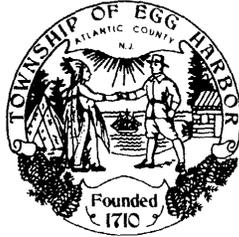


TOWNSHIP OF EGG HARBOR
ATLANTIC COUNTY, NEW JERSEY



Municipal Stormwater Management Plan

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Rev. February 2007

April 2005

A handwritten signature in black ink, appearing to read 'James A. Mott', is written over a horizontal line.

James A. Mott

Professional Engineer & Land Surveyor, License No. 29918

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Introduction

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Township of Egg Harbor (“the Township”) to address stormwater-related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. This plan contains all of the required elements described in N.J.A.C. 7:8 Stormwater Management Rules. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acre of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

A “build-out” analysis has been included in this plan based upon existing zoning and land available for development. The plan also addresses the review and update of existing ordinances, the Township Master Plan, and other planning documents to allow for project designs that include low impact development techniques. The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.

Goals

The goals of this MSWMP are to:

- reduce flood damage, including damage to life and property;
- minimize, to the extent practical, any increase in stormwater runoff from any new development;
- reduce soil erosion from any development or construction project;
- assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- maintain groundwater recharge;
- prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- maintain the integrity of stream channels for their biological functions, as well as for drainage;
- minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- protect public safety through the proper design and operation of stormwater basins.

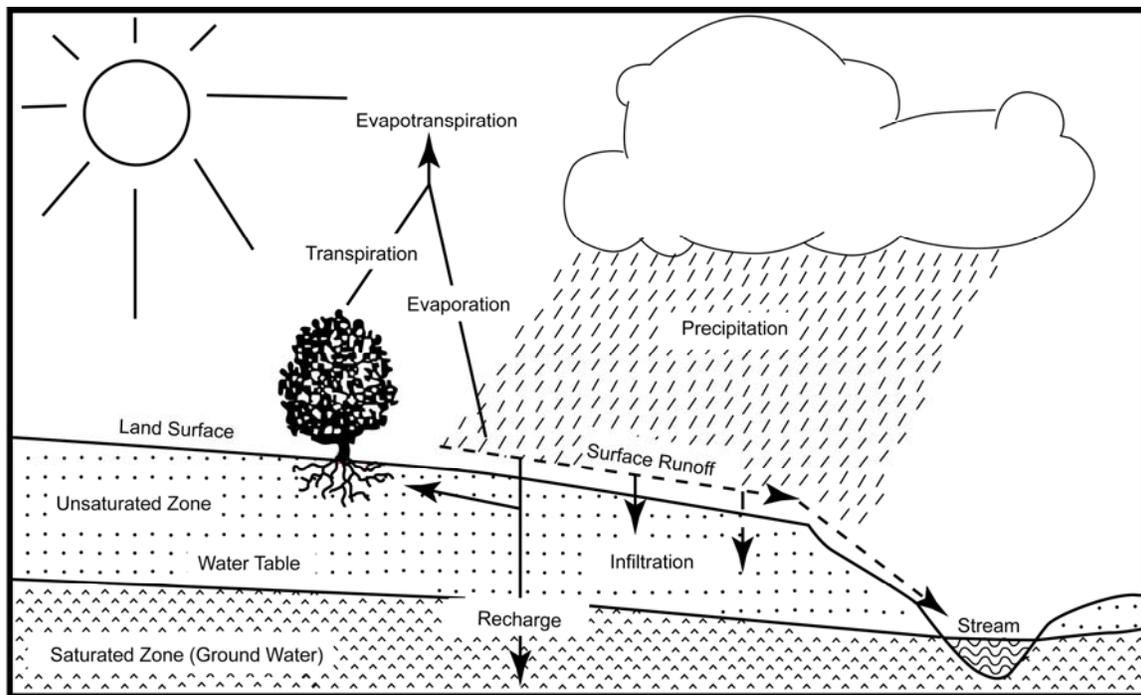
To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

Stormwater Discussion

Land development can dramatically alter the hydrologic cycle (See Figure 1) of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration.

Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site. Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

Figure 1: Groundwater Recharge in the Hydrologic Cycle



Source: New Jersey Geological Survey Report GSR-32.

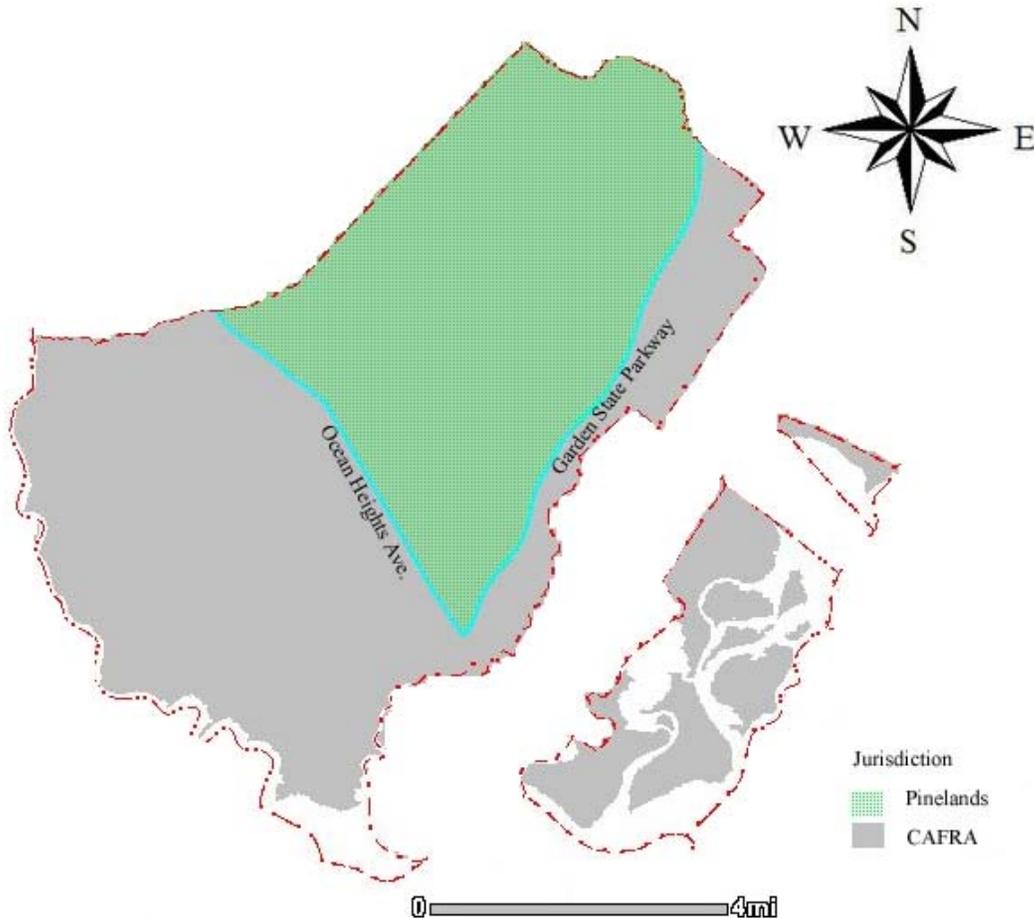
In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

Background

The Township encompasses 68.6 square mile area located along the southeast mainland portion of Atlantic County, New Jersey. The Township is generally flat with forest and wetlands covering most unimproved areas. The Township falls into both Pinelands and CAFRA jurisdiction; the northwestern portion being mainly pinelands and the southeastern and southwestern portion being mainly CAFRA. Please refer to Figure 1.2 for a map displaying the township with the appropriate jurisdictions.

Figure 1.2: Township and Its CAFRA/Pinelands Jurisdiction



The entire southeastern portion of the municipality is prone to flooding as it borders the back bay areas of the County. In recent years, the Township has been under significant development pressure. The population of the Township has increased from 19,381 in 1980, to 24,544 in 1990, to 30,726 in 2000. This population increase has resulted in considerable demand for new development; changes in the landscape have most

likely increased stormwater runoff volumes and pollutant loads to the waterways of the municipality. Figure 2 illustrates the waterways in the Township. Figure 3 depicts the Township boundary on the USGS quadrangle maps.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. The major river that borders the Township to the southwest, the Great Egg Harbor River is moderately impaired. Several other tributaries, such as Patcong Creek and both the North and South branches of the Absecon Creek that flow through the Township are also moderately impaired based on AMNET data. In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. Recently, none of the major waterway's monitoring stations in Egg Harbor Township have exceeded a Total Maximum Daily Load (TMDL) for pollutants.

Figure 2: Township and Its Waterways

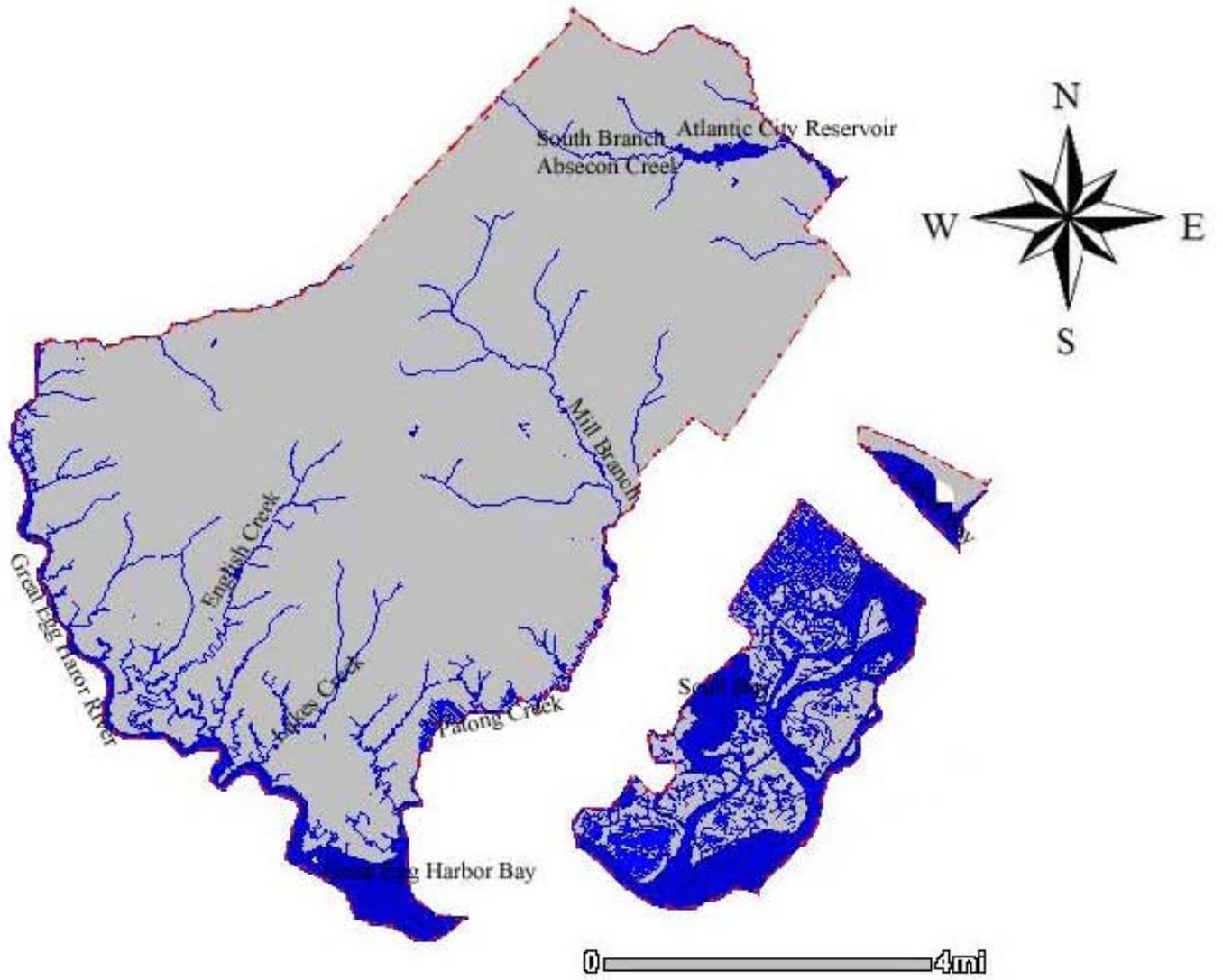
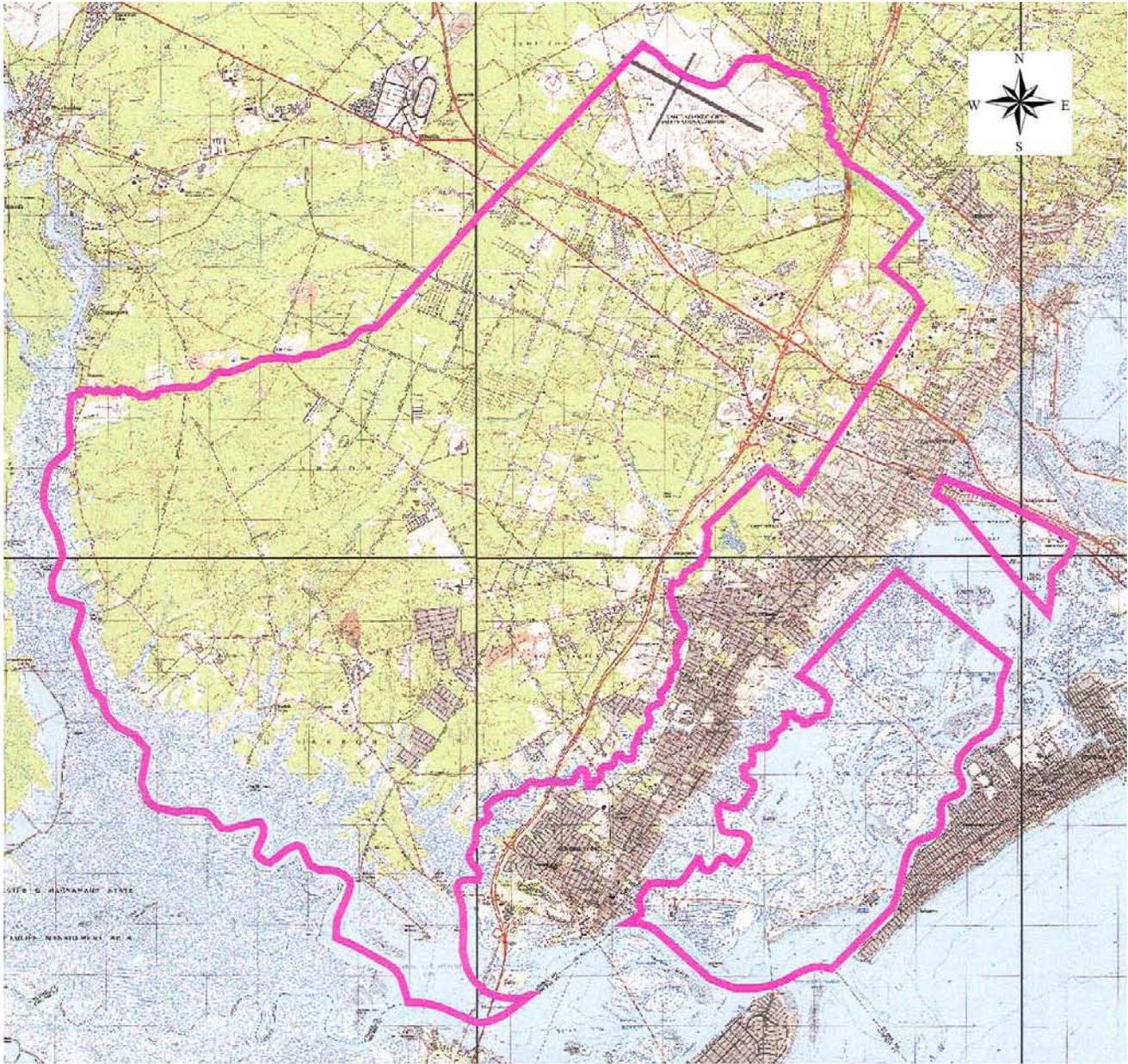


Figure 3: Township Boundary on USGS Quadrangles



A TMDL is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other BMPs.

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List) is required by the federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

In addition to water quality problems, the Township has exhibited severe water quantity problems including flooding, stream bank erosion, and diminished base flow in its streams. Many of the culverts associated with road crossings in the Township are undersized. During severe storm events, these undersized culverts do not have adequate capacity, thereby causing a backwater effect and flooding upstream.

The entire southeastern portion of the municipality is prone to flooding as it borders the back bay areas of the County. Repetitive loss areas include the West Atlantic City, Seaview Harbor, Anchorage Poynte and Morris Beach sections of the Township. One residential area along the Great Egg Harbor River in the vicinity of Harbor Drive has also sustained repeated flood damage. An additional location in the northwest portion of the Township near Ivins Avenue is also prone to periodic flooding by runoff caused by rain events.

The existing culverts were designed for much different hydrologic conditions (i.e., less impervious area) than presently exist in the Township. As the imperviousness increased in the Township, the peak flow and volumes of streams also increased. The increased amount of water resulted in stream bank erosion, which resulted in unstable areas at roadway/bridge crossings, and degraded stream habitats. The high imperviousness of the Township has significantly decreased groundwater recharge, decreasing base flows in streams during dry weather periods. Lower base flows can have a negative impact on instream habitat during the summer months. A map of the groundwater recharge areas are shown in Figure 4. Wellhead protection areas, also required as part of the MSWMP, are shown in Figure 5.

Figure 4: Groundwater Recharge Areas in the Township

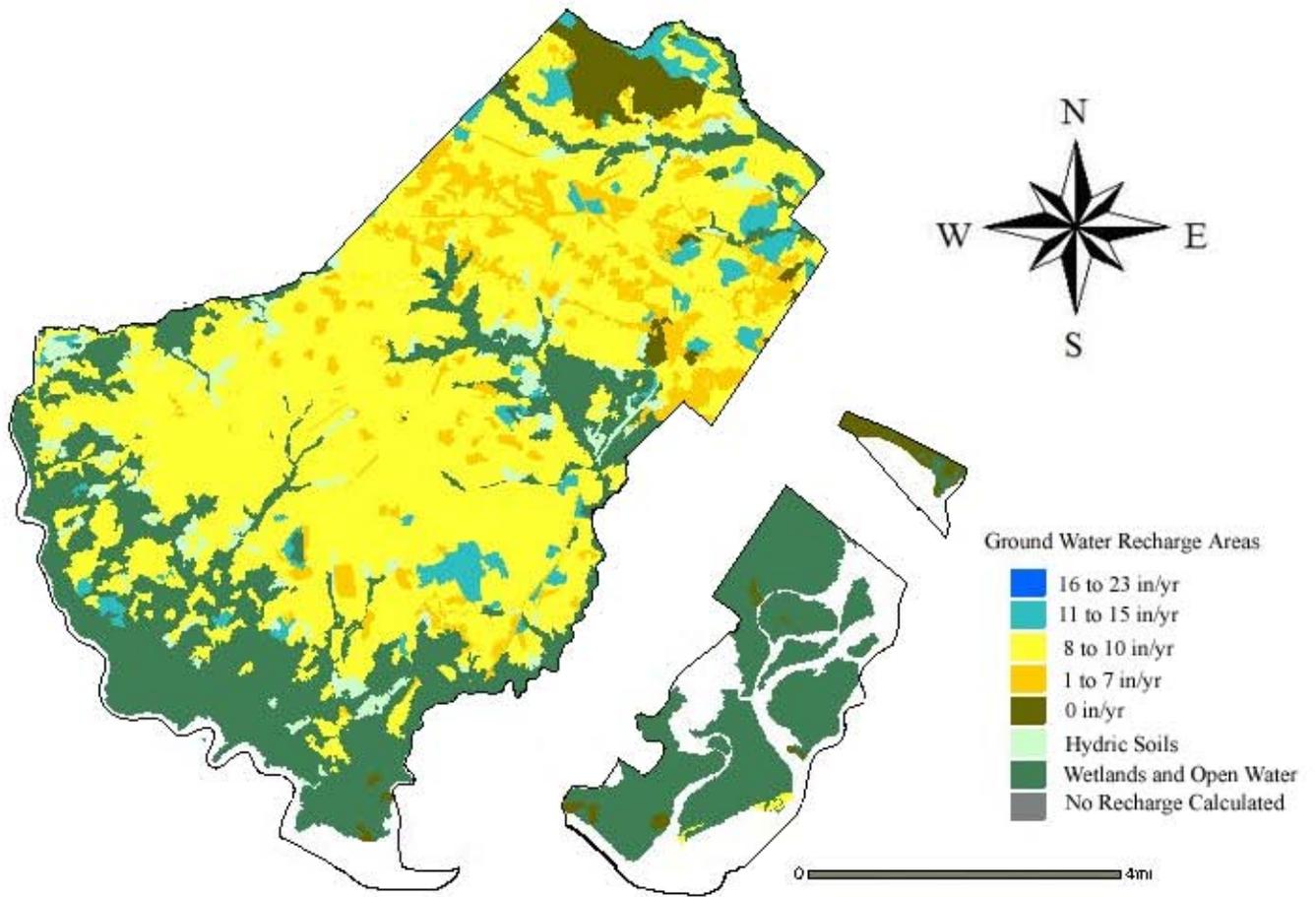
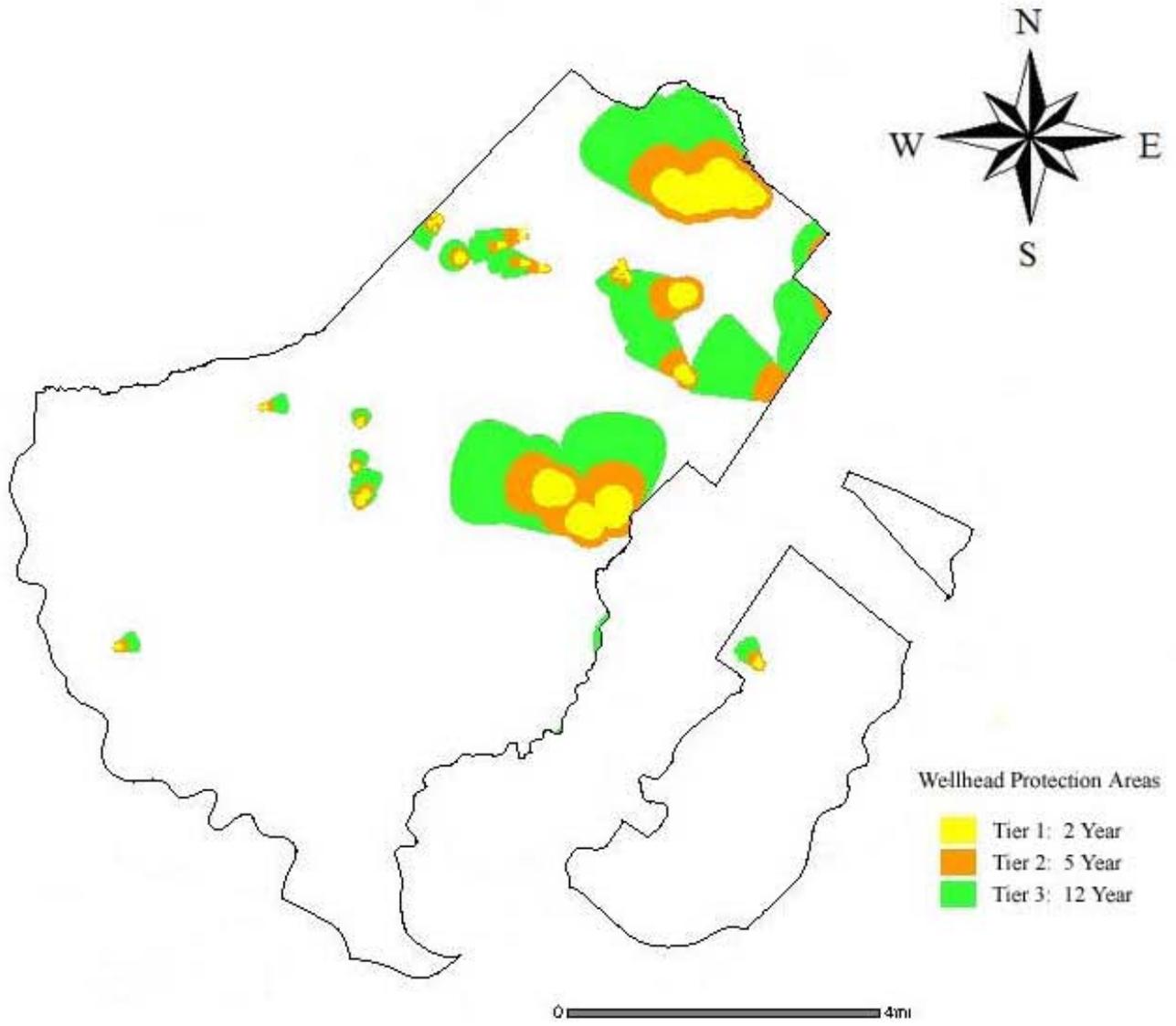


Figure 5: Wellhead Protection Areas in the Township



Design and Performance Standards

The Township will adopt the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the stormwater management rules at N.J.A.C. 7:8-5.8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins. The ordinances will be submitted to the county for review and approval within [24 months of the effective date of the Stormwater Management Rules.]

During construction, Township inspectors will observe the construction of projects to ensure that the stormwater management measures are constructed and functioning as designed.

Plan Consistency

The Township is not within a Regional Stormwater Management Planning Area and no TMDLs have been developed for waters within the Township; therefore this plan does not need to be consistent with any regional stormwater management plans (RSWMPs) nor any TMDLs. If any RSWMPs or TMDLs are developed in the future, this Municipal Stormwater Management Plan will be updated to be consistent.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The municipality will utilize the most current update of the RSIS in the stormwater management review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates to the RSIS.

The Township's Stormwater Management Ordinance requires all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Township inspectors will observe on-site soil erosion and sediment control measures and report any inconsistencies to the local Soil Conservation District.

Nonstructural Stormwater Management Strategies

The Township has reviewed the master plan and ordinances, and has provided a list of the sections in the Township land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. These are the ordinances identified for revision. Once the ordinance texts are completed, they will be submitted to the county review agency for review and approval within [24 months of the effective date of the Stormwater Management Rules]. A copy will be sent to the Department of Environmental Protection at the time of submission.

Chapter 94 of the Township Code, entitled Design, Performance and Improvement Standards, was reviewed with regard to incorporating nonstructural stormwater management strategies. Several changes were made to this Chapter to incorporate these strategies.

Section 94-8: Buffer areas are required along all lot lines and street lines which separate a nonresidential use from an existing residential zoning district. Buffer areas shall be developed in an aesthetic manner for the primary purposes of screening views and reducing noise perception beyond the lot. Buffer widths shall be measured horizontally and perpendicularly to lot and street lines. The language of this section will be amended to require the use of native vegetation, which requires less fertilization and watering than non-native species. Additionally, language will be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces. This section currently requires the preservation of natural wood tracts and limits land disturbance for new construction.

Section 94-11: Curbs and Gutters require that concrete curb and gutter, concrete curb be installed along every street within and fronting on a development. This section will be amended to allow for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas in CAFRA areas specifically or non growth areas.

Section 94-21: Grading, Topsoil and seeding describes the procedures for grading all lots, open spaces, and planting areas. Currently the maximum slope ranges from 10%, being 5 feet from a foundation, to 25%, anywhere in the lawn. This section will be amended to allow the change of grading slopes to minimize stormwater runoff and promote groundwater recharge. Grading of lawns shall be a minimum of 1.5% and a maximum of 10% anywhere. Grading of driveways shall be tilted towards grass areas not directly to the street.

Section 94-22A (11): Natural Features requires that natural features, such as trees, brooks, swamps, hilltops, and views, be preserved whenever possible, and that care be taken to preserve selected trees to enhance soil stability and landscaped treatment of the area. This section will be amended to expand trees to forested areas, to ensure that leaf litter and other beneficial aspects of the forest are maintained in addition to the trees.

Section 225: Zoning requires a variance for existing single family homes proposing additions that exceed the maximum percent impervious. The homeowner must mitigate the impact of the additional impervious surfaces unless the stormwater management plan for the development provided for these increases in impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge as described in Chapter 94. A detailed description of how to develop a mitigation plan is present in the Township Code.

Section 94-10: Off-tract Improvement Costs describes essential off-tract improvements. Language was added to this section to require that any off-tract stormwater management and drainage improvements must conform to the “Design and Performance Standards” described in this plan and provided in Chapter 94 of the Township Code.

Section 94-37: Shade Trees sets the requirements for planting shade trees. In addition to Section 225-50.9, the Township has a Tree Preservation Ordinance that restricts and otherwise controls the removal of mature trees throughout the Township. This ordinance recognizes that the preservation of mature trees and forested areas is a key strategy in the management of environmental resources, particularly watershed management, air quality, and ambient heating and cooling. These sections set out a “critical footprint area” that extends 20 feet beyond the driveway and building footprint where clearing of trees cannot occur. This complies with minimizing land disturbance, which is a nonstructural stormwater management strategy. These sections will be amended to require the identification of forested areas, and that 20% minimum of forested areas be protected from disturbance.

Section 94-20H Floodplain Regulations addresses stormwater runoff by referencing Chapter 94-44, the Township’s Surface Water Management Ordinance, which was updated to include all requirements outlined in N.J.A.C. 7:8-5. These changes were presented earlier in this document.

Section 94-22E: Stormwater management basin landscaping addresses the appropriate basin landscaping. Language was added to this section to require a more native water tolerant species be planed in and along basin edges to absorb water in basins.

Several changes were made to 225-A1 of the Township Code entitled “Zoning, Schedule of Minimum Area, Yard and Building Requirements.” The Township has 12 types of residential districts. Each district has a maximum percent impervious surface allocation, ranging from 5 percent for the RA District, which has a minimum lot size of 100,00 square feet, to 45 percent for the R-6 and RG-5 Districts, which have a minimum lot size of 5,000 and 2,800 square feet respectively. The Township has 12 types of non-residential districts. Each of these districts has a maximum percent impervious surface allocation, ranging from 5% percent for the MC District to 75 percent for the NB District. Although each zone has a maximum allowable percent impervious surface, the Township Code was amended to remind developers that satisfying the percent impervious requirements does not relieve them of responsibility for complying with the Design and Performance Standards for Stormwater Management Measures contained in Chapter 94-44 –Stormwater Management. The Township is evaluating the maximum allowable impervious cover for each zone to determine whether a reduction in impervious cover is appropriate. The Township is also evaluating a maximum percent of disturbance for each zone, for those areas identified as natural features in Section 225-50.9. Also, if a developer is given a variance to exceed the maximum allowable percent imperviousness, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge as described in Chapter 94-4. A detailed description of how to develop a mitigation plan is included in this Municipal Stormwater Management Plan on page 29.

Land Use/Build-Out Analysis

A detailed land use analysis for the Township needs to be conducted. In the last ten years, there has been rapid growth in the Township and the land use data needs to be updated. Figure 6 illustrates the land use in the Township based on 1995/97 GIS information from NJDEP. Figure 7 illustrates the HUC14s within the Township. The Township zoning map is shown in Figure 8. The build-out calculations for impervious cover are shown in Table 1. As expected when developing agricultural and forest lands, the build-out of these HUC14s will result in a significant increase in impervious surfaces.

Table 2 presents the pollutant loading coefficients by land cover. The pollutant loads at full build-out are presented in Table 3.

Figure 6: Township's 1995 Land Use

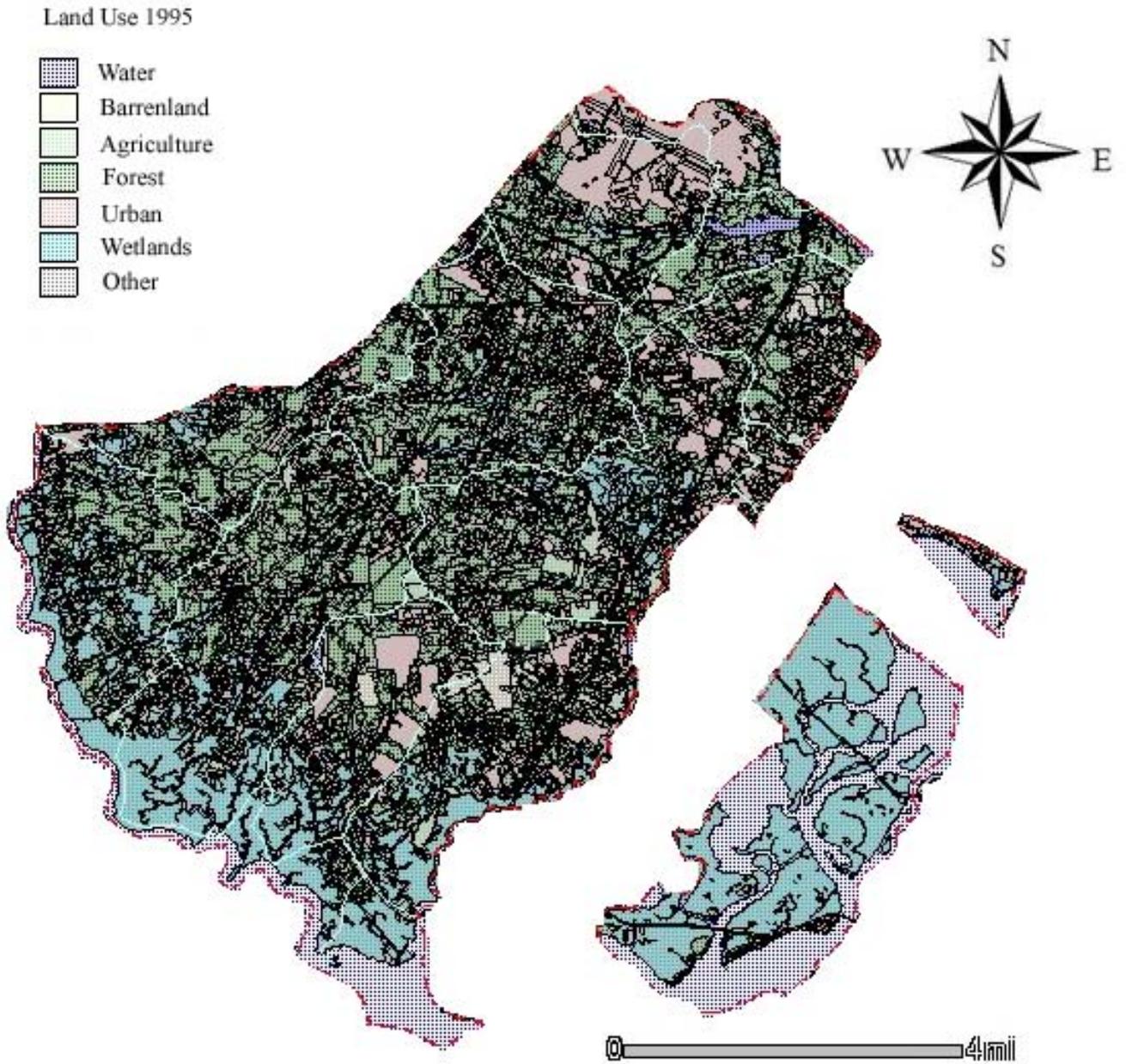


Figure 7: Hydrologic Units (HUC14s) within the Township

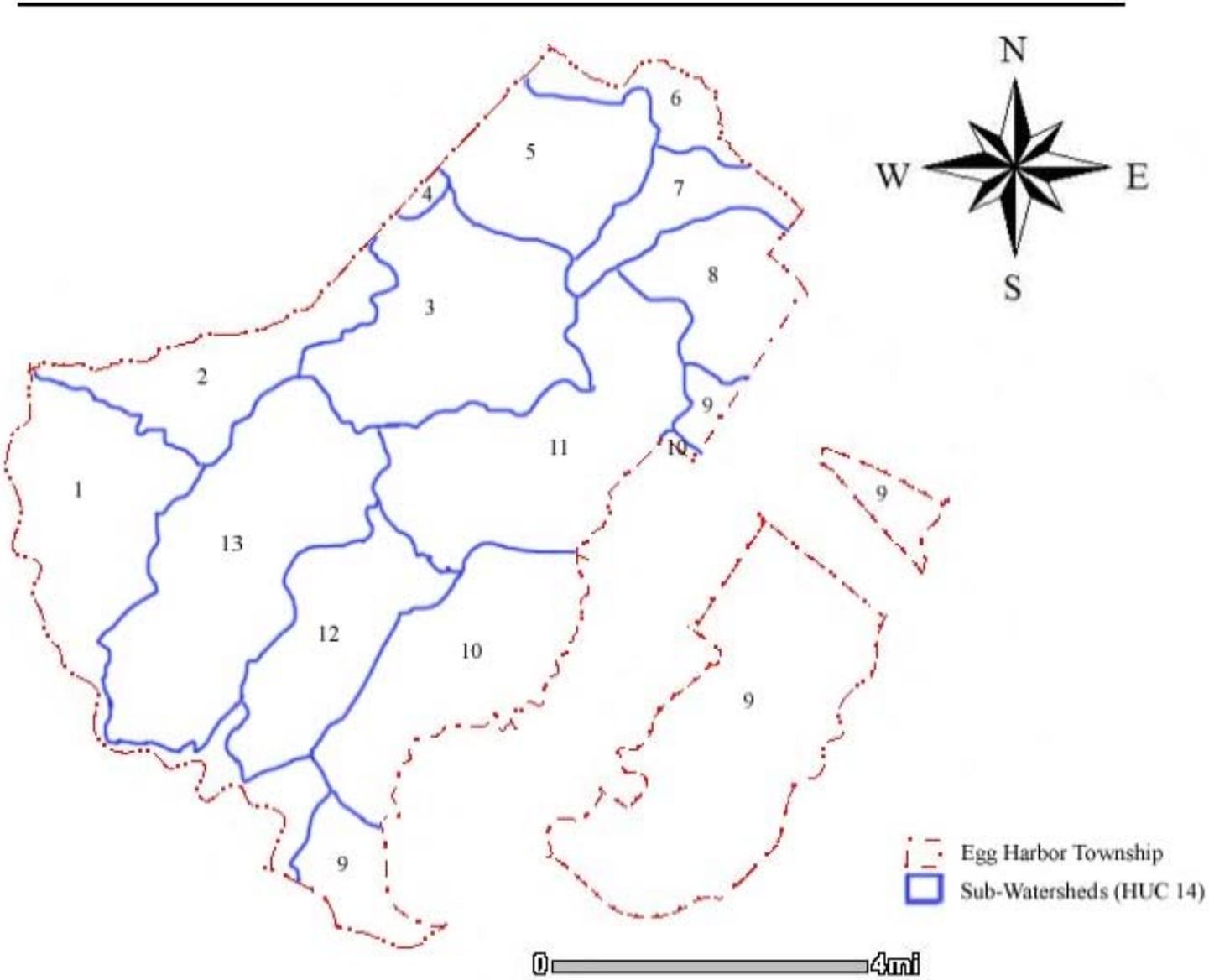


Figure 9: Wetlands and Water Land Uses within the Township- Constrained Lands

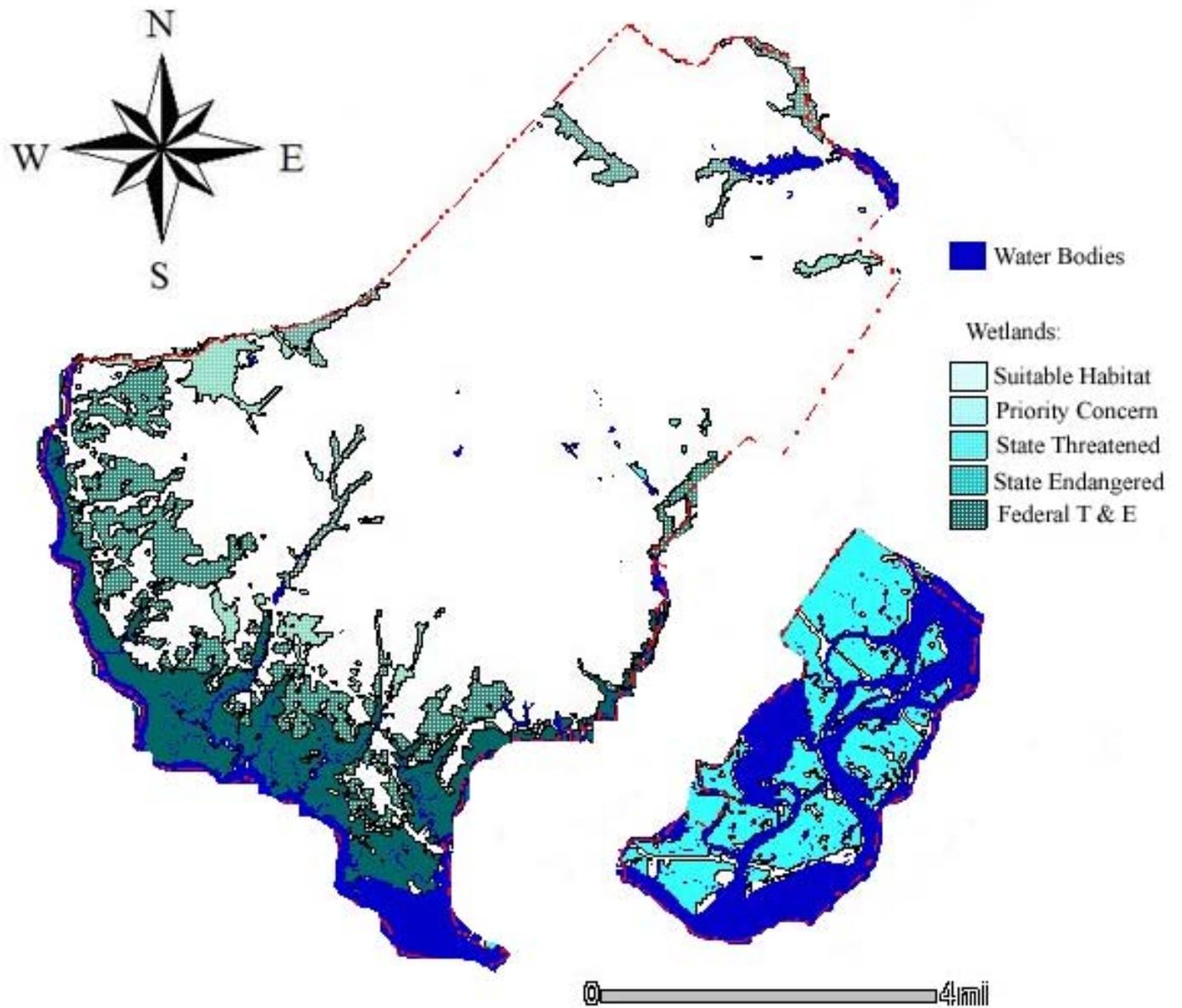


Table 1: Build-Out Calculations for the Township's HUC14s

HUC14 and Zone	Total Area (acres)	Wetlands/ Water Area (acres)	Developable Area (acres)	Allowable Impervious (%)	Build-Out Impervious (acres)
1					
RA Residential	2684.54	268	2416	5%	121
CRW- Conservation Recreation Wetlands	5039.69	1260	3780	5%	189
TOTALS	7724.23	1528	6196		310
2					
RG2- Residential	51.81	1	51	30%	15
M1- Industrial	37.57	2	36	70%	25
RG3- Residential	136.36	0	136	35%	48
RG1- Residential	761.11	61	700	20%	140
RA Residential	1670.24	167	1503	5%	75
TOTALS	2657.08	230	2427		303
3					
RG1- Residential	1256.29	0	1256	20%	251
RG2 Residential	2124.63	21	2103	30%	631
RG3- Residential	359.18	25	334	35%	117
RG4- Residential	79.57	0	80	45%	36
HB Commercial	412.01	8	404	70%	283
PO1	392.29	16	377	70%	264
NB Commercial	82.97	0	83	75%	62
TOTALS	4706.95	70	4637		1643
4					
RG2 Residential	25.97	0	26	30%	8
HB Commercial	93.42	1	92	70%	65
RG5 Residential	21.62	0	21	45%	10
TOTALS	141.01	1	140		82
5					
RG5 Residential	358.52	4	355	45%	160
GC General Commercial	152.71	0	153	70%	107
RG4- Residential	310.83	0	311	45%	140
HB Commercial	30.92	0	31	70%	22
M1- Industrial	1910.35	96	1815	70%	1270
PO1	58.51	0	59	70%	41
TOTALS	2821.84	99	2723		1739
6					
M1- Industrial	692.52	7	686	70%	480
TOTALS	692.52	0	693		480
7					
M-1	1131.81	622	509	70%	357
RG4 Residential	34.69	0	35	45%	16
RG5 Residential	25.45	0	25	45%	11
GC General Commercial	210.87	0	211	70%	148
HB Commercial	85.58	0	86	70%	60

HUC14 and Zone	Total Area (acres)	Wetlands/ Water Area (acres)	Developable Area (acres)	Allowable Impervious (%)	Build-Out Impervious (acres)
TOTALS	1488.39	622	866		591
8					
R2- Residential	92.04	2	90	15%	14
R3- Residential	32.59	0	33	20%	7
R4- Residential	35.91	0	36	25%	9
RG4 Residential	31.64	0	32	45%	14
RG5 Residential	324.76	13	312	45%	140
M1- Industrial	1258.15	0	1258	70%	881
GC General Commercial	372.03	0	372	70%	260
TOTALS	2147.12	15	2132		1325
9					
R1- Residential	109.24	5	104	10%	10
R2- Residential	65.43	0	65	15%	10
R4- Residential	58.69	0	59	25%	15
R5- Residential	144.56	123	22	30%	7
R5- Apt Residential	455.05	387	68	20%	14
R6 Residential	44.84	11	34	45%	15
M1- Industrial	78.62	0	79	70%	55
CRW- Conservation Recreation Wetlands	7733.45	7347	387	5%	19
MC Commercial	214.56	86	129	5%	6
RCD Commercial	166.98	0	167	70%	117
PO1 Business	9.91	0	10	70%	7
SHD Special Highway Development	56.92	0	57	70%	40
TOTALS	9028.99	7959	1179		315
10					
R1- residential	299.91	6	294	10%	29
R2- Residential	1870.48	187	1683	15%	253
R3- Residential	934.83	56	879	20%	176
R4- Residential	31.45	16	16	25%	4
RG1- Residential	861.81	9	853	70%	597
MC Commercial	28.32	16	13	5%	1
CRW- Conservation Recreation Wetlands	608.50	274	335	5%	17
RP Recreation Park	155.84	0	156	25%	39
NB Commercial	117.27	2	115	75%	86
RI Restricted Industrial	78.05	0	78	25%	20
TOTALS	4986.46	565	4421		1221
11					
RG1- Residential	861.81	34	827	20%	165
RG2 Residential	1947.81	117	1831	30%	549
RG4 Residential	384.76	0	385	45%	173
R1- residential	40.26	8	32	10%	3
R2- Residential	17.42	0	17	15%	3
NB Commercial	182.26	9	173	75%	130

HUC14 and Zone	Total Area (acres)	Wetlands/ Water Area (acres)	Developable Area (acres)	Allowable Impervious (%)	Build-Out Impervious (acres)
RCD Commercial	591.82	30	562	70%	394
PO1 Business	13.79	0	14	70%	10
M1- Industrial	50.84	0	51	70%	36
GC General Commercial	37.90	0	38	70%	27
HB Commercial	302.62	3	300	70%	210
TOTALS	4431.28	201	4230		1699
12					
R1- residential	1347.69	67	1280	10%	128
R2- Residential	154.17	9	145	15%	22
R3- Residential	499.56	10	490	20%	98
RG1- Residential	106.99	0	107	20%	21
RP Recreation Park	35.26	0	35	25%	9
CRW- Conservation Recreation Wetlands	579.83	348	232	5%	12
NB Commercial	187.15	0	187	75%	140
CB Commercial	86.85	0	87	70%	61
ASO- Auto Service Overlay	167.66	8	159	70%	111
RI Restricted Industrial	32.06	2	30	25%	8
TOTALS	3197.22	445	2753		610
13					
R1- residential	1997.95	200	1798	10%	180
R3- Residential	34.38	3	31	20%	6
RG1- Residential	335.10	0	335	20%	67
RA Residential	1946.22	156	1791	5%	90
NB Commercial	191.35	0	191	75%	144
CRW- Conservation Recreation Wetlands	1485.91	892	594	5%	30
TOTALS	5990.93	1250	4740		516

Table 2: Pollutant Loads by Land Cover

Land Cover	Total Phosphorus Load (lbs/acre/year)	Total Nitrogen Load (lbs/acre/year)	Total Suspended Solids Load (lbs/acre/yr)
High, Medium Density Residential	1.4	15	140
Low Density, Rural Residential	0.6	5	100
Commercial	2.1	22	200
Industrial	1.5	16	200
Forest, Water, Wetlands	0.1	3	40

Source: NJDEP Stormwater BMP Manual 2004.

Table 3: Nonpoint Source Loads at Build-Out for the Township's HUC14s

HUC14 and Zone	Build-Out Zoning	Developable Area (acres)	TP (lbs/acre/yr)	TP (lbs/yr)	TN (lbs/acre/yr)	TN (lbs/yr)	TSS (lbs/acre/yr)	TSS (lbs/yr)
1								
RA Residential	Rural Residential	2416	0.6	1,450	5	12,080	100	241,609
CRW- Conservation Recreation Wetlands	Wetlands	3780	0.1	378	3	11,339	40	151,191
TOTALS		6196		1,828		23,420		392,800
2								
RG2- Residential	High Density Residential	51	1.4	72	15	769	140	7,181
M1- Industrial	Industrial	36	1.5	54	15	535	200	7,138
RG3- Residential	High Density Residential	136	1.4	191	15	2,045	140	19,090
RG1- Residential	High Density Residential	700	1.4	980	15	10,503	140	98,030
RA Residential	Rural Residential	1503	0.6	902	5	7,516	100	150,321
TOTALS		2427		2,198		21,369		281,761
3								
RG1- Residential	High Density Residential	1256	1.4	1,759	15	18,844	140	175,881
RG2 Residential	High Density Residential	2103	1.4	2,945	15	31,551	140	294,473
RG3- Residential	High Density Residential	334	1.4	468	15	5,011	140	46,766
RG4- Residential	High Density Residential	80	1.4	111	15	1,194	140	11,140
HB Commercial	Commercial	404	2.1	848	22	8,883	200	80,755
PO1 Business	Commercial	377	2.1	791	22	8,285	200	75,320
NB Commercial	Commercial	83	2.1	174	22	1,825	200	16,593
TOTALS		4637		7,096		75,593		700,928
4								
RG2 Residential	High Density Residential	26	1.4	36	15	386	140	3,600

HUC14 and Zone	Build-Out Zoning	Developable Area (acres)	TP (lbs/acre/yr)	TP (lbs/yr)	TN (lbs/acre/yr)	TN (lbs/yr)	TSS (lbs/acre/yr)	TSS (lbs/yr)
HB Commercial	Commercial	92	2.1	194	22	2,035	200	18,496
RG5 Residential	High Density Residential	21	1.4	30	15	321	140	2,996
TOTALS		140		260		2,741		25,092
5								
RG5 Residential	High Density Residential	355	1.4	497	15	5,324	140	49,692
GC General Commercial	Commercial	153	2.1	321	22	3,360	200	30,541
RG4- Residential	High Density Residential	311	1.4	435	15	4,662	140	43,516
HB Commercial	Commercial	31	2.1	65	22	680	200	6,185
M1- Industrial	Industrial	1815	1.5	2,722	16	29,037	200	362,967
PO1 Business	Commercial	59	2.1	123	22	1,287	200	11,702
TOTALS		2723		4,163		44,351		504,602
6								
M1- Industrial	Industrial	686	1.5	1,028	16	10,970	200	137,120
TOTALS		693		1,028		10,970		137,120
7								
M-1 Industrial	Industrial	509	1.5	764	16	8,149	200	101,863
RG4 Residential	High Density Residential	35	1.4	49	15	520	140	4,856
RG5 Residential	High Density Residential	25	1.4	36	15	382	140	3,563
GC General Commercial	Commercial	211	2.1	443	22	4,639	200	42,174
HB Commercial	Commercial	86	2.1	180	22	1,883	200	17,115
TOTALS		866		1,471		15,573		169,572
8								
R2- Residential	Medium Density Residential	90	1.4	126	15	1,353	140	12,628
R3- Residential	Medium Density Residential	33	1.4	46	15	489	140	4,563
R4- Residential	Medium Density Residential	36	1.4	50	15	539	140	5,028

HUC14 and Zone	Build-Out Zoning	Developable Area (acres)	TP (lbs/acre/yr)	TP (lbs/yr)	TN (lbs/acre/yr)	TN (lbs/yr)	TSS (lbs/acre/yr)	TSS (lbs/yr)
RG4 Residential	High Density Residential	32	1.4	44	15	475	140	4,429
RG5 Residential	High Density Residential	312	1.4	436	15	4,677	140	43,648
M1- Industrial	Industrial	1258	1.5	1,887	16	20,130	200	251,629
GC General Commercial	Commercial	372	2.1	781	22	8,185	200	74,407
TOTALS		2132		3,371		35,847		396,331
9								
R1- Residential	Medium Density Residential	104	1.4	145	15	1,557	140	14,528
R2- Residential	Medium Density Residential	65	1.4	92	15	981	140	9,160
R4- Residential	Medium Density Residential	59	1.4	82	15	880	140	8,216
R5- Residential	Medium Density Residential	22	1.4	30	15	325	140	3,036
R5- Apt Residential	Medium Density Residential	68	1.4	96	15	1,024	140	9,556
R6 Residential	Medium Density Residential	34	1.4	47	15	504	140	4,708
M1- Industrial	Industrial	79	1.5	118	16	1,258	200	15,723
CRW- Conservation Recreation Wetlands	Wetlands	387	0.1	39	3	1,160	40	15,467
MC Commercial	Commercial	129	2.1	270	22	2,832	200	25,747
RCD Commercial	Commercial	167	2.1	351	22	3,674	200	33,397
PO1 Business	Commercial	10	2.1	21	22	218	200	1,981
SHD Special Highway Development	Commercial	57	2.1	120	22	1,252	200	11,383
TOTALS		1179		1,410		15,666		152,903
10								
R1- residential	Medium Density Residential	294	1.4	411	15	4,409	140	41,147

HUC14 and Zone	Build-Out Zoning	Developable Area (acres)	TP (lbs/acre/yr)	TP (lbs/yr)	TN (lbs/acre/yr)	TN (lbs/yr)	TSS (lbs/acre/yr)	TSS (lbs/yr)
R2- Residential	Medium Density Residential	1683	1.4	2,357	15	25,252	140	235,681
R3- Residential	Medium Density Residential	879	1.4	1,230	15	13,181	140	123,023
R4- Residential	Medium Density Residential	16	1.4	22	15	236	140	2,202
RG1- Residential	High Density Residential	853	1.4	1,194	15	12,798	140	119,446
MC Commercial	Commercial	13	2.1	27	22	280	200	2,549
CRW- Conservation Recreation Wetlands	Wetlands	335	0.1	33	3	1,004	40	13,387
RP Recreation Park	Forest	156	0.1	16	3	468	40	6,234
NB Commercial	Commercial	115	2.1	241	22	2,528	200	22,984
RI Restricted Industrial	Industrial	78	1.5	117	16	1,249	200	15,611
TOTALS		4421		5,649		61,404		582,264
11								
RG1- Residential	High Density Residential	827	1.4	1,158	15	12,410	140	115,827
RG2 Residential	High Density Residential	1831	1.4	2,563	15	27,464	140	256,331
RG4 Residential	High Density Residential	385	1.4	539	15	5,771	140	53,866
R1- residential	Medium Density Residential	32	1.4	45	15	483	140	4,509
R2- Residential	Medium Density Residential	17	1.4	24	15	261	140	2,439
NB Commercial	Commercial	173	2.1	364	22	3,809	200	34,630
RCD Commercial	Commercial	562	2.1	1,181	22	12,369	200	112,446
PO1 Business	Commercial	14	2.1	29	22	300	200	2,730
M1- Industrial	Industrial	51	1.5	76	16	813	200	10,168
GC General Commercial	Commercial	38	2.1	80	22	834	200	7,579
HB Commercial	Commercial	300	2.1	629	22	6,591	200	59,919
TOTALS		4230		6,688		71,107		660,445

HUC14 and Zone	Build-Out Zoning	Developable Area (acres)	TP (lbs/acre/yr)	TP (lbs/yr)	TN (lbs/acre/yr)	TN (lbs/yr)	TSS (lbs/acre/yr)	TSS (lbs/yr)
12								
R1- residential	Medium Density Residential	1280	1.4	1,792	15	19,205	140	179,243
R2- Residential	Medium Density Residential	145	1.4	203	15	2,174	140	20,288
R3- Residential	Medium Density Residential	490	1.4	685	15	7,344	140	68,540
RG1- Residential	High Density Residential	107	1.4	150	15	1,605	140	14,978
RP Recreation Park	Forest	35	0.1	4	3	106	40	1,410
CRW- Conservation Recreation Wetlands	Wetlands	232	0.1	23	3	696	40	9,277
NB Commercial	Commercial	187	2.1	393	22	4,117	200	37,431
CB Commercial	Commercial	87	2.1	182	22	1,911	200	17,369
ASO- Auto Service Overlay		159		0		0		0
RI Restricted Industrial	Industrial	30	1.5	46	16	487	200	6,091
TOTALS		2753		3,478		37,644		354,628
13								
R1- residential	Medium Density Residential	1798	1.4	2,517	15	26,972	140	251,742
R3- Residential	Medium Density Residential	31	1.4	43	15	464	140	4,332
RG1- Residential	High Density Residential	335	1.4	469	15	5,027	140	46,915
RA Residential	Rural Residential	1791	0.6	1,074	5	8,953	100	179,052
NB Commercial	Commercial	191	2.1	402	22	4,210	200	38,270
CRW- Conservation Recreation Wetlands	Wetlands	594	0.1	59	3	1,783	40	23,775
TOTALS		4740		4,565		47,409		544,086

Mitigation Plans

This mitigation plan is provided for a proposed development that is granted a variance or exemption from the stormwater management design and performance standards.

Mitigation Project Criteria

1. The mitigation project must be implemented in the same drainage area as the proposed development. The project must provide additional groundwater recharge benefits, or protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards outlined in the Municipal Stormwater Management Plan. The developer must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP Stormwater BMP Manual.
2. If a suitable site cannot be located in the same drainage area as the proposed development, as discussed in Option 1, the mitigation project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue. For example, if a variance is given because the 80 percent TSS requirement is not met, the selected project may address water quality impacts due to a fecal impairment.

The municipality may allow a developer to provide funding or partial funding to the municipality for an environmental enhancement project that has been identified in a Municipal Stormwater Management Plan, or towards the development of a Regional Stormwater Management Plan. The funding must be equal to or greater than the cost to implement the mitigation, including costs associated with purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure. Further projects will be discussed with the appropriate township officials to provide a detailed list of mitigation projects.

The Township is presently not able to identify such mitigation projects, therefore mitigation is not allowed in the Pinelands Area for the time being. If such projects are proposed, this plan will be amended and submitted to the Pinelands Commission for approval.