

Chapter IX.3

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

BOROUGH OF ELMER 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 Borough of Elmer 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 (NJAC 7:15).

The Borough of Elmer 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 municipality is identified on Map No.3. The area does not include any areas that lay within adjacent municipalities with the exception of the Hospital (South Jersey Hospital discharge bed located in Upper Pittsgrove).

Elmer Borough is bounded by the municipal boundaries of Pittsgrove Township (to the southeast and Upper Pittsgrove Township (to the northwest). Elmer Borough encompasses a total area of 584 acres (0.9 square miles) including approximately 16 acres of which are surface water (ponds, lakes, reservoirs) and 1.4 miles of streams (shown in Map No.1) flowing in the municipality. This municipality has been developed extensively in area between Main Street and Chestnut Street, and Front Street to S. Main Street. Other areas of the municipality are developed agriculturally or have been set aside for conservation. As the Borough is mostly urban, it has a medium population density of 1,555 people/sq mi according to (2010) U.S. Census data.

Elmer Borough has a population of 1,395 persons. The municipality's population trend over the last decade can be seen as an average 0.08% growth in population each year (8% 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 Elmer Borough. In terms of population change over the next three decades, Elmer is expected to continue growing slowly 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:

Year	Population	Population Change	
		#	avg yearly %
1980	1,589		
1990	1,571	-18	-0.11%
2000	1,384	-187	-1.19%
2010*	1,395	11	0.08%

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

Year	Population	Population Change	
		#	avg yearly %
2010	1,395		
2020	1,416	21	0.15%
2030	1,433	17	0.12%
2040	1,450	17	0.12%

~Source: SJTPO, 2011

A. STATUS OF PREVIOUS APPROVED WMPs

The Borough of Elmer has previously submitted two Water Quality Management Plans (WQMP's) / Amendments. The amendments, which were adopted on March 31 and June 9, 1998, recognized the South Jersey Hospital a.k.a. "Elmer Community Hospital" NJPDES facility in the Borough of Elmer and Upper Pittsgrove Township as an on-site treatment facility discharging to groundwater.

The Borough of Elmer does not currently have an adopted WMP in effect. The enclosed plan reflects current zoning and includes the default wastewater management alternative to support development in areas that are not designated as sewer service area, which is a discharge to groundwater of less than 2,000 gallons per day. The Borough of Elmer 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

Elmer Borough does not currently own or operate a public sewer system, nor does it own or operate any infrastructure for wastewater service.

C. CURRENT WATER SERVICES

The Borough of Elmer Water Department water supply system serves approximately 1,395 persons within their sewer service area according to current NJDEP data. This equates to 2.1 percent of the total Salem County population (66,083 persons, 2010 U.S. Census) being served by the system. The water service area only includes areas within Elmer Borough.

The Borough of Elmer owns and operates its own potable water supply system. The public is presently serviced from two (2) ground water wells located throughout the municipality. Wells No.6 and No.8 withdraw water from the Mount Laurel-Wenonah Aquifer. Map No.1 depicts the areas actively served by existing public water supply facilities, which includes all of the Borough of Elmer. 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

The Borough of Elmer owns and operates its own potable water supply system. The Borough's water supply is sufficient to meet the current demand. Since the FWSA reflects the area currently served by potable water and also accounts for population increases, based on census data, the Borough's existing water supply is sufficient to meet the demands of the FWSA. The municipality has not identified any other issues regarding water quality or concerns with non-sewered areas.

F. OVERVIEW OF FUTURE WASTEWATER SERVICES

There are currently no areas served by public sewers within the Borough of Elmer. The Borough of Elmer has identified a future wastewater sewer service area (FWSA) necessary to implement a portion of the goals and objectives of the Borough's Master Plan. The FWSA reflects the area currently served by potable water and also accounts for population increases, based on census data. Those areas have been reduced to account for the environmental constraints pertaining to wetlands, the habitats of Threatened and Endangered Species, Riparian Corridors, and FW-2 Waters. The area identified is intended to reflect the portion of the municipality where sanitary sewer service could be constructed. However, wastewater treatment facilities are not currently available. As wastewater treatment facilities become available to this municipality in the future, the infrastructure and treatment facilities would be identified in future WMP updates.

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, Map No.2 and Map No.3 identify areas presently served by public sewers and the areas planned 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 NJPDES permit 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, and projected build-out flow summarized by municipality. A sanitary build-out analysis has been prepared for the future wastewater service area identified on Map No.3.

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.
2. Construction of a new treatment facility or interconnection with an existing treatment facility along with the installation of infrastructure will be required to meet the future wastewater generation needs of the municipality, as wastewater treatment facilities are not currently available.

II. EXISTING INFRASTRUCTURE AND TREATMENT FACILITIES

A. EXISTING AREAS SERVED BY WASTEWATER FACILITIES

Elmer does not own or operate any wastewater treatment or conveyance systems. Map No.2 depicts the areas actively served by existing wastewater facilities. These facilities consist of on-site treatment works that are regulated under a New Jersey Pollutant Discharge Elimination System permit. Tables located in Chapter 7 (VII) provide detailed information on each facility. "Actively served" means that the collection lines exist and that the property either is connected or has all regulatory approvals necessary to be connected.

B. MAJOR TRANSMISSION PIPING AND PUMPING STATIONS

This Section is not applicable as Elmer does not own or operate a sanitary sewer conveyance system consisting of major interceptors, trunk lines and pumping stations 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.

TABLE 2.C.1: Non-Industrial NJPDES Wastewater Facilities				
Municipal Map Designation	Facility Name	NJPDES Permit Number	Discharge Type (Groundwater or Surface Water)	Facility Table Number
10	South Jersey Hospital	NJ0099571	GWIND	10

Note: The Elmer Community Hospital is now included within the Inspira Health Network. It is now referred to as South Jersey Hospital.

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 Appendix “D” 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. However, Elmer Borough does not contain any industrial wastewater treatment facilities.

E. GENERAL WASTEWATER MANAGEMENT AREAS FOR SEPTIC SYSTEMS

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

This Section is not applicable as Elmer does not own or operate a wastewater treatment plant or sanitary sewer conveyance system consisting of major interceptors, trunk lines and pumping stations associated with public wastewater treatment facilities.

G. EXISTING WASTEWATER TREATMENT

This Section is not applicable as Elmer does not own or operate a wastewater treatment plant or sanitary sewer conveyance system consisting of major interceptors, trunk lines and pumping stations associated with public wastewater treatment facilities.

H. EXISTING PUBLIC WATER SUPPLY INFRASTRUCTURE

The Borough of Elmer is presently serviced from two (2) ground water wells located throughout the Borough. Wells No.2 and No.6 withdraw water from the Mount Laurel-Wenonah Aquifer. 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.

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.

Well Permit Number	Well Designation	Pump Capacity (gpm)	(a) Aquifer
3100004612	6	65	MLW
3100019206	8	65	MLW

I. EXISTING PUBLIC WATER SUPPLY ALLOCATION AND DAILY DEMANDS

The Borough of Elmer currently has an average daily usage of approximately 0.143 million-gallons/day based upon the 2010 calendar year. The peak annual and monthly water demand over a period of 5 years between 2006 through 2010, occurred in July, 2007. The reduction in average demand, over the last few years, is partially due to the enforcement of water restrictions and water conservation appurtenances in residential and commercial buildings and improvements/replacements within the system’s infrastructure.

The following table 2.I.1 summarizes current water allocation diversion limits permitted for the public community water system.

Water Company	Permit No. / Program Interest ID	Water Allocation (mgm) / (mgy)	Average Demand 2010 (mgm) / (mgy)	Build-Out Projection (mgm)/ (mgy)
Elmer Borough Water Dept.	WAP990001 / 5215	10.00/80.00	4.34/53.03	0.56/6.72

The following table 2.I.2 summarizes historical daily, monthly and annual water demands currently supplied by the public community water system. The districts and franchise areas are depicted on Map No.1.

Year	Annual Demand Total (MGY)	Average Daily Demand (MGD)	Average Monthly Demand (MGM)	Peak Monthly Demand	
				(MGM)	Month
2006	53.890	0.148	4.491	6.497	June
2007	57.931	0.159	4.828	7.056	July
2008	53.798	0.147	4.483	6.132	July
2009	52.888	0.145	4.407	5.931	October
2010	52.031	0.143	4.336	6.113	August

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.

Table 4.D.1: Information Sources for Environmentally Constrained Areas				
Category	Source	Source Location	Original Date	Date Last Revised
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	1/1/02

V. FUTURE WASTEWATER DEMAND AND FACILITIES

This chapter describes the build out methodology used to project future wastewater treatment demand for future sewer service areas and general wastewater management service areas within the County WMP.

The Borough of Elmer is not currently served by public sewers. The Borough has identified a future wastewater sewer service area (FWSA) necessary to implement a portion of the goals and objectives of the Borough's Master Plan. The FWSA reflects the area currently served by potable water and also accounts for population increases, based on census data. Wastewater treatment facilities are currently not available to support the plan. However, wastewater demand projections have been included within this municipal chapter to reflect build out within the FWSA.

Zoning, as described below, is generally applied to the developable area within the existing sewer service areas after removing those areas where development is not expected to occur: These areas typically consist of small irregular polygons, open space, wetlands, steep slopes and riparian zones. However, the sanitary sewer build out analysis for the Borough was not prepared based on zoning.

Elmer Borough is proposing an FWSA, which is consistent with the area currently served by the potable water system. The Borough's public water supply system currently serves the entire municipality. The number of housing units being supplied with potable water within the Borough has been identified. Consequently, the current number of connections being served by

potable water has been utilized to determine the projected sanitary sewer flows. In addition, population projections have been included to account for growth over a twenty (20) year period. The number of residential units and non-residential floor area were then multiplied by the wastewater planning flow estimates in either N.J.A.C. 7:14A or 7:9A as appropriate. The results of the analysis are presented within this chapter. It should be noted that infill development has not been included within the scope of the build out analysis.

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 is being provided for reference only, as the zoning has not been utilized for the associated build-out analyses.

FWSA 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.

Table 5.B.1: Summary of Elmer Municipal Zones

Zone Name	Zone Description	Municipal Area (ac)	FWSA Developable Area (ac)
CONS	CONSERVATION	107.2	20.62
LR-1	LOW DENSITY RESIDENTIAL	38.4	32.66
LR-2	LOW DENSITY RESIDENTIAL	31.4	30.98
LM	LOW MEDIUM RESIDENTIAL	77.3	74.40
MR	MEDIUM DENSITY RESIDENTIAL	194.6	194.60
LC	LIMITED COMMERCIAL	4.4	3.81
GB	GENERAL BUSINESS	24.2	19.93
HB	HIGHWAY BUSINESS	9.2	8.37
C-LI	COMMERCIAL/LIGHT INDUSTRIAL	12.6	11.19
LI	LIGHT INDUSTRIAL	6.1	6.09

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 municipality, an analysis of wastewater and water supply demands was performed to determine whether existing infrastructure capacity or zoning is a constraining factor.

The Borough of Elmer does not own or operate a wastewater treatment plant or sanitary sewer conveyance system consisting of major interceptors, trunk lines and pumping stations associated with public wastewater treatment facilities. However, the Borough has identified a future wastewater sewer service area (FWSA) that reflects the area currently served by potable water and also accounts for population increases, based on census data.

The method for projecting the Borough's future wastewater management needs consists of utilizing the existing number of units being served by the potable water system and applying a 20-year population projection to the values in an effort to determine the build out for the municipality.

D. Municipal Demand Projections in Urban Municipalities

This Section is not applicable, as the Borough of Elmer is not designated as an urban municipality.

E. Municipal Demand Projections in Non-urban Municipalities

Development of vacant land is typically a predominant factor in determining future wastewater treatment needs. However, the entire population within the Borough of Elmer is currently served by potable water. As a result, the number of existing dwellings has been utilized to determine the demand projections. 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

The Borough of Elmer has identified a future wastewater sewer service area (FWSA) necessary to implement a portion of the goals and objectives of the Borough's Master Plan. 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. Since the proposed FWSA identifies an area that is currently served by potable water, the actual number of dwellings currently served by potable water within the sewer service area(s) was utilized to project a build out condition for use in estimating the future wastewater management needs of each sewer service area. The Borough's sewer service is defined on Map No.3.

2. Existing Sewer Service Area Build-Out Analysis

The Borough of Elmer is not currently served by public sewers and treatment facilities are currently not available. All proposed sanitary sewer flows for the Borough, included as part of FWSA for this WMP submission, are identified within section 5.E.3.1 below.

3. Future Sewer Service Area Build-Out Analysis

The Borough of Elmer is not currently served by public sewers. However the entire municipality is served by the Borough's potable water system. The build-out of the FWSA consisted of identifying the number of units and population currently being serviced by potable water. This information was utilized to determine projected sanitary sewer flows for the existing dwellings and facilities. An evaluation of remaining infill within the Borough was not performed. However, population projections have been included to account for growth over a twenty (20) year period.

Future wastewater is calculated from the population and employment projections by multiplying the projected increase in population by 75 gallons per day per person and the projected increase in employment by 25 gallons per day per person. Elmer Borough's population and employment 20-year projection was taken from an estimate made by the South Jersey Transportation Planning Organization (SJTPO), which employed data from historical U.S. Censuses.

Table 5.E.3.1 provides an analysis of the existing number of dwellings as well as the population projection for the Borough of Elmer through the next 20 years. The flows contributed from residential, commercial, and industrial productions are expected to remain stable.

Table 5.E.3.1: FWSA Build-Out Projections

Projection Parameter	Current (2010) Population / Demand	20-Year (2030) Population / Demand	Projected Flow	
			# of People	Flow (gpd)
Current Population Served by Potable Water System	1,395	n/a	1,395	104,625
Population Increase	1,395	1,433	38	2,850
Employment	1,594	2,005	411	10,275
South Jersey Hospital (Based on Permitted Flow)	Existing NJPDES Facility	24,000 gpd	n/a	24,000
		Projected New Flow (gpd)		141,750
		Current 2010 ADF (gpd)		0
		Total 20-year Flow (gpd)		141,750
		Total 20-year Flow (mgd)		0.142

Notes:

- a. There are currently 577 dwelling units with a population of 1,395 people being served by the Potable water system. These same units would be served by the FWSA.
- b. Employment projections for the area were obtained from the SJTPO Regional Transportation Plan 2040 Report, dated July 12, 2012.
- c. Projected Flow has been calculated based on current NJDEP regulations.

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.

There are currently no areas served by public sewers within the Borough of Elmer. The Borough of Elmer has identified a future wastewater sewer service area (FWSA) necessary to implement a portion of the goals and objectives of the Borough's Master Plan. However, as identified above, treatment facilities are currently not available. Wastewater flow projections have been included at this time to reflect build out within the FWSA.

A. Adequacy of Sewage Treatment Plant Capacity

Elmer does not own or operate a Wastewater Treatment Plant. The Borough of Elmer has identified a future wastewater sewer service area (FWSA) necessary to implement a portion of the goals and objectives of the Borough's Master Plan. However, treatment facilities are not currently available to support the plan.

B. Analysis and Selection of Treatment Alternatives

The Borough of Elmer is not currently served by a public wastewater treatment facility and does not have wastewater treatment capacity available to support future wastewater management needs projected by the plan. The FWSA sanitary build out analysis results above indicate that the Borough of Elmer does not have sufficient wastewater treatment capacity to support future wastewater management needs projected by the plan. Due to the current economic climate, projected growth rate of the population and the anticipated short-term need for additional capacity, the municipality is not proposing new or expanded facilities at this time.

The Borough will begin to review the potential process improvements and available treatment alternatives based on the direction of the governing body. It is anticipated that the Borough would consider the Gloucester-Salem County Regional Alternative to meet future development needs.

The Salem County Pollution Control Financing Authority conducted a sanitary sewer study in an effort to conceptualize a regional sewage system plan for the County. The intent of the plan is to convey sanitary sewer to a newly constructed treatment facility to be located on the Dupont Chambers Works property in Carneys Point Township. The planning of this effort is ongoing and currently in the environmental assessment and preliminary engineering stage of development.

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 within the existing sewer service area are compared. A build-out projection of the proposed sewer service area is then prepared to determine the additional water demands that may result. Finally, the demands are compared to the water allocation to verify whether sufficient water supply exists to serve the proposed development.

A. Sufficiency of Water Supply

The Borough of Elmer's current water allocation and existing average water demands are identified in Section 2 of this municipal chapter. Population projections, based on census data, was the predominant factor in determining future water supply needs and development of vacant land. 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 potable water while protecting surface and ground water quality for the entire projected build out allowable by zoning.

The Borough of Elmer's water distribution system extends to the municipal boundaries and serves the entire population. Consequently, infill development has been considered by utilizing a population based build-out approach as defined below. For this reason, neither the parcel based nor zoning based analysis were applied to identify future demands for this municipality. A 20-year projection has been created based on population and employment projections.

Proposed daily demands required to support development within the future sewer service area utilized the same method of analysis as was performed for the sanitary sewer analysis. Future demands are generally evaluated and projected based on two sets of data; water demands from projected population increase/decrease within the existing SSA, and water demands from projected employment increase/decrease within the existing SSA.

1. Sewer Service Area: Water Build-Out Analysis

Neither parcel nor zoning based build-out was used in the analysis of the sewer service area as the build-out analysis was prepared utilizing a population and employment based approach. In this type of build-out, future water demand is calculated from the population and employment projections by multiplying the projected increase in population by 100 gallons per day per person and the projected increase in employment by 25 gallons per day per person. These numbers are an adjustment of the multipliers used to estimate wastewater flows in a municipality (set forth by NJDEP). Elmer Borough's population and employment 20-year projection was taken from an estimate made by the South Jersey Transportation Planning Organization (SJTPPO), which employed data from historical U.S. Censuses.

Table 7.A.1 provides an analysis of the population projection for the Borough of Elmer through the next 20 years. The flows contributed from residential, commercial, and industrial production is expected to remain stable.

Table 7.A.1: FWSA Water Demand Build-Out Projections				
Projection Parameter	Current (2010) Population / Demand	20-Year (2030) Population / Demand	Projected Demand	
			# of People	Demand (gpd)
Population	1,395	1,433	38	3,800
Employment	1,594	2,005	411	10,275
South Jersey Hospital (Based on Permitted Flow)	20,000 gpd	24,000 gpd	n/a	4,000
Current 2010 ADD (gpd)	140,645	Projected New Demand (gpd)	18,075	
Current 2010 ADD (mgd)	0.141	Projected New Demand (mgd)	0.018	
Current 2010 ADD (mgm)	4.34	Projected New Demand (mgm)	0.560	
Current 2010 ADD (mgy)	53.03	Projected New Demand (mgy)	6.724	
			Total 20-year Demand (gpd)	158,720
			Total 20-year Demand (mgd)	0.159
			Total 20-year Demand (mgm)	4.920
			Total 20-year Demand (mgy)	59.75

Notes:

- a. There are currently 577 dwelling units with a population of 1,395 people being served by the Potable water system.
- d. Employment projections for the area were obtained from the SJTPO Regional Transportation Plan 2040 Report, dated July 12, 2012.
- e. Projected Demand has been calculated based on current NJDEP regulations.
- f. TOTAL Projected Demands represents the potential build-out within the FWSA.

2. Future Sewer Service Area: Water Build-out Analysis

Generally, the future sewer service area build out is prepared utilizing a “zoning based” build out approach. The build-out of future sewer service areas typically consists of evaluating residential, commercial and industrial flow projections to the extent of development that could occur according to applicable zoning in developable areas, which are outside of the existing SSA.

As indicated in section 7.A.1 above, a potable water build out analysis for the Borough of Elmer reflects anticipated demand through the next 20 years, based on the population projection for the Borough.

3. Analysis of Water Capacity to Meet Supply Needs

This section of the wastewater management plan analyzes whether there is sufficient potable water treatment capacity to meet the needs of the Municipality based on the projections described above. This requires a comparison of the projected future demand to the existing capacity of the water supply system.

Table 7.A.3.1 provides a comparison of existing water allocation with existing and future flow demands within the municipality. The final column determines whether existing capacity is or is not adequate for the projected daily demands.

TABLE 7.A.3.1: Water Supply Capacity					
Water System	Permit No.	Current Water Allocation	Average Daily Demand 2010	Proposed SSA Build-Out Projection	Remaining Water Allocation
		(mgm)/(mgd)	(mgm)/(mgd)	(mgd)	(mgm)/(mgd)
Elmer Water Department		10.0 / 80.0	4.34 / 53.03	0.056/6.72	5.08 / 20.25

The total monthly water allocation for the water system that serves the municipality (10.0 mgm) is greater than the water supply necessary to support existing demands within the sewer service area (4.42 mgm).

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 Elmer WMP provides the most current planning efforts within the Sewer Service Area.

The Borough of Elmer's WMP 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 Borough of Elmer WMP 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 NJ.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 Map No.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 The Borough of Elmer, 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: Borough of Elmer Zoning Map

The map depicts the current zoning of The Borough of Elmer. 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	Minimum Habitable Floor Area	Maximum Lot Coverage
CONS	CONSERVATION	1 ACRE	150'	200'	40'	20'	40'	35'	10%	5%
LR-1	LOW DENSITY RESIDENTIAL	30,000 SF	125'	175'	35'	20'	35'	35'	20%	10%
LR-2	LOW DENSITY RESIDENTIAL	30,000 SF	125'	175'	35'	20'	35'	35'	20%	10%
LM	LOW MEDIUM RESIDENTIAL	20,000 SF	100'	150'	35'	15'	30'	35'	10%	10%
MR	MEDIUM DENSITY RESIDENTIAL	12,000 SF	100'	150'	35'	15'	30'	35'	20%	10%
LC	LIMITED COMMERCIAL	12,000 SF	80'	125'	30'	15'	30'	35'	20%	20%
GB	GENERAL BUSINESS	12,000 SF	80'	125'	30'	15'	30'	35'	20%	20%
HB	HIGHWAY BUSINESS	30,000sf	125'	175'	40'	30'	40'	35'	10%	20%
C-LI	COMMERCIAL/ LIGHT INDUSTRIAL	20,000 sf	100'	150'	35'	15'	30'	35'	10%	20%
LI	LIGHT INDUSTRIAL	1 ACRE	150'	200'	40'	30'	40'	35'	10%	20%

5. Map No.5A: Environmental Features (Refer to County Map Set)

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.