actual / Actual with Build-out	<b>0.007</b>	<b>0.0089</b>
Approved TWA's	0.000	0.000
Municipal Total - Committed Flow	<b>0.007</b>	0.000
Septics in the SSA	0.000	0.0003
Municipal Total - Projected Flow *	0.007	<b>0.0092</b>
<b>Facility Total - Actual Flow</b>	<b>TBD</b>	0.0092
<b>Facility Total - Committed Flow</b>	<b>TBD</b>	0.0092
<b>Facility Total - Projected Flow</b>	0.007	<b>TBD</b>

\*Only Chatham Twp flows are listed here. See current Molitor WPCF (Madison Chatham Joint Meeting) Facility Table.



**Table C1405 - 3  
ON-SITE DOMESTIC TREATMENT FACILITIES**

1. Existing facility:	St Hubert's Animal Welfare Center	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0168114	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:	II-A	
5. Classification of receiving water or aquifer:	Quaternary Age Alluvial Deposits	
6. Owner of facility:	St. Huberts Animal Welfare Center	
7. Operator of facility:	Meg M. Struble	
8. Co-Permittee of facility ( <i>where applicable</i> ):		
9. Location of facility:	575 Woodland Rd, Chatham Twp, NJ 07928	
a. Municipality & County	Chatham Twp, Morris County	
b. Street address		
c. Block(s) and Lot(s)	Block 142 Lot 4	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude ____ 74 26 43 W _____	
	b. Latitude _____ 40 45 54 N _____ or	
	c. State Plane Coordinates _____	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.0055 mgd	
*13. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2013) Population	Build-out
	<b>Total</b>	12,350 sq ft
*14. Summary of wastewater flow received/to be received as a 3-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 20__) Flow (in MGD)	Build-out or 20-Year Future (Year 20__) as applicable (in MGD)
	Residential flow	0
Commercial flow	0.002	0.0055
Industrial flow	0	0
Infiltration/Inflow	0	0
<b>Facility Total</b>	<b>0.002</b>	<b>0.0055</b>

\* Infiltration/Inflow (I/I): Existing I/I should be identified. However, additional future I/I may not be projected. (The NJPDES Treatment Works Approval regulations make numerical allowances for I/I.) The existing I/I can be carried-over and accounted for in the total future wastewater flow.





**Table C1405 -4  
ON-SITE DOMESTIC TREATMENT FACILITIES**

1. Existing facility:	Chatham Hill STP (Park Central TP)	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0020281	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Passaic River	
5. Classification of receiving water or aquifer:	FW2-NT(C2)	
6. Owner of facility:	Salem Management Co.	
7. Operator of facility:	Paul Donovan	
8. Co-Permittee of facility ( <i>where applicable</i> ):		
9. Location of facility:		
a. Municipality & County	Chatham Twp, Morris County	
b. Street address	River Road	
c. Block(s) and Lot(s)	Block 63 Lot 21.01	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude _____ 74 24 36 W	
	b. Latitude _____ 40 42 46 N_ or	
	c. State Plane Coordinates	_____
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.030 MGD	
*13. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2013) Population	Build-out
<b>Total</b>	250	250
*14. Summary of wastewater flow received/to be received as a 3-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 20__) Flow (in MGD)	Build-out or 20-Year Future (Year 20__) as applicable (in MGD)
Residential flow	0.007	0.007
Commercial flow	0	0
Industrial flow	0	0
Infiltration/Inflow	0.008	0.008
<b>Facility Total</b>	<b>0.015</b>	<b>0.015</b>

\* Infiltration/Inflow (I/I): Existing I/I should be identified. However, additional future I/I may not be projected. (The NJPDES Treatment Works Approval regulations make numerical allowances for I/I.) The existing I/I can be carried-over and accounted for in the total future wastewater flow.



<b>Table C1405- 5 DOMESTIC TREATMENT FACILITY SERVING ONE MUNICIPALITY</b>		
1. Existing facility:	Chatham Glen STP (Chatham WPCP #2)	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	NJ0052256	
3. Discharge to ground water (DGW) or surface water (DSW):	DSW	
4. Receiving water or aquifer:	Passaic River	
5. Classification of receiving water or aquifer:	FW2-NT(C2)	
6. Owner of facility:	Chatham Township	
7. Operator of facility:	Chatham Township	
8. Co-Permittee of facility ( <i>where applicable</i> ):	N/A	
9. Location of facility:		
a. Municipality & County	Chatham, Morris County	
b. Street address	Riveredge Drive, Chatham, NJ 07928	
c. Block(s) and Lot(s)	Block 64.04 Lot 6	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude 74° 23' 53.1" W b. Latitude 40° 43' 04.3" N c. State Plane Coordinates X: 520374 Y: 686603	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.155 MGD	
*12. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 2010) Population	Build-out or 20-Year Future (Year 2030)
Municipality: Chatham Township	62	0
<b>Total</b>		
*13. Summary of wastewater flow received/to be received as a 30-day average flow for DSW or a daily maximum flow for DGW:	Current Flow (in MGD)	Build-out or 20-Year Future (Year 2030) (in MGD)
Municipality: Chatham Township		
Residential flow	0.120	0.000
Commercial flow	0.000	0.000
Industrial flow	0.000	0.000
Infiltration/Inflow	0.000	0.000
Municipal Total - Actual / Actual with Build-out	<b>0.120</b>	<b>0.000</b>
Approved TWA's	0.000	0.000
Municipal Total - Committed Flow	<b>0.120</b>	0.000
Septics in the SSA		0.000
Municipal Total - Projected Flow		<b>0.000</b>
<b>Facility Total - Actual Flow</b>	0.120	
<b>Facility Total - Committed Flow</b>	0.120	
<b>Facility Total - Projected Flow</b>		0.000



**Table C1405 -6  
ON-SITE DOMESTIC TREATMENT FACILITIES**

1. Existing facility:	Passaic River Park	
2. New Jersey Pollutant Discharge Elimination System Permit Number:	Pending	
3. Discharge to ground water (DGW) or surface water (DSW):	DGW	
4. Receiving water or aquifer:		
5. Classification of receiving water or aquifer:		
6. Owner of facility:	Morris County Park Commission	
7. Operator of facility:	Art Vitale	
8. Co-Permittee of facility ( <i>where applicable</i> ):		
9. Location of facility:		
a. Municipality & County	Chatham Twp, Morris County	
b. Street address	Wilson Avenue	
c. Block(s) and Lot(s)	Block 44 Lot 1	
10. Location of discharge (i.e. degrees, minutes, seconds):	a. Longitude _____	
	b. Latitude _____ or	
	c. State Plane Coordinates _____	
11. Present permitted flow or permit condition (DSW) or daily maximum (DGW):	0.0045 MGD	
*13. Summary of population served/to be served including major seasonal fluctuations:	Current (Year 20__) Population	Build-out or 20-Year Future (Year 20__) <i>specify one as applicable</i>
<b>Total</b>		
*14. Summary of wastewater flow received/to be received as a 3-day average flow for DSW or a daily maximum flow for DGW:	Current (Year 20__) Flow (in MGD)	Build-out (in MGD)
Residential flow	0.0045	0.0045
Commercial flow	0	0
Industrial flow	0	0
Infiltration/Inflow	0	0
<b>Facility Total</b>	<b>0.0045</b>	<b>0.0045</b>

\* Infiltration/Inflow (I/I): Existing I/I should be identified. However, additional future I/I may not be projected. (The NJPDES Treatment Works Approval regulations make numerical allowances for I/I.) The existing I/I can be carried-over and accounted for in the total future wastewater flow.



# **Glossary and Definitions**







- 20-year projected flows – are the projected wastewater flows in an urban municipality based on the 20-year estimated population growth or the maximum additional residential units expected in the municipality, whatever is larger. This is the maximum flow that the sewer service area is expected to produce without expanding in size.
- Actual flow – is the volume of sewage and other wastes currently being conveyed to and treated by a centralized treatment facility in a given amount of time.
- Aggregate - is a collection of information or values that are combined together to form a total quantity.
- Allocated flow – is the agreed upon wastewater flow between two parties, typically between a treatment facility and a municipality. The allocated flow is only a portion of the overall permitted flow for the centralized wastewater treatment facility.
- Available land – includes both undeveloped and underdeveloped parcels as defined below.
- Build-out – is the estimated fully developed condition when all undeveloped and underdeveloped lots have been developed to their full potential based on existing zoning.
- Build-out flows – are the projected wastewater flows based on the sewer service area being fully developed or in build-out conditions. This is the maximum flow that a sewer service area is expected to produce without expanding in size.
- Category one waters - are defined as waters protected from any measurable changes in water quality because of their exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources as defined in the existing Surface Water Quality Standards rules at N.J.A.C. 7:9B-1.4.
- Centralized sewer service – is also known as a sewer service area or SSA and represents the area to be served by a centralized wastewater treatment facility.
- Combined sewer system – is a sewer system that is designed to carry sanitary sewage at all times and that also is designed to collect and transport stormwater from streets and other sources, thus serving a combined purpose.
- Committed flow – is the sum of the actual flow plus the sum of all flows which are anticipated from connections which have been approved but are not yet in operation.

- Contiguous – is a continuous mass, or a series of things in contact or proximity with each other.
- Constraint – is a limitation or restriction.
- Development – is the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or other structure, or of any mining, landfill, excavation, roads, sewers and other infrastructure and any use or change in the use of any building or other structure, or land or extension of use of land.
- DGW – Discharge to Groundwater
- DMR – Discharge Monitoring Report
- DSW – Discharge to Surface Water
- EDUs – Equivalent Dwelling Units - a measure where one unit is equivalent to wastewater effluent from one dwelling unit. NJDEP defines a dwelling unit to mean any building or portion of a building, permanent or temporary, used or proposed to be used as a residence either seasonally or throughout the year. Most often, EDU is used in reference to a single family home.
- Facility table – is a table summarizing all wastewater flows for of a centralized wastewater treatment facility and its associated sewer service area. This table includes the aggregation of all municipal flows segregated by each treatment facility.
- gpd – gallons per day, a unit of flow measurement.
- GSA – General Service Area – represents the area to be served by residential septic systems. NJDEP refers to septic systems as discharges to groundwater with a design capacity of less than 2,000 gallons per day.
- GW – groundwater
- Highlands Council – is the Highlands Water Protection and Planning Council established pursuant to NJSA 13:20-4.
- Highlands planning area – is that portion of the Highlands Region not included within the Highlands Preservation Area, pursuant to N.J. S.A. 13:20-7(c).
- Highlands preservation area – is that portion of the Highlands Region so designated by N.J.S.A 13:20-7(b).
- Highlands Region – is that region so designated by N.J.S.A. 13:20-7.
- HUC11 - Hydrologic Unit Code consisting of 11 digits – a United States Geological Survey (USGS) standard designation for subwatersheds delineated based on topography.
- HUC14 – Hydrologic Unit Code consisting of 14 digits – a USGS standard designation for subwatersheds delineated based on topography.



- Individual Subsurface Disposal System (ISSDS) – means a system for the disposal of sanitary sewage into the ground, which is designed and constructed to treat sanitary sewage in a manner that will retain most of the settleable solids in a septic tank and discharge the liquid effluent to a disposal field
- mgd – million gallons per day, a unit of flow measurement.
- MCP&D – Morris County Department of Planning and Development – is the county agency in charge of preparation and maintenance of the Wastewater Management Plan.
- Morris County Board of Chosen Freeholders – is a seven-member Board governing Morris County. The Freeholder Board sets policies for the operation of six super-departments, more than 30 divisions plus authorities, commissions, boards and study committees. The Board of Chosen Freeholders has been granted broad powers by the state legislature to regulate county property, finances and affairs.
- Natural Heritage Priority Sites Coverage – was created to identify critically important areas to conserve New Jersey's biological diversity, with particular emphasis on rare plant species and ecological communities.
- NDM - Nitrate Dilution Model – The NDM is required by NJDEP and follows the calculations methodology developed by the New Jersey Geological Service. The NDM uses the soils type to estimate the minimum lot size needed to provide enough recharge to dilute nitrate to a specified target. This method is intended to be a guide for estimating the impact of nitrate from septic tanks on groundwater quality. The NDM uses the minimum lot size to calculate the number of EDUs possible for a given area.
- NJAC – New Jersey Administrative Code
- NJGS - New Jersey Geological and Water Survey
- NJDEP – New Jersey Department of Environmental Protection
- NJPDES – New Jersey Discharge Elimination System
- Non-discharge areas - areas where additional wastewater generation and/or discharge are prohibited.
- Non-Urban Municipality - any municipality that is not classified as urban. Build-out has been generated for these municipalities.
- Permitted flow – is the maximum allowable flow for a specific treatment works as stated in the facility's NJPDES permit or TWA, whichever is less.

- PPM – Parts per Million
- POTW – Publically Owned Treatment Works
- Riparian zone – is the land and vegetation within and directly adjacent to all surface waters including, but not limited to, lakes, ponds, reservoirs, perennial and intermittent streams.
- RMP – Regional Master Plan
- SSA – Sewer Service Area – represents the area to be served by a centralized treatment facility.
- STP – Sewage Treatment Plant; see also WPCF, WPCP, and WWTP.
- SW – surface water
- Threatened and Endangered Species Habitat – areas depict by NJDEP’s Landscape Project Rank 3, 4, 5 delineating areas used by or necessary for endangered and threatened species and other priority wildlife to sustain themselves successfully.
- Treatment Works Approval (TWA) – means an approval issued pursuant to N.J.S.A. 58:10A-6b and N.J.A.C. 7:14A.
- Undeveloped parcels - are those parcels where no development exists and the land has not been restricted from development through dedicated open space or agricultural preservation programs.
- Underdeveloped parcels – are those parcels where some level of development exists, but at a density less than allowed by zoning and where deed restrictions do not prevent further development.
- Urban Municipality – means those where 90% of the municipality’s developable land area appears as “Urban Lands” as designated by the NJDEP 2002 Land Use/Land Cover GIS database and amended and updated to reflect current conditions at the time of the analysis.
- Vacant Land – is a parcel of land without any building, structure or improvement, including impervious surfaces, but does not include recreation, green or open space created during development.
- Wastewater deficit – is when the projected build-out flow for a SSA or GSA would produce more wastewater than allowed by the allocation or nitrate dilution model.
- Wastewater Service Area - A sewer service area or a general service area approved for wastewater facilities with planning flows of less than 20,000 gallons per day (gpd) which discharge to groundwater and general service area for wastewater facilities with planning flows of less than 2,000 gallons per day (gpd) which discharge to groundwater.
- Wastewater surplus – is when the allocation or nitrate dilution model flow is greater than the projected build-out flows allowing the SSA



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- or GSA to fully develop with excess capacity.
  - WQMP – Wastewater Quality Management Plan
  - WMP – Wastewater Management Plan
  - WPCF – Water Pollution Control Facility
  - WPCP – Water Pollution Control Plant
  - WWTP or WTP – Wastewater Treatment Plant