

WTEAC



Environmental Resource Inventory

2013



WTEAC
Wall Township Environmental Advisory Committee
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Wall Township Environmental Advisory Committee

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TABLE OF CONTENTS

INTRODUCTION	1
OVERVIEW	1
WALL TOWNSHIP ENVIRONMENTAL ADVISORY COMMITTEE	2
HISTORY OF WALL TOWNSHIP	4
THE BUILT ENVIRONMENT	5
EXISTING LAND USE	5
EXISTING TRANSPORTATION	6
<i>Federal Interstates</i>	6
<i>State Roads</i>	6
<i>County Roads</i>	7
<i>Municipal Roads</i>	7
<i>New Jersey Transit Bus</i>	7
<i>New Jersey Transit Rail</i>	
<i>Wall Bike Paths</i>	7
PARKS AND RECREATION AREAS.....	8
<i>Existing Recreation Areas</i>	8
<i>Manasquan Wildlife Management Area</i>	9
ENVIRONMENTAL CONDITIONS	11
CLIMATE.....	11
<i>Coastal Zone</i>	11
<i>Coastal Zone Temperature</i>	11
<i>Coastal Zone Precipitation</i>	13
TOPOGRAPHY.....	13
SOILS.....	14
<i>Soil Series</i>	14
<i>Agricultural Soils</i>	16
GROUND WATER.....	17
<i>Water Supply/Water Quality</i>	17
<i>Groundwater Contamination</i>	18
SURFACE WATER.....	19
<i>Watersheds</i>	19
<i>Wetlands</i>	20
WILDLIFE	21
<i>Plant Life</i>	21
<i>Animal Life</i>	22
SPECIAL ENVIRONMENTAL PROTECTION AREAS	25
<i>Coastal Area Facilities Review Act (CAFRA)</i>	25
<i>Environmentally Sensitive Planning Areas</i>	26
CONCLUSIONS	27
RECOMMENDATIONS.....	27
SPECIAL ENVIRONMENTAL PROTECTION AREAS	27

MAPS

AERIAL M1
USGS TOPOGRAPHIC M2
1986 LAND USE COVER..... M3
EXISTING LAND USE M4
EXISTING TRANSPORTATION NETWORK..... M5
PARKS AND RECREATION M6
STEEP SLOPES..... M7
SOILS..... M8
SOILS FARMLAND SUITABILITY..... M9
PUBLIC COMMUNITY WATER SUPPLY WELLS M10
GROUNDWATER CONTAMINATION..... M11
WATER FEATURES M12
WETLANDS M13
RARE PLANT SPECIES M14
THREATENED AND ENDANGERED HABITAT..... M15
THREATENED AND ENDANGERED ANIMAL SPECIES M16
SPECIAL ENVIRONMENTAL PROTECTION AREAS M17

APPENDIX

WALL TOWNSHIP ENVIRONMENTAL COMMITTEE BROCHURE A
RECREATION AND OPEN SPACE INVENTORY B
SOIL DESCRIPTIONS C
2013 ANNUAL DRINKING WATER QUALITY REPORT D

REFERENCES

INTRODUCTION

An environmental resource inventory (ERI) is a record of existing natural resources and environmental features within a community.

Overview

There is no legal requirement in New Jersey that a municipality must adopt an ERI, and an ERI can be as detailed or general as the community chooses. However, ERI's have many uses that are beneficial to a community. Since an ERI documents the existing environmental features of a community, it can be used as a base line for determining the environmental impacts of a proposed development application. An ERI may also be helpful in assisting local representatives in understanding the environmental impacts of a proposed ordinance amendment.

Another important reason to prepare an ERI is that a community that has adopted an updated ERI may be more attractive to organizations that distribute grant money to municipalities. In particular, an updated ERI is required in order for a municipality to achieve Sustainable Jersey certification. According to their website, Sustainable Jersey is a "nonprofit, nonpartisan organization that provides tools, training and financial incentives to support and reward communities as they pursue sustainability programs (Sustainable New Jersey)." A municipality seeking Sustainable Jersey certification must complete a number of certification actions that include measures such as educational programs, purchasing plans and planning documents that lead to a more sustainable community. One of these actions is the preparation of an ERI that has been adopted as part of the Township's Master Plan.

Pursuant to the New Jersey Municipal Land Use Law (MLUL):

Whenever the environmental commission has prepared and submitted to the planning board and the board of adjustment an index of the natural resources of the municipality, the planning board or the board of adjustment shall make available to the environmental commission an informational copy of every application for development submitted to either board (MLUL 40:55D-27b).

It is the current practice of the Planning Board and Zoning Board of Adjustment to submit site plan applications to the Wall Township Environmental Advisory Committee (WTEAC). However, the last Wall Township ERI was prepared by the WTEAC in 1987. Recognizing that a myriad of environmental regulations have been adopted by the State of New Jersey Department of Environmental Protection (NJDEP) since 1987, existing technology has made identification and categorization of environmental features more accessible, and the built environment is markedly different than it was in 1987, the WTEAC believes that an updated ERI would benefit the community. Additionally, the WTEAC anticipates that this

ERI can be adopted as an amendment to the Township's Master Plan and submitted to Sustainable Jersey in their quest for certification.

Wall Township Environmental Advisory Committee

In 1968, New Jersey statute P.L.1968, c.245 (C.40:56A-1 et seq.) gave municipalities the authority to establish their own advisory committees and environmental commissions to act as municipal advisory boards on matters pertaining to environmental management and preservation. The Township of Wall established the WTEAC in 1977 to perform as the Township's environmental advisory committee. The establishment of the WTEAC is codified under the Code of the Township of Wall Article II (Chapter 6), entitled, "Environmental Advisory Committee." Section 6:13, "Functions," of the ordinance officially sets forth the role of the WTEAC as follows:

The Committee is established to assist in the protection, development and use of natural resources, including water resources, located within the territorial limits of the Township. In order to carry out these purposes the Committee shall have the following functions:

- A. Promoting the conservation and development of the natural resources of the Township by making recommendations to the appropriate Township officials, boards and bodies.*
- B. Planning, implementing and informing the public about local conservation programs.*
- C. Conducting research into the possible use of the open areas of the Township.*
- D. Recommending to the Planning Board plans and programs for use of such open areas.*
- E. Assisting and collaborating with the Planning Board in the latter's duties and responsibilities.*
- F. Rendering nonbinding opinions with respect to any matter referred for review by the Planning Board or any application for development referred by the administrative officer within 20 days of such referral.*
- G. Advertising, preparing, printing and distributing books, maps, charts, plans and pamphlets which in its judgment it deems necessary for its purposes.*
- H. Acting as the coordinating agency for the community on environmental matters and a liaison between local environmental needs and regional, county, state and federal agencies administering to those needs.*
- I. Compiling and annually updating an environmental resource inventory of land and water resources, which are both publicly or privately owned, including open marsh lands, swamps, and other wetlands, in order to obtain information on the proper use of such areas.*

- J. At the request of the Township Administrator, reviewing proposed and existing legislation and actions of regulatory agencies as they impact the environment and advising the Township Committee on such matters.*
- K. Rendering nonbinding opinions with respect to any matter referred for review by the Township Administrator or the Township Committee, including any proposed sale or exchange of Township-owned property, within 20 days of such referral.*
- L. Recommending to the Township Committee the planting of shade and ornamental trees and shrubbery in appropriate locations or recommending the removal of any tree or part thereof for reasons of public safety.*

The WTEAC works tirelessly to fulfill these roles and sponsors numerous projects, competitions, educational workshops and recreational programs as well as publishing news articles to promote environmental conservation, and sustainability. (Refer to Appendix A)

The WTEAC is currently comprised of the following volunteer members from the community, who are appointed by the Township Committee, to contribute their skills and talents on environmental activities:

WTEAC MISSION STATEMENT

The Committee is established to assist in the protection, development and use of natural resources, including water resources, located within the territorial limits of the township.

The Committee shall also provide environmental education and information to the community by utilizing various projects and activities in implementing these objectives.

Wilma J. Morrissey, Chairwoman

Rich Mertens, Vice Chairman

Suzanne Klinger, Secretary

Trish Longo McCarthy

Ed Loud

Ellen Smith

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Brief History of the Township of Wall

Wall Township's history began long before its incorporation in 1851. Its central location between the Manasquan and Shark rivers provided abundant resources that were attractive to the Lenni Lenape Indians, the earliest known human inhabitants of the area. Europeans started settling in the surrounding areas during the 1600's and by the Revolutionary War the rich lands of Wall Township became known for their grist and salt mills. The iron industry took over during the early 19th century and the Howell Works Corporation settled a small village preserved today as the Historic Village at Allaire State Park. This century also became a time of political organization, which resulted in Wall Township's secession from Howell Township. By the end of the nineteenth century, skilled craftsman of various trades including carpentry, smithing and farming made Wall Township their home. During the twentieth century, Wall Township's Marconi research center became a fundamental resource during World War II due to its radar production. Throughout the centuries, Wall Township residents have worked to preserve its history and many of the historic sites and buildings are still maintained today.

The Built Environment

The Township of Wall is comprised of approximately 20,218 Acres in southeastern Monmouth County. The Township is bound by the Shark River to the north and the Manasquan River to the south. Bordering municipalities include Colts Neck Township, Tinton Falls Borough, and Neptune Township to the north. Belmar Borough, Lake Como Borough, Spring Lake Heights Borough, Sea Girt Borough, Manasquan Borough and Brielle Borough border Wall Township to the East. Immediately to the south are Point Pleasant Borough and Brick Township. Howell Township makes up the entire western municipal boundary. Map 1: Aerial Map, depicts a photographic aerial image of Wall Township and illustrates its relationship to neighboring municipalities. Additionally the United States Geological Survey (USGS) Map illustrated on Map 2 represents the major developed and natural features of Wall Township.

Existing Land Use

Using aerial imagery, the NJDEP has developed land use and land cover (LULC) mapping.

Figure 1: Land Use Distribution 1986-2007			
<u>LU/LC Type</u>	<u>1986</u>	<u>2007</u>	<u>Percent Change</u>
Agriculture	8.93%	5.60%	-37.27%
Barren Land	4.53%	1.93%	-57.41%
Forest	27.91%	23.94%	-14.24%
Urban	35.76%	45.25%	26.54%
Water	1.37%	3.37%	145.86%
Wetlands	21.49%	19.91%	-7.38%
<i>Notes: Increase in water attributed to change in municipal boundary that did not include Shark and Manasquan rivers in 1986 LULC Mapping.</i>			

Sources: NJDEP 1986 Land Use/Land Cover for Monmouth County, New Jersey; NJDEP 2007 Land use/Land Cover Update, Monmouth Watershed Management Area, WMA12; NJDEP 2007 Land use/Land Cover Update, Barnegat Bay Watershed Management Area, WMA13

Anderson Land Use Classification system (1971). Pursuant to this system, agricultural land is typically crop land, pasture or horticultural areas used primarily for the production of food and fiber. Barren land is identified as an area with thin soil or rock that lacks vegetative cover. Barren land can include natural areas such as beaches or manmade such as landfills or mining pits. Forest land is an area of dense tree cover outside of wetland areas. Urban lands are built-up areas where the natural landscape has been altered by

The imagery is used to categorize land into different man made land uses and natural vegetative land cover areas. The LULC mapping is periodically updated and can be used to visually compare land use and land cover changes over time. The first LULC map data was published in 1986, just prior to the adoption of the last Wall Township ERI and is illustrated in Map 3. The most recent update was completed in 2007 and is illustrated in Map 4: Existing Land Use Map.

The classification system identified in the NJDEP LULC mapping illustrated in Maps 3 and 4 and set forth in Figure 1, refers to the

human activities. These areas include residential, commercial and industrial developed property, roadways and developed recreational areas. The water land use class identifies all water bodies and areas periodically covered by water. Wetlands are areas that are saturated by surface or ground water that sufficiently supports vegetation adapted for life in saturated conditions.

At the time of the adoption of the last ERI, the largest land use type was urban land accounting for approximately 36% of the land mass. At the same time, water made up the smallest percentage of land use type at approximately 1%.

Since the adoption of the last ERI Urban Land has increased by approximately 26%.

Likewise, in 2007 urban land remained the largest land use type in Wall Township at approximately 45% and water increased to approximately 3%, but still made up the smallest portion of land cover. It should be noted that the disproportionately large increase in water is likely due to the fact that the Shark River and Manasquan River were not included in the 1986 LULC mapping. Agriculture, barren land, forest and wetlands all decreased in the time period between 1986 and 2007, with Barren Land decreasing the most by approximately 57%. Urban land and water increased by approximately 27% and 146% respectively.

Existing Transportation

There are approximately 262.31 miles of public roads in Wall Township. These roads consist of federal, state, county and municipal roadways. There are several New Jersey Transit (NJT) bus routes that transect Wall Township. Wall Township prides itself on an extensive recreational bike route that it is constantly seeking to expand. Map 5 portrays a general overview of the various transportation systems that make up Wall Township’s transportation network.

Federal Interstates

The only federal roadway in Wall Township is Interstate 195. Interstate 195 terminates at State Highway Route 34 where it becomes State Hwy Route 138.

Figure 2: State Roads Present in Wall Township	
State Route 18	State Route 70
State Route 33	State Route 71
State Route 34	State Route 138
State Route 35	Garden State Parkway

Source: 1999 Wall Township Master Plan

State Roads

Approximately 66 miles of Roads in Wall Township are State Roads. Figure 2 sets forth all State Roads in Wall Township.

County Roads

Figure 3: County Roads Present in Wall Township	
18th Avenue	Garden State Parkway
Allaire Road	Herbertsville Road
Allenwood Lakewood Road	Megill Road
Allenwood Road (Portions)	Shafto Road
Asbury Road	Warren Avenue
Atlantic Avenue	West 18th Avenue
Belmar Boulevard	Wyckoff Road

Approximately 27 miles of Roads in Wall Township are County Roads. Figure 2 sets forth all County Roads in Wall Township.

Source: 1999 Wall Township Master Plan

Municipal Roads

The remaining 164 miles of road in Wall Township are municipal Roads. Wall Township actively pursues necessary repaving projects as budgetary constraints permit and takes efforts to limit roadway damage. The Township Ordinance prohibits private entities from engaging in any activities involving the opening of a municipal street within five (5) years of a municipal repaving project.

New Jersey Transit Bus

NJT operates three bus lines that stop in Wall Township. NJT bus lines 317, 830 and 836 all stop in Wall Township with a total of fourteen (14) stops. Figure 4 below sets forth all NJT bus stops in Wall Township.

Figure 4: NJT Bus Stops Present in Wall Township	
<u>Stop Name</u>	<u>Bus Line</u>
18th Ave. at K St.	830
18TH Ave. at Rt. 35	830
RT-33 at Kelly Lane	836
RT-33 at Shafto's Corner Road	836
RT-33 at Wyckoff Road	836
RT-71 at 17th Ave.	317
RT-71 at 18th Ave.	317
Wall K-Mart	830

Source: Newman NJT Bus Stop Locations ,

New Jersey Transit Rail

There are no NJT rail stations within Wall Township. However, the NJT Northeast Coast Line runs along the eastern boarder of Wall Township. Stations in the Borough of Belmar and the Borough of Spring Lake provide convenient access to this rail line for Wall Township residents.

Wall Bike Paths

Wall has approximately twelve miles of paved recreational bicycle pathways. Wall regularly applies for state and county grant programs to expand the bike path. The bike path currently consists of the State Highway Route 18 Right of Way from the Municipal complex to the Jersey Central Power and Light (JCP&L) Right of Way south of Atlantic Avenue where it intersects the Edgar Felix branch of the bike path. The Edgar Felix branch continues in an easterly and westerly direction from that point. This branch has

been expanded several times and now terminates at the Manasquan municipal border to the east and Allaire State Park to the west. Additionally, the newest expansion extends from the existing Edgar Felix Branch in a southerly direction along Hospital Road for approximately ½ a mile.

Parks and Recreation Areas

In 2008 Wall Township completed a comprehensive open space and recreation plan. At that time, the Township had a surplus of recreation land based on population and land acreage standards set forth by the National Parks and Recreation Association and New Jersey Statewide Comprehensive Outdoor Recreation Plan. However, the Wall Township Open Space and Recreation Plan cautioned that this surplus did not consider open space and conservation areas, and recommended regular updates of the Township Recreation and Open Space Inventory (ROSI) to encourage the township to routinely evaluate existing open space and recreation areas and consider further land acquisition for recreation and open space purposes.

In New Jersey, each town that has received funding from the State NJDEP Green Acres program to purchase land for open space and recreation purposes is required to develop a ROSI and submit it at the time it receives the funding. The ROSI must include all municipal, county and nonprofit parkland acquired through the Green Acres Program. Additionally, the ROSI must include all other land held for recreation or conservation purposes at the time that the Green Acres funds are apportioned for acquisition. Wall Township adopted its first ROSI in 2005. As recommended, the ROSI has been regularly updated since then. The most recent ROSI updated in October of 2013 is included as Appendix B.

Another tool that the Township of Wall utilizes to preserve its treasured recreation and open space is its zoning classification system. Wall Township adopted the Public Open Space (POS) Zone District. Approximately 5,754 acres of land have been designated in the POS zone, accounting for approximately 29% of the township.

Existing Recreation Areas

Existing parks and recreation areas in Wall Township include privately, municipal, county, and state owned lands. Figure 5 below lists all of the lands in Wall Township held for passive and active recreation purposes.

Figure 5: Public Recreation Sites	
<u>State</u>	
Allaire State Park	Manasquan River Reservoir
Brisbane Health Center	Spring Meadow Golf Course
Manasquan Wildlife Management Area	
<u>County</u>	
Bel Aire Golf Course	Shark River Park
<u>Township</u>	
Airplane Park	Rash Field
Brice Park	Roosevelt Park
Marconi Park Complex	Rose Hill Park
Candy Cane Park	West Atlantic Ave. Basketball Courts
Community Park	Kessler Pond
Dolan Field	Osborne's Pond
Route 18/Edgar Felix Bike Path	Silo Pond
Fisk Park	Old Mining Pit
George Frame Park	Pump Station/Boat Ramp
Hero's Park	Wheelwright Building
Old Mill Park	Buser Property
Orchard Park	
<u>Board of Education</u>	
Administration Complex	Wall High School
Allenwood Elementary School	Wall Intermediate School
Central Elementary School	West Belmar School
Old Mill Elementary School	

Source: 2008 Wall Township Open Space and Recreation Plan

Manasquan Wildlife Management Area

With the help of funds through the New Jersey Green Acres program, hunting and fishing licenses and the NJ waterfowl stamp program, the NJDEP Division of Fish and Wildlife (DFW) has purchased land throughout the state for recreation and conservation purposes. These lands, known as Wildlife Management Areas (WMA) are recreational lands primarily used for passive recreation such as hunting, fishing, hiking and biking. Wall Township

includes one WMA. The Manasquan WMA straddles the Wall Township/Brick Township municipal boundary located at the southern portion of Wall Township along the Manasquan River as shown on Map 5.

Environmental Conditions

Climate

The Office of the New Jersey State Climatologist (ONJSC) categorizes weather in New Jersey into five distinct climate regions, the Northern Zone, Central Zone, Pine Barrens Zone, Southwestern Zone and the Coastal Zone. Wall Township is located within the Coastal Zone.

Coastal Zone

The Coastal Zone includes all areas of land in Atlantic, Cape May, Monmouth and Ocean Counties that are within ten (10) miles of the Atlantic Coast.

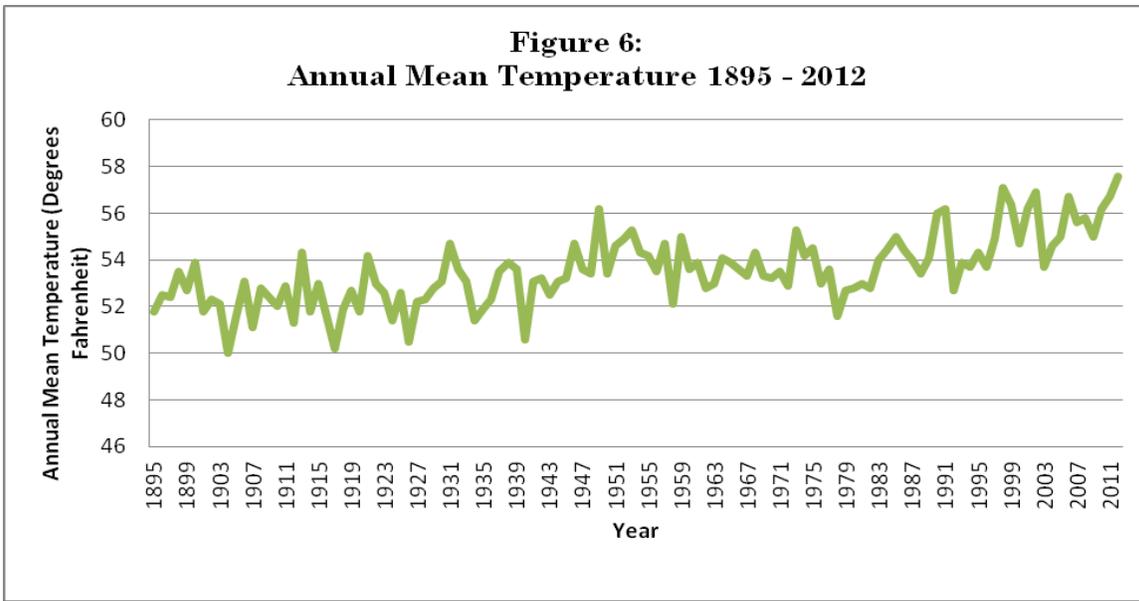
In the Coastal Zone, continental and oceanic influences battle for dominance on daily to weekly bases. In autumn and early winter, when the ocean is warmer than the land surface, the Coastal Zone will experience warmer temperatures than interior regions of the state. In the spring months, ocean breezes keep temperatures along the coast cooler. Being adjacent to the Atlantic Ocean, with its high heat capacity (compared to land), seasonal temperature fluctuations tend to be more gradual and less prone to extremes.

Sea breezes play a major role in the coastal climate. When the land is warmed by the sun, heated air rises, allowing cooler air at the ocean surface to spread inland. Sea breezes often penetrate 5-10 miles inland, but under more favorable conditions, can affect locations 25-40 miles inland. They are most common in spring and summer.

Coastal storms, often characterized as nor'easters, are most frequent between October and April. These storms track over the coastal plain or up to several hundred miles offshore, bringing strong winds and heavy rains. Rarely does a winter go by without at least one significant coastal storm and some years see upwards of five to ten. Tropical storms and hurricanes are also a special concern along the coast. In some years, they contribute a significant amount to the precipitation totals of the region. Damage during times of high tide can be severe when tropical storms or nor'easters affect the region. (ONJSC)

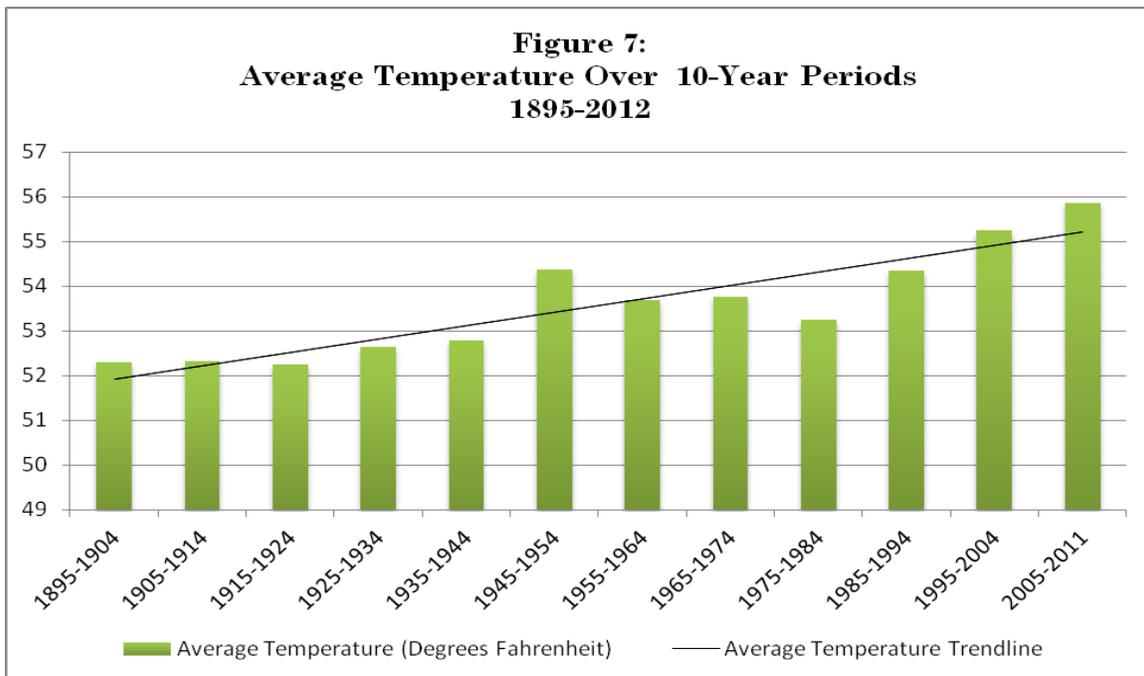
Coastal Zone Temperature

Average temperatures in the Coastal Zone have shown peaks and valleys over the past century as evident in Figure 6.



Source: ONJSC

When comparing the average temperatures over ten year periods from 1895 to 2012, a slight trend towards somewhat warmer temperatures has been observed as illustrated in Figure 7. The most recent period shown on the figure represents only a seven year period since data for the entire ten year period is not yet available. This factor may skew the trend towards warmer temperatures to appear more dramatic than actual conditions.

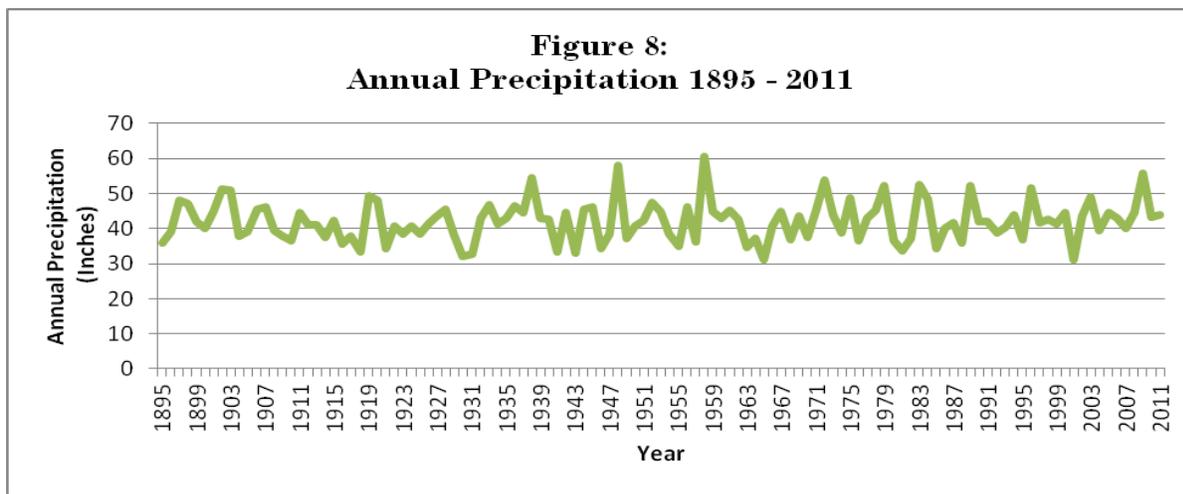


Source: ONJSC

So far, in the seven-year period from 2005 to 2011, the average annual temperature has slightly exceeded all previously recorded ten-year periods at 55.9 degrees Fahrenheit. It should be noted, however that there was a similar spike in temperatures in the middle of the twentieth century which was followed by a period of lower temperatures in the latter part of the century.

Coastal Zone Precipitation

Precipitation maintained an average trend in the time period between 1895 and 2011 with an average precipitation of 42.19. The most extreme precipitation over the past 117 years occurred in the middle of the 20th century, when the most and least amounts of precipitation occurred.



Source: ONJSC

Topography

The Wall Township Land Use Ordinance defines steep slopes as, “Areas where the average slope equals or exceeds fifteen (15) percent (Section 140-17).” Additionally, pursuant to section 140-254D of the Wall Township Ordinance, steep slopes in excess of fifteen (15) percent over a ten-foot interval must be maintained as undeveloped open space unless engineering measures are taken).

An additional measure Wall Township takes to preserve areas of steep slopes is through ordinance section 140-116B(2), which prohibits the change of grade or fill by more than two feet. This includes any new retaining walls over two feet in height. The township engineer reviews all applications for change in elevation

Figure 9: Steep Slopes in Wall Township	
<u>Grade</u>	<u>Acres</u>
15%-20%	416.53
20%-25%	161.23
Greater than 25%	91.59

Source: Monmouth County 2-Foot Contours GIS Layer

to ensure ordinance compliance.

There are approximately 669 acres of steep slopes in Wall Township. Figure 9 illustrates the acreage distribution of steep slopes from minimally steep at fifteen (15) percent to very steep grades over twenty-five (25) percent.

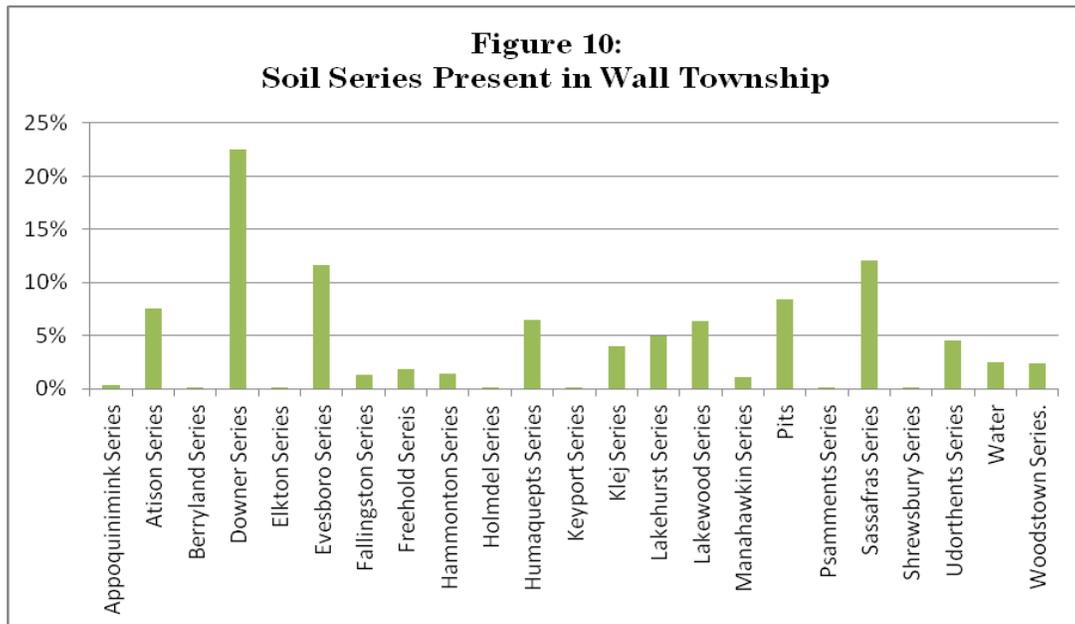
Map 7 illustrates all areas of steep slopes in Wall Township. Geographically, steep slopes are distributed throughout the entire township. However many of the steep slope areas are along the stream corridors that run throughout the municipality.

Soils

The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) in cooperation with other state and federal organizations completed its first nationwide soil survey in 1980 and first published the Monmouth County Soil Survey in 1983. Since that time updated soil survey and mapping information has been developed. The most recent comprehensive Monmouth County soil mapping was published by the NJDEP in 2008 in their Soil Survey Geographic 2008 (SSURGO) database using USDA survey and map data. This data is presented in Map 8. The map shows the distribution of soil types in Wall Township as published in the Monmouth County SSURGO.

Soil Series

Each soil type is categorized into a broader soil series which groups soils of similar characteristics. Figure 10 lists all of the soil series present in Wall Township:



Source: Soil Survey Geographic (SSURGO) Database for Monmouth County

Following is a summary of some of the characteristics of each of the soil series' present in Wall Township as described by the Soil Series of Monmouth County. For a more detailed description of each specific soil type, refer to Appendix C.

Appoquinimink Series: This series accounts for approximately 0.34% of the land area in Wall Township. It is classified as being very poorly drained with moderate permeability. Depth to bedrock is more than ninety (90) inches.

Atison Series: Approximately 7.55% of the land area of Wall Township is comprised of soils in the Atison Series. This soil series is poorly drained with rapid permeability.

Berryland Series: 0.14% of Wall Township's land surface is comprised of Berryland series soil. These soils are very poorly drained with rapid permeability. Depth to bedrock is more than seventy-two (72) inches.

Downer Series: This series is the most prevalent soil series in Wall Township. 22.47% of the land area of Wall Township is comprised of this soil series. These are well drained soils on uplands and terraces.

Elkton Series: These poorly drained soils on upland flats are not significant in Wall Township as they account for less than 0.01%

Evesboro Series: This soil series is the third most present series in Wall Township. It consists of excessively drained soils on uplands. 11.62% of the land area in the Township is comprised of soils in this soil series.

Fallingston Series: This soil series accounts for approximately 1.27% of the land area in Wall Township and is comprised of poorly drained soils on upland flats.

Freehold Series: The Freehold Soil Series consists of well drained soils on uplands. Only 1.80% of soils in Wall Township are Freehold series soils.

Hammonton Series: 1.38% of the soils in Wall Township are Hammonton series soils. These soils are moderately well drained or somewhat poorly drained soils on uplands.

Holmdel Series: The Holmdel series consists of moderately well drained or somewhat poorly drained soils on uplands. This series of soils occupy approximately 0.16% of the land area of Wall Township.

Hummaquepts Soils: Hummaquepts soils are somewhat poorly drained to very poorly drained soils on flood plains. Approximately 6.47% of soils in Wall Township are soils classified in the Hummaquepts series.

Keyport Series: Keyport Series soils are the least present soils series in Wall Township and account for less than 0.01% of soils. They are typically moderately well drained soils on uplands.

Klej Series: 4.02% of soils in Wall Township are soils classified of Klej soils. They are moderately well drained or somewhat poorly drained soils on uplands.

Lakehurst Series: The Lakehurst series accounts for 5.01% of the soils in Wall Township. They moderately well drained and somewhat poorly drained soils found on uplands.

Lakewood Series: 6.42% of the soils found in Wall are Lakewood series soils. They are excessively drained soils on uplands.

Manahawkin Series: The Manahawkin series consists of very poorly drained soils on lowlands and back swamps. Approximately 1.11% of soils in Wall are Manahawkin Series soils.

Psammets: These soils are excessively drained to somewhat poorly drained soils and vary greatly from location to location. They account for only 0.07% of the land area.

Sassafras Series: This soil series is fairly significant in Wall and is the second most abundant soil type present. 12.13% of the soils in Wall consist of these well drained soils on uplands.

Shrewsbury Series: This series consists of poorly drained soils on upland flats. Only 0.16% of the soils in Wall Township are in this series.

Udorthents Series: Udorthents consist of well drained to somewhat poorly drained soils. They account for 4.49 percent of the soils present in Wall Township.

Woodstown Series: This soil series consists of moderately well drained soils on uplands and terraces. 2.40% of the soils in Wall Township are Woodstown series soils.

Agricultural Soils

The SSURGO also provides classification about the farmland suitability of the soils it identifies. There are four farmland suitability soil categories identified in the SSURGO database.

1. Those soils categorized as “prime farmland” have chemical and physical characteristics that are ideal for farming and will yield successful crops when properly farmed. These soils are typically not highly erodible and do not flood frequently.
2. Soils categorized as “farmland of statewide importance” are determined by the state Department of Agriculture (NJDA). These soils have similar properties similar to

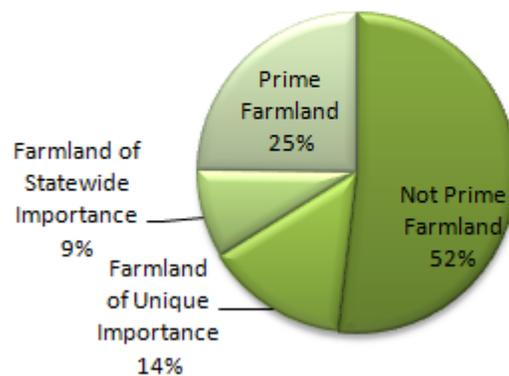


prime farmland soils and yield successful crops when properly farmed under favorable conditions.

3. “Farmland of unique importance” soils are not suitable for all crops but have characteristics that make them ideal for specific crops.
4. Soils classified as “not prime farmland” are generally not suitable for any crops.

Map 9: Farmland Suitability Map illustrates the dispersion of soils in reference to their farmland suitability qualities. Additionally, Figure 11 shows the distribution of the amount of farm suitable soils in Wall Township. Over half of the soil in Wall is classified as “not prime farmland, one quarter of the soils are prime farmland. The soils making up the smallest percentage in Wall Township are those categorized as “farmland of statewide importance” and “farmland of unique importance.”

**Figure 11:
Farmland Suitability of Soils**



*Source: Soil Survey Geographic (SSURGO)
Database for Monmouth County*

Ground Water

Groundwater is water beneath the earth’s surface within the zone of saturation know as the water table. Groundwater deep beneath the earth’s surface that is present in usable quantities for human use is known as an Aquifer.

Water Supply/Water Quality

The Township of Wall draws its drinking water from the Mount Laurel and Englishtown Aquifers. Both of these Aquifers are part of the Kirkwood-Cohansey Aquifer System (KCAS). The Township maintains eight public wells, and also purchases water from the New Jersey Water Supply Authority (NJWSA) Manasquan Reservoir Water Supply System. Map 10 illustrates all of the public water supply wells in Wall Township. Wall Township’s public drinking water meets or exceeds all state and federal regulations according to the Annual Drinking Water Quality Report, which is attached to this document as Appendix D.

Groundwater Contamination

The NJDEP publishes GIS mapping information about known contaminated sites (KCS), classification exception areas (CEA), and currently known extent of groundwater contamination (CKE). The table below describes each of these classifications.

Figure 12: NJDEP Contamination Classifications	
<u>NJDEP Contamination Classification</u>	<u>Description</u>
KCS	Sites where soil or ground water has been identified or where there has been, or there is suspected to have been, a discharge of contamination
CEA	Areas where groundwater contamination has been identified and exceeds New Jersey Ground Water Quality Standards (NJGWQS) for specific contaminants. When a CEA is designated by NJDEP, the designated aquifer uses are suspended until the CEA designation is lifted.
CKE	Areas where the local ground water resources are known to be compromised because the water quality exceeds drinking water and ground water quality standards for specific contaminants

Sources: NJDEP Currently Known Extent of Groundwater Contamination for New Jersey, 2007; NJDEP Classification Exception Areas/Well Restriction Areas Polygon Maps for New Jersey, 2009; NJDEP Known Contaminated Site List for New Jersey (Non-Homeowner), Fall 2009

There are thirty-seven KCS's and eight CEA locations in Wall Township. These locations are illustrated on Map 11.

White Swan Cleaners/Sun Cleaners Contamination

In 2004 the Environmental Protection Agency (EPA) added two sites in Wall Township to the national superfund list because of toxic chemicals identified in the soil and groundwater. Both sites were drycleaner sites that operated from the 1960's to the early 1990's. Since 2004 the EPA has performed various studies and evaluations in compliance with their regulations to determine the extent of contamination and potential remediation of the sites. On August 27, 2013, the EPA proposed four potential groundwater contamination cleanup solutions that are being considered at the time of the preparation of this ERI.

Surface Water

Wall Township’s geographical proximity to the Atlantic Ocean makes it an area where a copious amount of surface water exists. Figure 13 lists the larger water bodies in Wall Township, however there are also many unnamed tributaries to these larger bodies as well as manmade drainage corridors that contribute to Wall Township’s surface water.

Figure 13: Water Bodies in Wall Township
Albert’s Pond
Brisbane Lake
Glendola Reservoir
Hannabrand Brook
Headwaters of Wreck Pond
Hurley’s Pond
Manasquan River
Old Mill Pond
Osborne’s Pond
Shark River
Taylor Pond
Wreck Pond Brook
Brick - Metedeconk Reservoir (BTMUA)
Manasquan Wildlife Management Area
Manasquan River Watershed
Metedeconk River Watershed
Whale Pond Brook/Shark River/Wreck Pond Brook Watershed

Source: 2008 Open Space and Recreation Plan

Watersheds

A watershed is the area of land surrounding and including a water body that drains into that water body. There are three watersheds in Wall Township. The Metedeconk River NB watershed encompasses a small area at the southwestern corner of Wall Township. The remaining southern portion of Wall Township is located in the Manasquan River Watershed. The entire northern portion of the Township is located in the Whale Pond Brook / Shark River / Wreck Pond Book Watershed. Each of these watersheds is further divided into subwatersheds that represent smaller areas that drain into smaller water bodies before draining into the larger watershed. There are ten subwatersheds designated by the NJDEP in Wall Township. These areas are illustrated on Map 12.

Wetlands

Wetlands act as transitional areas between well-drained uplands and permanently flooded regions or waterways. They are important to our ecosystem for a variety of reasons. They act as nursery areas for aquatic life, provide shelter for amphibians, and are used as safe havens and feeding grounds for migratory birds. Wetlands often contain as many or more animals and plants than nearby waterways and provide protection for humans and their property. They absorb floodwaters and act as barriers from storms. Wetlands also have the important function of acting as natural reservoirs and protecting water quality. (Wall Township Open Space Plan)

The NJDEP publishes GIS data that provides a visual estimation of the areas throughout the state where wetlands are present. This data also sets forth the type of wetland for each designated area as well as the area in acreage that each wetland type encompasses. Map 13 displays the distribution of the NJDEP mapped wetlands in Wall Township. Most of the wetlands in Wall Township are associated with water bodies and are present along streams, rivers and lakes.

It should be noted that the information provided in the NJDEP GIS data is merely an estimation of areas where wetlands are likely present. The only recognized procedure in New Jersey to determine if wetlands actually exist on a property pursuant the NJDEP’s Freshwater Wetlands Act is by obtaining a site specific Letter of Interpretation (LOI) from the NJDEP.

NJDEP’s Freshwater Wetlands Act categorizes wetlands into three levels. Each level requires a different mandatory buffer distance from the edge of the delineated wetlands as set forth in Figure 14.

Figure 14: NJDEP Levels of Wetlands		
<u>Wetland Buffer</u>	<u>Required Buffer</u>	<u>Description</u>
Exceptional	150	Contain documented habitat or potential habitat for rare, threatened or endangered species.
Intermediate	100	Wetlands that are not designated as exceptional or ordinary
Ordinary	No Buffer	Isolated wetlands less than 5,000 square feet.

Source: Complete Guide to Planning in New Jersey

Wildlife

Wildlife in New Jersey is monitored through the NJ Office of Natural Lands Management (ONLM) and the NJ Division of Fish and Wildlife (DFW). These departments maintain extensive databases on existing wildlife species, habitat, migration and threatened and endangered species.

Wall Township is home to various plant and animal life. Of particular importance are threatened and endangered species present in Wall Township. Using NJDEP GIS mapping data compiled through ONLM and DFW database information, threatened and endangered species within Wall Township have been identified in this inventory.

Plant Life

Through its Natural Heritage Database, the ONLM documents rare plant species and rare ecological community habitat. The Natural Heritage Grid Map (NHGM) is a GIS file that provides a general portrayal of the geographic locations of rare plant species and rare ecological communities for the entire state.

Map 14 illustrates the NHGM information within Wall Township. Grid areas shown on the map provide generalized locations of where rare plant species or rare ecological communities occur. While the NHGM is not a complete record of rare and endangered plant species habitat, it does reflect data on known historically and recently documented occurrences of rare plant species and rare ecological communities.

Figure 15 identifies the rare plant species identified on the NHGM in Wall Township. A total of ten (rare) plant species have been identified. *Helonias Bullata*, commonly known as Swamp-Pink is the only species previously listed as a threatened plant species on the United States Fish and Wildlife Service. No plant species in Wall Township is currently listed as threatened. Seven of the ten rare plant species identified in Wall Township are listed as endangered on New Jersey's Official Endangered Plant Species List, which designates native New Jersey plant species whose survival in the state or nation is in jeopardy.



Figure 15 Rare Plant Species Identified in Wall Township		
Name	Common Name	Status
Cacalia atriplicifolia	Pale Indian Plantain	E
Carex cumulata	Clustered Sedge	E
Ceratophyllum echinatum	Spiny Coontail	E
Elatine minima	Small Waterwort	
Eleocharis halophila	Salt-marsh Spike-rush	
Helonias bullata	Swamp-pink	E/LT
Ranunculus cymbalaria	Seaside Buttercup	E
Rhynchospora pallida	Pale Beaked-rush	
Uvularia puberula var. nitida	Pine Barren Bellwort	E
Zigadenus leimanthoides	Death-camus	E
<i>Notes:</i> LT = Taxa formerly listed as threatened E = Taxa listed as endangered		

Source: NJDEP Natural Heritage Grid Map, Version 200911

Animal Life

In 1994 the NJDEP began the Landscape Project Program. The goal of the program is to protect New Jersey's threatened and endangered species and their habitats, by developing a geographic database that is easily accessible and readily available to the public for planning, environmental protection and land management programs. The Landscape Project divides the state into ecoregions where plant and animal communities are ecologically similar and closely interlinked. The Landscape project has delineated six of these regions. There are five landscape regions and one aquatic region identified in the State. Three of the six ecoregions traverse Wall Township as set forth below and illustrated on Map 15.

Atlantic Coastal Landscape

This region encompasses parts of Monmouth, Ocean Cape May and Atlantic Counties. The marshes and beaches in this region include some of the nation's richest coastal habitats. Habitats in the Atlantic Coastal Landscape region are critical for breeding, migrating and wintering shore birds. Approximately 2,714 acres of land in the northeaster and southern parts of Wall Township are designated in the Atlantic Coastal Landscape.

Piedmont Plains Landscape

Parts of Burlington, Camden, Gloucester, Salem, Mercer, Middlesex, Monmouth, Hunterdon, Somerset, Union, Essex, Hudson, Passaic and Bergen Counties are designated in the Piedmont Plains Landscape region. Tidal marshes, woodland, grassland and farmland dominate this landscape region. Grassland birds are the predominant threatened species in this region. The Piedmont Plains Landscape region is the prevailing landscape region in Wall Township. It encompasses approximately 11,550 acres over the western half of the Township.

Pinelands Landscape

The Pinelands Landscape region occupies approximately 6,017 acres in the western portion of Wall Township. Portions of Atlantic, Ocean, Burlington, Camden and Gloucester counties are also included in the Pinelands Landscape region. Reptiles and insect species are predominant in this region. Additionally, the wetlands and swamps in this region support a unique variety of aquatic life.

Habitat Suitability

The NJDEP Landscape project categorizes habitats within each landscape region a number of different ways. One way is by a five level ranking system that grades habitat suitability for threatened and endangered animal species. Level one is the lowest priority habitat type, which identifies areas that have characteristics that are suitable habitats for threatened and/or endangered animal species, although no threatened or endangered species have actually been identified within level one habitats. Level five on the habitat suitability ranking system is the highest priority. These are the habitat areas where threatened and endangered species have been identified.

Map 15 illustrates the areas in Wall Township according to their habitat suitability. In addition, Figure 16 provides a quick reference of the ranking system.

Figure 16 Landscape Project Habitat Suitability Ranking System		
Rank	Status of Habitat	Description
1	Suitable	Meets habitat suitability for T&E or priority species.
2	Priority	Contains species that have special or regional concern.
3	State Threatened	Contains species identified by the NJDEP as threatened.
4	State Endangered	Contains species identified by NJDEP as endangered.
5	Federal T&E	Contains species identified on the federal list of T&E species.

Source: 2008 Township of Wall Open Space and Recreation Plan.

Threatened or Endangered Species

Map 16 and Figure 17 illustrate the rare animal species that have been identified in Wall Township by the New Jersey Threatened and Nongame Species Program, which identifies and monitors volatile animal life in New Jersey. Occurrences of thirteen species that are monitored by the program have been observed in Wall Township. Three species identified in Wall Township are categorized as endangered. Four species have been observed in Wall Township that are threatened according to the state program. The remaining nine species listed on the table have been identified as species of special concern. Following is an explanation of the three categories as set forth by the NJ Threatened and Nongame Species Program:



Species of Special Concern applies to species that warrant special attention because of some evidence of decline, inherent vulnerability to environmental deterioration, or habitat modification that would result in their becoming a Threatened species. This category would also be applied to species that meet the foregoing criteria and for which there is little understanding of their current population status in the state.

Endangered Species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to prevent future extinction in New Jersey.

Threatened Species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate

In addition to the NJ Nongame Threatened and Endangered Species Program, the federal government also maintains its own list of those species it considers threatened or endangered. One species in Wall Township has been identified by the federal government as threatened. The bog turtle is categorized as endangered by the state and threatened by the federal government.

Figure 17 Rare Animal Species Identified in Wall Township		
Scientific Name	Common Name	Status
Accipiter cooperii	Cooper's Hawk	
Ardea herodias	Great Blue Heron	
Catharus fuscescens	Veery	
Glyptemys insculpta	Wood Turtle	ST
Glyptemys muhlenbergii	Bog Turtle	SE/FT
Haliaeetus leucocephalus	Bald Eagle	SE
Hylocichla mustelina	Wood Thrush	
Nycticorax nycticorax	Black-crowned Night-heron	ST
Pandion haliaetus	Osprey	ST
Sternula antillarum	Least Tern	SE
Strix varia	Barred Owl	ST
Terrapene carolina carolina	Eastern Box Turtle	
Wilsonia citrina	Hooded Warbler	
<i>Notes:</i> SE = NJ Endangered Species ST = NJ Threatened Species FT = Federal Threatened Species		

Source: NJDEP Landscape Project, Version 3.1

Special Environmental Protection Areas

Coastal Area Facilities Review Act (CAFRA)

Portions of Wall Township are under the jurisdiction of NJDEP’s Coastal Area Facilities Review Act (CAFRA). Generally, all development on a beach or dune within the CAFRA jurisdictional area is regulated and must receive NJDEP approval prior to municipal approval. Additionally, most development within 150 feet of the mean high water line of a tidal water body within the CAFRA jurisdictional area is regulated and must receive NJDEP approval prior to municipal approval. Any development proposed within the CAFRA jurisdictional area must also receive NJDEP approval if it involves residential development that includes twenty-five or more units or commercial development having fifty or more parking spaces, or public or industrial development. Map 17 illustrates the CAFRA jurisdictional boundaries in Wall Township.

Environmentally Sensitive Planning Areas

The NJ State Legislature adopted the State Planning Act in 1985 (N.J.S.A. 52:18A-196 et. seq.) to guide long range planning in NJ. The State Planning Act established the need for a State Planning Commission (SPC), who's primary role is the adoption and maintenance of a state plan to act as a policy guide for public and private entities to use for future planning. In compliance with the State Planning Act, the plan was developed and has been periodically updated. The most recent update was set forth by the SPC in 2010 as the New Jersey State Development and Redevelopment Plan, Final Draft Volume I (SDRP). Although the SDRP is not a regulatory plan, it does serve as a policy guide for local municipalities when considering planning documents and future development.

The SDRP includes the State Policy Map which sets forth five Planning Areas (PA), which are intended to direct land use policies throughout the state. While it is recommended that most new development be directed towards centers, nodes and existing developed areas in the Metropolitan (PA1), Suburban (PA2) and Fringe (PA3) planning areas, the purpose of the Rural (PA4) and Environmentally Sensitive Planning (PA5) areas serve a different purpose.

Rural Planning Area (PA4)

The main objective of Rural Planning Area (PA4) is to promote land use policies that enhance and protect rural lands and discourage sprawl. The SDRP recognizes that some areas within PA4 may also be environmentally sensitive and allocates these areas a special subcategory planning area designation known as Rural/Environmentally Sensitive Planning Area (PA4B). No portions of Wall Township are in the PA4 area. However, approximately 573 acres in the northwestern quadrant of Wall Township are designated as PA4B on the State Policy Map. The PA4B areas of Wall Township are represented on Map 17.

Environmentally Sensitive Planning Area (PA5)

The primary intent of the Environmentally Sensitive Planning Area (PA5) as set forth in the SDRP is to enhance and maintain existing ecological systems, wildlife habitat and natural resources. Approximately 1734 acres of land in the northwestern and western areas of Wall Township are designated as PA5 on the State Policy Map. These areas are also illustrated on Map 17.

Conclusions

It is the intent of the Wall Township Environmental Advisory Committee to continue to preserve and enhance its rich history and environmental resources for future generations. As such, the Committee has developed a list of recommendations and a schedule of future updates of this environmental resource inventory.

Recommendations

1. Continue to maintain and preserve Wall Township's rich environmental and agricultural resources.
2. Seek funding to acquire additional property for open space and conservation.
3. Consider incorporating all public property held for open space and recreation into the Public Open Space Zone District.
4. Achieve and maintain Sustainable New Jersey Certification.
5. Adopt this Environmental Resource Inventory as an amendment to the Township's Master Plan.
6. Consider the preparation of a Farmland Preservation Plan.
7. Consider additional elements to be added to this inventory.
8. Update and maintain this inventory on a regular basis.

Statement of Policy for Regular Updates

The Wall Township Environmental Advisory Committee recognizes that this inventory is only the beginning base of a living document intended to grow and be updated on a regular basis. To that end, the Committee anticipates the individual elements of this document to be updated whenever time permits or new information is available. Additionally, the Committee will make a committed effort to perform a formal reexamination of this inventory every six years.

MAPS

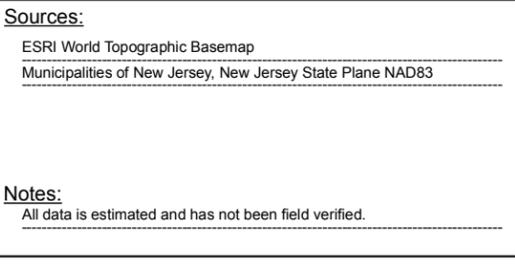


Wall Township Boundary
 Municipal Boundary

0 2,000 4,000 8,000
 1 inch = 4,000 feet

Sources:
 ESRI World Topographic Basemap
 Municipalities of New Jersey, New Jersey State Plane NAD83

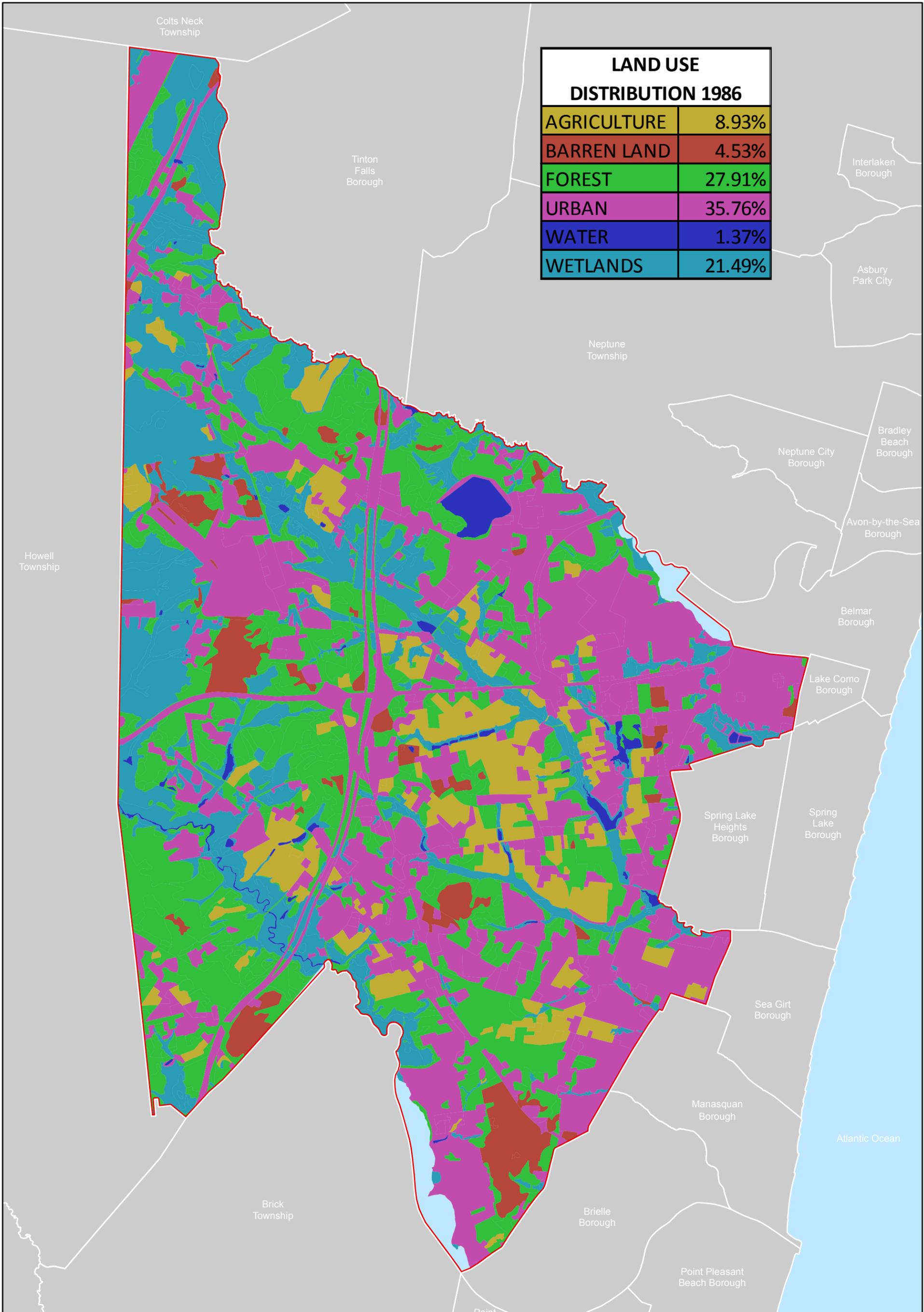
Notes:
 All data is estimated and has not been field verified.



Township of Wall Environmental Resource Inventory

USGS Topographic Map
 M2

October 23, 2013



LAND USE DISTRIBUTION 1986	
AGRICULTURE	8.93%
BARREN LAND	4.53%
FOREST	27.91%
URBAN	35.76%
WATER	1.37%
WETLANDS	21.49%

Land Use Type

Wall Township Boundary	Agriculture	Urban
Municipal Boundary	Barren Land	Water
	Forest	Wetlands

0 2,000 4,000 8,000
1 inch = 4,000 feet

Sources:
NJDEP 1986 Land Use/Land Cover for Monmouth County, New Jersey
Municipalities of New Jersey, New Jersey State Plane NAD83

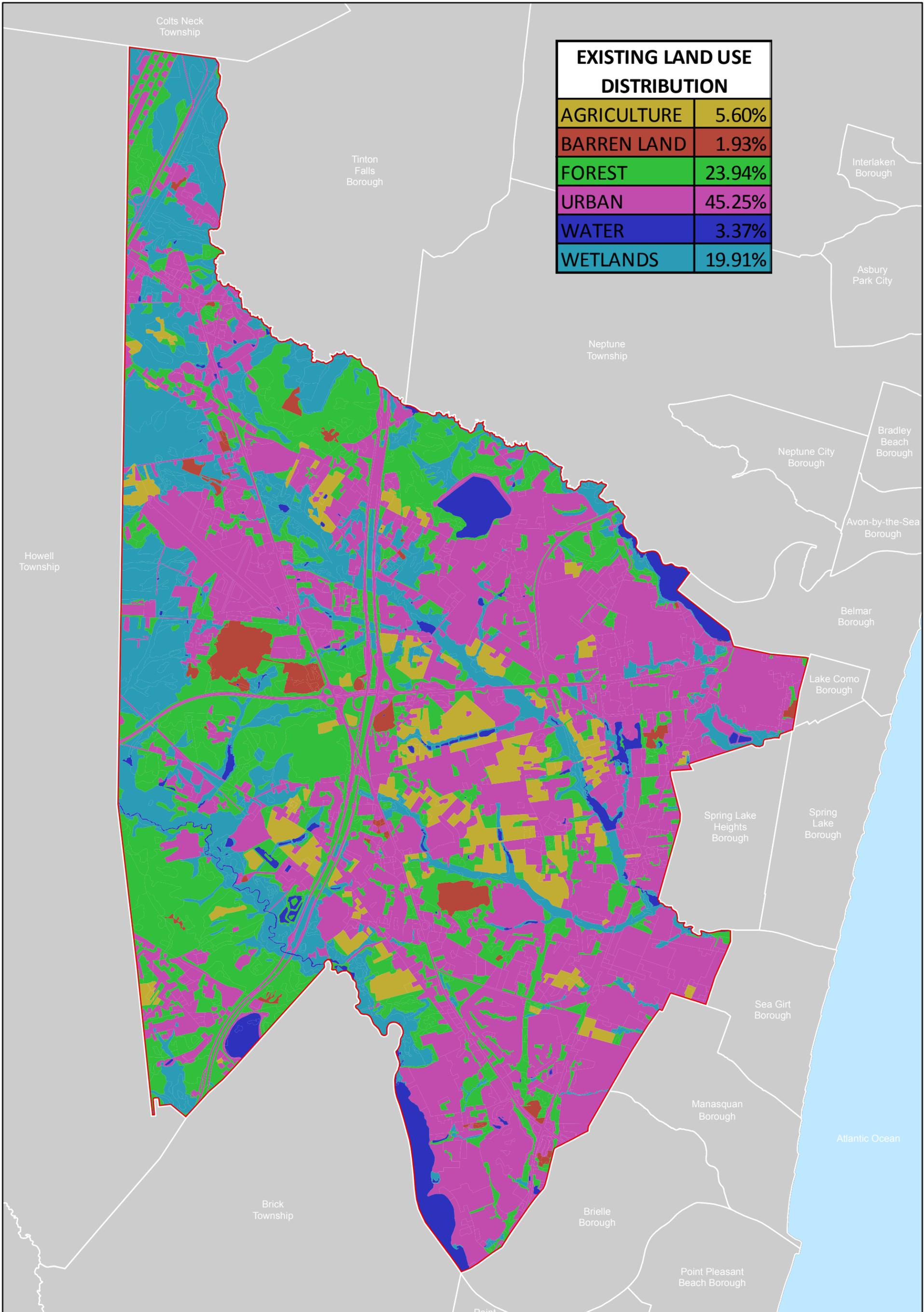
Notes:
All data is estimated and has not been field verified.



**Township of Wall
Environmental Resource
Inventory**

1986 Land Use Cover Map
M3

July 24, 2013



EXISTING LAND USE DISTRIBUTION	
AGRICULTURE	5.60%
BARREN LAND	1.93%
FOREST	23.94%
URBAN	45.25%
WATER	3.37%
WETLANDS	19.91%

Wall Township Boundary (Red outline)
Municipal Boundary (Grey outline)

Land Use Type

Agriculture	Urban
Barren Land	Water
Forest	Wetlands

0 2,000 4,000 8,000
 1 inch = 4,000 feet

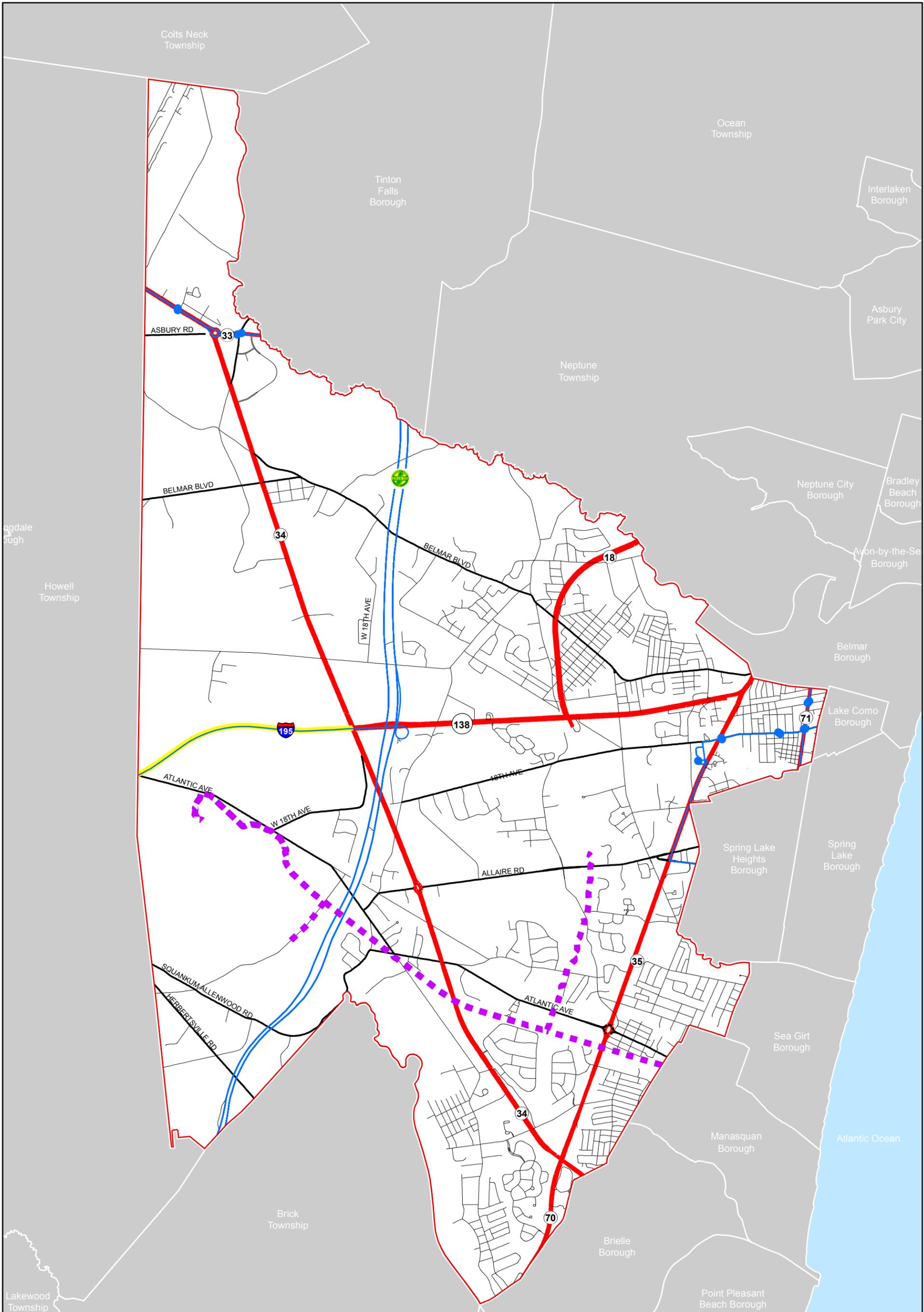
Sources:
 NJDEP 2007 Land use/Land Cover Update, Monmouth Watershed Management Area, WMA12
 NJDEP 2007 Land use/Land Cover Update, Barnegat Bay Watershed Management Area, WMA13
 Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:
 All data is estimated and has not been field verified.



Township of Wall Environmental Resource Inventory

Existing Land Use Map
 M4
 July 24, 2013

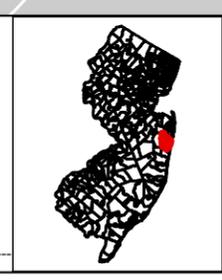


Wall Bike Path	Municipal Road	Wall Township Boundary
NJT Bus Stop	County Road	Municipal Boundary
NJT Bus Route	State Highway	
NJT Train Station	US Interstate	
NJT Railroad Route		

0 2,000 4,000 8,000
1 inch = 4,000 feet

Sources:
 New Jersey Transit Bus Currently Operating Routes, 2013 (NAD83, NJSP feet)
 New Jersey Transit Bus Stop Locations, 2013 (NAD83, NJSP feet)
 New Jersey Transit Rail, Light Rail, and Subway Currently Operated Right-of-Way lines, 2013 (NAD83, NJSP feet)
 GIS.SDE.RoadsSDE Feature Class
 Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:
 All data is estimated and has not been field verified.

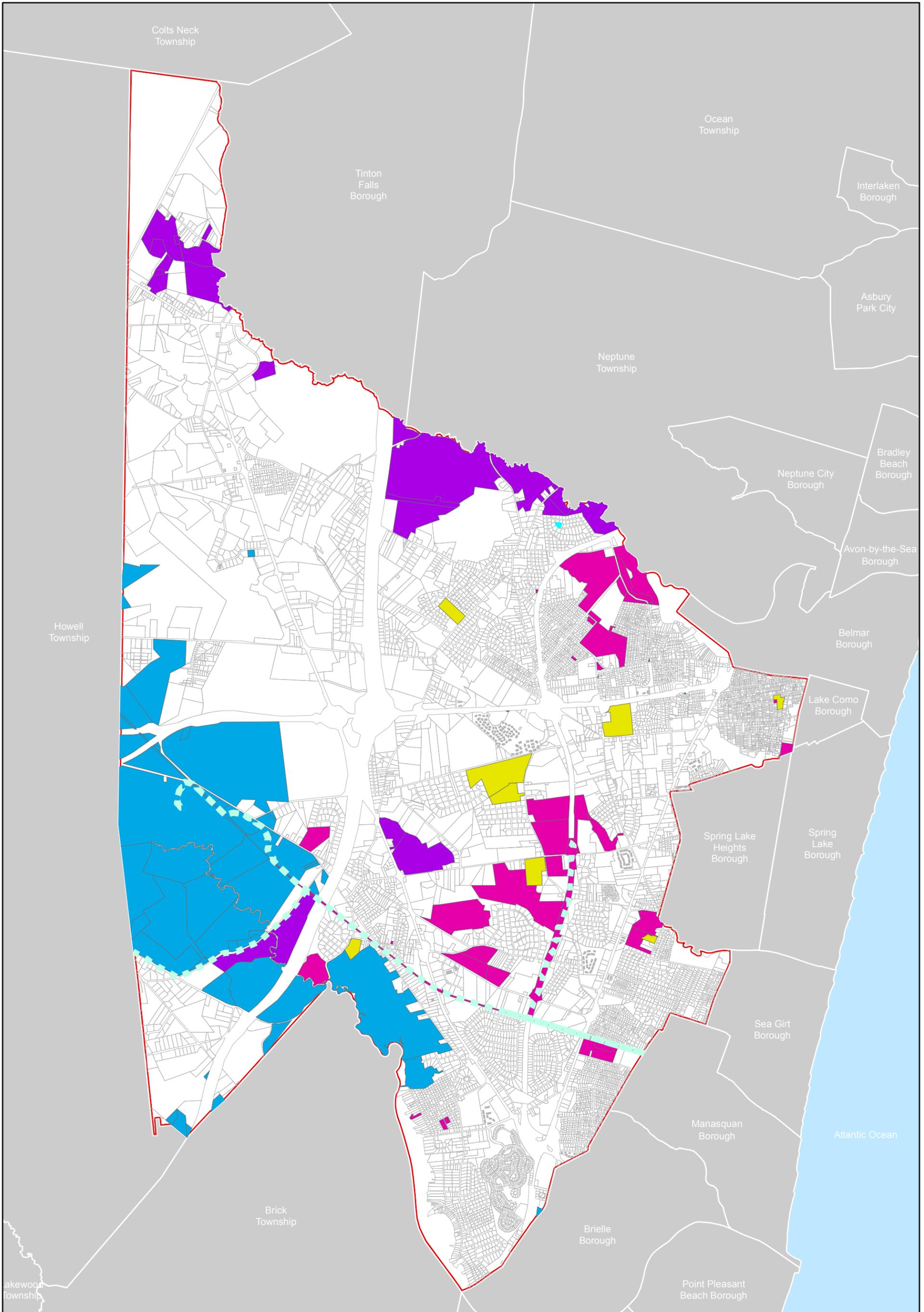


**Township of Wall
 Environmental Resource
 Inventory**

Existing Transportation Network

M5

September 19, 2013



School	Bike Path
Wall Township Park	Parcel Boundary
State Park	Wall Township Boundary
County Park	Municipal Boundary

0 2,000 4,000 8,000
 1 inch = 4,000 feet

N

Sources:
 2011 Wall Township Parcel Layer
 2008 Wall Township Open Space and Recreation Plan
 Municipalities of New Jersey, New Jersey State Plane NAD83

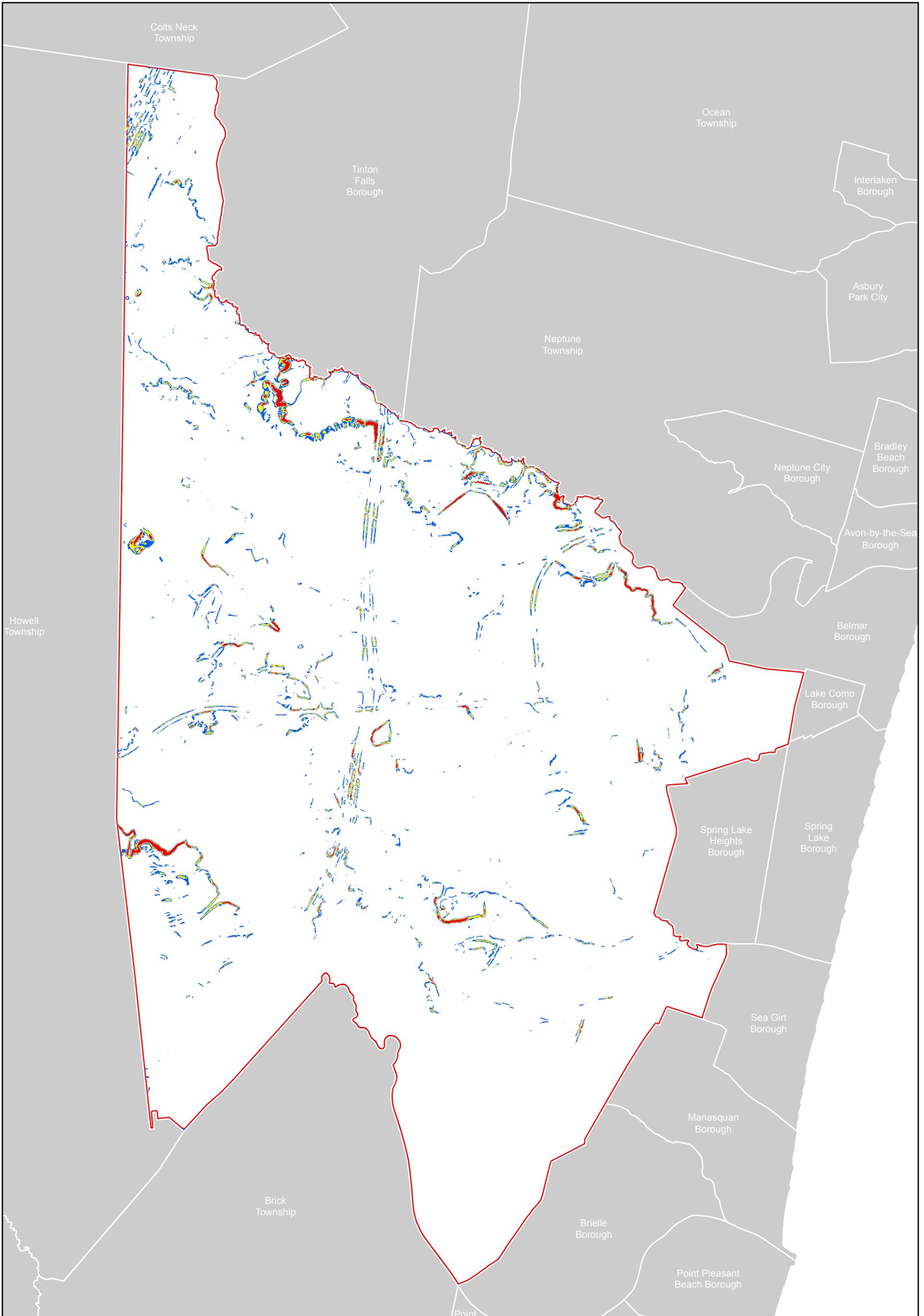
Notes:
 All data is estimated and has not been field verified.



**Township of Wall
 Environmental Resource
 Inventory**

Public Parks
 M6

October 23, 2013



GRADE

- █ 15-20%
- █ 20-25%
- █ 25% & Greater

- Wall Township Boundary
- Municipal Boundary



1 inch = 4,000 feet



Sources:

Steep Slopes, Monmouth County Planning Board, GIS Section
 Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:

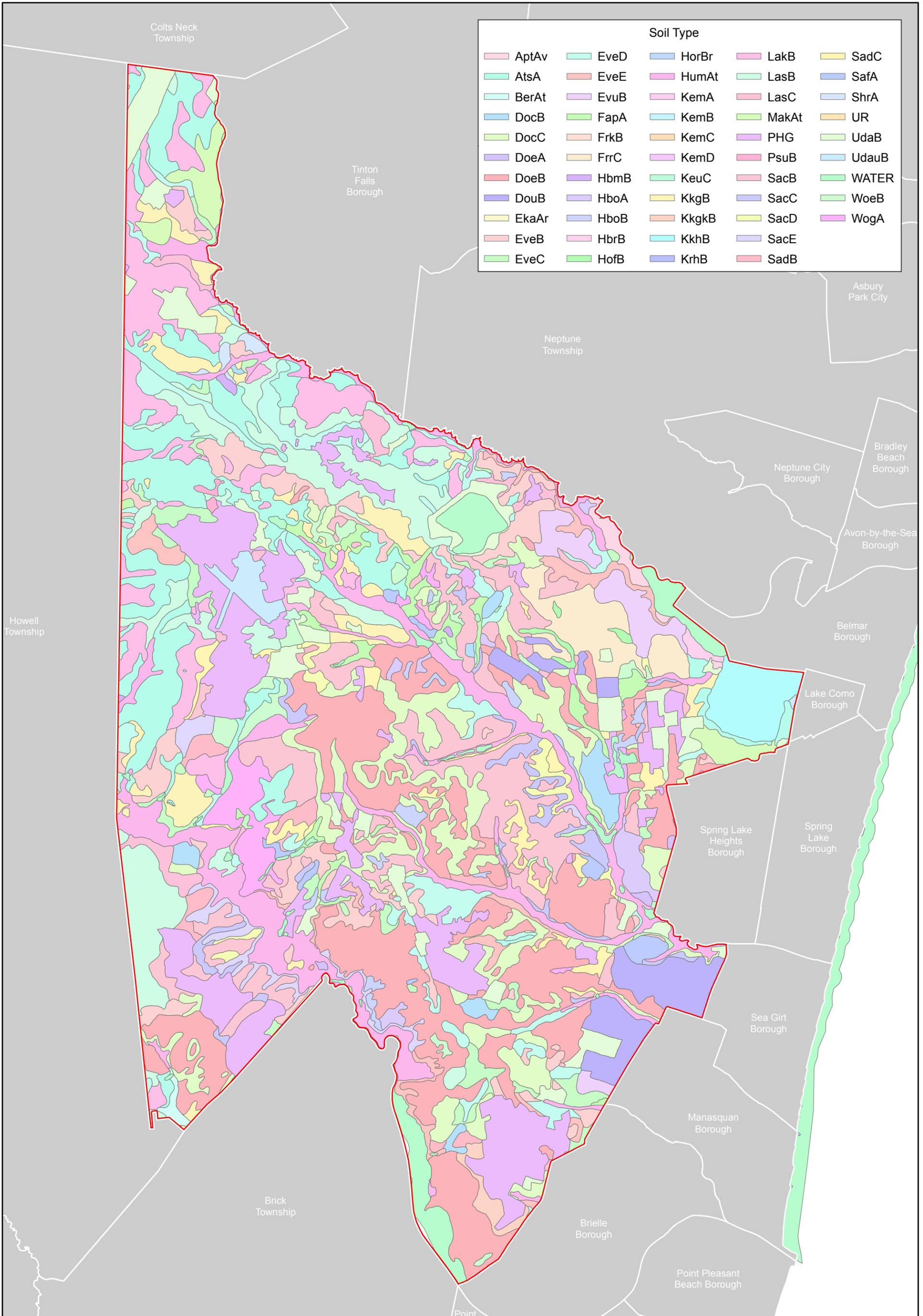
All data is estimated and has not been field verified.



**Township of Wall
 Environmental Resource
 Inventory**

Steep Slopes Map
 M7

May 29, 2013



Soil Type				
AptAv	EveD	HorBr	LakB	SadC
AtsA	EveE	HumAt	LasB	SafA
BerAt	EvuB	KemA	LasC	ShrA
DocB	FapA	KemB	MakAt	UR
DocC	FrkB	KemC	PHG	UdaB
DoeA	FrrC	KemD	PsuB	UdauB
DoeB	HbmB	KeuC	SacB	WATER
DouB	HboA	KkgB	SacC	WoeB
EkaAr	HboB	KkgkB	SacD	WogA
EveB	HbrB	KkhB	SacE	
EveC	HofB	KrhB	SadB	

Wall Township Boundary
 Municipal Boundary



1 inch = 4,000 feet



Sources:

Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SURGO)
 Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:

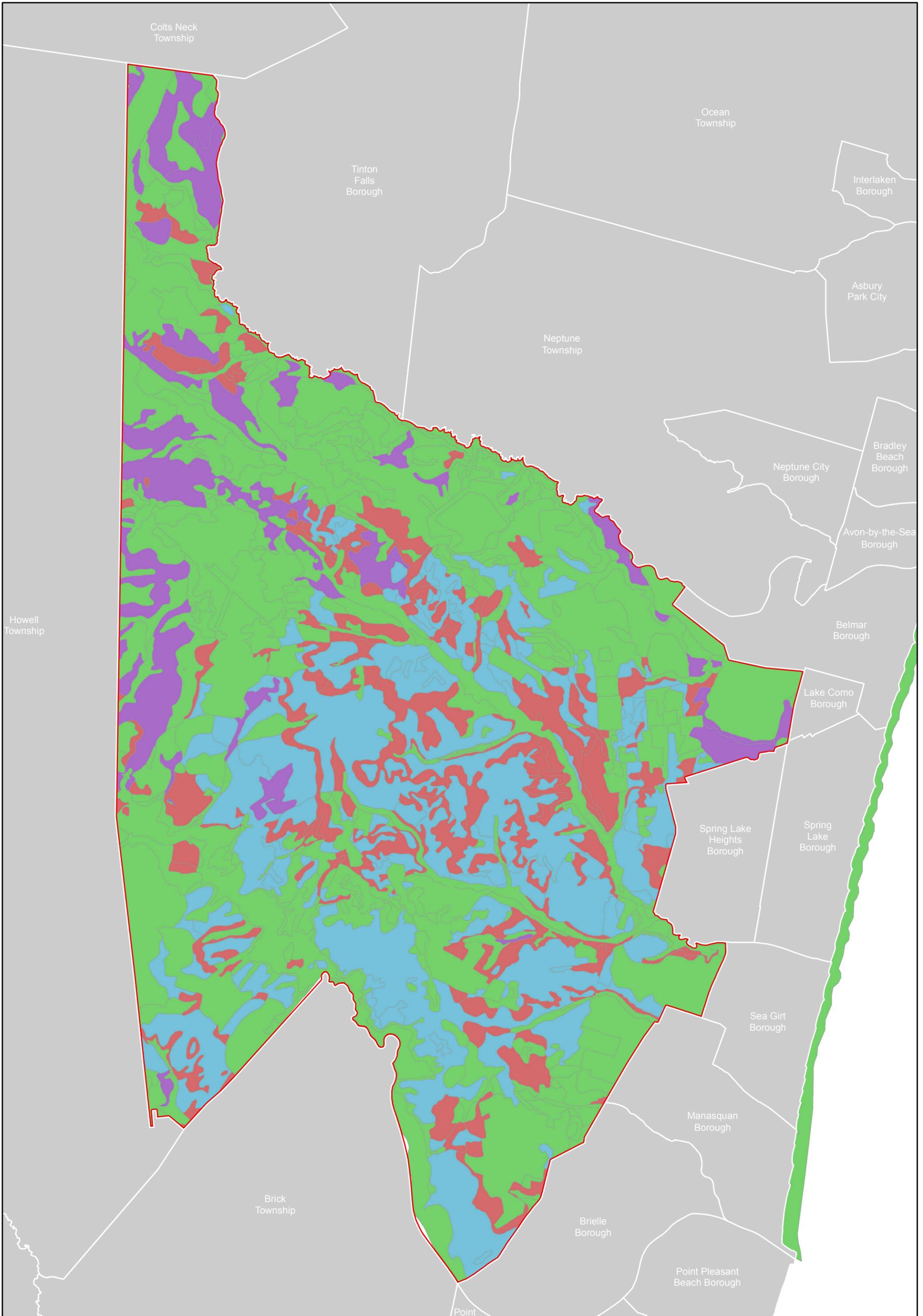
All data is estimated and has not been field verified.



**Township of Wall
 Environmental Resource
 Inventory**

Soils Map
 M8

May 29, 2013



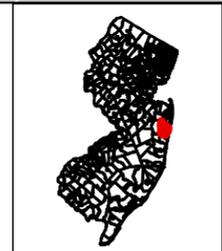
Wall Township Boundary Farmland Suitability:

- Wall Township Boundary
- Municipal Boundary
- Not prime farmland
- Farmland of unique importance
- Farmland of statewide importance
- All areas are prime farmland

0 2,000 4,000 8,000
1 inch = 4,000 feet

Sources:
 Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SURRGO)
 Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:
 All data is estimated and has not been field verified.

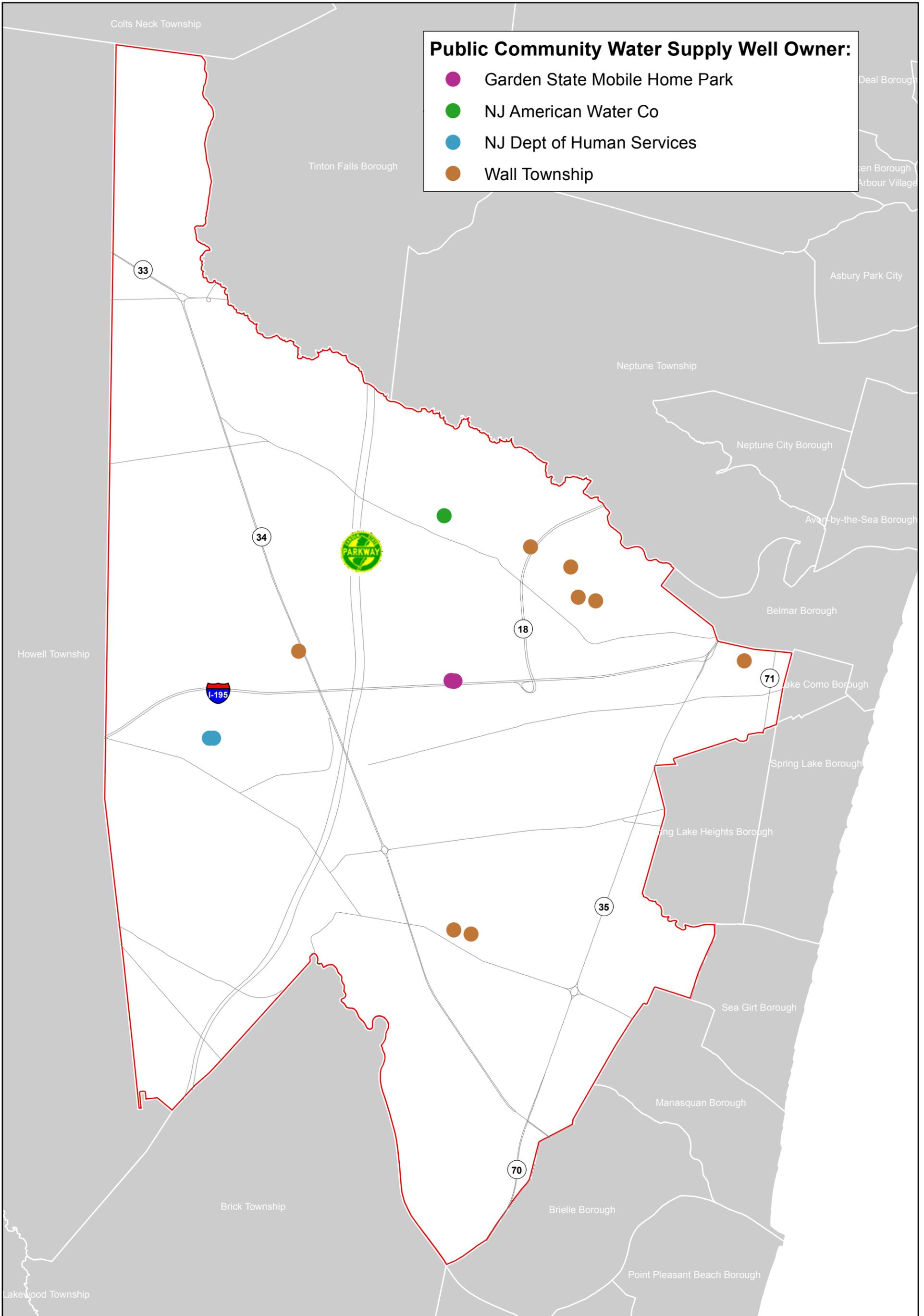


Township of Wall Environmental Resource Inventory

Soils Farmland Suitability Map

M9

May 29, 2013



Public Community Water Supply Well Owner:

- Garden State Mobile Home Park
- NJ American Water Co
- NJ Dept of Human Services
- Wall Township

Wall Township Boundary
 Municipal Boundary



Sources:
 NJDEP Public Community Water Supply Wells (PCWS)
 GIS.SDE.RoadsSDE Feature Class
 Municipalities of New Jersey, New Jersey State Plane NAD83

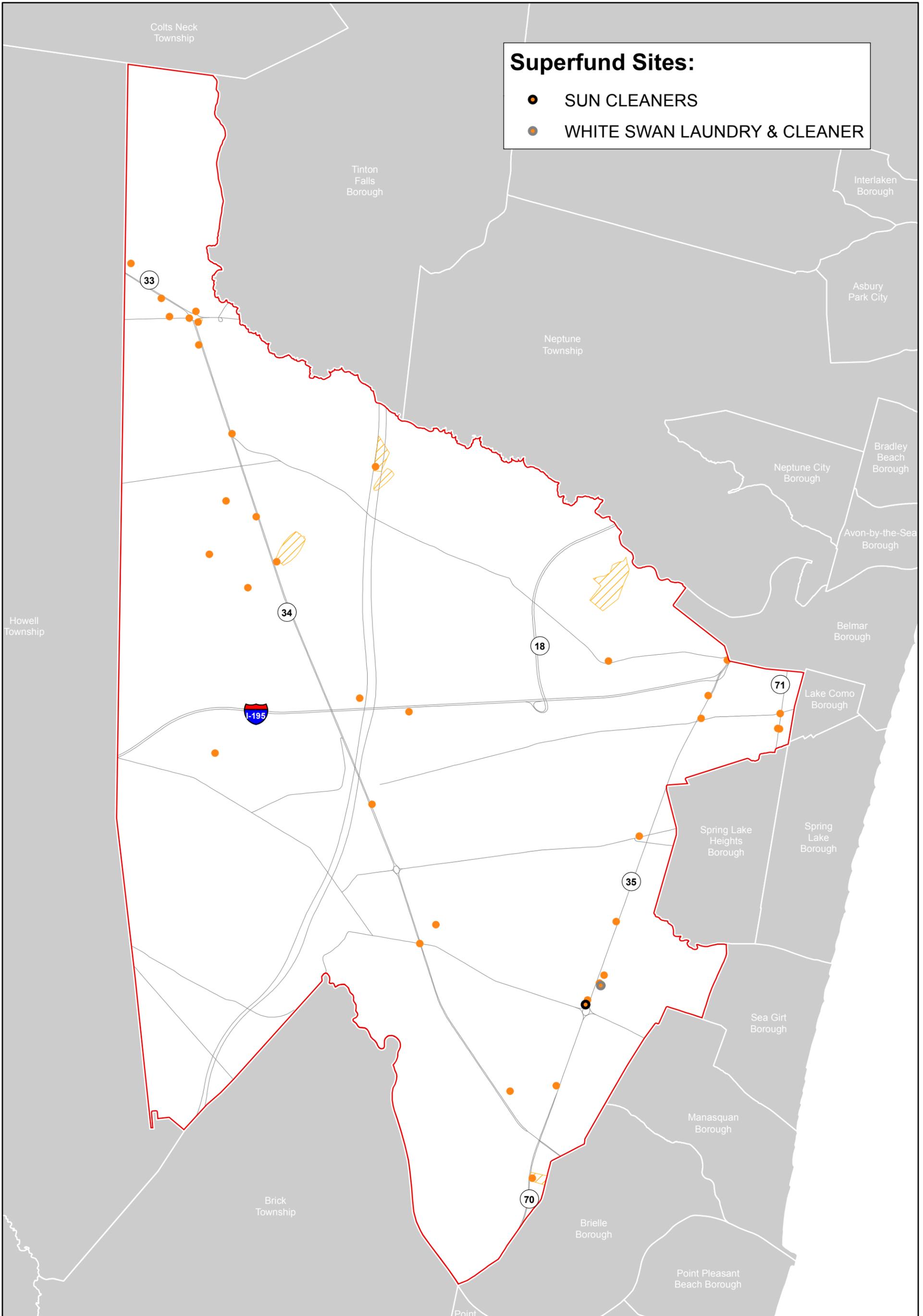
Notes:
 All data is estimated and has not been field verified.



**Township of Wall
 Environmental Resource
 Inventory**

Public Community
 Water Supply Wells
 M10

October 22, 2013



Superfund Sites:

- SUN CLEANERS
- WHITE SWAN LAUNDRY & CLEANER

Wall Township Boundary
 Municipal Boundary
● Known Contaminated Site
 Classification Exception Area
 Currently Known Extent of Groundwater Contamination

0 2,000 4,000 8,000
 1 inch = 4,000 feet

Sources:

NJDEP Currently Known Extent of Groundwater Contamination (CKE) for New Jersey, 2007

NJDEP Classification Exception Areas/Well Restriction Areas Polygon Maps for New Jersey, 2009

NJDEP Known Contaminated Site List for New Jersey (Non-Homeowner), Fall 2009

Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:

All data is estimated and has not been field verified.

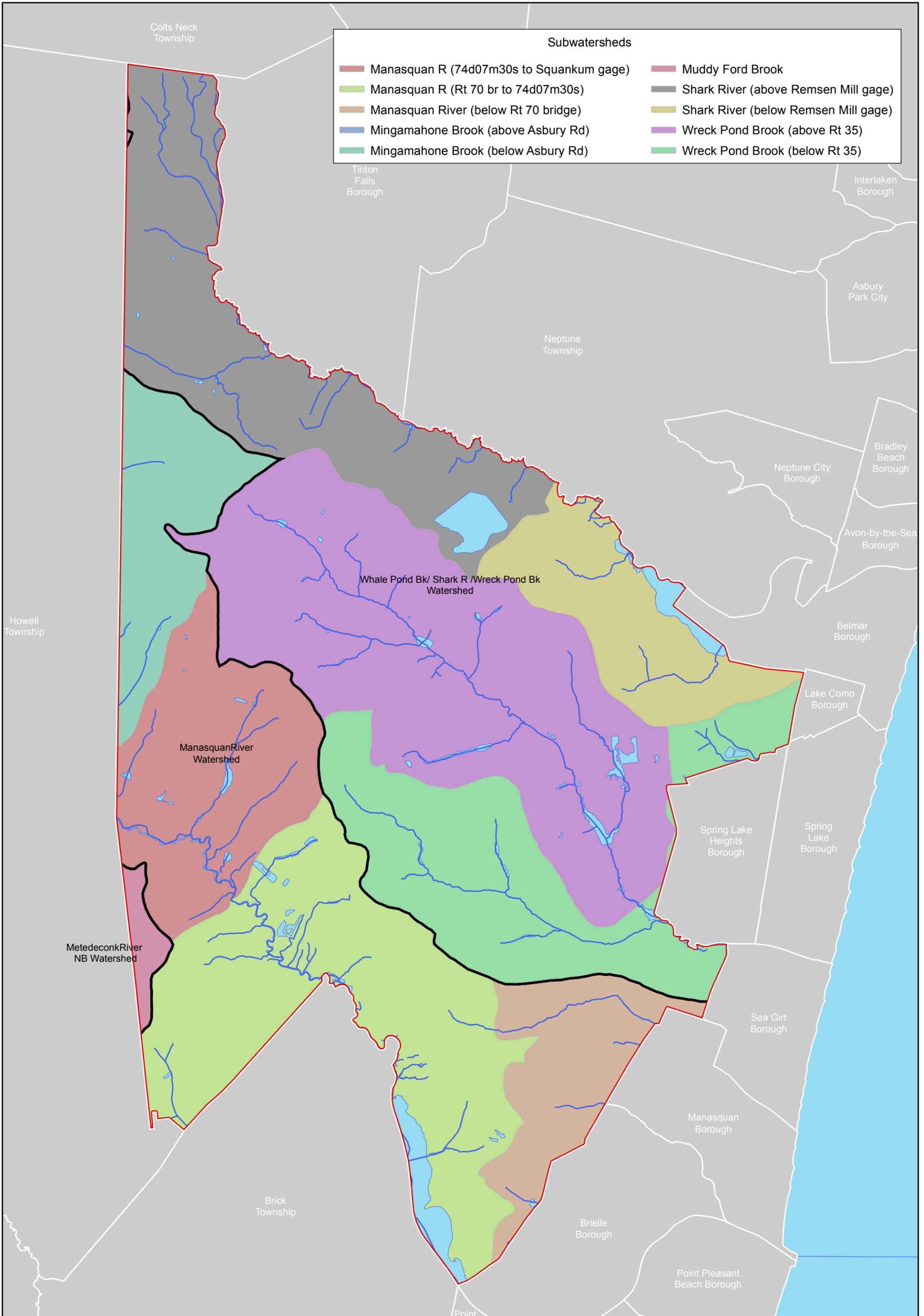
No areas of CKE present in Wall Township



**Township of Wall
Environmental Resource
Inventory**

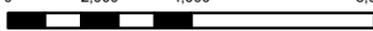
Groundwater Contamination
Map
M11

May 29, 2013



Subwatersheds	
 Manasquan R (74d07m30s to Squankum gage)	 Muddy Ford Brook
 Manasquan R (Rt 70 br to 74d07m30s)	 Shark River (above Remsen Mill gage)
 Manasquan River (below Rt 70 bridge)	 Shark River (below Remsen Mill gage)
 Mingamahone Brook (above Asbury Rd)	 Wreck Pond Brook (above Rt 35)
 Mingamahone Brook (below Asbury Rd)	 Wreck Pond Brook (below Rt 35)

 Stream
 River, Lake, Ocean
 Watershed Boundary
 Wall Township Boundary
 Municipal Boundary

0 2,000 4,000 8,000
 1 inch = 4,000 feet



Sources:

NJDEP Streams of Monmouth County, New Jersey (1:24,000)
 NJDEP 2002 Waters of New Jersey (Lakes and Ponds), Version 20080501
 NJDEP 2002 Waters of New Jersey (Rivers, Bays and Oceans), Version 20080501
 NJDEP 14 Digit Hydrologic Unit Code delineations for New Jersey (DEPHUC14)
 Municipalities of New Jersey, New Jersey State Plane NAD83

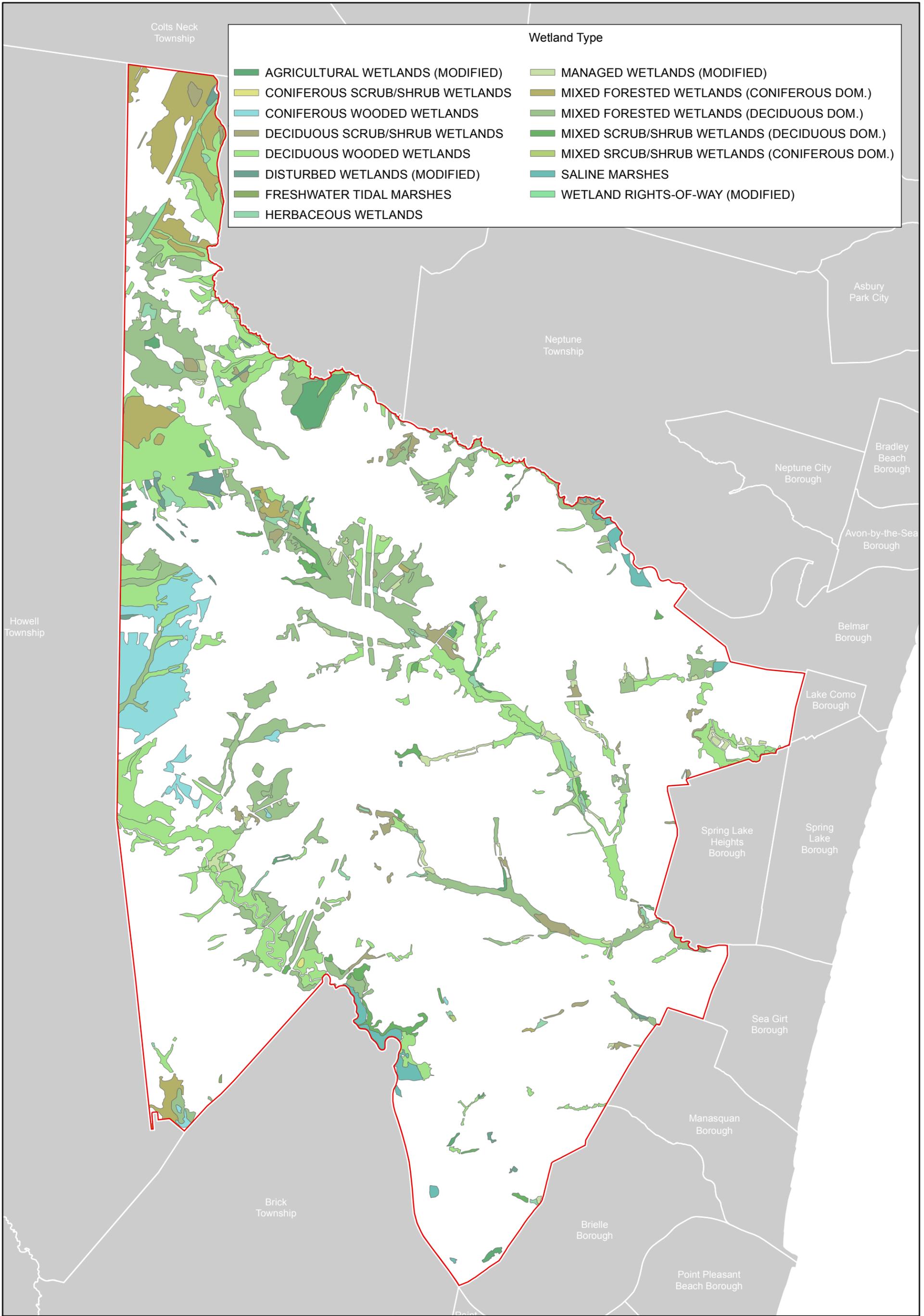
Notes:

All data is estimated and has not been field verified.



Township of Wall
Environmental Resource
Inventory

 Water Features Map
 M12
 May 29, 2013



Wetland Type	
	AGRICULTURAL WETLANDS (MODIFIED)
	CONIFEROUS SCRUB/SHRUB WETLANDS
	CONIFEROUS WOODED WETLANDS
	DECIDUOUS SCRUB/SHRUB WETLANDS
	DECIDUOUS WOODED WETLANDS
	DISTURBED WETLANDS (MODIFIED)
	FRESHWATER TIDAL MARSHES
	HERBACEOUS WETLANDS
	MANAGED WETLANDS (MODIFIED)
	MIXED FORESTED WETLANDS (CONIFEROUS DOM.)
	MIXED FORESTED WETLANDS (DECIDUOUS DOM.)
	MIXED SCRUB/SHRUB WETLANDS (DECIDUOUS DOM.)
	MIXED SRCUB/SHRUB WETLANDS (CONIFEROUS DOM.)
	SALINE MARSHES
	WETLAND RIGHTS-OF-WAY (MODIFIED)

Wall Township Boundary
 Municipal Boundary

Sources:
 NJDEP Wetlands of Monmouth County, New Jersey, 1986
 Municipalities of New Jersey, New Jersey State Plane NAD83

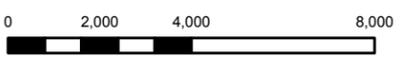
Notes:
 All data is estimated and has not been field verified.



**Township of Wall
 Environmental Resource
 Inventory**

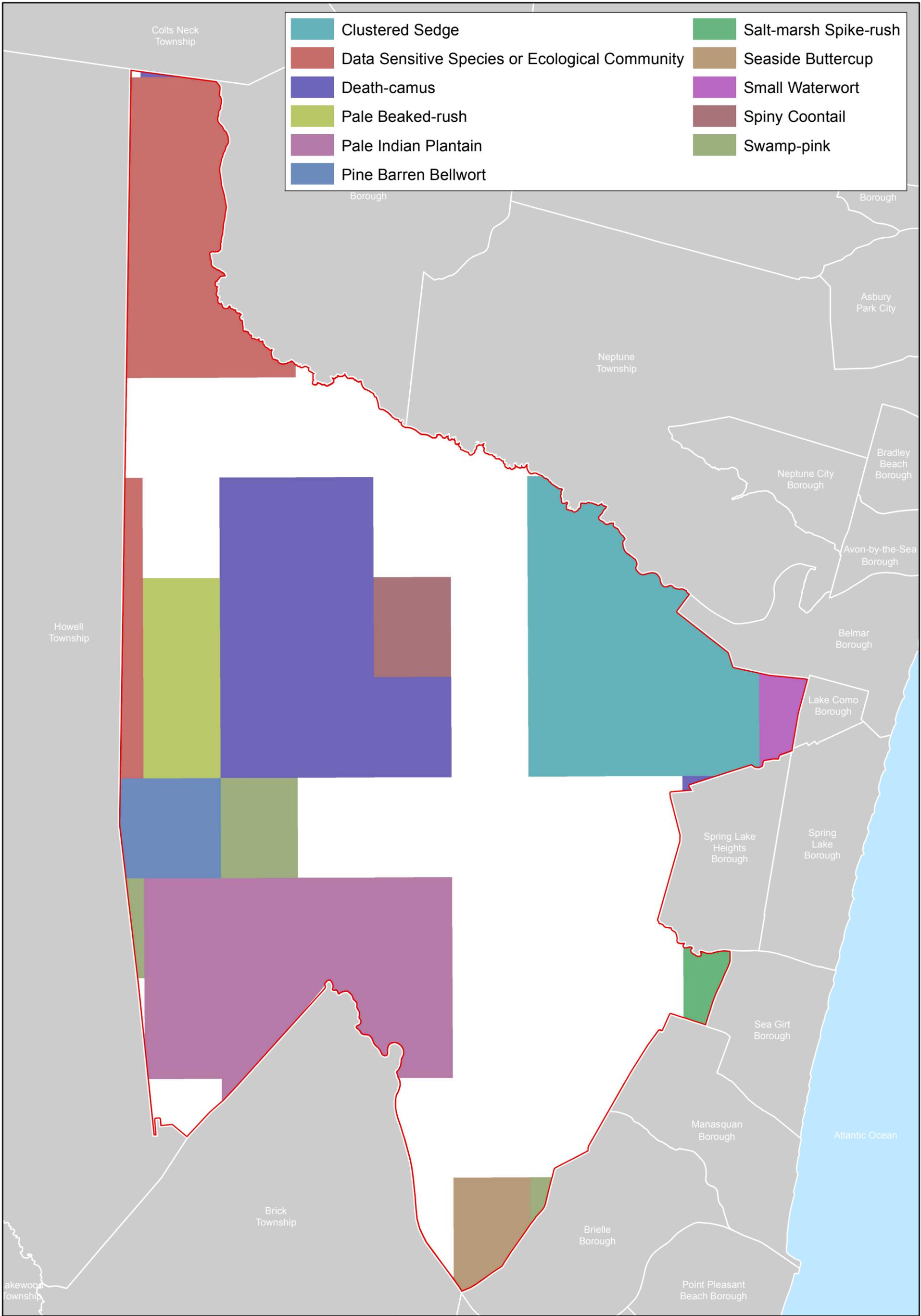
Wetlands Map
 M13

May 29, 2013



1 inch = 4,000 feet





- | | |
|--|--|
|  Clustered Sedge |  Salt-marsh Spike-rush |
|  Data Sensitive Species or Ecological Community |  Seaside Buttercup |
|  Death-camus |  Small Waterwort |
|  Pale Beaked-rush |  Spiny Coontail |
|  Pale Indian Plantain |  Swamp-pink |
|  Pine Barren Bellwort | |

 Wall Township Boundary
 Municipal Boundary

Sources:
 NJDEP Natural Heritage Grid Map, Version 200911
 Municipalities of New Jersey, New Jersey State Plane NAD83

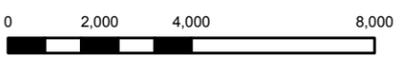
Notes:
 All data is estimated and has not been field verified.
 No Freshwater Mussel Habitat identified.



**Township of Wall
 Environmental Resource
 Inventory**

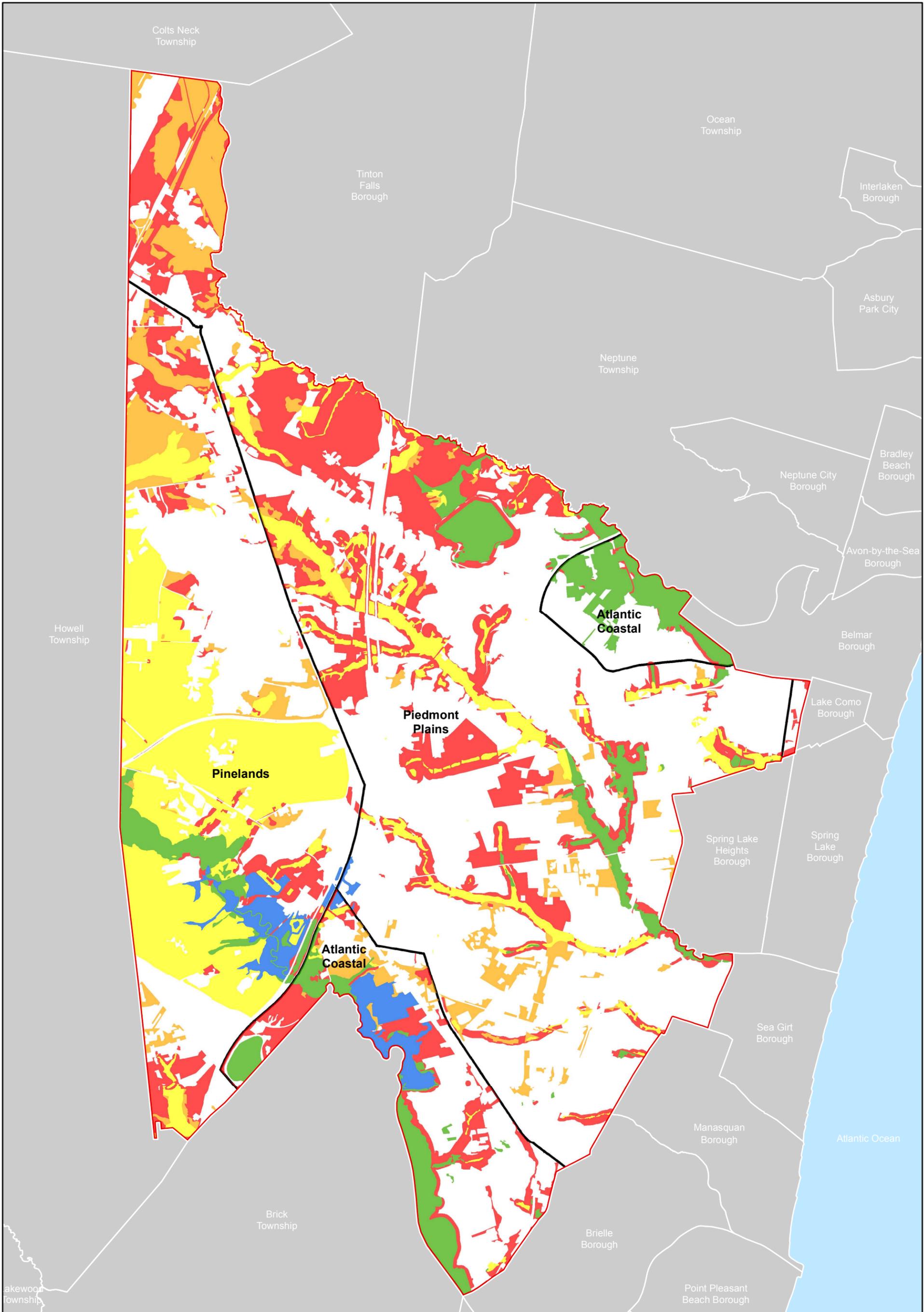
Rare Plant Species
 Habitat Map
 M14

October 23, 2013



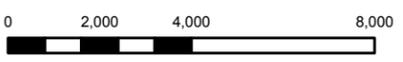
1 inch = 4,000 feet





Wall Township Boundary
 Municipal Boundary
 Landscape Region Boundary

Habitat Rank
 1 (Red) 4 (Green)
 2 (Orange) 5 (Blue)
 3 (Yellow)



1 inch = 4,000 feet



Sources:

- NJDEP Species Based Habitat, Landscape Regions (Version 3.1, 20120221)
- NJDEP Species Based Habitat, Atlantic Coastal Region (Version 3.1, 20120221)
- NJDEP Species Based Habitat, Piedmont Plains Region (Version 3.1, 20120221)
- NJDEP Species Based Habitat, Pinelands Region (Version 3.1, 20120221)
- Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:

All data is estimated and has not been field verified.

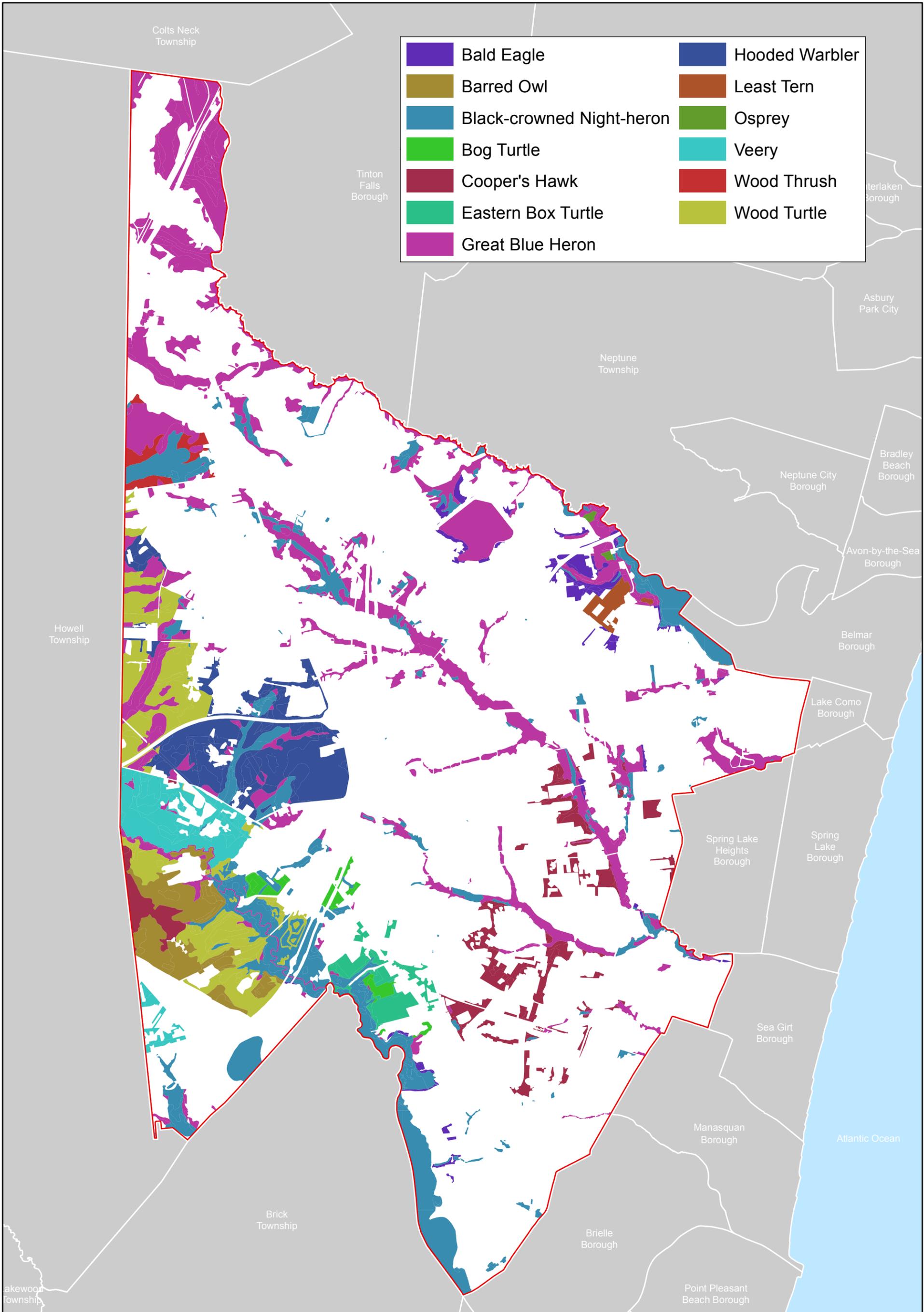


Township of Wall Environmental Resource Inventory

Threatened and Endangered HabitatMap

M15

July 15, 2013



 Bald Eagle	 Hooded Warbler
 Barred Owl	 Least Tern
 Black-crowned Night-heron	 Osprey
 Bog Turtle	 Veery
 Cooper's Hawk	 Wood Thrush
 Eastern Box Turtle	 Wood Turtle
 Great Blue Heron	

 Wall Township Boundary
 Municipal Boundary

Sources:
 NJDEP Species Based Habitat, Pinelands Region (Version 3.1, 20120221)
 NJDEP Species Based Habitat, Coastal Region (Version 3.1, 20120221)
 NJDEP Species Based Habitat, Piedmont Region (Version 3.1, 20120221)
 Municipalities of New Jersey, New Jersey State Plane NAD83

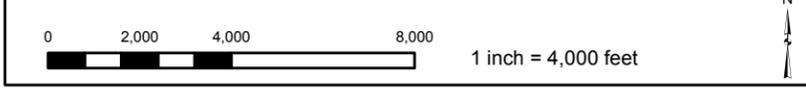
Notes:
 All data is estimated and has not been field verified.
 No Freshwater Mussel Habitat identified.

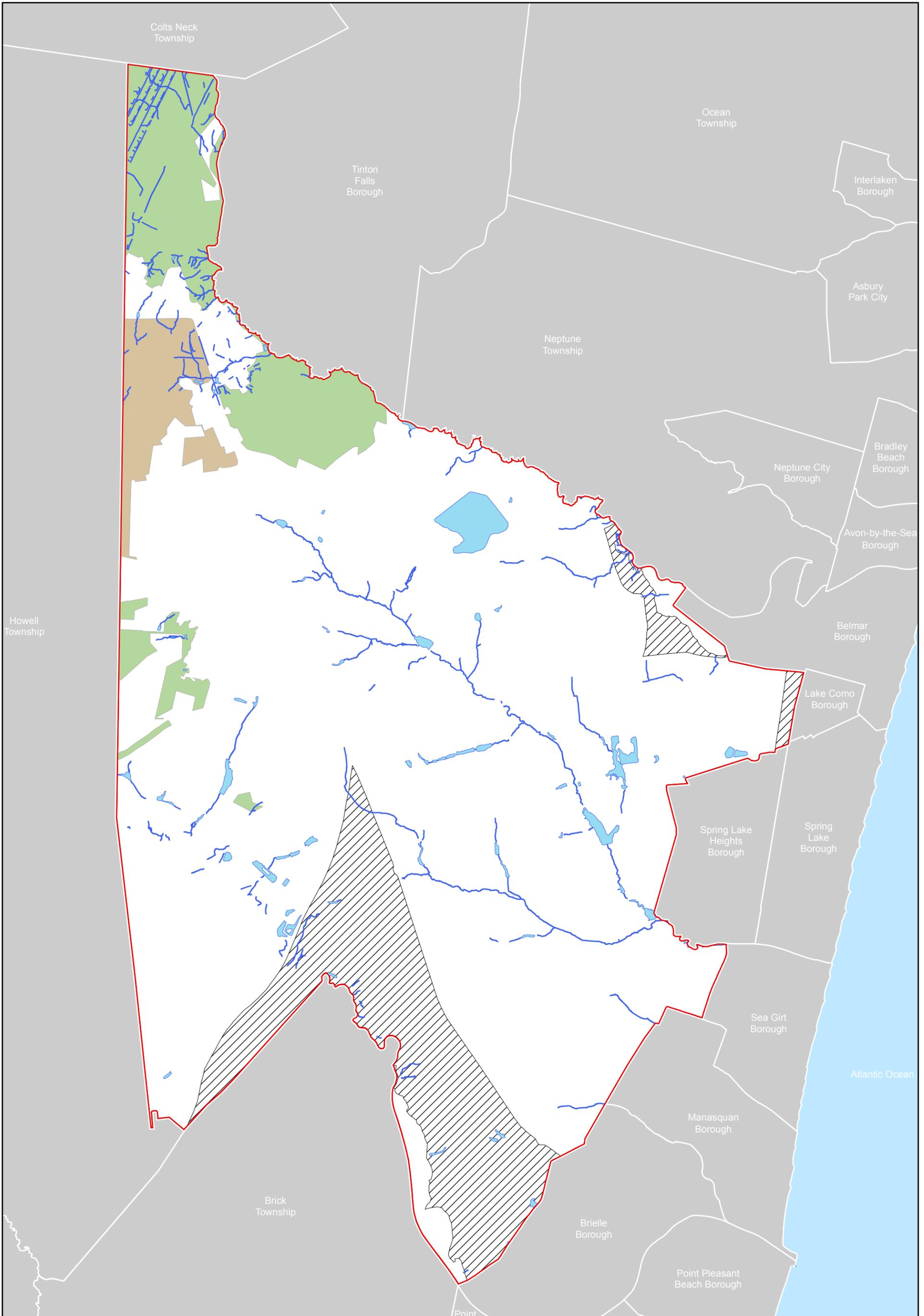


**Township of Wall
 Environmental Resource
 Inventory**

Special Species Based
 Habitat Map
 M16

October 23, 2013





CAFRA Jurisdictional Boundary
 Rural Environmentally Sensitive Planning Area (PA4B)
 Environmentally Sensitive Planning Area (PA5)
 Water Body
 Wall Township Boundary
 Municipal Boundary

0 2,000 4,000 8,000
 1 inch = 4,000 feet

N

Sources:
 Office of Smart Growth State Planning Areas (splan3)
 NJDEP 2002 Waters of New Jersey (Lakes and Ponds), Version 20080501
 NJDEP CAFRA and Coastal Centers, New Jersey
 Municipalities of New Jersey, New Jersey State Plane NAD83

Notes:
 All data is estimated and has not been field verified.



**Township of Wall
 Environmental Resource
 Inventory**

Special Environmental
 Protection Areas
 M17

October 22, 2013

APPENDIX

Compliments of the

Wall Township

Environmental Advisory Committee

Township of Wall
2700 Allaire Road
P.O. Box 1168
Wall, NJ 07719-1168



Use Single Stream Recycling

© WTEAC 2012



WTEAC
Box 1168
Wall, NJ 07719-1168

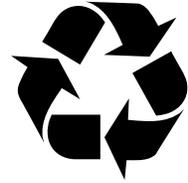
Wall Township



**Environmental
Advisory Committee**



Environmental Education at its best!



**Wall Township
Environmental Advisory Committee
(Sustainable Green Team)**

Mission Statement:

The Committee is established to assist in the protection, development and use of natural resources, including water resources, located within the territorial limits of the township.

The Committee shall also provide environmental education and information to the community by utilizing various projects and activities in implementing these objectives.

The Committee consists of **volunteer members** representing different sectors in the community:

Wilma J. Morrissey, Chairwoman
Rich Mertens, Vice Chairman
Trish Longo McCarthy, Secretary
Suzanne Klinger, Secretary
◇ ◇ ◇
Ed Loud
Ruth Harris
Bob Baumgartner
Joe Balesterri
Ellen Smith
Committeeman Clint Hoffman
Liaison: Wall Township Committee

Meetings are held at the Municipal Complex, Room B, at 7 p.m. on the last Thursday of the month & subject to change.

You Can Make a Difference!

Environmental Tips



Recycle, Recycle, Recycle

- ♻️ **Conserve Water (Home and Lawn)**
- ♻️ **Use Energy Efficient Appliances**
- ♻️ **Insulate Your Home**
- ♻️ **Avoid the Sun ☀️ Wear Light Clothes**
- ♻️ **Buy Recycled Paper and Products**
- ♻️ **Photocopy on Both Sides of Paper**
- ♻️ **Use Recycling Bins for Waste Paper**
- ♻️ **Buy Non-Toxic Cleaning Products**
- ♻️ **Recycle Newspapers, Cans, & Bottles**
- ♻️ **Don't Be a Litterbug!**
- ♻️ **Use Slow Release Organic Fertilizers**
- ♻️ **Turn Off Unnecessary Lights**



- ♻️ **Use Low Energy Wattage Bulbs**
- ♻️ **Use Dimmers & Fluorescent Bulbs**
- ♻️ **Learn How to Compost**
- ♻️ **Avoid Styrofoam Products**
- ♻️ **Encourage Non-Smoking**



- ♻️ **Use Pesticides Only When Necessary**
- ♻️ **Read labels**
- ♻️ **Grow an Organic Garden**

Think Environmentally!
Protect Your Community

**Curricular Activities
Sponsored by the
WTEAC**

Environmental:

- Poster Competition/Students
- Essay Competition/Students
- Poetry Competition/Students
- Community Seminars/Projects
- Annual Environmental Summit
- Native Garden/Rain Garden
- Site Plan Reviews
- Collaboration/Environ. Groups
- Presentations/Workshops
- Restoration/Wreck Pond
- Osprey Nest/Wreck Pond
- Achievement Awards
- Annual Arbor Day Project
- Earth Hour Participation
- Publicity/News Articles
- Environmental Cleanups
- Sponsor Eagle Scout Projects

Other Functions:

- ♻️ **Make Recommendations**
- ♻️ **Render Non-Binding Opinions**
- ♻️ **Act as Liaison to Other Bodies**
- ♻️ **Promote: Conservation**
 - Natural Resources
 - Open Space
 - Beautification

Visit www.wallnj.com/wteac
(Look under Boards & Committees)

Annual Drinking Water Quality Report

Wall Township Water Department

For the Year 2013, Results from the Year 2012

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. We have eight wells and we purchase water from the New Jersey Water Supply Authority (NJWSA) - Manasquan Reservoir Water Supply System. Our wells draw their water from the Mount Laurel and Englishtown Aquifers. The Manasquan Water Treatment Plant, located on Hospital Road in the Allenwood section of Wall Township, is owned by the Monmouth County Improvement Authority and is operated by the New Jersey Water Supply Authority. The Manasquan Water Treatment Plant takes its water from the Manasquan River in Wall Township and the Manasquan Reservoir in Howell Township.

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Reports and Summaries for these public water systems, which are available at WWW.state.nj.us/dep/swap or by contacting NJDEP's Bureau of Safe Drinking Water at (609) 292-5550. You may also contact your public water system to obtain information regarding Wall Township's Source Water Assessment. The source water susceptibility ratings and a list of potential contaminant sources for these water systems is attached.

We are pleased to report that our drinking water meets all federal and state safety requirements.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Wall Township Test Results						
PWS ID# NJ1352003						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants:						
Combined Radium 228 & 226 Test results Yr. 2011	N	Average = 1.5	pCi/l	0	5	Erosion of natural deposits
Inorganic Contaminants:						
Copper Test results Yr. 2011 Result at 90 th Percentile	N	0.1 No samples exceeded the action level.	Ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Test results Yr. 2011 Result at 90 th Percentile	N	5 1 sample out of 30 exceeded the action level.	Ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Volatile Organic Contaminants / Disinfection Byproducts:						
TTHM Total Trihalomethanes Test results Yr. 2012	N	Range = ND - 60 Annual Average = 33	Ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids Test results Yr. 2012	N	Range = ND - 26 Annual Average = 10	Ppb	N/A	60	By-product of drinking water disinfection
Regulated Disinfectants		Level Detected		MRDL		MRDLG
Chlorine		Average = 0.7 ppm		4.0 ppm		4.0 ppm

Secondary Contaminant	Level Detected	Units of Measurement	RUL
Iron	480	ppb	300

We exceeded the secondary Recommended Upper Limit (RUL) for iron which is based on unpleasant taste of the water and staining of laundry. Iron is an essential nutrient, but some people who drink water with iron levels well above the RUL could develop deposits of iron in a number of organs in the body. Iron is a naturally occurring element in soil, groundwater, and some surface waters. We do not treat for, or remove iron. Iron bacteria are considered harmless to health, however, they may give water an off taste or color, cause splotchy yellow stains on laundry, and clog water systems.

Secondary Contaminant- Substances that do not have an impact on health. Secondary Contaminants affect aesthetic qualities such as odor, taste or appearance. Secondary standards are recommendations, not mandates.

Recommended Upper Limit (RUL) – Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste or appearance. RUL's are recommendations, not mandates.

The Wall Township Water Department and the NJWSA Manasquan Water Supply System routinely monitor for contaminants in your drinking water according to Federal and State laws. The tables show the results of that monitoring for the period of January 1st to December 31st, 2012. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

If you have any questions about this report or concerning your water utility, please call the Wall Township Water Department at 732-449-2700. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Township Meetings.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can, also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Wall Township Water Department and the NJWSA Manasquan Water Supply System are responsible for providing high quality drinking water, but can not control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 second to 2 minutes before using water for drinking and cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water hotline or at <http://www.epa.gov/safewater/lead>.

DEFINITIONS

In the following table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/L) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Total Organic Carbon - Total Organic Carbon (TOC) has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. The *Treatment Technique* for TOC requires that 35% - 45% of the TOC in the raw water is removed through the treatment processes.

Turbidity - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium microbial growth. Turbidity is measured as an indication of the effectiveness of the filtration process. The *Treatment Technique* for turbidity requires that no individual sample exceeds 1 NTU and 95% of the samples collected during the month must be less than 0.3 NTU.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination

The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals and synthetic organic chemicals. Our system received monitoring waivers for all of these types of contaminants. The Manasquan Water Supply System received a monitoring waiver for synthetic organic contaminants.

Manasquan Water Supply 2012 Test Results						
PWSID # NJ1352005						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MC LG	MCL	Likely Source of Contamination
Microbiological Contaminants:						
Turbidity	N	Range = 0.02 – 0.71 99.95% < 0.3 NTU	NTU	N/A	TT 95% of monthly samples < 0.3 NTU	Soil runoff
Total Organ Carbon (TOC)	N	Range = 23.8 – 64.9 Avg. Removal = 48%	%	N/A	TT 35% - 50% removal	Soil runoff
Radioactive Contaminants:						
Gross Alpha Test results Yr. 2011	N	Range = 0.5 – 1.25 Average = 0.96	pCi/l	0	15	Erosion of natural deposits
Radium- 228 Test results Yr. 2011	N	Range = ND – 0.18 Average = < 1	pCi/l	N/A	N/A	Erosion of natural deposits
Inorganic Contaminants:						
Barium	N	0.033	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	N	0.13	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen)	N	0.44	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Volatile Organic Contaminants / Disinfection Byproducts:						
TTHM Total Trihalomethanes	N	Range = 5.0 – 24.9 Highest Average = 16.1	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids	N	Range = ND – 8.8 Highest Average = 4.2	ppb	N/A	60	By-product of drinking water disinfection
Regulated Disinfectants		Level Detected		MRDL		MRDLG
Chlorine		Range = 0.6 – 2.0 ppm Average = 1.3 ppm		4.0 ppm		4.0 ppm

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Cryptosporidium is usually removed through the filtration process and inactivated by other treatment processes such as ozonation. In order to check for the presence of Cryptosporidium, the USEPA issued the Long Term Enhanced Surface Water Treatment Rule in January 2006. As part of this rule, the Manasquan System began monthly sampling and testing for Cryptosporidium in April 2008 and this testing continued through its completion in March 2010. The sample results did not show any presence of Cryptosporidium.

We at the Wall Township Water Department work hard to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future. Please call our office if you have questions.

Wall Township Water Department- PW SID # 1352003

Wall Township Water Department is a public community water system consisting of 8 well(s), 0 wells under the influence of surface water, 0 surface water intake (s), 3 purchased ground water source (s), and 1 purchased surface water source (s).

This system's source water comes from the following aquifer(s) and/or surface water body(s) (if applicable): Mount Laurel/Wenonah aquifer; Englishtown aquifer system

This system purchases water from the following water system (s) (if applicable): BELMAR WATER DEPARTMENT BRIDGEBORO BOROUGH MANASQUAN WATER DEPARTMENT NEW JERSEY WATER SUPPLY AUTHORITY

Susceptibility Ratings for Wall Township Water Department Sources

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

The seven contaminant categories are defined at the bottom of this page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes's susceptibility to radionuclides was not determined and they all received a low rating.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

Sources	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproduct Precursors			
	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	
Wells - 8			8			8			8			8			4	4			8			4	4		8
GUDI-0																									
Surface water intakes - 0																									

- Â Pathogens: Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
- Â Nutrients: Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
- Â Volatile Organic Compounds: Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
- Â Pesticides: Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.
- Â Inorganics: Mineral based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.
- Â Radionuclides: Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.
- Â Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to <http://www.nj.gov/dep/app/radon/index.htm> or call (800) 648-0394.
- Â Disinfection Byproduct Precursors: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

NJ Water Supply Authority - Manasquan System- PWSID # 1352005

NJ Water Supply Authority - Manasquan System is a public community water system consisting of 0 well(s), 0 wells under the influence of surface water, 2 surface water intake(s), 0 purchased ground water source(s), and 0 purchased surface water source(s).

This system's source water comes from the following aquifer(s) and/or surface water body(s) (if applicable): Manasquan Reservoir, Manasquan River

This system purchases water from the following water system(s) (if applicable):

Susceptibility Ratings for NJ Water Supply Authority - Manasquan System Sources

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

The seven contaminant categories are defined at the bottom of this page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

Sources	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radio-nuclides			Radon			Disinfection Byproduct Precursors		
	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells - 0																								
GUDI - 0																								
Surface water intakes - 2	2				2			2			2			2			2			2	2			

- Pathogens: Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
- Nutrients: Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
- Volatile Organic Compounds: Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
- Pesticides: Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.
- Inorganics: Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.
- Radionuclides: Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.
- Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to <http://www.nj.gov/dep/rpp/radon/index.htm> or call (800) 648-0394.
- Disinfection Byproduct Precursors: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

REFERENCES

Anderson, Hardy, Roach & Witmer (2001). *A Land Use and Land Cover Classification System for Remote Sensor Data*. Washington: United States Government Printing Office.

American Planning Association, New Jersey Chapter. (2010). *Complete Guide to Planning in New Jersey: A Compendium of Planning Law, Regulation and Policy*. Edition 3. New Jersey: American Planning Association, New Jersey Chapter.

Association of New Jersey Environmental Commissions (n.d.) *Municipal Environmental Commissions in New Jersey*. Retrieved 7/22/13 from <http://www.anjec.org/pdfs/MunicipalEnvCommRes.pdf>.

Cotterman, L., Hahn, E., Kaplan, M., Tash, J. & Tyrawski, J. (n.d.). *NJDEP Land Use Land Cover Update 1986 to 1995, Patterns of Change*. Trenton: New Jersey Department of Environmental Protection.

ESRI. *World Imagery Basemap*. 1:70,000. ESRI, May. 2013.

Hoffmann, J. (2008). *2008 Wall Township Open Space and Recreation Plan*. Wall, NJ.

Ludlum, D. (1983). *New Jersey Weather Book*. New Brunswick: Rutgers University Press.

Maczuga, J. (1999). *Wall Township 1999 Master Plan*. Point Pleasant Beach: Bay Point Engineering.

Monmouth County Planning Board, GIS Section. *Steep Slopes*. Freehold: Monmouth County Planning Board.

New Jersey Department of Environmental Protection Division of Fish and Wildlife Website (n.d.). Retrieved 10/16/13 from <http://www.state.nj.us/dep/fgw/wmarticl.htm>.

New Jersey Department of Environmental Protection (n.d.). *What's a Watershed*. Retrieved 10/16/2013 from <http://www.nj.gov/dep/watershedrestoration/docs/shedbrochure.pdf>.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *14 Digit Hydrolic Unit Code delineations for new Jersey (DEPHUC14)*. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *1986 Land Use/Land Cover for Monmouth County, New Jersey*. 1986. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *2007 Land Use/Land*

Cover Update, Monmouth Watershed Management Area, WMA 12. 2007. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *2007 Land Use/Land Cover Update, Monmouth Watershed Management Area, WMA 13.* 2007. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Classification Exception Areas/Well Restriction Areas Polygon Maps for New Jersey.* 2009. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Contaminated Site List for New Jersey (Non-Homeowner).* 2009. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Currently Known Extent of Groundwater Contamination for New Jersey.* 2007. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Public Community Supply Well Supply.* Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Streams of Monmouth County.* 1:24,000. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Waters of New Jersey (Lakes and Ponds).* V20080501. 2002. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Species Based Habitat, Atlantic Coastal Region.* V3.1 20120221. 2012 Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Species Based Habitat, Landscape Regions.* V3.1 20120221. 2012 Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Species Based Habitat, Piedmont Plains Region.* V3.1 20120221. 2012 Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Species Based Habitat, Pinelands Region.* V3.1 20120221. 2012 Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Waters of New Jersey (Rivers, Bays and Oceans)*. V20080501. 2002. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Environmental Protection, Office of Information Resources Management, Bureau of Geographic Information and Analysis. *Wetlands of Monmouth County*. 1986. Trenton: NJDEP, OIRM, BGIA.

New Jersey Department of Transportation. *Roads_2008*. 1:24,000. Trenton: NJDOT. 2005.

New Jersey Office of Smart Growth. *Third Draft Final NJ State Development and Redevelopment Plan (Splan 3)*. Trenton: NJOSG.

New Jersey Planning Officials (January, 2008). *Municipal Land Use Law Chapter 291, Laws of NJ 1975*.

New Jersey State Planning Commission (January 13, 2010). *Final Draft New Jersey State Development and Redevelopment Plan*, 1. Retrieved 10/23/13 from http://www.state.nj.us/state/planning/docs/dfplan_vol1.pdf

Newman G. *New Jersey Transit Bus Stop Locations, 2013 (NAD83, NJSP feet)*. Trenton: NJOIT, OGIS. 2013.

Newman G. *New Jersey Transit Currently Operating Routes, 2013 (NAD83, NJSP feet)*. Trenton: NJOIT, OGIS. 2013.

Newman G. *New Jersey Transit Rail, Light Rail and Subway Currently Operate Right-of-Way Lines, 2013 (NAD83, NJSP feet)*. Trenton: NJOIT, OGIS. 2013.

Office of the New Jersey State Climatologist (ONJSC) Website. (n.d.) Retrieved 10/16/2013 from <http://climate.rutgers.edu/stateclim/?section=njcp&target=NJCoverview>.

Soil Survey Staff, Natural Resources Conservation Service. *Soil Survey Geographic (SSURGO) Database for Monmouth County, NJ*. United States Department of Agriculture.

Sustainable New Jersey. (n.d). *Website*. Retrieved 7/22/13 from <http://www.sustainablejersey.com/about/>.

Township of Wall (2013). *Code of the Township of Wall New Jersey: Land Use and Development Regulations*. Wall, NJ.

United States Department of Agriculture (1983). *Soil Survey of Monmouth County New Jersey*. National Cooperative Soil Survey.

New Jersey Office of Information Technology, Office of Geographic Information Systems. *Municipalities of New Jersey State Plane, NAD83*. Trenton: NJDEP, March, 2010.

United States Geological Survey. *USA Topo Maps*. 1:24,000. ESRI. May 2013.

Wall Township Environmental Advisory Committee. (1987). *Environmental Resources Inventory 1987*. Wall, NJ.

Wall Township Environmental Advisory Committee. (2013). *Life in Wall Township Past and Present: WTEAC 35th Year Commemorative Heritage Book*. Wall, NJ.