

ENVIRONMENTAL RESOURCE INVENTORY GALLOWAY TOWNSHIP, ATLANTIC COUNTY



Adopted by the Environmental Commission on December 6, 2011;

Adopted by the Planning Board on January 19, 2012.

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ENVIRONMENTAL RESOURCE INVENTORY GALLOWAY TOWNSHIP, ATLANTIC COUNTY

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Environmental Resource Inventory

Table of Contents

INTRODUCTION	5
LOCAL AND HISTORIC OVERVIEW	7
PINELANDS	9
NJDEP CAFRA	10
STATE PLAN.....	12
ZONING	14
LAND USE.....	15
WATERSHEDS, WATERWAYS AND DRAINAGE AREAS	17
GEOLOGY	19
SOILS	20
WETLANDS.....	24
FLOODPLAINS	25
LANDSCAPE	26
WILDLIFE INVENTORY	29
SEWER INFRASTRUCTURE.....	37
BROWNFIELDS – KNOWN CONTAMINATED SITES	38
HISTORIC SITES	39
RECREATION AND OPEN SPACE.....	41
AGRICULTURE AND FARMLAND PRESERVATION	43
RENEWABLE ENERGY	44
CONCLUSION.....	47
APPENDIX - Environmental Resource Inventory Maps – Sheets 1-19	
Sheet 1 – Title Sheet	Sheet 11 – Waterways Impairment
Sheet 2 – Aerial Map	Sheet 12 – HUC 14 Areas
Sheet 3 – USGS Topographic Map	Sheet 13 – Wetlands
Sheet 4 – CAFRA/Pinelands Jurisdiction	Sheet 14 – Soils
Sheet 5 – Zoning	Sheet 15 – Soils Suitability
Sheet 6 – Land Use	Sheet 16 – Impervious Cover
Sheet 7 – Open Space	Sheet 17 – Recharge Rates
Sheet 8 – Sewer Service Areas	Sheet 18 – Landscape Data – Environmental
Sheet 9 – Pump Station Areas	Sheet 19 – Landscape Data – Historical
Sheet 10 – Waterways	Properties

INTRODUCTION



USFWS Land – Morning Glory
Photo Credit – Rita Rigas

An Environmental Resource Inventory (ERI), also called a Natural Resource Inventory (NRI), is a compilation of information about the natural resource and environmental features. The Township of Galloway adopted a NRI in 1976. This document is intended to update and replace the existing NRI. The authority to adopt a ERI comes from the Environmental Commission Enabling Legislation (NJSA 40:56A) and the New Jersey Municipal Land Use Law (NJSA 40:55D-28b(2)). An Environmental Commission can adopt an ERI and submit it to the Planning Board. Once an Environmental Commission has prepared and adopted an ERI it is entitled to receive copies of all applications submitted for development approvals. The Planning Board is permitted to adopt an ERI as part of the Land Use Element and/or the Conservation Element.

The most recent Galloway Township Master Plan was adopted on March 1, 2001. The Master Plan was subsequently re-examined and updated on March 22, 2007. The Master Plan was updated specific to the Pinelands areas on July 12, 2007. On June 3, 2010 the Township adopted a Master Plan Update addressing the long-term development plans for The Richard Stockton College of New Jersey. On December 18, 2008 the Township adopted a Fair Share Plan and Housing Element of the Master Plan to address the housing needs in the Township. Finally on October 7, 2010 the Township Planning Board completed a Build Out and Capacity Analysis for the Pinelands Growth Corridors.

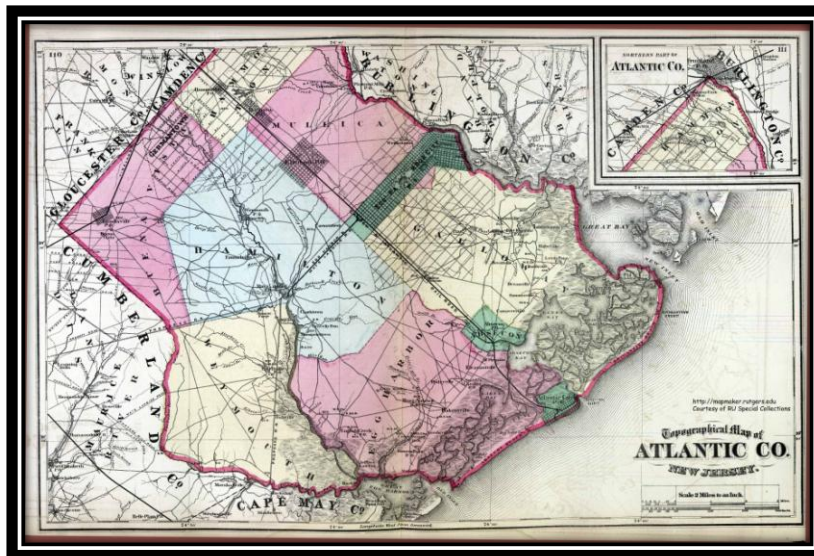
The Environmental Resource Inventory is proposed for adoption as an appendix/amendment to the Land Use Element of the Master Plan. The Environmental Resource Inventory includes recommendations for the Planning Board to prepare and adopt additional elements to the Master Plan including a Conservation Element, a Historic Preservation Plan Element, a Farmland Preservation Plan Element and a Green Buildings and Environmental Sustainability Plan Element.

The ERI in its simplest form is a collection of data that can be utilized as a resource for future development and policies regulating land use and conservation. Included throughout this report are links to various web pages that provide additional information on the environmental resources and regulations. These links should be utilized when reviewing the Environmental Resource Inventory as new information may become available. An ERI is not a static document and should be updated as new information becomes available.

This document was prepared with the assistance of a grant through Sustainable Jersey™ Small Grants, funded by Wal-Mart. The Task Force for a Sustainable Galloway (Go Green Galloway) in combination with the Environmental Commission worked to contribute to this document. The final form is proposed for adoption by the Environmental Commission and for inclusion as an appendix to the Land Use Element of the Master Plan.

Go Green Galloway is a Mayor- appointed committee that is made up of Township employees, Township business representatives, residents and members of the Richard Stockton College community. Their mission is to reduce the carbon footprint of Galloway through the promotion of energy efficiency and conservation, environmental education and the implementation of sustainable practices. The Committee has worked to help the Township achieve Sustainable Jersey certification, a program that helps towns to identify concrete actions that they can implement to become certified and to be considered leaders on the path to a sustainable community. The program provides guidance and tools to enable communities to make progress on each action, provides access to grants and identifies existing funding opportunities. Galloway Township is very involved in the Sustainable Jersey Program, being among the first 4 towns in the State to receive Silver Status.

LOCAL AND HISTORIC OVERVIEW



Atlantic County Map - 1872

Established in 1774 and incorporated in 1798, the Township included an area much larger than what exists today. From 1838 through 1924 areas of the original Township were lost through secessions to surrounding municipalities. Today the Township encompasses 111.64 square miles (approximately 60 square miles after coastal waterways are removed). It is the second largest municipality in the County. According to 2010 Census data the Township population was 37,349 persons with 13,067 households. This represents an increase of 19% from the population of 31,209 in 2000.

Located in the northeastern corner of Atlantic County, the Township is in close proximity to major transportation routes and services. Over eight miles of State Highway Route 30 (White Horse Pike) traverse the Township from the City of Egg Harbor extending west to the City of Absecon. The Garden State Parkway bisects the Township with three access points, although none of which are considered full interchanges. (The Garden State Parkway has full access at the Atlantic City Rest Stop on Jimmie Leeds Road, although this is not an official interchange. The State has plans to reconfigure this access point to a full interchange. The other interchanges are located on the White Horse Pike and Moss Mill Road, Exits 40 and 44 respectively.) The Township is within three miles of the Atlantic City Airport and just over ten miles from Atlantic City. There are two stops along the Atlantic City Rail Line each within close proximity of the Township border, one in Egg Harbor City and one in the City of Absecon. The South Jersey Transportation Authority is also in the process of securing a new rail stop in the Pomona section of Galloway Township.

Looking back some 8,000 years, the Lenni Lenape Indians lived self-sufficiently with the food and resources of the land and waters. The Indians called the coastal area “Absegami”, which translates to “Little Sea Waters”. The Indian culture in this area was gradually replaced by immigrants from mostly European and Scandinavian countries. Galloway was explored and settled, starting in the 1500’s, by Dutch, French, Swedish, Finnish and Portuguese people.

The first surveys of the land were recorded by Henry Hudson in 1609. In 1614, Cornelius Mey charted the coastline and called the region “Eyer Haven” or Egg Harbor; in observation of the many bird eggs in the marshes. The British Colony of New Jersey came into existence in 1664, by Decree of King Charles II. He granted the land between the Hudson and Delaware Rivers to his brother James, Duke of York. James actually named the land “Nova Caesarea” (New Jersey) and the outer boundaries of the state remain the same today as that stipulated in the original deed. The inner boundaries of New Jersey have undergone extensive changes over the years. The land between the Great Egg Harbor River and the Little Egg Harbor (Mullica) River was called Egg Harbor, roughly the space now known as Atlantic County. At that time it was part of Gloucester County; which then encompassed the present Gloucester, Camden and Atlantic Counties.

On April 4, 1774 Galloway Township was formed from Egg Harbor by Royal Decree of King George III. Since then, the area of Galloway has been reduced in size by the following secessions: Mullica Township in 1838; Egg Harbor City in 1858; Absecon in 1872; part of Brigantine in 1890; Port Republic in 1905; part of Atlantic City in 1917 and part of Brigantine in 1924. The origin of the name Galloway is still not clear. One account traces it to Joseph Galloway, a British Loyalist and contemporary of Benjamin Franklin. Another account speaks of Galloway Mull, a spit of Pinelands coastal land in Scotland; perhaps to honor Scots living in this area.

Galloway is made up of many villages and neighborhoods, now existing and some in memory; like Smithville, Leeds Point, Oceanville, Higbeetown, Cologne, Pomona, Germania, Absecon Highlands, Johnstontown, Conovertown, South Egg Harbor, Pinehurst, Seaview, a small part of the historic Clark’s Landing tract, and other groupings of single and multi-family dwellings throughout the Township under various private developer’s namings.

Galloway has historically been a community able to live off its’ land and water bounty. In more recent times, Galloway has developed as a gateway and support community for Atlantic City and other resort communities, the Federal Aeronautics Administration William J. Hughes Technical Center, Atlantic City International Airport, The 177th Fighter Wing of the New Jersey Air National Guard, Richard Stockton College of New Jersey, Seaview Country Club, Atlantic Care Hospital and many other institutions and attractions. Galloway still offers excellent qualities for residency, raising families, senior living, tourism and recreation.

PINELANDS



Blueberry Crop in the Pinelands

In 1979 the Pinelands Protection Act was adopted. The purpose of the Act was to protect the natural resources of the Pinelands National Reserve through environmental protection and compatible development. Approximately 69% of the entire Township is located in the Pinelands National Reserve of which 3,025 acres are designated as a Regional Growth Areas. Regional Growth areas were identified by the Pinelands Commission as areas appropriate for both commercial and residential development.

Within the Pinelands areas there are different land use classifications regulating the intensity of development. As noted, major development is encouraged in the Regional Growth areas or in Towns and Villages. There are also areas identified for Agricultural Production, Rural Development, Forest Areas and Preservation Areas. According to the Pinelands Commission 2009 Long-Term Economic Monitoring Program 34% of the Township population resided within Pinelands areas. Additionally, 28% of all housing units were located in the Pinelands area. These figures utilize 2000 census data. The following table identifies the land area designations in the Pinelands:

Pinelands Land Use Designation	Percent of Total Land Area in Pinelands Area
Preservation	11%
Forest	11%
Agricultural Production	14%
Rural Development	36%
Regional Growth	12%
Pinelands Town	9%
Pinelands Village	3%
Military and Federal	3%

NJDEP CAFRA



USFWS Land
Salt Marsh - View of Atlantic City
Photo Credit – Art Webster

The NJDEP Coastal Area Facilities Review Act (CAFRA, NJSA 13:19-1 et seq.) governs development east of the Garden State Parkway in Galloway Township. The act was originally adopted in 1973 to address the potential impacts from major industrial developments. Later, in 1993, the Act was amended to include developments in regulated coastal areas. The NJDEP was directed to work with the State Planning Commission to integrate the CAFRA regulations with the State Development and Redevelopment Plan in order to coordinate development policies.

CAFRA regulations in Galloway Township apply to major development applications east of the Garden State Parkway. Specifically, a development of 25 or more residential units; a commercial development having 50 or more parking spaces; or any public or industrial development. CAFRA regulations also govern maximum allowable impervious coverage limitations. In areas where development is encouraged (CAFRA Centers, Towns, Cores or Nodes) higher impervious coverage limits are permitted. Development is also encouraged in the Coastal Metropolitan Planning Areas. In other areas limited impervious coverage is permitted.

The CAFRA Centers, Towns, Cores and Nodes were set to expire if a municipality did not receive Plan Endorsement through the State Planning Process (discussed below). However in recognition of the national economic conditions the legislature passed a Permit Extension Act in 2008 which extended the rights granted under the identified Centers, Towns, Cores and Nodes provided that the underlying Planning Area was not considered environmentally sensitive. This extension currently runs through June of 2013. (See <http://www.nj.gov/dep/pcer/extension.htm>)

The following Impervious coverage areas are permitted in Galloway Township in accordance with NJAC 7:7E-5B.4:

Coastal Planning Areas	Maximum Impervious Cover
CAFRA/Coastal Regional Center CAFRA Core CAFRA Node	80%
CAFRA/Coastal Town	70%
Coastal Metropolitan Planning Area	80%
Coastal Suburban Planning Area within a sewer service area	30%
Coastal Suburban Planning Area outside a sewer service area	5%
Coastal Rural Planning Area	3%

Galloway Township has several identified Coastal Planning Areas (See Environmental Resource Inventory Map entitled CAFRA/Pinelands Jurisdiction Page 4 of 19). The CAFRA Centers are currently subject to the Permit Extension Act and remain effective through 2013 for areas that do not contain Environmentally Sensitive Planning Areas as the underlying State Planning Area designations. Development within a CAFRA Center allows for greater impervious coverage and the extension of infrastructure to support current and future development. The CAFRA Centers are generally consistent with the centers identified in the State Development and Redevelopment Plan. The following centers are located in Galloway Township:

Wrangleboro CAFRA Town –

Located along the Garden State Parkway and Wrangleboro Road. The Center extends from Jimmie Leeds Road to Moss Mill Road. This Center includes various Planned Unit Developments that were constructed in the 1980's.

Smithville CAFRA Town and CAFRA Core –

Located along Route 9 in the northeastern corner of the Township. This area includes the Historic Village of Smithville and the surrounding Planned Unit Development. The PUD was approved in the early 1980's and provided for a combination of residential and commercial development.

Galloway Downtown CAFRA Core –

Located along Jimmie Leeds Road and Pitney Road containing approximately 0.65 square miles. The area primarily includes commercial development and the Municipal Complex.

Oceanville CAFRA Core –

Located along Route 9 in the vicinity of Great Creek Road and Old Port Republic Road. (This CAFRA Core is not extended under the Permit Extension Act)

STATE PLAN

The purpose of the State Plan is to:

Coordinate planning activities and establish Statewide planning objectives in the following areas: land use, housing, economic development, transportation, natural resource conservation, agriculture and farmland retention, recreation, urban and suburban redevelopment, historic preservation, public facilities and services, and intergovernmental coordination (N.J.S.A. 52:18A-200(f)).

The New Jersey State Development and Redevelopment Plan (SDRP) was first adopted in 1992 under the directive of the State Planning Act (NJSA 52:18A-196 et seq.). The SDRP was amended in 2001. Under the State Plan Galloway Township petitioned and received Centers Designation in December of 2001 for the areas identified as Coastal Planning Areas above. The SDRP resulted in the creation of Planning Areas and Centers of Development for the State of New Jersey. The State Plan only applies to those areas east of the Garden State Parkway in the Township. The following Planning Areas are identified in Galloway (See Environmental Resource Inventory Map entitled Galloway Township CAFRA/Pinelands Jurisdiction Page 4 of 19):

Metropolitan Planning Area 1 (PA1): The Metropolitan Planning Area includes compact development patterns with high intensity centers found in older suburbs or cities. The PA1 area in Galloway is an extension of Absecon and Atlantic City located along the White Horse Pike and surrounding area.

Suburban Planning Area 2 (PA2): The Suburban Planning Area is generally located near PA1 areas. This area has developed to be more reliant on the automobile and has available vacant land to accommodate future development.

Rural Planning Area 4 (PA4): This area has small development centers and existing agricultural uses and open spaces. Development is encouraged in the existing centers, while preservation of the agriculture and open spaces are encouraged.

Environmentally Sensitive Planning Area 5 (PA5): These areas contain mostly undeveloped areas with valuable ecosystems and wildlife habitats. Development is not encouraged in these areas.

After 2001, the State Planning Commission amended the center designation process and created a new process entitled Plan Endorsement. Municipalities were required to petition for Plan Endorsement in order to maintain the identified and approved development centers. This process was intended to encompass the entire Township and balance the environmentally sensitive areas with the development areas, essentially reaffirming the policies and goals already identified in the adopted SDRP. The Township began the Plan Endorsement Process but put it on hold as the identified development areas in the Township are currently protected under the Permit Extension Act through June of 2013.

The State is currently in the process of adopting a new State Strategic Plan to replace the 2001 State Development and Redevelopment Plan. The Strategic Plan sets forth four primary goals for the State of New Jersey future success. The State is accepting comments on the Draft Plan and reports and anticipated adopting the plan in the near future.

Additional information on the State Strategic Plan can be found at <http://nj.gov/state/index.html>

ZONING

The delineation of districts and the establishment of regulations governing the use, placement, spacing, and size of land and buildings.

Galloway Township is split between two jurisdictions. Land to the west of the Garden State Parkway is governed by the Pinelands Commission and the zoning designations are reflective of the Pinelands Management Areas. The zoning in the Pinelands consists of Preservation and Forest Areas, Rural Development Areas (5 acre residential zoning) and Agricultural. Areas in the Pinelands designed to accommodate growth include the Towns and Villages, the R and R1 residential districts, Industrial and Government Institutional zones.

Outside of the Pinelands east of the Garden State Parkway, the zoning is predominately residential on one or two acre lots. Commercial and Office zoning exists along Route 9, Jimmie Leeds Road and the White Horse Pike.

For specific zoning areas see Galloway Township Environmental Resource Inventory Map Zoning Map page 5 of 19.

LAND USE



**Atlantic Care Regional Medical Center – Mainland Campus
Galloway Township**

Land use looks at how a local area has developed over the years. Land use classifications include residential, agriculture, commercial, industrial and vacant. In Galloway Township a review of the tax parcels indicates that the predominate land use is residential. The following table identifies the land use classifications based upon tax assessment records utilizing parcel information and not land area.

Land Use – Parcel Analysis (2011 Tax Parcels)		
Land Use	Tax Parcels	Percent of Total Parcels
Vacant	3,706	18.7%
Agriculture	388	1.9%
Residential	13,276	67.1%
Apartment	17	<0.5%
Commercial	449	2.2%
Industrial	2	<0.5%
School (Public and Private)	44	<0.5%
Public Property	1,654	8.4%
Church/Cemeteries/Graveyards	68	<0.5%
Other Exempt	164	0.8%
Total Parcels	19,769	100%

Two of the Township's major land uses in the Township include The Richard Stockton College and the Atlanticare Regional Medical Center – Mainland Division. The Richard Stockton College was founded in 1969 and first offered instruction in 1971 to around 1,000 students. It is a nationally ranked public liberal arts and professional studies institution of the New Jersey higher education system. Student enrollment projections included in the 2010 College Master

Plan provide for an estimated 7,000 students in the 2014-2015 academic year (over 8,000 students when combining full and part time enrollments).

In 1975 AtlantiCare's Mainland Campus was opened in Galloway Township. The Medical Center is located just east of the Stockton Campus. In 1976 the Bacharach Institute for Rehabilitation joined the Atlanticare Medical Center Campus. Other features of the Atlanticare Medical Campus are their "Centers of Excellence" including The Heart Institute, The Joint Institute, a New Emergency Department, a Neonatal Intensive Care Unit and the Center for Childbirth. The Regional Medical Center has shaped how the Township has grown west of the Garden State Parkway. Numerous medical and nursing facilities have located in the nearby commercial districts.

Land use can also be reviewed as a land cover analysis. NJDEP utilizes land use/land cover to demonstrate landscape changes over time. The categories include agriculture, barren land, forest, urban, water and wetlands. (See Environmental Resource Inventory Map entitled Land Use/Land Cover Pages 6 of 19) This analysis indicates that wetlands account for the largest land cover in the Township. The next largest land cover is urban followed closely by forest areas.

WATERSHEDS, WATERWAYS AND DRAINAGE AREAS



View of Doughty Creek
Photo Credit: Kevin Holcomb

New Jersey is broken down into 20 watershed management areas by the New Jersey Department of Environmental Protection. A watershed contains all of the area that drains into one body of water. The sources of the watershed can include streams, rivers, estuaries and underground aquifers. Galloway Township contains parts of two watershed management areas; Mullica Watershed Management Area 14 – WMA 14 (northern portion of the Township), and Great Egg Harbor Watershed Management Area 15 – WMA 15 (southern portion of the Township). Each watershed is broken down into smaller watershed and sub-watersheds/drainage areas.

The Mullica WMA 14 includes the watersheds of Mullica River, Mechescatauxin Creek, Wading River, Atsion Creek, Batsto River and Doughty Creek. Within Galloway are portions of the Mullica River and Doughty Creek. The following streams and creeks are also located in Galloway Township as part of Mullica WMA 14:

Portion of the Mullica River
Robyns Run
Elliot's Creek
Morse Mill Creek
Mattix Run
Motts Creek
Landing Creek

The Mullica WMA 14 empties into the Great Bay Estuary, including Great Bay, Little Bay, Dry Bay, and Perch Cove. An estuary is a partially enclosed body of water where rivers and streams meet the ocean and fresh water mixes with saltwater. Estuaries can include bays, lagoons or inlets.

Additional information on the Mullica Watershed Management Area 14 can be found at http://www.state.nj.us/dep/watershedmgt/wma14_info.htm

The Great Bay WMA 15 includes the watershed of the Great Egg Harbor River, Tuckahoe River Absecon Creek and Patcong Creek. Portions of the following creeks or streams are located within WMA 15 in Galloway Township:

Doughty Creek
Cordery Creek
Absecon Creek
Babcock Creek

The Township also contains Reeds Bay which is where Absecon Creek in the Great Egg Harbor watershed management area empties. Additional information on the Great Egg Harbor Watershed Management Area 15 can be found at http://www.state.nj.us/dep/watershedmgt/wma15_info.htm

Within each watershed are smaller drainage areas. The drainage areas in Galloway Township flow either to the Mullica WMA 14 or the Great Egg Harbor WMA 15. NJDEP utilizes a 14 Digit Hydrological Code Delineation or HUC 14 to identify a sub-drainage area in a larger watershed. A hydrological unit is that area that drains to a stream segment between a pair of upstream-downstream points. In Galloway Township there are portions of 19 HUC 14 areas. (See Galloway Township Environmental Resource Inventory Map HUC 14 Areas page 12 of 19)

Hydrological units are important in identifying impairments to the stream. Impairments are caused by non-point source pollution or inadequate stream buffers. Waterway impairments are classified as Excellent, Good, Fair or Poor. The classification system has different consequences for waterways within the Pinelands and within a 5-kilometer buffer of the Pinelands area. A waterway that is classified as “Fair” or “Poor” is considered impaired and not supporting the aquatic life use of the waterway. Waterways outside of the Pinelands and buffer are classified as FW-2 and not PL. In this instance only those areas classified as “Poor” are considered impaired. The conditions in Galloway can be seen on page 11 of 19 – Galloway Township Environmental Resource Inventory Map Waterways Impairment.

The impairment along Absecon Creek (AN 0616) is listed as “Fair” and falls within the Pinelands buffer area. The USEPA indicates that the biology is moderately impaired at this area. The other impairments fall within acceptable levels.

GEOLOGY



Typical Excavation

New Jersey has four physiographic provinces; from the north to south they are the Valley and Ridge Province, the Highlands Province, the Piedmont Province, and the Coastal Plain Province. The provinces represent the four distinctive landforms in the State. The Township of Galloway is located in southern New Jersey and part of the Coastal Plain Physiographic Province. The Coastal Plan Province includes layers of sand, silt, clay and gravel.

The New Jersey Coastal Plain is part of the Atlantic Plain physiographic province and contains one of the most prolific system of aquifers in the country. There are five major aquifers in the New Jersey Coastal Plain Aquifer System. They are the Potomac-Raritan-Magothy aquifer system, Englishtown aquifer, Wenonah-Mount Laurel aquifer, lower "800 foot" sand aquifer of the Kirkwood Formation and the Kirkwood-Cohansey aquifer. The New Jersey Coastal Plain Aquifer System covers about 4,200 square miles. More than half of the land area is below an altitude of fifty feet (50') above sea level (NGVD). The area is largely surrounded by salty or brackish water and is bounded by the Delaware River on the west, Delaware Bay on the south, the Atlantic Ocean on the east, and Raritan Bay on the north.

(<http://www.epa.gov/region2/water/aquifer/coast/coastpln.htm>)

SOILS



Soil Test Pit – New Leaf Court

Soils are important in land use planning. Soils are classified as part of the National Cooperative Soil Survey of the United States through the US Department of Agriculture. Early soil survey classifications were completed to assist farmers in identifying the types of soils on their lands. Understanding the type of soil aided farmers to choose more suitable crops. Over time soil surveys became fundamental in determining appropriate development design relative to suitability for drainage, septic and other similar items. The purpose of identifying the soil types in an area is to better understand potential development opportunities or constraints. Different soils are more suitable for development than others. Knowing the soil type can guide a community to directing development in areas where the soil is more suitable. Suitability factors include slopes, drainage rates, water levels and erosion factors.

Within Galloway Township there are twenty-one different types of soil series. A soil series is the classification of the soil type and provides information as to suitability for development. The soil series provides a description of the soil and its characteristics or properties. The following series are found in Galloway Township:

Soil Series	Characteristics	Major Uses	Vegetation
Appoquinimink	Very poorly drained with frequent flooding. 0 to 1 percent slopes.	Used mainly as wetland wildlife or as shellfish and small crustacean habitat	Natural vegetation is salt-tolerant wetland herbaceous species, predominantly salt marsh cordgrass, salt hay, salt wort, and spike grass.
Atsion	Poorly drained. Surface runoff is slow or very slow. Slopes of 0 to 2 percent	Mostly in woods, but some areas are used for blueberries and cranberries.	Wooded area are mostly pitch pine mixed with black gum and red maple. Undergrowth consists of highbush blueberries, sweet pepperbush, sheep laurel, and greenbriar.

<u>Soil Series</u>	<u>Characteristics</u>	<u>Major Uses</u>	<u>Vegetation</u>
Berryland	Sandy. Rarely flooded but poorly drained. Slopes range from 0 to 2 percent.	Mostly in woodland. Some of the soil has been cleared for growing high-bush blueberries and cranberries. Drained areas have been used for growing vegetables, corn, soybeans and small grain.	Where wooded-predominantly pitch pine, widely spaced Atlantic white cedar, red maple, and black gum. The dense understory is commonly high-bush blueberry, sweet pepperbush, bay magnolia, leather leaf, gallberry, and greenbriar.
Downer	Sandy, loam soils with 0 to 5 percent slopes. Well drained with moderate to moderately rapid permeability rates.	Most areas are used for growing field crops, vegetables, flowers, and some tree fruits.	Native vegetation includes white oak, red oak, scarlet oak, black oak, Virginia pine, pitch pine, hickory, sassafras, dogwood, greenbriar, and American Holly. Loblolly Pine occurs in the southern part of Downer soils distribution. The understory is dominantly low bush blueberry and mountain laurel.
Evesboro	Sandy with 0 to 5 percent slopes. Rapid to moderately rapid permeability	Most areas are in woodland, fruit and vegetable crops, or urban land. Most area in woodland has been repeatedly cut for wood products. Where irrigated, Evesboro soils are most commonly used for production of peaches, grapes, sweet potatoes, pumpkins and melons.	The wooded area is predominantly black oak, white oak, red oak, yellow poplar, and chestnut oak with scattered hickories, pitch pine, Virginia Pine, loblolly pine, and scrub and blackjack oaks.
Fort Mott	Sandy with 0 to 5 percent slopes. Well drained with moderate to moderately rapid permeability.	Most areas are used for growing field crops, vegetables, flowers, and some tree fruits.	Native vegetation includes white oak, red oak, scarlet oak, black oak, Virginia pine, loblolly pine, yellow poplar, pitch pine, hickory, sassafras, dogwood, and greenbriar. The understory is dominantly low bush blueberry and mt. laurel.
Galloway	Loamy Sand with clay substratum in areas. Slopes range from 0 to 5 percent. Surface runoff is very slow. Moderately to well drained with rapid permeability.	Cultivated crops mainly corn, soybeans, hay, and truck crops.	Wooded areas are dominated by mixed oaks, sweetgum, red maple, pond pine, and loblolly pine.
Hammonton	Loamy sand with a clay substratum in areas. Slopes range from 0 to 5 percent. Moderately to well drained. Permeability is moderate or moderately rapid.	Cleared areas are used for production of fruit, vegetables, row crops, and nursery stock.	Native vegetation is a mixed hardwood forest containing scattered pitch pine, shortleaf pine, loblolly pine and Virginia pine.

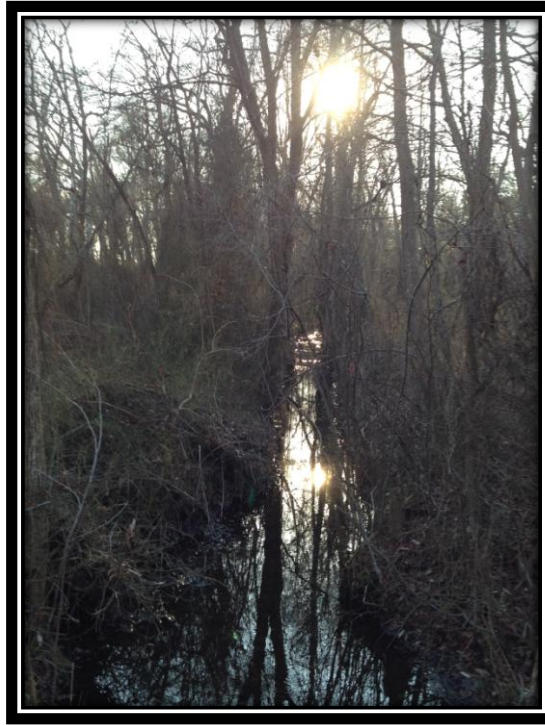
<u>Soil Series</u>	<u>Characteristics</u>	<u>Major Uses</u>	<u>Vegetation</u>
Lakehurst	Moderately to well drained with rapid permeability in the soil and slow permeability in the substratum. Sandy soil with 0 to 5 percent slopes.	Mostly woodland, areas once farmed have now been abandoned.	Wooded areas are dominantly pitch pine, shortleaf pine, black, and white oak, with an understory of lowbush blueberries and scrub oak. Where wildfires have been severe, pitch pine and black jack oak are dominant.
Lakewood	Excessively drained with rapid permeability. Slopes range from 0 to 5 percent.	Dominantly woodland.	Wooded areas are dominantly pitch pine, black oak, and white oak. Where wildfires have been severe the trees are dwarfed, growing less than 5 feet tall and consist primarily of pitch pine, scrub oak, and blackjack oak.
Mannahawkin	Very poorly drained. Frequently flooded. Slopes range from 0 to 2 percent.	Wetland wildlife habitat, and woodland	Atlantic white cedar, bald cypress, pitch pine, red maple, blackgum, sweetgum, swamp chestnut oak, water oak, smooth alder, northern white cedar, sweet bay (swamp magnolia). The understory is high-bush blueberry, sweet pepperbush, leather leaf, gallberry, arrowwood, green briar, American holly, ferns, sedges, grasses and mosses. Some areas are cultivated to cranberries and blueberries.
Matawan	Sandy Loam soils. Moderately well drained, slowly permeable soils on uplands. Slopes range from 0 to 5 percent.	Most areas are farmed. Corn, soybeans and vegetables are grown.	Wooded areas are mixed hardwoods including oak, gum and beech and cut over areas are loblolly pine and Virginia pine. The understory is huckleberry, holly and serviceberry.
Mullica	Very poorly drained with moderate to moderately rapid permeability. A sandy loam soil with slopes from 0 to 2 percent.	Mostly woodland.	Native vegetation is pin oak, white oak, willow oak, red maple, bay magnolia, sweet gum, black gum, and black birch. When drained, these soils are used for truck crops, blueberries and pasture.
Psammaquents	Slopes range from 0 to 3 percent. Very poorly drained.	Exists where the natural soils have been greatly altered by extensive grading and filling.	Not available.
Psammments	Slopes range from 0 to 3 percent. Moderately well drained.	Exists where the natural soils have been greatly altered by extensive grading and filling.	Not available.

<u>Soil Series</u>	<u>Characteristics</u>	<u>Major Uses</u>	<u>Vegetation</u>
Transquaking	Mucky peat with very frequent flooding by tidal waters. Slopes range from 0 to 1 percent.	Mainly as wetland wildlife habitat.	Dominant vegetation is olney threesquare (<i>Scirpus americanus</i>), saltmeadow cordgrass (<i>Spartina patens</i>), saltmarsh cordgrass (<i>Spartina alterniflora</i>), saltgrass (<i>Distichlis spicata</i>), and marsh hibiscus (<i>Hibiscus palustris</i>).
Udorthents	Poorly drained to very poorly drained soils that have been altered mainly by filling. Slopes range from 0 to 8 percent.	Found mainly in low areas, depressions, drainage ways and tidal marshes.	
Woodstown	Sandy loam with 0 to 2 percent slopes. Moderately well drained with slow to medium surface runoff. Moderate permeability.	Most of the areas are used for crops including corn, soybeans, small grains, hay, and pasture.	Native vegetation is oak and hardwoods with some Virginia pine. Loblolly pine occur in the southern part of the series range.

The USDA classifies soils with agricultural values. The four categories are Farmland of unique importance; Prime Farmland; Farmland of Statewide Importance; and Not-Prime Farmland. The USDA has identified Prime Farmland as the most suitable soil for crop production. These areas are of national importance for use in meeting the Nation's short and long range needs for food. Areas in Galloway Township that are identified as Prime Farmland should be reviewed further to ensure the protection of existing agricultural operations and to encourage the creation of future agricultural uses where appropriate. These areas are limited throughout the Township and exist in many cases where development has already occurred (along Wrangleboro Road, Jimmie Leeds Road and areas north of the White Horse Pike).

The land in Galloway Township consists predominately of soil types that are considered "Farmland of Statewide Importance". These areas are identified by the State and nearly meet the requirement as "Prime Farmland". They can produce high yields of crops when managed according to acceptable farming methods. The areas that are shown as "Farmland of Unique Importance" are generally consistent with wetland areas, and are adjacent to streams and the open waters that form the northern and eastern boundary of the Township. These areas are used for the production of high-value food such as tree nuts, cranberries and other fruit and vegetables.

WETLANDS



Branch of Clarks Mill Stream on Duerer Street

Wetlands are land areas that have standing water. These are generally considered marshes, swamps or bogs; however wetlands also exist in forested areas. Wetlands are important for flood control, filtering water from runoff and heavy rains back into the ground, and provide critical habitats for wildlife. Development is regulated within and around wetlands. NJDEP requires buffers to wetlands that range from 50-feet to 150-feet for higher value wetlands. Areas in the Pinelands (west of the Garden State Parkway) that are classified as wetlands are subject to stricter regulations. These areas are required to maintain a 300-foot buffer to wetlands.

In Galloway Township wetland areas exist along waterways and are shown on the Environmental Resource Inventory Map entitled Wetlands, Sheet 13 of 19. The wetland buffers are not included on this map.

Information regarding the regulation of wetlands can be found at <http://www.nj.gov/dep/landuse/fww.html>

FLOODPLAINS



Motts Creek to Great Bay

A floodplain is an area immediately adjacent to a stream that is periodically covered with water. The flood hazard areas include the 100-year floodplain and the flood fringe area. Floodplains are regulated by the NJDEP through the Flood Hazard Area Control Act (NJSA 58:16A-50 et seq.). Development or activities within a flood hazard area require a stream encroachment permit from the NJDEP. Development is regulated within a flood hazard area to protect the surrounding area and the ecologically significant areas that are part of the stream corridor and flood plain. Flood plains accommodate the water that overflows from a stream corridor. If these areas are not protected flooding can cause greater damage to the community. Additional information can be found at <http://www.nj.gov/dep/landuse/se.html>

LANDSCAPE



**Bald Eagle at Edwin B. Forsythe National Wildlife Refuge.
Credit Nick Kontonicolas**

New Jersey created a Landscape Data Map to better identify and protect habitats that are more suitable for threatened and endangered species. (See Environmental Resource Inventory Map, Page 18 of 19) The areas identified in Galloway Township include beach, grassland, bald eagle foraging, forested wetland, emergent wetland and forest. Each category contains areas of potential habitat for threatened and endangered species.

Areas suitable for Bald Eagle Foraging are located along the marshlands and are part of the Edwin B. Forsythe National Wildlife Refuge. Bald eagle foraging habitat is defined as the amount of habitat required to support a nesting pair of eagles throughout the year. This area is coexistent with Emergent Wetlands. Areas identified as Forest and Forested Wetland account for the largest potential habitat in the Township. There are also areas identified as grasslands. This map should be reviewed in combination with existing land use as some areas contain development.

The following Endangered, Rare and Invasive Species Listing for Galloway Township was prepared by Barbara Fiedler:

Rare/Endangered Plants of Galloway

A good portion of Galloway is part of the New Jersey Pinelands, which is the largest contiguous, undeveloped forest and wetland on the Atlantic Coastal Plain of the Mid-Atlantic region. The New Jersey Pinelands is the largest pine barrens complex in the world, and the mosaic of globally rare upland and wetland communities and species found here is of national significance. *"The native flora of New Jersey is an important component of its biological diversity, which is continually diminished as species, populations and habitats are lost from the state. Biodiversity provides the conditions and processes that sustain our survival. These complex inter-actions provide our food supply; natural pest control, maintenance of water, air and soil quality, waste decomposition and soil generation; nutrient cycling; pollination and crop production, climate regulation and stabilization; flood and erosion control; and medicines and pharmaceuticals."* *

There are 223 species of special emphasis in the New Jersey Pinelands, which include 84 species of plants.**

ENDANGERED (Federal listing) Chaffseed

THREATENED: Knieskern's beaked-rush swamp pink sensitive joint-vetch

OF CONCERN: variable sedge Long's bulrush New Jersey rush Hirst's panic grass pine barren boneset Boykin's lobelia awned meadowbeauty Pickering's morning glory

ENDANGERED (State listed): southern arrowhead quill-leaf arrowhead Lancaster flatsedge knotted spikerush rough cottongrass thread-leaved beaked-rush small-headed beaked-rush Virginia bunchflower false asphodel yellow fringeless orchid pine barren bellwort death-camus lace-lip ladies' tresses Pickering's reedgrass wrinkled jointgrass fringed yellow-eyed grass swamp rough aster boltonia pale Indian plantain false boneset Virginia false-gromwell buttonbush dodder broom crowberry butterfly pea sessile-leaved tick-trefoil slender water milfoil two flowered bladderwort dwarf white bladderwort reversed bladderwort sandplain flax Chickasaw plum

RARE:***

sensitive joint-vetch
seabeach amaranth
dragon mouth
seapardbane
smooth orange milkweed
red milkweed
Eastern silvery aster
aster-like Boltonia
pine barren reedgrass
Barratt's sedge
clustered sedge
red goosefoot
Virginia thistle
butterfly pea
wrinkled jointgrass
rose color coreopsis
elliptical rushfoil
hazel dodder
coast flat sedge
rough flatsedge
Schweinitz's flat sedge
sessile-leaved tick-trefoil
pineland tick-trefoil
knotted spike rush
Narrow leaf fireweed
Parker's pipewort
rough cotton grass
marsh rattlesnake master
mist flower
pine barren boneset
sea milkwort
Canada hawkweed
seabeach sandwort
Barton's St. John's wort
clasping leaf St. John's wort
New Jersey rush
Torrey's rush
false boneset
minute duckweed
Stueve's downy bush clover
sandplain flax
southern twayblade
boykin's lobelia
Canby's lobelia
narrow leaf primrose willow
wild lupine
climbing fern
green adder's mouth
spiny wild crabapple
long awn smoke grass
pine barren smokegrass
bog asphodel
slender water milfoil
floatingheart

clustered bluets
Virginia false gromwell
Hirst Brother's panic grass
sheathed panic grass
Wright's panic grass
mudbank crown grass
American mistletoe
pond pine
seaside paintain
Yellow fringed orchid
crested yellow orchid
yellow fringeless orchid
camphorweed
Maryland milkwort
sea beach knotweed
pine barren rattlesnake root
Chickasaw plum
Saltmarsh Alkali Grass
Seaside buttercup
awned meadow beauty
large head beaked rush
small head beaked rush
short beaked bald rush
few flower beaked rush
pale beaked-rush
long beak bald rush
toothcup
Engelmann's sorrel
large marsh pink
silver plume grass
slender arrowhead
curly grass fern
New England bulrush
slender nut rush
woolly ragwort
seabeach purslane
wand like goldenrod
lace lpladies' tresses
fragrant ladies' tresses
smooth hedge nettle
Pickering's morning glory
crane fly orchid
humped bladderwort
dwarf white bladderwort
purple bladderwort
reversed bladderwort
pine barren bellwort
narrow leaf vervain
Britton's coast violet
sand yellow-eyed grass
Fringed yellow eyed grass
pine barren gentian
panic grass

* NJDEP: Endangered Plant Species Populations
In New Jersey: Health and Threats
** <http://library.fws.gov>
*** NJ Natural Heritage database

INVASIVE/ NUISANCE PLANTS

An invasive plant is a non-native species whose introduction causes or is likely to cause economic or environmental harm or harm to human and wildlife health. Because there are no natural enemies to limit their reproduction, they usually spread rampantly; out-competing native species. Invasive alien species are recognized as one of the leading threats to biodiversity. The Task Force for a Sustainable Galloway has been actively involved in the promotion of creating backyard wildlife habitats which encourage homeowners to plant native, beneficial wildlife plants and to identify and begin to eradicate invasive species from their yards.

TREES:

Scotch pine
Norway maple *
mimosa
bristly locust
white mulberry
paper mulberry
European mountain ash
royal paulownia
ailanthus (tree of heaven)*
Chinese elm
Siberian elm
white willow
white poplar
princess tree
purpleosier willow
Calary pear

SHRUBS:

Japanese barberry *
Oriental bittersweet *
Poreclain berry *
multiflora rose *
Russian olive *
Autumn olive *
butterfly bush
Japanese knotweed
Amur honeysuckle
Bell's honeysuckle
Winged burning bush
climbing euonymus
privet
sweet cherry
rugosa rose
Himalayan blackberry
wineberry
Scotch broom
Japanese spirea
bridalwreath spirea
common tansy
burning bush
Rose of Sharon

GRASSES

rattail fescue
giant foxtail
bamboos
Japanese stiltgrass

PLANTS:

common mullein
common vetch
common reed (Phragmites) *
curly pondweed *
Eurasian water milfoil * (Aquatic)
garlic mustard *
purple looserife *
spotted knapweed *
water chestnut * (aquatic)
colonial bentgrass
soft brome
cheatgrass
heather
rush skeletonweed
bull thistle
clover dodder
orchardgrass
common teasel
goosegrass
lesser celandine
stinkgrass
redstem stork's bill
cypress spurge
leafy spurge
fennel
smooth bedstraw
meadow hawkweed
common daylily
beefsteak plant
orange hawkweed
yellowflag iris
henbit
yellow toadflax
perennial ryegrass
Italian ryegrass
yellow sweetclover
sulfur cinquefoil
red sorrel
Russian thistle
bladder campion
spiny sowthistle
Canadian thistle
Chinese bush clover

VINES:

amur peppervine
mile-a-minute
Morrow's honeysuckle *
Japanese honeysuckle *
Tatarian honeysuckle *
Chocolate vine
Kudzu
oriental bittersweet *
porcelainberry
winter creeper
English Ivy *
Chinese Wisteria *
black swallow-wort
common periwinkle
Japanese silvergrass*

****These plants are considered the most invasive species in our area.***

Sources:

**The Native Plant Society of New Jersey
NJDEP**

WILDLIFE INVENTORY



Gull Pond
Photo Credit: Dave Blood

This Section was adapted from U.S. Fish and Wildlife Service, Significant Habitats and Habitat Complexes of the New York Bight Watershed and Edited by Eric Schrading

Introduction

Galloway Township includes three primary ecological complexes, the New Jersey Pinelands, the Brigantine Bay and Marsh complex, and the Mullica River habitat complex. The Pinelands is a large mosaic of contiguous forest and wetland habitats occurring on the gently rolling Outer Atlantic Coastal Plain of New Jersey between 15 to 46 meters (50 to 150 feet) above sea level. This ecosystem exists on the unconsolidated coastal plain sands, silts, and gravels that yield generally sandy, acidic (average pH of 4.0), well-drained soils. The riverine and estuarine wetlands to the limit of tidal influence of the Mullica River and its tributaries, the open waters of Brigantine Bay and adjacent salt marsh habitat from the mouth of the Mullica River are also part of contributing elements of Galloway Township wildlife habitat. This nearly pristine estuary provides seasonal or year-round habitat for a variety of anadromous, estuarine, marine, and freshwater fish and shellfish, nesting and migratory waterbirds and raptors, migratory and wintering waterfowl, and rare brackish and freshwater tidal communities and plants. Also included in the habitat complex are several small palustrine (nontidal) wetlands immediately adjacent to the estuary that contain exemplary rare natural communities and plant occurrences.

Habitat Types and Vegetation

Vegetation and habitat types are distinctive for its strong differentiation of plant communities in an area of low topographical relief. The uplands and lowlands have communities that are quite distinct from one another, controlled primarily by soil moisture differences. These upland and lowland communities are described below.

Uplands in the New Jersey Pinelands are predominantly vegetated by pine-oak forests and oak-pine forests. In the pine-oak forests, pitch pine (*Pinus rigida*) is dominant, with less than 25% cover of oak trees, including black oak (*Quercus velutina*), chestnut oak (*Q. prinus*), scarlet oak (*Q. coccinea*), and white oak (*Q. alba*). In oak-pine forests, larger tree-form oaks are more dominant than are pines, and shortleaf pine (*Pinus echinata*) often dominates over pitch pine. The dominant oak species is generally southern red oak (*Quercus falcata*) to the south of the Mullica River, with varying abundance of chestnut, scarlet, and white oak. The understory and shrub layers are generally dominated by heaths such as lowbush blueberry (*Vaccinium vacillans*), black huckleberry (*Gaylussacia baccata*), and mountain laurel (*Kalmia latifolia*), as well as sweet fern (*Comptonia peregrina*) and inkberry (*Ilex glabra*).

Lowland areas in the Pinelands support a diversity of wetland communities, including Atlantic white cedar (*Chamaecyparis thyoides*) swamps, hardwood swamps, pitch pine lowland forests, shrub swamps, marshes, and pine barren savannas. The wetland forests of the Pinelands are dominated by Atlantic white cedar, red maple (*Acer rubrum*), and black gum (*Nyssa sylvatica*), with pitch pine, gray birch (*Betula populifolia*), and sassafras (*Sassafras albidum*) as associates. In the Atlantic white cedar swamps, stands of white cedar are relatively dense. Tall pitch pines, red maple, black gum, and sweetbay (*Magnolia virginica*) sometimes form a understory, and the shrub layer contains highbush blueberry (*Vaccinium corymbosum*), dangleberry (*Gaylussacia frondosa*), swamp azalea (*Rhododendron viscosum*), sweet pepperbush (*Clethra alnifolia*), fetterbush (*Leucothoe racemosa*), and bayberry (*Myrica pensylvanica*). There is a sparse but diverse herbaceous vegetation layer, and thick hummocks and mats of *Sphagnum* mosses. Many streams in the Pinelands flow through narrow (generally not more than 300 meters [1,000 feet] wide) bands of Atlantic white cedar swamps from their headwaters all the way to the limit of tidal influence. Hardwood swamps in the Pinelands are dominated by red maple, with black gum and sweetbay as associates. Hardwood swamps are often contiguous with cedar swamps and may replace cedar swamps after extensive logging. Pitch pine lowland forests are dominated by dense stands of pitch pine, with lesser numbers of red maple and black gum, and a well-developed understory including black huckleberry, sheep laurel, and dangleberry, with leatherleaf (*Chamaedaphne calyculata*) in the wetter sites. These lowland forests occur as fringing swamps along streams in the pine barrens and in depressions and other poorly drained sites.

Herbaceous wetlands occur around depressions and along streams in the pine barrens. Near the ponds are fragrant waterlily (*Nymphaea odorata*), yellow waterlily (*Nuphar variegatum*), bladderworts (*Utricularia* spp.) and other submerged and floating-leaved vegetation. Peat mosses, sedges (*Carex* spp.), rushes (*Juncus* spp.), pipeworts (*Eriocaulon* spp.), chain ferns (*Woodwardia* spp.) and other emergent plants occur along the shorelines of ponds and streams. Pine barren savannas are grass and sedge- dominated wet meadow communities that occur in floodplains of pine barrens streams; they are often separated from the streams by a levee and vegetated by lowland broomsedge (*Andropogon virginicus* var. *abbreviatus*), Torrey's dropseed (*Muhlenbergia torreyana*), bullsedge (*Carex bullata*), coast sedge (*Carex exilis*), and golden crest (*Lophiola americana*).

Coastal plain intermittent ponds (vernal ponds) with seasonally fluctuating water levels have seasonally saturated soils typically dominated by sedges (*Carex walteriana*, *Eleocharis microcarpa*, *Scleria reticularis*, and *Cladium mariscoides*) and panic and muhly grasses (*Panicum verrucosum*, *P. mattamuskeettense*, *P. capillare*, and *Muhlenbergia torreyana*), and

usually contain several rare species. There are several locations in Galloway Township where soil has been artificially and mechanically excavated down to the water table, resulting in seasonally saturated soils similar to those of natural intermittent ponds and supporting some of the same plant and animal species, though generally at much lower diversities.

Surface waters The brackish submerged aquatic vegetation in the Mullica River and its tributaries has a greater diversity of vascular plant species than does that of Great Bay, and contains such species as horned pondweed (*Zannichellia palustris*), water celery (*Vallisneria americana*), slender pondweed (*Potamogeton pusillus*), redhead grass (*P. perfoliatus*), widgeon grass (*Ruppia maritima*), and naiad (*Najas flexilis*). In the freshwater tidal reaches, submerged aquatics intersperse with the floating-leaved and emergent plants of the lower tidal marsh that are more characteristic of freshwater communities in the Pinelands, which the Mullica drains, and include ribbonleaf pondweed (*Potamogeton epihydrus*), arrowheads (*Sagittaria latifolia*, *S. englemannia*, and *S. spatulata*), American mannagrass (*Glyceria grandis*), bulrush (*Scirpus* spp.), and other species described below. Macroinvertebrates in the brackish portion of the Mullica at Green Bank are dominated by amphipods (*Gammarus* spp.), but also include mollusks and six orders of aquatic insects dominated by dipterans (flies).

There are large expanses of salt marsh in Galloway Township, predominantly high marsh dominated by salt-meadow cordgrass (*Spartina patens*), with lesser amounts of salt grass (*Distichlis spicata*) and black grass (*Juncus gerardii*). Low marsh, dominated by smooth cordgrass (*Spartina alterniflora*), occurs in intertidal areas, especially along tidal creeks. Extensive areas of salt marsh occur on both sides of Great Bay and also extend up the Mullica River as far as Lower Bank and along the lower Wading River. A few areas of unditched salt marsh, unusual on the New Jersey coast, occur along the shores of Great Bay. Smaller areas of brackish tidal marsh complex occur adjacent to the Nacote Creek and Mullica River, dominated by narrow-leaved cattail (*Typha angustifolia*), big cordgrass (*Spartina cynosuroides*), common reed (*Phragmites australis*), and Olney three-square bulrush (*Scirpus americanus*). Freshwater intertidal wetlands are found in a few locations in the upper reaches of tidal influence in the Mullica and Wading Rivers. These freshwater tidal wetlands can be divided into different zones depending on degree of tidal inundation, i.e., the lower tidal zone, exposed only at low tide and consisting of sparsely vegetated intertidal flats with riverbank quillwort (*Isoetes riparia*), bluntscale bulrush (*Scirpus smithii* var. *smithii*), the regionally rare Parker's pipewort (*Eriocaulon parkeri*), stiff arrowhead (*Sagittaria rigida*), grass-leaved arrowhead (*S. graminea*), and Hudson arrowhead (*S. subulata*); a mid-tidal zone with wild rice (*Zizania aquatica*), spatterdock (*Nuphar advena*) pickerelweed (*Pontedaria cordata*), three-square bulrush (*Scirpus pungens*), arrow arum (*Peltandra virginica*), water hemp (*Amaranthus cannabinus*), and dotted smartweed (*Polygonum punctatum*); and an upper tidal zone dominated by cattails (*Typha angustifolia* and *T. glauca*) and a diversity of other species including sensitive fern (*Onoclea sensibilis*), halberd-leaved tearthumb (*Polygonum arifolium*), arrowheads (*Sagittaria* spp.), river bulrush (*Scirpus fluviatilis*), sweet flag (*Acorus calamus*), smooth bur-marigold (*Bidens laevis*), orange jewelweed (*Impatiens capensis*), and rose-mallow (*Hibiscus moscheutos* var. *moscheutos*), as well as the invasive common reed and exotic purple loosestrife (*Lythrum salicaria*). Shrubs include knob-styled dogwood (*Cornus amomum*), buttonbush (*Cephalanthus occidentalis*), and swamp rose (*Rosa palustris*).

Ecological Significance

Galloway Township supports diverse habitat complexes including large areas of New Jersey Pinelands habitat including large, contiguous, undeveloped forest and wetlands that are rare on the Atlantic Coastal Plain of the Mid-Atlantic region. These areas provide habitat for a mosaic of globally rare upland and wetland communities and species found here is of national significance. The Pineland habitat in Galloway Township supports a number of endemic plant and animal species, several glacial relict species, and a few northern and numerous southern species that reach their geographical Coastal Plain limits. Galloway Township also supports a productive estuary with a high diversity of aquatic and terrestrial habitats and species, especially marine and estuarine fisheries populations, colonial nesting waterbird colonies on the salt marsh islands, migrating and wintering waterfowl, rare brackish and freshwater tidal wetland communities, plants, and invertebrates. There are 118 species of special emphasis in the Galloway Township, incorporating 75 species of birds and 21 species of fish, and including the following federally and state-listed species

Federally listed threatened

piping plover (*Charadrius melodus*)
Knieskern's beaked-rush (*Rhynchospora knieskernii*)

Federal candidate

bog asphodel (*Narthecium americanum*)
red knot (*Calidris canutus*)
Hirst's panic grass (*Panicum hirstii*)

Federally delisted

bald eagle (*Haliaeetus leucocephalus*)
peregrine falcon (*Falco peregrinus*)

Federal species of concern⁽¹⁾

rare skipper (*Problema bulenta*)
northern pine snake (*Pituophis m. melanoleucus*)
cerulean warbler (*Dendroica cerulea*)
northern diamondback terrapin (*Malaclemys t. terrapin*)
variable sedge (*Carex polymorpha*)
precious underwing (*Catocola p. pretiosa*)
New Jersey rush (*Juncus caesariensis*)
pine barren boneset (*Eupatorium resinosum*)

State-listed endangered

eastern tiger salamander (*Ambystoma t. tigrinum*)
pied-billed grebe (*Podilymbus podiceps*)
Cooper's hawk (*Accipiter cooperii*)

red-shouldered hawk (*Buteo lineatus*)
upland sandpiper (*Bartramia longicauda*)
least tern (*Sterna antillarum*)
northern harrier (*Circus cyaneus*)
black skimmer (*Rhynchops niger*)
vesper sparrow (*Pooecetes gramineus*)
quill-leaf arrowhead (*Sagittaria teres*)
coast flatsedge (*Cyperus polystachyos* var. *taxensis*)
Virginia thistle (*Cirsium virginianum*)
small-headed beaked-rush (*Rhynchospora microcephala*)

State-listed threatened

osprey (*Pandion haliaetus*)
yellow-crowned night-heron (*Nyctanassa violacea*)
wood turtle (*Clemmys insculpta*)
American bittern (*Botaurus lentiginosus*)
barred owl (*Strix varia*)
red-headed woodpecker (*Melanerpes erythrocephalus*)
grasshopper sparrow (*Ammodramus savannarum*)
bobolink (*Dolichonyx oryzivorus*)
great blue heron (*Ardea herodias*)

Fish

Fish and invertebrate species abundance and distribution in the Mullica River are similar to those of the other New Jersey estuarine rivers. Finfish make up an important component of the bay's ecosystem. The bay provides an important nursery area for bluefish, weakfish, menhaden, and spot (*Leiostomas xanthurus*), as well as spawning habitat for winter spawners such as sandlance (*Ammodytes americanus*) and winter flounder and summer spawners like bay anchovy (*Anchoa mitchilli*), silversides (*Menidia* spp.), gobies (*Gobiosoma* spp.), wrasses (*Labridae* spp.), and northern pipefish (*Syngnathus fuscus*). Fisheries investigations were conducted in the 1970's by the New Jersey Department of Environmental Protection to determine the fishery composition and life stages of estuarine fish using this specific bay. Sixty-six species were caught during these studies and, as in the Barnegat system, the catches were dominated by forage species, with bay anchovy and Atlantic silverside (*Menidia menidia*) being very abundant. The top ranked fish by their relative abundance were: bay anchovy, Atlantic silverside, silver perch (*Bairdiella chrysoura*), alewife (*Alosa pseudoharengus*), striped killifish (*Fundulus majalis*), sea herring (*Clupea harengus*), white perch (*Morone americana*), northern puffer (*Sphoeroides maculatus*), oyster toadfish (*Opsanus tau*), and striped anchovy (*Anchoa hepsetus*). Commercial fisheries activities include the harvest of northern quahog (*Mercenaria mercenaria*), blue crab (*Callinectes sapidus*), white perch, winter flounder, and American eel (*Anguilla rostrata*). The bay is an important spawning and nursery area for blue crab.

The Mullica River and larger streams in Galloway Township support golden shiner (*Notemigonus crysoleucas*), spottail shiner (*Notropis hudsonius*), white sucker (*Catostomus commersoni*), white catfish (*Ictalurus catus*), banded killifish (*Fundulus diaphanus*),

mummichog (*Fundulus heteroclitus*), fourspine stickleback (*Apeltes quadracus*), threespine stickleback (*Gasterosteus aculeatus*), white perch, pumpkinseed (*Lepomis gibbosus*), and yellow perch (*Perca flavescens*). The presence of golden shiner, yellow perch, and pumpkinseed generally indicate human intervention, especially in the impoundments, as a result of stocking programs for small game fish and forage for larger predatory fish. Anadromous fish, including blueback herring (*Alosa aestivalis*), alewife, and striped bass (*Morone saxatilis*), spawn in streams and tributaries of the Mullica River; the estuary serves as the major thoroughfare in the spring to the upriver sections and as the nursery area for newly-hatched fish. Hickory shad (*Alosa mediocris*), another anadromous species, is present, as is the catadromous American eel. American shad (*Alosa sapidissima*) once spawned in the river, but is no longer found in the drainage.

Pristine headwater streams in the Galloway Township support a unique assemblage of fish that are, for the most part, acid-tolerant species and are an important part of the region's biodiversity. Restricted species include banded sunfish (*Enneacanthus obesus*), yellow bullhead (*Ictalurus natalis*), pirate perch (*Aphredoderus sayanus*), blackbanded sunfish (*Enneacanthus chaetodon*), mud sunfish (*Acantharchus pomotis*), and swamp darter (*Etheostoma fusiforme*). Species that are widespread in the Galloway Township streams are American eel (*Anguilla rostrata*), eastern mudminnow (*Umbra pygmaea*), redfin pickerel (*Esox americanus*), chain pickerel (*Esox niger*), creek chubsucker (*Erimyzon oblongus*), tadpole madtom (*Noturus gyrinus*), bluespotted sunfish (*Enneacanthus gloriosus*), and tessellated darter (*Etheostoma olmstedii*).

Human-made impoundments are common in Galloway Township and the majority of stream fishes living in the quiet vegetated waters are well adapted to these artificial lakes, mill ponds, and cranberry bogs. Swamp darter, golden shiner, pumpkinseed, and yellow perch are common. A peripheral species, the redbreasted sunfish (*Lepomis auritus*), is present, and several non-native species are stocked for angling including bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), and black crappie (*Pomoxis nigromaculatus*); these latter species are well established throughout New Jersey. Other fish that may have been stocked include the redear sunfish (*Lepomis microlophus*), flathead minnow (*Pimephales promelas*), black bullhead (*Ictalurus melas*), channel catfish (*Ictalurus punctatus*), goldfish (*Carassius auratus*), and carp (*Cyprinus carpio*).

Amphibians and Reptiles

Southern New Jersey, including Galloway Township, has 26 species of amphibians and 34 species of reptiles, an unusually diverse herpetofauna. One of the reasons for this diversity is the large number of species at the limits of their ranges, especially southern Coastal Plain species such as corn snake. Characteristic Pinelands amphibians include pine barrens treefrog, southern leopard frog (*Rana utricularia*), and carpenter frog (*Rana virgatipes*). Many amphibian species are unable to establish viable populations in undisturbed areas of Pinelands habitat, probably due to the low pH of the surface waters. Wood turtle occurs at the fringes of the Galloway Township, along the Inner Coastal Plain. Northern diamondback terrapin occur throughout the New Jersey backbarrier estuarine system, including the Mullica River, and likely nest on available sandy uplands adjacent to salt marshes and tidal creeks.

Birds

There are about 75 species of birds breeding in the Galloway Township. Abundant birds in the uplands and lowlands of Galloway Township include rufous-sided towhee (*Pipilo erythrophthalmus*) in areas of scrubby undergrowth, and gray catbird (*Dumetella carolinensis*) which prefers to nest in dense thickets near water. Oak-pine woodlands support insectivorous vireos and flycatchers such as red-eyed vireo (*Vireo olivaceus*) and warblers such as black-and-white warbler (*Mniotilta varia*) and ovenbird (*Seiurus aurocapillus*). Pine and prairie warblers (*Dendroica pinus* and *D. discolor*) nest in pine-oak forests, with pine warbler preferring tall pines and prairie warbler preferring the more open scrubby areas. Riverine lowland areas support feeding and nesting by a variety of waterbirds and waterfowl such as green heron (*Butorides virescens*) and wood duck (*Aix sponsa*). Cedar swamps support insectivores such as eastern wood pewee (*Contopus virens*), wood thrush (*Hylocichla mustelina*), and yellow warbler (*Dendroica petechia*). Mature pine forests support the greatest diversity of breeding birds, with fewer species in mature oak forests and in pine plains communities. Barred owl breed in lowlands in Galloway Township including forested wetlands of Mattix Run. Pairs of bald eagles nest in Galloway Township and along the Mullica River, and the tidal rivers adjacent to Galloway Township also appear to be important wintering areas for the eagle.

The coastal salt, brackish, and freshwater marshes in the Mullica River are extremely important to waterfowl, raptors, wading birds, and shorebirds. Small numbers of colonial nesting waterbirds, mostly common tern (*Sterna hirundo*), with lesser numbers of black skimmer, laughing gull (*Larus atricilla*), herring gull (*L. argentatus*), and great black-backed gull (*L. marinus*), nest on the salt marshes and beach bars within Galloway Township. Piping plover have nested on either side of Little Egg Inlet at Holgate and Little Beach Island. A variety of colonial waterbirds also nest and forage in Galloway Township including great egret (*Casmerodius albus*), cattle egret (*Bubulcus ibis*), black-crowned night-heron (*Nycticorax nycticorax*), and glossy ibis (*Plegadis falcinellus*). Yellow-crowned night-heron also occasionally nest in the area. Other marsh-nesting birds include clapper rails (*Rallus longirostris*), which nest throughout the tidal marshes, and sora (*Porzana carolina*), Virginia rail (*Rallus limicola*), and marsh wren (*Cistothorus palustris*), which breed in the brackish and freshwater tidal marshes along the Mullica River.

Raptors utilize the tidal marshes for nesting and for foraging throughout the year. Osprey nest on platforms in numerous locations throughout the salt marshes of Galloway Township. Northern harriers nest and feed in the salt and brackish marshes. Bald eagle have recently begun to nest along the Mullica River and roost and forage throughout the year in the tidal portions of the Mullica River. Other wintering raptors foraging in the marshes include merlin (*Falco columbarius*) and short-eared owl (*Asio flammeus*).

Significant concentrations of migrating and wintering waterfowl occur in the Mullica River, with an average of over 12,000 waterfowl counted on midwinter aerial surveys. The most abundant species observed in the estuary are, in descending order, American black duck (*Anas rubripes*), brant (*Branta bernicla*), greater and lesser scaup (*Aythya marila* and *A. affinis*), mallard (*Anas platyrhynchos*), and bufflehead (*Bucephala albeola*), with lesser numbers of tundra swan (*Cygnus colombianus*), Canada goose (*Branta canadensis*), red-breasted merganser (*Mergus*

serrator), common merganser (*M. merganser*), hooded merganser (*Lophodytes cucullatus*), common goldeneye (*Bucephala clangula*), oldsquaw (*Clangula hyemalis*), American wigeon (*Anas americana*), northern pintail (*Anas acuta*), canvasback (*Aythya valisineria*), and green-winged teal (*Anas crecca*). Dabbling ducks and bufflehead are fairly evenly distributed along the shorelines and tidal creeks of the estuary, while diving ducks occur mostly in the more open water areas of Great Bay and sea ducks occur near the inlet. Little Egg Inlet has concentrations of migrating scoters and other seabirds during fall migration, and flocks of oldsquaw in fall and winter. The marine waters of the inlet are an important concentration area for many species of waterfowl during harsh winters when other areas freeze up. Breeding waterfowl in the estuary include American black duck, gadwall (*Anas strepera*), mallard, and Canada goose. The unditched salt marshes in this estuary provide an important larval insect food source for newly hatched-out ducklings, particularly American black duck. The Mullica River is one of the few locations in the state where American black duck breeds in freshwater marshes.

The Atlantic coastal corridor of New Jersey is an important migratory corridor for shorebirds, passerines, waterfowl, and raptors. Shorebirds feed on the sandflats and mudflats of Great Bay, Little Bay, and Reeds Bay, and roost and forage on adjacent salt marshes.

Mammals

Thirty-four species of native mammals are known to reside in the Galloway Township, and four additional species of bats are found during migration. Mammal species include common mammals such as shrews (*Sorex* spp.), cottontail rabbit (*Sylvilagus* spp.), raccoon (*Procyon lotor*), and gray squirrel (*Sciurus carolinensis*). Less common species include river otter (*Lutra canadensis*) and black bear (*Ursus americanus*).

SEWER INFRASTRUCTURE



Moss Mill Road Sewer Pump Station

In 2008 the NJDEP adopted new Water Quality Management Planning Rules (NJAC 7:15 et seq.) which required designated Water Quality Management Planning Agencies throughout the State to adopt new Wastewater Management Plans (WMP). The Atlantic County Board of Chosen Freeholders is the designated Water Quality Management Planning Agency for Atlantic County. As part of this process the Township of Galloway has been working closely with Atlantic County to update our Municipal Wastewater Management Plan and identify appropriate Sewer Service Areas (SSA). This process is ongoing and the proposed sewer service areas are shown on the Environmental Resource Inventory Map entitled Wastewater Management Plan Page 8 of 19.

The Township has proposed to maintain sewer service areas in existing growth areas. There are difference between the existing sewer service areas and those proposed for amendment by NJDEP. The main area of concern that remains in terms of providing sewer service to existing properties is along Route 9. This area and several others are shown for further discussion with NJDEP. They have been identified as potential sewer service areas on a Planned Growth and Infrastructure Map as recommended by NJDEP. Additional information can be found through Atlantic County under the Wastewater Management Section at http://www.aclink.org/Planning/MainPages/Site_plan.asp#WastewaterManagement

Within sewer areas are pump stations that assist with the collection of wastewater. The Township has areas with existing pump stations, proposed pump stations and planned pump stations. These are identified on the Environmental Resource Inventory Map entitled Pump Station Areas, Page 9 of 19.

BROWNFIELDS – KNOWN CONTAMINATED SITES



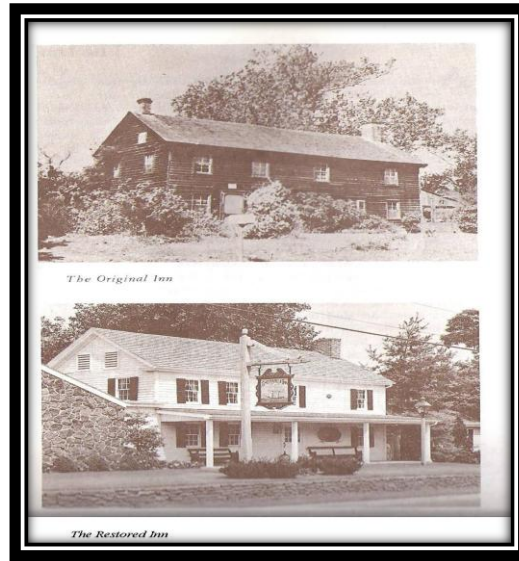
WWW.NJBROWNFIELDSPROPERTIES.COM

The NJDEP defines a brownfield as "any former or current commercial or industrial site that is currently vacant or underutilized and on which there has been, or there is suspected to have been, a discharge of a contaminant." These sites are regulated under the NJ Department of Environmental Protection, Site Remediation Program and a list is maintained. Refer to New Jersey Known Contaminated Sites at <http://www.nj.gov/dep/srp/kcsnj/>.

There are 38 Active known contaminated sites (KCSNJ) in Galloway Township, with an additional site that has been identified as pending. The number of closed KCSNJ in Galloway is extensive with 67 sites.

Through the State's Smart Growth and Brownfield Redevelopment, New Jersey has the opportunity to preserve open space and practice sustainable growth by utilizing brownfields. Additional information can be found at <http://www.nj.gov/dep/srp/brownfields/>.

HISTORIC SITES



The Historic Smithville Inn

Historic properties and districts as identified by the New Jersey or National Register of Historic Places are shown on the Environmental Resource Inventory Map entitled Historic Properties, Page 19 of 19. These areas have either been determined as eligible for inclusion in the State or National Historic Preservation process or have been identified through a cultural resource inventory. In addition to these areas and sites the Township has identified historic buildings and areas that have local significance to the development of Galloway Township. These areas have been included on the Historic Properties Map for reference.

There are many parts of the Township that have historical significance as to how the area developed over the years. It is impossible to address Galloway's entire history in this document and it is therefore recommended that the Township complete a Historic Plan Element of the Master Plan in order to provide a comprehensive understanding of the Township's beginnings. See the Brief History of Smithville below as an example of the unique beginnings of Galloway Township.

BRIEF HISTORY OF SMITHVILLE

Smithville is a village of Galloway that grew up along an old Indian trail. This Indian trail became a stagecoach route and later a highway. The area was a natural attraction for both the Lenni-Lenape Indians and early settlers, with proximity to Great Bay, The Little Egg Harbor (Mullica) River, salt and fresh water marshes, and upland forests.

In 1787, James Baremore built a structure on his "Baremore Plantation" as a residence and a tavern. The place became popular as an Inn to serve stagecoach travelers from Leeds Point to Cooper's Ferry (Camden). The name Smithville came from Isaac Smith, son-in law of James Baremore, and son of Daniel Smith, who originally owned the land as a farm. This Smithville Inn was a hub of a diverse community of farmers, seafarers, baymen, craftsmen, hunters and shopkeepers; of many nationalities, religions and political backgrounds. Early Township meetings and elections were held there between 1824 and 1879, until an official Township Hall was built.

In 1857 Henry Smith, grandson of Isaac Smith, disassembled the original Inn, all but its' inner brick core and a couple adjacent rooms. He transported the materials by small boats over the bays to be re-assembled as a tavern in Brigantine, which at that time was still part of Galloway. Smithville Inn was rebuilt to serve more efficiently and continued in operation.

The advent of the railroad into South Jersey in the latter 1800's did not help Smithville to maintain its' status as the railroad passed south through Oceanville, and the seashore towns like Atlantic City grew and flourished. Soon after, the automobile and highway travel made Smithville less of a destination and hub. The Inn and village all but disappeared into history.

In near total disrepair, the old Inn and grounds were purchased in 1949 by Fred and Ethel Noyes. A new era of restoration began as the couple brought in historic buildings from all over South Jersey. Each building had a unique story to preserve, and together they made up an atmosphere of history and commerce from the days of early South Jersey. An expanded Smithville Inn, the Inn at Quail Hill and Fred and Ethel's Lantern Light Inn and Tavern became popular dining destinations. At one time the Smithville airport and outdoor theater brought even more tourists and widespread fame to the area.

As ownership changed, some features were changed, abandoned or improved upon; but the central theme remained the same for what has become known internationally as the "Historic Towne of Smithville". More residential and commercial development now surround this attraction, and the Greater Smithville area has remained a vital and substantial part of the fabric of Galloway.

RECREATION AND OPEN SPACE



Patriot Lake: A drainage area turned into Galloway's premier passive-recreational park

The Township of Galloway completed an Open Space and Recreation Master Plan in 2000. Throughout the Township there are various active and passive recreation facilities. The Municipal Complex is adjacent to Patriot Lake and Imagination Station which offers both playground equipment for younger children and a pier and walkway surrounding the Lake. The Township has active recreation fields for soccer, softball, baseball and football at Tartaglio and Gabriel Fields on Duerer Street; at Wrangleboro Recreation Park on Wrangleboro Road; and at Veteran's Memorial Park on Route 9. There is a continuing need for active recreation facilities to serve the growing population.

The following local parks and open space areas are found throughout the Township:

1. Pine Needle Park – County Boulevard in South Egg Harbor, acquired in 1957.
2. Galloway Park – Open Space on Duerer Street, acquired in 1977.
3. Tartaglio Park – Active Recreation Fields on Duerer Street, acquired in 2005.
4. Gabriel Field – Active Recreation Fields on Duerer Street and Zurich Avenue, acquired in 1960 and expanded in 1992.
5. Wrangleboro Park – Active Recreation Fields and Playground on Wrangleboro Road, acquired in 2005.
6. Pinehurst East – Open Space throughout the Pinehurst Area, acquired beginning in 2005.
7. Imagination Station and Patriot Lake- Playground and Passive Open Space on Jimmie Leeds Road, acquired in 1986 and 1994(Imagination Station).
8. Glenn By The Bay/Veteran's Park – Active and Passive Recreation on Route 9, acquired beginning in 1966 and expanded through 2002.
9. Atlantic County Park – Open Space located on Jimmie Leeds Road, acquired in 1994.



Edwin B. Forsythe National Wildlife Welcome Center
Photo Credit: Dave Blood

Scattered around the Township are larger parcels that are owned by US Fish and Wildlife Services, NJDEP Fish, Game and Wildlife, NJ Natural Lands Trust and Atlantic County. The US Fish and Wildlife Service owns and maintains the Edwin B. Forsythe National Wildlife Refuge, a 47,000-acre preserve in Southern New Jersey Coastal areas. The main access to the public use facilities of the Refuge is located off of Route 9 in Galloway Township. This area includes an eight-mile wildlife drive and nature trails. The Edwin B. Forsythe National Wildlife Refuge is the "go to " place for bird watching. The Refuge is located in one of the Atlantic Flyway's most active flight paths. In addition to the best birding in the East, it also offers other recreational activities such as hunting, fishing, wildlife observation, photography and environmental education and interpretation.

More information about the Refuge can be found at
<http://www.fws.gov/northeast/forsythe/index.html>.

AGRICULTURE AND FARMLAND PRESERVATION



Township Community Garden at Municipal Complex

The Township of Galloway is part of Atlantic County's Comprehensive Farmland Preservation Plan. The County plan has been prepared in accordance with the State Agriculture Development Committee (SADC) and allows for the County to become eligible for cost sharing grants for farmland preservation efforts. As part of the plan, the County identified Agriculture Development Area's where agriculture is a preferred, but not necessarily exclusive, land use. This area is consistent with the Pinelands Agriculture Production zoning district and also includes properties on Duerer Street in the Rural Development District.

The Township of Galloway recognizes the importance of agriculture to our community. As of 2011 over 3,100 acres were farmland assessed throughout the Township. Farmland consists of blueberry crops, food production, tree farms, and agriculture entertainment facilities such as corn mazes, pick your own produce, hayrides and other similar facilities. The Township of Galloway is also proud to be the home to a Community Supported Agriculture facility. Sea Salt CSA at B & B Farms is a small family farm that grows diverse crops on about 15 acres. They are entering their third season as a CSA and in 2012 anticipate 75 members.

In 2008 the Township created a Community Garden on the municipal complex property. The Community Garden has been a tremendous success. There are 24 4'x8' raised beds and 6 2'x6' handicap accessible beds. Residents rent the beds to grow their own vegetables for the season. This project was made possible through a grant from the Municipal Land Use Center of the College of NJ through the Geraldine R. Dodge Foundation and many, many partners and volunteers.

RENEWABLE ENERGY



Energy Efficient Organic Farm
1st wind turbine in Galloway
Solar electric and hot water arrays
Geothermal heating & cooling

In 2008 the Township adopted an ordinance regulating solar and wind small energy systems as accessory uses throughout the Township. There are numerous properties that have constructed solar and/or wind energy systems to offset energy costs. Some of the leading renewable energy projects in the community include the following:

The Richard Stockton College of New Jersey completed construction of a new Campus Center in 2011. The facility was built to LEED standard and uses 25% less energy than standard construction and 40% less water. Additional green features include water efficient landscaping, rain gardens of indigenous and adapted plant species, use of building materials with recycled content and a sophisticated energy management system for heating, cooling, ventilation and lighting.



One of the College's first renewable energy projects is the "F wing" expansion completed in 2006. The expansion was LEED certified and includes a 26kW solar array located on the roof.



Richard Stockton College has also included the use of solar over their surface parking lots solar array. The first was completed in 2009 and has a generating capacity of 1.2 MegaWatts. The cumulative avoided carbon dioxide production (to August, 2010) was 3,346,600 pounds. An additional benefit is the use of the electricity right where it is generated (avoiding "line loss" during transmission); saving about 114,800 pounds of carbon dioxide annually. The College is continuing the effort of installing solar over surface parking areas.



The Unitarian Universalist Congregation building, located on the corner of Liebig St. & Pomona Rd., was built to LEED specifications. Features include: Photovoltaic panels on the roof, an open-loop Geothermal heat pump system, Energy Star rated windows, lighting fixtures and appliances, recycled materials throughout and formaldehyde-free insulation and cabinetry. The grounds are abundant with native plants.



The Township should continue to promote the use of renewable energy resources. An ordinance should be considered to allow solar and wind energy systems as a principal use on certain parcels in the Township. The Township should also consider adopting a Green Buildings and Environmental Sustainability Plan Element of the Master Plan to address the continuing goal of making Galloway a more Sustainable Community.

CONCLUSION



Harrier Creek over Shorebirds
Photo Credit: John Orlich

An Environmental Resource Inventory is an important planning document for any community. It is used to identify the important natural, cultural and historical assets. It can be used to guide growth and protect an area's natural resources and incorporate improved design standards for future development. This document is not intended as a static source of information. As new information or regulations become available both the Environmental Commission and Planning Board should update the report. The information in this report should be utilized to prepare a Farmland Preservation Element, Conservation Element and Historic Preservation Element to the Master Plan.