

**Chapter IX.5**

**WASTEWATER MANAGEMENT PLAN  
FOR  
SALEM COUNTY, NEW JERSEY  
LOWER DELAWARE WATER QUALITY  
MANAGEMENT PLANNING AREA**

**LOWER ALLOWAYS CREEK TOWNSHIP  
CHAPTER**

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# I. INTRODUCTION

The purpose of this document is to provide a comprehensive Wastewater Management Plan (WMP) for Salem County. This chapter represents the Lower Alloways Creek Township portion of the WMP. The WMP has been submitted to the New Jersey Department of Environmental Protection for approval so that it may be incorporated into the Lower Delaware Water Quality Management Plan via the Plan Amendment Procedure (N.J.A.C 7:15).

Lower Alloways Creek (LAC) Township is located in the Delaware River Drainage Basin and the Lower Delaware Water Quality Management Planning Area. The Planning Area is not located within the jurisdiction of the Pinelands Commission nor is it located within the Coastal Area Facility Review Act (CAFRA) area. The future wastewater service area (FWSA) for the Township is identified on Map No.3. This service area does not include any areas that lay within adjacent municipalities.

The Township of Lower Alloways Creek is a rural, agriculturally based municipality bounded by Cumberland County (to the east), and three (3) Salem County municipalities including Salem City (to the North), Elsinboro Township (to the northwest) and Quinton Township (to the northeast). The Delaware Bay runs along the western boundary of the Township as well. Lower Alloways Creek Township encompasses a total area of 30,801 acres (47.8 square miles), making it the largest of Salem County’s municipalities. As its name implies, Lower Alloways Creek is also the wettest of Salem County’s municipalities, containing approximately 591.0 miles of streams, and 229.3 acres of surface water (ponds, lakes, and reservoirs) (shown in Map No.1). This municipality is largely undeveloped containing farms and small residential villages. Three of the state’s four nuclear power generator facilities are located in Lower Alloways Creek Township, as described later in this report. Lower Alloways Creek Township has the lowest population density in Salem County (approximately 39.6 people/sq mi) according to (2009) U.S. Census data.

Lower Alloways Creek Township has a population of 1,770 persons. The municipality’s population trend over the last decade can be seen as a -0.44% average decrease in population each year (-4.4% over ten years), according to the most recent (2010) U.S. Census data. Table 1.1 is a summary of the historic population and trends for the Township of Lower Alloways Creek. In terms of population change over the next three decades, Lower Alloways Creek is expected to experience small very little change. This is according to the most recent study by the South Jersey Transportation Planning Organization, prepared in 2011. A summary of the SJTPO projected population can be found below in Table 1.2:

**Table 1.1: Lower Alloways Creek- Historic Population**

Year	Population	Population Change	
		#	avg yearly %
1980	1,547		
1990	1,858	311	2.01%
2000	1,851	-7	-0.04%
2010*	1,770	-81	-0.44%

~Source: 1990 U.S. Census, \*2010 U.S. Census

**Table 1.2: Lower Alloways Creek- Projected Population**

Year	Population	Population Change	
		#	avg yearly %
2010	1,770		
2020	1,757	-13	-0.07%
2030	1,771	14	0.08%
2040	1,786	15	0.08%

~Source: SJTPO, 2011

**A. STATUS OF PREVIOUS APPROVED WMPs**

The Lower Alloways Creek Township (LAC) has submitted several Waster Quality Management Plans (WQMP's) / Amendments since 1985. These amendments have included proposed combinations or expansions of the existing sewer service areas, and proposal and elimination of treatment facilities.

The current WMP in effect for LAC Township is an amendment to the Lower Delaware WQMP, which was adopted on December 7, 1994. The enclosed plan reflects current zoning with proposed sewer service areas consistent with the Municipality's Master Plan. The LAC Township WMP has been incorporated within the overall Salem County Wastewater Management Plan. The proposed plan, upon adoption, will remain in force and in effect until the expiration date noted in the Chapter 1, Salem County Summary.

**B. CURRENT WASTEWATER SERVICES**

The Township of Lower Alloways Creek is served by two small "package" Sewage Treatment Plants (STP). The Canton Village STP provides service to the Village of Canton, and Hancocks Bridge STP serves the villages of Harmersville and Hancocks Bridge. Together, these sewer systems serve approximately 624 persons within the LAC sewer service areas according to current municipal data and DEP online sources. This equates to 0.94% of the total Salem County population (66,083 persons, 2010 U.S. Census) being served by the sewage treatment plants. The Green Valley Mobile Home Park, which stretches across Block 1, Lots 2 and 4 in Lower Alloways Creek Township and Block 3, Lot 2 in Quinton Township, is served by the Salem City Water and Sewerage Department.

The sewer service areas do not include industrial businesses that discharge process wastewater to the collection system for treatment by a facility. The existing sewer service limits, delineated on Map No.2, are served by the Canton Village STP, Hancocks Bridge STP, and the Salem City Wastewater Treatment Plant (mobile home site), and were derived from existing sanitary sewer infrastructure currently constructed and/or approved.

The Canton Village STP is located on Main Street and operates under NJPDES Permit Number- NJ0062201 effective on August 2003. Wastewater generated within the WMP existing sewer service area is conveyed to the STP, which is permitted to operate at 0.05 million gallons per day. The Canton Village STP currently receives contributing flow from residential living units. The average monthly flow generated by these contributors for 2010 was 0.0143 mgd.

The Hancocks Bridge Village STP is located on Main Street and operates under NJPDES Permit Number- NJ0050423 effective on January 2003. Wastewater generated within the WMP existing sewer service area is conveyed to the STP, which is permitted to operate at 0.05 million gallons per day. The Canton Village STP currently receives contributing flow from mostly residential units and a commercial building (US Post Office). The average monthly flow generated by these contributors for 2010 was 0.0107 mgd.

### **C. CURRENT WATER SERVICES**

The Township of Lower Alloways Creek contains one small community water supply system, which serves the Leisure Arms Complex for nursing and residential care. The Leisure Arms Complex system serves approximately 60 persons within its facilities according to current NJDEP data. This equates to 0.1 percent of the total Salem County population (66,083 persons, 2010 U.S. Census) being served by the system. The system is currently supplied by two on-site groundwater wells (Well No.1 and Well No.2).

Map No.1 depicts the areas actively served by existing public water supply facilities. As with sewer service, “actively served” means that the distribution lines exist and that the property either is connected or has all regulatory approvals necessary to be connected with no further review.

### **D. OVERVIEW OF ENVIRONMENTAL, AND LOCAL CONSIDERATIONS TO WASTEWATER SERVICES**

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 farmland 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.

The adopted 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 wetlands, category one water buffers, Natural Heritage Priority Sites and/or endangered and threatened species habitat. The extension of sewer service into these areas would encourage their development and thus conflict with the Department of Environmental Protection’s statutory mandate to protect these resources.

It should be noted that under limited circumstances environmentally sensitive areas that meet the 25 acre threshold may be included in the sewer service area as necessary to preserve the investment in projects having already received certain local and State approvals, to relate sewer service areas to recognizable geographic features, or to accomplish center based development proposed by the local land use planning authority and approved by the Department of Environmental Protection through the plan endorsement process. Additional local land use planning objectives used in delineating appropriate areas for public sewer service are discussed in this municipal chapter.

**E. OVERVIEW OF MAJOR WATER RESOURCE MANAGEMENT ISSUES**

Lower Alloways Creek Township's existing sewer service area is completely served by individual water wells. The municipality has not identified any issues regarding water quality, water supply or concerns with non-sewered areas.

**F. OVERVIEW OF FUTURE WASTEWATER SERVICES**

The Township of Lower Alloways Creek has identified the future sewer service area necessary to implement a portion of the goals and objectives of the Township's Master Plan. Those areas have been reduced to account for the environmental constraints pertaining to wetlands, the habitats of Threatened and Endangered Species, Riparian Corridors, FW-2 Waters. The proposed Sewer Service Area is identified on Map No.3.

The proposed future sewer service areas delineated on Map No.3 consists of proposed future areas outside the existing sewer service area. The remaining areas, not designated as a sewer service area will continue to be serviced by Individual Subsurface Sewerage Disposal Systems (ISSDS's) with wastewater flows less than or equal to 2,000 gpd.

Based on the environmental, and local land use planning objectives discussed above and the identified areas that are currently built but do not currently have adequate wastewater treatment, Map No.2 and Map No.3 identify areas presently served by public sewers and the appropriate areas to be served by public sewers in the future. These maps also identify sites that are served by an on-site treatment works, if applicable, that are regulated under a New Jersey Pollutant Discharge Elimination System permit. Each sewer service area is keyed to a specific sewage treatment plant which is the facility authorized under this plan to accept and treat wastewater from that sewer service area. Each sewage treatment plant identified in this plan has an accompanying facility table that provides information concerning that facility's owner, operator, permitted flow, existing flow, remaining permitted flow, projected build-out flow summarized by municipality.

Based on the build-out analysis of each sewer service area and the existing permitted capacity of the sewage treatment plants identified in this plan, sufficient wastewater treatment capacity exists to accommodate the currently proposed Sewer Service Area contributing both the Canton Village STP and Hancocks Bridge STP. For this reason, a future expansion of the existing treatment works will not be required to meet the future wastewater generation needs of the Canton Village area.

**G. SUMMARY OF SIGNIFICANT ACTIONS**

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008, 40 N.J.R. 4000(a), necessitated a modification to certain sewer service areas based on environmental sensitivity and local planning objectives as described in this document. In accordance with the regulatory requirements, undeveloped lands within the existing sewer service area have been removed based on the limits of environmental

constrained areas. In addition, areas have been added based on local planning objectives and an environmental sensitivity assessment. Maps No.2 and No.3 reflect the changes in sewer service area as a result of this wastewater management plan.

1. All areas not proposed to be included in the sewer service area in this WMP will be served by ISSDS's with 2,000 gpd or less flows.

## **II. EXISTING INFRASTRUCTURE AND TREATMENT FACILITIES**

### **A. EXISTING AREAS SERVED BY WASTEWATER FACILITIES**

Map No. 2 depicts the areas actively served by existing wastewater facilities, and the facilities tables in Chapter 7 (VII) provide detailed information on each facility. As with sewer service, the term "actively served" means that the collection lines exist and that the property either is connected or has all regulatory approvals necessary to be connected.

Lower Alloways Creek owns and operates two small sewage treatment plants; a brief description of each is given below:

#### **1. Canton Village Sewage Treatment Plant**

The Canton Village Sewage Treatment Plant is a localized system for the conveyance, treatment, and disposal of a portion of the municipality's wastewater within its service area. The STP treats domestic waste through an extended aeration process, and discharges the treated wastewater to Stow Creek under NJPDES Permit No. NJ0062201. The present permitted capacity of this plant is 0.05 million gallons per day (mgd). The design capacity of this plant is equal to the permitted capacity (0.05 mgd). The treatment system performance meets permitted parameters under current conditions.

#### **2. Hancocks Bridge Sewage Treatment Plant**

The Hancocks Bridge Sewage Treatment Plant is a localized system for the conveyance, treatment, and disposal of a portion of the municipality's wastewater within its service area. The STP treats domestic waste through an extended aeration process, and discharges the treated wastewater to Alloway Creek under NJPDES Permit No. NJ0050423. The present permitted capacity of this plant is also 0.05 mgd. The design capacity of this plant is equal to the permitted capacity (0.05 mgd). The treatment system performance meets permitted parameters under current conditions.



**B. MAJOR TRANSMISSION PIPING AND PUMPING STATIONS**

Lower Alloways Creek Township contains two (2) sewage treatment plants (STP), and a series of pump stations and force mains used to convey wastewater flow to the plants. Environmental & Technical Services, LLC operates the infrastructure including treatment plants and the sanitary collection system. The systems contain approximately 0.72 miles of sanitary sewer main with pipes ranging in size from 8 inches to 12 inches in diameter. The Township currently owns and operates eight (8) pump stations to operate the force mains to convey sewage to the STPs. All flow is conveyed to either the Canton Village STP or Hancocks Bridge STP.

Map No.2 depicts the major interceptors, trunk lines and pumping stations within the various sewer service areas for public wastewater treatment facilities.

**C. EXISTING ON-SITE, NON-INDUSTRIAL WASTEWATER FACILITIES**

These 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. Table 2.C.1 lists 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. The Wastewater Facilities Tables provided in Chapter 7 (VII) 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.

<b>Municipal Map Designation</b>	<b>Facility Name</b>	<b>NJPDES Permit Number</b>	<b>Discharge Type (Groundwater or Surface Water)</b>	<b>Facility Table Number</b>
11	Lower Alloways Ck - Hancocks Bridge	NJ0050423	DSW- A	11
12	Lower Alloways Ck - Canton Village	NJ0062201	DSW- A	12
13	Meadowview Acres Campground	NJG0112666	DGW- T1	13

**D. EXISTING INDUSTRIAL WASTEWATER FACILITIES**

Some industrial land uses have 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 ground water or to surface water. The Wastewater Facilities Tables provided in Chapter 7 (VII) list all existing industrial treatment facilities that discharge 2,000 gallons per day or more of domestic wastewater and are regulated under a NJPDES permit.

<b>Municipal Map Designation</b>	<b>Facility Name</b>	<b>NJPDES Permit Number</b>	<b>Discharge Type (Groundwater or Surface Water)</b>	<b>Facility Table Number</b>
14	PSE&G - Salem NGS	NJ0005622	DSW- B	14
15	PSE&G - Hope Creek NGS	NJ0025411	DSW-B	15

**E. GENERAL WASTEWATER MANAGEMENT AREAS FOR SEPTIC SYSTEMS**

Generally, the remaining areas of the Municipality, not otherwise designated as service areas for treatment facilities requiring a NJPDES permit, are included within a general wastewater management area for septic systems and other small treatment works that treat less than 2,000 gallons per day of wastewater and discharge to ground water.

**F. EXISTING WASTEWATER FLOWS**

The existing wastewater flows conveyed to the Lower Alloways Creek Township STPs were calculated based on flows metered by the Township. The present total average annual wastewater for 2010 was 0.025 mgd. The present average flow includes residential and commercial flows.

The following table 2.F.1 summarizes the permitted capacity of the treatment plants serving LAC and the associated average daily flows for 2010.

<b>WWTP</b>	<b>NJPDES Permit No.</b>	<b>Permitted Capacity/ Agreement (mgd)</b>	<b>Average Daily Flow 2010 (mgd)</b>	<b>Build-Out Projection (mgd)</b>
Canton Village STP	NJ0062201	0.050	0.014	0.032
Hancocks Bridge STP	NJ0050423	0.050	0.011	0.029

Monthly wastewater flow data for 2010 is identified in Table 2.F.2 below. The flows from these connections are identified within facilities tables provided within Chapter 7 (VII) of this report. Monthly wastewater flow data for 2010 is identified in Table 2.F.2 below.

<b>Table 2.F.2: Existing Wastewater Flows</b>					
<b>Month</b>	<b>Monthly Avg. (mgd)</b>	<b>Daily Max (mgd)</b>	<b>Estimated Monthly Avg. (mgd)</b>		
			<b>Canton Village STP</b>	<b>Hancocks Bridge STP</b>	
Jan-10	0.031	0.041	0.016	0.015	
Feb-10	0.032	0.069	0.018	0.015	
Mar-10	0.032	0.055	0.019	0.013	
Apr-10	0.027	0.040	0.017	0.010	
May-10	0.026	0.038	0.015	0.011	
Jun-10	0.021	0.042	0.012	0.009	
Jul-10	0.017	0.034	0.009	0.008	
Aug-10	0.024	0.225	0.016	0.008	
Sep-10	0.019	0.031	0.011	0.008	
Oct-10	0.022	0.035	0.013	0.008	
Nov-10	0.025	0.031	0.012	0.012	
Dec-10	0.025	0.036	0.012	0.012	
<b>Yearly Average</b>	<b>(mgd)</b>	<b>0.025</b>	<b>0.056</b>	<b>0.014</b>	<b>0.011</b>
	<b>(mgm)</b>	<b>0.760</b>		<b>0.431</b>	<b>0.329</b>
	<b>(mgy)</b>	<b>9.125</b>		<b>5.168</b>	<b>3.942</b>

**G. EXISTING WASTEWATER TREATMENT**

Existing wastewater treatment for Lower Alloways Creek Township contains extended aeration treatment at its two STPs.

**1. Canton Village Sewage Treatment Plant**

The Canton Village STP is currently operated under NJPDES permit number NJ0062201. The treatment plant consistently operates within current permit limits for BOD and TSS, based on 2010 data.

**2. Hancocks Bridge Sewage Treatment Plant**

The Hancocks Bridge STP is currently operated under NJPDES permit number NJ0050423. The treatment plant consistently operates within current permit limits for BOD and TSS, based on 2010 data.

## H. EXISTING PUBLIC WATER SUPPLY INFRASTRUCTURE

The Leisure Arms Complex is presently serviced from two (2) on-site ground water wells. Wells No.1 and No.2. Map No.1 depicts the areas actively served by existing public water supply facilities. As with sewer service, “actively served” means that the distribution lines exist and that the property either is connected or has all regulatory approvals necessary to be connected with no further review.

Lower Alloways Creek Township owns and operates the Leisure Arms community water system, which provides service to the Leisure Arms Complex community. The system is served by two (2) on-site wells. No major transmission lines exist for this system.

The following Table 2.H.1 summarizes each public community water supply facility currently serving the municipality. The franchise areas are depicted on Map No.1.

<b>Well Permit Number</b>	<b>Well Designation</b>	<b>Pump Capacity (gpm)</b>	<b>Aquifer</b>
3400001599	1	65	N/A
3400001600	2	65	N/A

## I. EXISTING PUBLIC WATER SUPPLY ALLOCATION AND DAILY DEMANDS

This Section is not applicable, as LAC Township does not own currently have any community water system permit for water allocation. The above mentioned Leisure Arms system currently has a firm capacity of 0.094mgd with an average daily usage of approximately 3,700 gallons/day ((0.0037 mgd) based upon the 2010 calendar year.

## III. ENVIRONMENTAL AND OTHER LAND FEATURES

A full description of the mapping of environmental features for the County can be found in **Chapter I** of this report. This section includes a summary of the environmental features and public open space for the municipality that were taken into account when preparing the mapping. These features are significant to wastewater management planning for three reasons: they may influence the delineation of sewer service areas, 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. Some of this mapping has been used in the development of a map of environmentally sensitive areas where the extension of sewer service areas is restricted (see **Delineation of Sewer Service Areas, below**).

Development in areas mapped as wetlands, flood prone areas, designated river areas, or other environmentally sensitive areas may be subject to special regulation under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features is for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

The following environmental features have been identified within the County map set:

- A. Surface Waters and Classifications—Refer to Map No.5A of County map set
- B. Riparian Zones -- Refer to Map No.5C of County map set
- C. Flood Prone Areas – Refer to Map No.5A of County map set
- D. Freshwater Wetlands -- Refer to Map No.5B of County map set
- E. Coastal Wetlands –Refer to Maps 5A and 5B of County map set
- F. Public Open Space and Recreation Areas –Refer to Map No.5B of County map set
- G. Preserved Agricultural Areas and Other Conservation Easements on Private Lands – Refer to Map No.5C of County map set
- H. Suitable Habitat for Threatened and Endangered Species – Refer to Maps 5B and 5C
- I. Natural Heritage Priority Sites –Refer to Map No.5C of County map set

#### **IV. DELINATION OF SEWER SERVICE AREAS AND PLANNING INTEGRATION**

The results of the environmental analyses, summarized in Section III above, provide justification for the established service area delineations by demonstrating consistency with all applicable NJDEP requirements and criteria. This WMP chapter provides the most current planning efforts within the municipalities WMP planning area.

The WQMP rules NJAC 7:15-5.22 require coordination with and solicitation of comments or consent from certain agencies, entities and plans, and consistency with other plans. These requirements are addressed in the Chapter 1, Salem County Summary within this document.

This chapter provides the method used to delineate future sewer service areas based on the mapping of significant environmentally sensitive areas, and consistency with other regional plans.

##### **A. ENVIRONMENTALLY SENSITIVE AREAS MAP**

Under the Water Quality Management Planning Rules, large contiguous environmentally sensitive areas, generally defined as 25 acres or greater in size should be excluded from sewer service areas 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. Maps 5A, 5B and 5C, of the County map set, reflect the final results for the mapping of environmentally sensitive areas, based on the information

described above and the WQMP rules. These maps were created using the following process:

1. Identify areas (to the extent that GIS interpretations are available) where pre-existing grant conditions and requirements (from Federal and State grants or loans for sewerage facilities) provide for restriction of sewer service to environmentally sensitive areas, and then delete areas (if any) where a map revision or grant waiver has been approved by USEPA. Note: pre-existing grant conditions and requirements (from Federal and State grants or loans for sewerage facilities) which provide for restriction of sewer service to environmentally sensitive areas are unaffected by adoption of this WMP and compliance is required.
2. Merge the GIS layers for wetlands, Category One riparian zones, Natural Heritage Priority Sites, and Threatened and Endangered Species habitats, and any others used by the County areas into a single composite GIS coverage.
3. Correct the composite areas by eliminating areas designated as urban in the most recent land use land cover layer (2002) to address land use/land cover modifications that have occurred since the environmental feature layers were prepared.
4. Identify and delete any composite areas less than 25 acres in size from the map of environmentally constrained areas. The resulting map shows the final environmentally sensitive areas, which is used to eliminate the potential for sewer service areas except where sewer service already exists, or exceptions are allowed for infill development or approved endorsed plans. It is noted for public information purposes that the excluded areas will be protected through other NJDEP regulatory programs such as the Flood Hazard Area Control Act and Freshwater Wetlands Act rules, and may be protected by municipal ordinances as well.

## **B. SEWER SERVICE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS**

The WQMP rules allow for inclusion of environmentally sensitive areas under limited conditions. The following modifications were considered for the WMP:

1. Where a development has secured approval under the Municipal Land Use Law and possesses a valid wastewater approval, the site may be included in the sewer service area if consistent with that valid wastewater approval. This information was gathered in consultation with municipalities.
2. Where a project has an approved site-specific water quality management plan and wastewater management plan amendment from the Department the project may be included in the wastewater management plan consistent with that approved site specific amendment for a period of six years from the date the amendment was adopted. The general locations of these developments are indicated on Map No.3, if applicable, and are keyed to a list of qualifying developments in each municipal chapter.

3. 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.

4. Where sewer service is necessary to support for center based development under an “endorsed plan” (through the State Planning Commission relative to the State Development and Redevelopment Plan) and would not remove habitat critical to endangered or threatened species. Where such modifications have been made, they are noted in the individual municipal chapters.

5. 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. 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.

#### **C. EXCEPTIONS TO THE USE OF GEOGRAPHIC OR POLITICAL BOUNDARIES**

The existing Sewer Service Area boundary was derived from existing sanitary sewer infrastructure currently constructed or approved. The boundary holds tightly to block and lot designations from the Lower Alloways Creek Township tax maps. The boundary was delineated using lots served by sanitary sewer, and in some cases, portions of lots where inclusion of the lot as a whole would misrepresent developed SSA. These are the only exceptions made for the delineations used in this WMP.

#### **D. ENVIRONMENTALLY SENSITIVE AREAS – DATA SOURCES**

The information described above with regard to the mapping of proposed sewer service areas and Environmentally Sensitive Areas was obtained from various sources. Table 4.D.1 below highlights the information and sources used to delineate environmentally constrained areas.

<b>Table 4.D.1: Information Sources for Environmentally Constrained Areas</b>				
<b>Category</b>	<b>Source</b>	<b>Source Location</b>	<b>Original Date</b>	<b>Date Last Revised</b>
Wetlands	NJDEP	www.state.nj.us/dep/gis	11/9/99	
Floodplains	FEMA	www.msc.fema.gov/webmap/wcs	1/9/03	
Stream Corridors	NJDEP	www.state.nj.us/dep/gis	8/1/08	12/1/10
Threatened & Endangered Species	NJDEP	www.njfishandwildlife.com	11/1/09	2/13/09
Parks, Preserves, & Open Space	Green Acres Recreation Program & NJDEP	www.state.nj.us/dep/gis	2/13/09	
Preserved Agricultural Lands	NJ SADC	www.nj.gov/agriculture/sadc	1/25/11	
Surface Water Quality Standards	NJDEP	www.state.nj.us/dep/gis	10/1/07	1/19/11
National Heritage Priority Sites	NJDEP	www.state.nj.us/dep/gis	2/13/09	
Zoning	Municipality	Current Master Plan	N/A	10/1/01

## **V. FUTURE WASTEWATER DEMAND AND FACILITIES**

Proposed future sanitary sewer flows conveyed to the Canton Village and Hancocks Bridge STPs projected under build-out conditions were evaluated based on two sets of data; sanitary flows projected within the existing sewer service area and proposed flows for infill development and the expanded sewer service area. Future flows within the existing sewer service area utilize a “parcel based” method for calculating the flows of infill development. Whereas, future sanitary flows within the expanded sewer service area utilize a “zoning based” method for calculating the build-out. The build out data is then converted to a projected future wastewater flow by applying the planning flow criteria from N.J.A.C. 7:14A based on the type of development projected.

All projected flows were separated into residential, commercial, and industrial components. Total projected build-out flow for residential, commercial and industrial development was determined based on the available developable land and current zoning ordinances for the municipality within areas proposed as the future sewer service area. Environmental constraints with required buffers were also considered and indicated within the Mapping section of this report.

For example, single-family residential development is assumed to consist of houses having three or more bedrooms per house, and each projected new house is multiplied by 300 gallons per day to predict the future wastewater generated. For non-residential land uses the anticipated floor area is multiplied by 0.1 gallon per day to predict future wastewater generation. A more detailed explanation of build-out flow calculations and criteria used is provided in the tables below.



The build out method used for the wastewater demand was also used to predict future water supply demand, except that the flow multiplier used to predict future water supply demand is slightly higher than that used for wastewater demand. The results of the analysis are presented within this chapter and in the facilities tables found in the appendices at the end of this document.

**A. CONFORMANCE AND NONCONFORMANCE WITH ZONING AND PRIOR LAND USE APPROVALS**

Where the WMP build out deviates from either current zoning or prior land use approvals, such deviation and the reasons for the deviation are explained in this chapter

**B. MUNICIPAL ZONING AND COMPOSITE ZONING**

The municipal zoning information provided below is specific to this chapter. Because municipal zoning ordinances are not uniform in their nomenclature or definitions, a composite zoning map has not been developed. Table 5.B.1 below identifies the zoning specific to this chapter and was been utilized for the associated build-out analyses.

“SSA Developable Area” includes both undeveloped and underdeveloped parcels within the proposed sewer service area. “Undeveloped” parcels are those 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 where some level of development exists, but at a density less than allowed by zoning and where deed restrictions do not prevent further development.

<b>Zone Name</b>	<b>Zone Description</b>	<b>Municipal Area (ac)</b>	<b>SSA Developable Area (ac)</b>
AR	AGRICUTURAL	13,833.9	108.34
C	COMMERCIAL	15.2	0
C-P	CONSERVATION PARK	623.6	0
I	INDUSTRIAL	3,396.3	0.00
V	VILLAGE RESIDENTIAL	437.1	65.11
W	WETLANDS	12,916.7	0.05

## **C. CALCULATING FUTURE WASTEWATER AND WATER SUPPLY NEEDS AND CAPACITY**

Using the municipal information provided above regarding existing wastewater and water supply facilities, sewer service area delineation, environmentally sensitive areas, and municipal zoning to project build-out or 20 year growth projections for the listed urban municipalities, an analysis of wastewater and water supply demands was performed to determine whether existing infrastructure capacity or zoning is a constraining factor.

There are two methods used for projecting future wastewater management needs: a 20-year projection for urban municipalities or a build out based on existing zoning for non-urban municipalities. An urban municipality is defined as those municipalities where less than 10 percent of the total land area of the municipality is “available land for development” after subtracting out permanently preserved open space.

## **D. MUNICIPAL DEMAND PROJECTIONS IN URBAN MUNICIPALITIES**

The Township of Lower Alloways Creek does not meet the definition of an urban municipality as defined above. Consequently, future wastewater build out projections are based on existing zoning identified below.

## **E. MUNICIPAL DEMAND PROJECTIONS IN NON-URBAN MUNICIPALITIES**

Development of vacant land will be the predominant factor in determining future wastewater treatment needs. Further, because external market and economic forces, such as interest rates, are a dominant factor in determining the rate of construction, this analysis assesses the ability to provide wastewater treatment while protecting surface and ground water quality for the entire projected build out allowable by zoning. There are two separate methods employed for calculating future wastewater generation at build out, based on the wastewater service area designation.

### **1. Future Wastewater from Non-Urban Municipalities’ Sewer Service Areas**

In designated sewer service areas the following features have been removed prior to the application of zoning to the undeveloped land area because they are unlikely to generate wastewater in the future: wetlands, riparian zones, permanently preserved farmland, permanently preserved open space, steep slopes, floodplains, and cemeteries. The existing zoning is then applied to the remaining developable land area within the sewer service area(s) to project a build out condition for use in estimating the future wastewater management needs of each sewer service area. Build out data for each municipality has been provided on a compact disk (cd) for reference.

The Township of Lower Alloways Creek’s sewer service area extends as defined on Map No.3. Consequently, infill development has been identified by utilizing a parcel based build-out approach as defined below.

## 2. Sewer Service Area Build Out Analysis

The build-out of the existing sewer service area consisted of evaluating residential, commercial and industrial flow projections to the extent of development that could occur according to applicable zoning in developable areas. The projections are based on the potential for development of existing infill lots within areas zoned for each use and the most current land use regulations for the municipality. Generally, infill development of the existing sewer service area was prepared utilizing a “parcel based” build out approach.

The total number of potential units within each residential, commercial and industrial district was then multiplied by the maximum percent building coverage specified in the zoning ordinances to reach a maximum building area at build-out. Residential flows were projected assuming 300gpd / dwelling unit. Commercial and industrial flows were projected assuming 0.1 GPD/ sq.ft. of building area.

Table 5.E.2.1 summarizes the build-out flow projections for the FWSA. In addition, the table reflects a breakdown of the acreage of land available for development (i.e., either undeveloped or underdeveloped, and not constrained due to environmentally sensitive areas) within each general zone of the municipality, based on the build-out analysis.

<b>Table 5.E.2.1: FWSA Build-Out Projections</b>					
<b>Treatment Facility</b>	<b>Zone</b>	<b>Developable Acres</b>	<b>Potential Units</b>	<b>Average Daily Flow (GPD)</b>	<b>Total ADF (GPD)</b>
		<i>See Note (a)</i>	<i>See Note (b)</i>	<i>See Note (c)</i>	<i>See Note (d)</i>
Canton Village STP WWTP	AR	83.35	39.00	300	11,700
	V	13.75	66.00	300	19,800
				<b>TOTAL</b>	<b>31,500 gpd (0.032 mgd)</b>
Hancocks Bridge STP	AR	24.99	14.00	300	3,000
	V	51.36	229.00	300	26,400
	W	0.05	0.00	300	0
				<b>TOTAL</b>	<b>29,400 gpd (0.0294 mgd)</b>

**The notes referenced below are indicated in the above table.**

**Notes:**

- (a) “Developable Acres” represents the available acreage per zone of the Township in accordance with the current Lower Alloways Creek Township Master Plan.
- (b) “Potential Units” represent the number of remaining units that may be constructed within each zone within the existing sewer service area.
- (c) Average Daily Flow has been calculated based on current NJDEP regulations.
  - Residential Zones AR, V and W Average Daily Flow based on 300 gpd established for 3 or more bedroom dwellings.
- (d) TOTAL ADF represents the remaining potential build-out within the existing sewer service area. Individual parcels with less than the minimum lot size for each zone have not been assessed an average daily flow value.

**3. Future Sewer Service Area Build-out Analysis**

All potential flows within the FWSA have been included within the above analysis. A separate analysis differentiating between infill development within the existing SSA and the future sewer service area was not necessary.

**VI. ANALYSIS OF CAPACITY TO MEET FUTURE WASTEWATER NEEDS**

This section of the wastewater management plan analyzes whether there is sufficient wastewater treatment capacity to meet the needs of the Municipality based on the projections described above. For sewer service areas this requires a comparison of the projected future demand to the existing capacity of the sewage treatment plant.

**A. ADEQUACY OF SEWAGE TREATMENT PLANT CAPACITY**

Table 6.A.1 provides a comparison of existing wastewater treatment capacity with existing and future flow demands within the municipality. The final column determines whether existing capacity is or is not adequate for the projected flows. Where capacities are inadequate, the issue is addressed in later sections. Details of the projections are included within the appendices and municipal chapters, which also address any needs for new or expanded treatment facility discharges.

<b>Treatment Works</b>	<b>Permit No.</b>	<b>Permitted Capacity/ Agreement (mgd)</b>	<b>Average Daily Flows 2010 (mgd)</b>	<b>Existing SSA Build-Out Projection (mgd)</b>	<b>Proposed SSA Build-Out Projection (mgd)</b>	<b>Remaining Treatment Capacity (mgd)</b>
Canton Village STP	NJ0062201	0.050	0.014	0.032	0.000	0.004
Hancocks Bridge STP	NJ0050423	0.050	0.011	0.029	0.000	0.010

The total treatment capacity for the Canton Village STP (0.05 mgd) is greater than the projected flow necessary to support the combination of existing demands, proposed development within the sewer service area, and proposed development within the

expanded Canton Village sewer service area (0.032 mgd). The total treatment capacity for the Hancocks Bridge STP (0.05 mgd) is greater than the projected flow necessary to support the combination of existing demands, proposed development within the existing sewer service area (0.040 mgd). Average daily flows are based on information obtained from the NJDEP online resources. Based on the analysis presented above, Sufficient wastewater treatment capacity exists for the Canton Village and Hancocks Bridge STPs to accommodate the currently proposed Sewer Service Areas.

**B. ANALYSIS AND SELECTION OF TREATMENT ALTERNATIVES**

This section is not applicable to this municipality as existing treatment will be sufficient to meet future goals for this municipality.

**C. ANTIDegradation ANALYSIS FOR NEW AND EXPANDED DOMESTIC TREATMENT WORKS**

This section is not applicable to this municipality as new or expanded wastewater facilities are not being proposed at this time.

**VII. FUTURE WATER SUPPLY AVAILABILITY**

The purpose of the Depletive/Consumptive Water Use Analysis is to determine if there is sufficient water supply to serve the proposed development of the municipality. The analysis should compare the build-out water supply need with the existing permitted water allocation. To complete the objective of this analysis, water allocation and drinking water demand within the existing sewer service area were compared. A build-out projection of the proposed sewer service area was then prepared to determine the additional water demands that may result. These demands were also compared to the water allocation to verify whether sufficient water supply exists to serve the proposed development.

**A. SUFFICIENCY OF WATER SUPPLY**

Generally, proposed daily demands are evaluated and projected based on two sets of data. This included identified developable land within the existing sewer service area or infill development as well as proposed future development within the expanded sewer service area. However, Lower Alloways Creek Township contains only one small public potable water supply system. The Leisure Arms system, is not anticipating change in demand for the future or any expansion to its water service area. In addition, major infrastructure development is not anticipated for this municipality. Lower Alloways Creek will continue to rely on individual/private wells for water service in its current and proposed sewer service area. Consequently, an analysis of water supply sufficiency for the SSA was not performed.

**1. Existing Sewer Service Area: Water Build-Out Analysis**

This section is not applicable, as the existing sewer service area being proposed for inclusion within the Salem County WMP will be served by individual water well.

**2. Future Sewer Service Area: Water Build-Out Analysis**

This section is not applicable, as the future sewer service area being proposed for inclusion within the Salem County WMP will be served by individual water well.

**3. Analysis of Water Capacity to Meet Supply Needs**

This section is not applicable, as the sewer service area being proposed for inclusion within the Salem County WMP will be served by individual water wells, which are expected to substantially meet future water demands of development.

**VIII. MAPPING REQUIREMENTS**

**A. BASIS FOR SERVICE AREA DELINEATIONS**

The results of the required environmental analyses, summarized in Section III and the delineation of the sewer service areas identified in section IV above provide justification for the established service area delineations by demonstrating consistency with all applicable NJDEP requirements and criteria. The Salem WMP provides the most current planning efforts within the Sewer Service Area.

The Lower Alloways Creek Township proposed Sewer Service Area encompasses the future sewer service area necessary to implement the goals and objectives of the municipality. Those areas have been reduced to account for the buffer requirements regarding wetlands, the habitats of Threatened and Endangered Species and Riparian Corridors.

The proposed Lower Alloways Creek Township Sewer Service Area does not contain any areas located within the Pinelands. Areas located within the watershed of a Fresh Water One (FWI) stream, as classified in the Surface Water Quality Standards, and/or that have Class I-A ground water (Ground Water of Special Ecological Significance), as classified in the Ground Water Quality Standards, are identified as "Non-degradation water areas based on the Surface Water Quality Standards at N.J.A.C. 7:9B, and/or the Ground Water Quality Standards at N.J.A.C. 7:9-6." Areas so designated are included on MapNo.3. Non-degradation water areas shall be maintained in their natural state (set aside for posterity) and are subject to restrictions.

## **B. MAPPING CLASSIFICATION**

The mapping for this municipal chapter of the WMP was created by using available data from NJDEP, online GIS data sets and has been prepared in accordance with NJDEP WMP guidelines. The maps included within this submission reflect the requirements for preparing a Water Quality Management Plan Amendment. Five (5) maps with specific features have been provided. Supplemental maps have been included to clarify information in an effort to clearly depict the required information. Each map has been provided with a complete and readily understandable legend. All 30" x 42" maps have been developed using New Jersey Department of Environmental Protection Geographic Information System digital data at a scale of 1" = 1 mile'. Additional 11" x 17" maps have been provided within each report for convenience. The maps are classified below:

### **1. MAP #1: WMP MUNICIPAL MAP/WATER INFRASTRUCTURE**

The map depicts the municipal boundary as well as the potable water infrastructure, if applicable. This planning area is exclusive to the municipality's boundary. The map also includes HUC-11's, and existing water service infrastructure. Map No.1 shows areas of the municipality that lay within the Hackensack Meadowlands District, Pinelands Areas, Pinelands National Reserves, or franchise areas.

### **2. MAP NO.2: EXISTING FACILITIES & SERVICE AREAS**

The map depicts the existing wastewater service area. This map also identifies the present extent of actual sewer infrastructure within the municipal boundary of Lower Alloways Creek Township, including all sewer department buildings, existing NJPDES facility (WWTP) locations, pump stations, force mains, and gravity sewers. All areas outside the existing sewer service area are served by ISSDS with wastewater planning flows of less than or equal to 2,000 gpd.

### **3. MAP NO.3: PROPOSED FACILITIES & SERVICE AREAS**

The map illustrates the wastewater service areas, non-degradation areas, pumping stations, major interceptors and trunk lines, which are proposed to exist in the future. The boundaries of future service areas coincide with recognizable geographic or political features (i.e., roads, lot lines, zoning area boundaries, water bodies). The proposed future infrastructure and facilities are also depicted on the map. The existing infrastructure and facilities from Map No.2 are also included in this map.

**4. MAP No.4: LOWER ALLOWAYS CREEK TOWNSHIP ZONING MAP**

The map depicts the current zoning of Lower Alloways Creek Township. The zoned minimum lot acreage for Commercial, Industrial and Residential areas within the WMP proposed Sewer Service Area indicated in Table 8.B.4.1 below were utilized to determine calculated flows within the future sewer service area.

**Table 8.B.4.1: Zoning Regulations**

Zone	Zone Title	Minimum Lot Area	Minimum Lot Width	Minimum Lot Depth	Minimum Front Yard Setback	Minimum Side Yard Setback	Minimum Rear Yard Setback	Maximum Building Height	Floor Area Ratio (FAR)	Maximum Lot Coverage
AR	AGRICULTURAL	1.5 ACRE	200'	200'	75'/100'	20'	50'			10%
C	COMMERCIAL	10,000 SF ONE STORY , 50,000 SF TWO STORY						35'		35%
C-P	CONSERVATION PARK	25 ACRES	250'	200'	150'	100'	300'	35'		1.5%
I	INDUSTRIAL	3 ACRES	200'	200'	75'	40'	30'	45'	0.22 ONE STORY 0.30 MULTI-STORY	50%
VR	VILLAGE RESIDENTIAL	8,500 SF	60'	125'	25'	10'	30'	35'		25% RES / 35% NON
W	WETLANDS	10 ACRES	150'	200'	50'	20'	50'	35'		15%

**5. MAP No.5A: ENVIRONMENTAL FEATURES (REFER TO COUNTY MAP)**

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including major drainage basin boundaries (U.S.G.S. Hydrologic Unit Code (HUC) 11 Watersheds), CAFRA boundary and flood prone areas (FEMA). Map No.5A shows any New Jersey and Federal Wild and Scenic Rivers, FW 1-Trout Production or FW 2 Trout Production or farmlands preservation areas. Streams with FW2-NTC1/SE1 and FW2-NT/SE1 ranking are also shown.

**6. MAP No.5B: ENVIRONMENTAL FEATURES (REFER TO COUNTY MAP SET)**

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including wetlands, required wetlands buffers, public open space and recreation areas greater than or equal to (10) ten acres. Additional information including major drainage basin boundaries (U.S.G.S. hydrologic unit code (HUC) 11 watersheds), landscape project areas for grasslands, emergent and forested areas with rankings of 3, 4 and 5 are also shown. MapNo.5B shows any New Jersey and Federal Wild and Scenic Rivers, FW 1 Trout Production or FW 2 Trout Production or farmlands preservation areas.

**7. MAP No.5C: ENVIRONMENTAL FEATURES (REFER TO COUNTY MAP SET)**

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including the natural heritage priority sites for threatened and endangered species. Landscape Project Areas for Forested Wetlands and Bald Eagle Foraging are shown on this map. Map No.5C shows any New Jersey and Federal Wild and Scenic Rivers, FW 1-Trout Production or FW 2 Trout Production or Farmlands Preservation areas. C-1 water bodies are identified on the map as well. Sewer service areas are excluded from the 300ft buffers of C-1 water bodies and on all tributaries within the HUC 11 watershed.