



CONSERVATION PLAN ELEMENT,
ENVIRONMENTAL RESOURCES and
RECREATION INVENTORY

OCEAN CITY, NEW JERSEY

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By the Ocean City Planning Board

**Developed by the
Ocean City Environmental Commission and the
Ocean City Department of Planning and Engineering**

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1.0 CONSERVATION PLAN ELEMENT

1.1 PURPOSE

The New Jersey Municipal Land Use Law (MLUL) authorizes municipal planning boards to adopt a Conservation Plan as an element of the local master plan. Under N.J.S.A. 40:55D-28(b)(8), a master plan may include a Conservation Plan Element providing for the preservation, conservation and utilization of natural resources and analyzing systematically the impact of each other component and element of the master plan on the present and future preservation, conservation and utilization of those resources.

1.1.1 OBJECTIVES, PRINCIPLES, GOALS

Many positive impacts will result from prudent conservation and utilization of natural resources, including flood control, water quality improvements, oxygen replenishment, soil erosion control, micro-climactic benefits, and increased opportunity for recreation. Inappropriate land development can result in adverse impacts upon these aspects of life; proper conservation and utilization of natural resources are important factors to maintain a desirable quality of life and character of the community.

The Ocean City Master Plan, adopted in 1988, contains a number of Objectives that refer directly or indirectly to the preservation, conservation and utilization of natural resources. They are:

- To secure safety from fire, flood, panic and other natural and man-made disasters.
- To provide adequate light, air and open space.
- To promote the establishment of appropriate population densities that will contribute to the well being of persons, neighborhoods and preservation of the environment.
- To provide for the maintenance of Ocean City's resort character and posture as a recreation resource of the State and Eastern United States including protection of beach and bay resources.
- To promote the conservation of open space through protection of wetlands, stream corridors and valuable natural resources and prevent degradation of the environment.
- To encourage the preservation and restoration of historically significant buildings and sites within the City in order to maintain the heritage of Ocean City for enjoyment of future generations.
- To encourage energy efficient subdivision and site designs and provisions for renewable energy resources including passive solar, wind and/or recycled heat.

- To encourage the efficient management of storm water runoff through the development of appropriate guidelines which will prevent future drainage problems and provide environmentally sound land use planning.

Relevant principles in the 1988 Master Plan include:

- Protection of natural and environmental resources including floodplains, wetlands, marsh and aquifer recharge areas, and areas suitable for public and quasi-public recreational activities.

The Ocean City Land Use Plan adopted in 2001 contains three objectives that refer to the preservation, conservation and utilization of natural resources. They are:

- To promote public acquisition and enhancement of open space and recreation areas;
- To consider and evaluate innovative development proposals which would enhance and protect environmental features, minimize energy usage and encourage development densities consistent with existing patterns and types of development.
- Locating public, commercial, service and professional office uses in locations which are suitable for their use environmentally, economically and geographically and are compatible with existing uses, public facilities, roadways and natural features.

The 2006 Master Plan Re-Examination identified the need to adopt a Conservation Plan Element.

Goal: The overall goal of the Conservation Element is to preserve and maintain the ecological, historic, visual, recreational and scenic resources of the City; preserve the environment; avoid or minimize detrimental impacts of land development upon natural and historic resources; and enhance the overall quality of life for City residents and visitors.

1.1.2 CONSERVATION AND ENVIRONMENTAL ACTIVITIES IN OCEAN CITY

The City of Ocean City has several appointed boards that are concerned with conservation. Their work is described as follows:

1.1.2.1 Environmental Commission. The purpose of the Environmental Commission is to provide for the protection, development or use of natural resources, including water resources located within the City of Ocean City. The Environmental Commission was created by ordinance in 2006.

The Environmental Commission has the authority to conduct research into the use and possible use of open land, including beaches, bays, inlets and ocean, of the City of Ocean City and coordinate the activities of unofficial bodies organized for similar purposes, and may advertise,

prepare, print and distribute booklets, maps, charts, plans and pamphlets which in its judgment it deems necessary for its purpose.

In addition, the Environmental Commission receives and reviews applications before the Planning Board and the Zoning Board in accordance with N.J.S.A. 40:55D-27(b).

The Environmental Commission assumed the functions of the Coastal Conservation Commission, an appointed commission formed in the 1970s that studied beach-related erosion and pumping, and also was concerned about development on the waterfront and new approaches to beach protection.

1.1.2.2 The Shade Tree Committee, an appointed commission, is concerned with trees in the public areas of the city, including the curb strips. It develops and oversees the Community Forestry Management Plan and holds shade tree sales. Additionally, the Environmental Commission receives and reviews applications before the Planning Board and the Zoning Board in accordance with N.J.S.A. 40:55D-27(b). The group meets monthly.

1.1.2.3 The Historic Preservation Commission, an appointed commission, administers the Historic Preservation Ordinance for the Certified Local Government district. The Historic Preservation Ordinance and Commission were established in 1991. The Commission gives advice on historic preservation, hears requests for permits to do work on properties of historic significance in the historic district, and helps to ensure compliance. Additionally, the Commission hears and carefully considers demolition requests, which are, in some cases, granted. The group meets monthly.

1.1.3 RECOMMENDED POLICIES

This Conservation Plan Element for the City of Ocean City as contained in this document is based on the above-enunciated Objectives, Principles, and Goals. With the proposed Zoning Map dated June 2009 and the attached Environmental Resources Inventory, the Conservation Plan Element forms the basis for policies to guide conservation in Ocean City in the years to come.

RECOMMENDED POLICIES

1. RECOMMENDATION: ESTABLISH COASTAL WETLANDS/BAY ISLANDS AS A ZONING DISTRICT, AND PROHIBIT DEVELOPMENT OF ANY KIND, except structures such as public access walkways and structures for wildlife observation. (2.1.5)

2. RECOMMENDATION: CONTINUE TO IMPLEMENT MEASURES TO ELEVATE STREETS TO PREPARE FOR RISING SEA LEVEL. (2.1.6)

3. RECOMMENDATION: USE THE AT-GRADE ELEVATION DATA AS A GIS LAYER FOR FLOOD PREDICTIONS.(2.1.6)

4. RECOMMENDATION: SUPPORT AQUIFER-WIDE AND REGIONAL PLANNING SO THAT THE WATER USAGE LEVEL DOES NOT EXCEED CURRENT LEVELS TO MAINTAIN POTABLE WATER AS LONG AS POSSIBLE.(2.2.2)

5. RECOMMENDATION: ENCOURAGE LOW-WATER OR NATIVE PLANTINGS IN NEW DEVELOPMENT.(2.2.2)

6. RECOMMENDATION: IDENTIFY AND LIST LARGE MATURE TREES ON PRIVATE PROPERTIES.(2.4.7)

7. RECOMMENDATION: CONSIDER AN INITIATIVE THAT ENCOURAGES PLANTINGS THAT PROVIDE HABITAT TO MIGRATING BIRDS AND BUTTERFLIES.(2.4.7)

8. RECOMMENDATION: IDENTIFY AND PROTECT LARGE MATURE TREES ON PUBLIC PROPERTIES. (2.4.8)

9. RECOMMENDATION: REQUIRE 3' WIDE MINIMUM VEGETATED SIDEWALK STRIPS IN ALL RESIDENTIAL AREAS SO THAT TREES ARE BETTER ABLE TO SURVIVE.(2.4.8)

10. RECOMMENDATION: PREPARE TO PURCHASE EQUIPMENT TO COLLECT LEAVES FROM GUTTERS IN THE FALL. (2.4.8)

11. RECOMMENDATION: COMPLETE OPEN SPACE PLAN ELEMENT AND MAP OPEN SPACE INVENTORY ON A GIS LAYER (2.6.3)

12. RECOMMENDATION: UPDATE THE HISTORIC PRESERVATION PLAN ELEMENT OF THE MASTER PLAN. (2.7.2)

13. RECOMMENDATION: DO GIS MAPPING OF HISTORIC DISTRICTS, DESIGNATING KEY, CONTRIBUTING AND NON-CONTRIBUTING SITES. (2.7.2)

14. RECOMMENDATION: UPDATE THE COMMUNITY FACILITIES PLAN ELEMENT OF THE MASTER PLAN. (2.7.5)

15. RECOMMENDATION: MAKE INFORMATION ON ECOTOURISM MORE READILY AVAILABLE THROUGH THE WEBSITE, CHANNEL 2, INFORMATIONAL BROCHURES AND WORKSHOPS.(2.5.7)

16. RECOMMENDATION: ESTABLISH TRAILS, WITH MILE MARKERS IDENTIFYING NATURAL RESOURCES SUCH AS NATIVE PLANTS AND WILDLIFE.(2.5.7)

17. RECOMMENDATION: DEVELOP A RECYCLING PLAN ELEMENT OF THE MASTER PLAN PER NJSA 40:55 (2.8.1)

18. RECOMMENDATION: PROMOTE THE USE OF ALTERNATIVE POWER SUCH AS SOLAR POWER. (2.9.2)

1.2 INTRODUCTION TO ENVIRONMENTAL RESOURCES INVENTORY

Ocean City owes its existence and livelihood to its natural resources: sand, ocean water and sun. The establishment of a city on an uninhabited barrier island was a successful enterprise because of the desire for a recreation area that was close to Philadelphia and inland New Jersey. Over the 125 years since the city's founding as a religious retreat in 1879, the barrier island was converted from sand, wetlands and maritime forest to a small city and then to a resort city of more than 20,000 dwelling units. "Marsh" areas were regularly filled with dredge spoils from waterfront areas, creating more land for development.

Since that time the approach to development has changed in the United States. Environmental concerns led to the establishment of federal Coastal Zone Regulations in the 1970s that halted the conversion of coastal salt water wetlands to uplands. In the 1980s, Freshwater Wetlands Regulations put an end to filling inland wetlands indiscriminately.

After years of local attempts to replenish the constantly-eroding areas of the beach, an agreement was reached with the State of New Jersey and the federal government in the late 1980s to renourish the beaches on a regular basis for 50 years from 1992. As a result of these regular renourishments, the sand, so vital to Ocean City's existence, has returned. The replenished beaches have formed new habitat for endangered beach nesting birds that had earlier left the shores. Other positive steps have been taken that are proposed in the 1988 Master Plan. New understanding of sources of water pollution and flooding are leading to improved tidal water quality. A sense of history has developed and the local Historic District has put an end to indiscriminate removal of historic properties within its boundaries. Properties have been purchased by the City for recreation and open space.

Since 1993 the only "new" property available for development in Ocean City has been subdivided lots. Still, development continues and the need exists for preservation of the natural and historic resources left on the island.

As of 2009, three official groups are active in conservation in Ocean City. The Environmental Commission, an appointed advisory board. The Shade Tree Committee, also an appointed specially-trained advisory board, has jurisdiction for trees on public lands, including the street rights-of-way, and monitors the Community Forestry Management Plan. The Historic Preservation Commission is the appointed board of the Historic Preservation District with wide-ranging powers in the district. For further discussion of this group, see 2.7.2. Other private groups monitor historic resources.

Environmental Initiatives by the municipality include:

In 2007, Ocean City signed the United States Mayor's Climate Protection Agreement. This encourages the development of an action plan that has as its goal the reduction of greenhouse gas emissions.

Solar Energy: The City has installed solar panels on five municipal buildings and has plans to add another municipal building and assist with installation on all three schools located within the City.

Hybrids and Biodiesel Fuel:

The City has purchased four Hybrid vehicles and will encourage each department to look first at alternative vehicles when applicable. Biodiesel fuel is used for all of the City's diesel fleet.

Parks and Bikeways:

The City will encourage the use of Recycled products and the expansion of Integrated Pest Management Plan (IPM) program at various parks. Several grants have been obtained to improve bike and pedestrian ways throughout the city to help reduce traffic congestion and promote healthy living. Bike information can be found on <http://www.bikeocnj.org>

Greening of City Buildings:

All city departments have been encouraged to educate their staff to help reduce electrical consumption by 10% and by recycling and conservation.

The City will look to retrofit its buildings with compact fluorescent bulbs, LED signage, thermostat controls, aerators, motion detectors, and Energy Star Appliances. Offices across the city are also working to become paperless.

Outdoor Greening:

The City will work with other agencies in retrofitting traffic signals with LED lenses, public lighting, and the use of solar signs. The Shade Tree Commission will continue to work with the City on tree plantings and tracking species.

Volunteers will work with the City on Beach and Bay service projects that will not only enhance the beauty on the barrier island but also promote its unspoiled natural resource.

Recycling:

A renewed campaign to help educate the public on the importance and the proper way to recycle has commenced. By using outreach programs in the school and in "public areas", residents, business owners and visitors will understand not only the environmental benefits but also the way it helps to control this budgetary expenditure.

2.0 THE ENVIRONMENTAL RESOURCES INVENTORY

The Environmental Resources Inventory sets forth the existence and extent of environmental resources in Ocean City today as defined in the Municipal Land Use Law. As a document separate from the Conservation Plan Element, it is designed to be reviewed and revised as needed. Where appropriate, recommendations are made for preserving, conserving and utilizing these resources in accordance with the Objectives of the Master Plan. In all instances, the Inventory forms a basis for evaluating development activity for the future.

An Existing Land Use Map was prepared in 2008 and contains delineation of wetlands.

2.1 GEOGRAPHY

2.1.1 LOCATION

The City of Ocean City is located on the northernmost and easternmost corner of Cape May County in New Jersey. The city occupies the entire 7-mile long Peck's Beach Island, a coastal barrier island with Corson's Inlet State Park at the southern end. Longitudes for the island are W 74° 33' and W 74° 39', while latitudes are N 39° 17' 30" and N 39° 12' 36". The municipality also includes a large portion of the Great Egg Harbor Bay and Intracoastal Waterway to the west, bay islands and coastal saltmarsh wetlands and the tidal waterways through them. The total municipal area including all land and water is 10.9 sq. miles, about 7,000 acres.

2.1.2 LAND USE

According to the 1988 Master Plan, approximately 2,578 acres or 37 percent of the incorporated area of Ocean City consists of water. Of the remaining 4,422 acres, 36.7% or 1,622 acres are coastal wetlands (see discussion of Wetlands following). The oceanfront beach outside the state park is about 260 acres. The remainder is developed primarily in a grid pattern with curvilinear streets in the north end Gardens area, mid-island Merion Park and south end Ocean City Homes areas, the two latter being filled areas.

Residential development predominates in single and duplex homes with neighborhood zoning implemented based on the 2001 Land Use Plan. Commercial development is located on Asbury Avenue between 6th and 14th Street, several blocks north and south of 9th Street, one block north and south of 34th Street, and along 55th Street. Seasonal commercial development is located at the boardwalk from 6th to 15th Streets. A hotel and motel zone parallels the boardwalk commercial zone.

2.1.3 BEACHFRONT

The beachfront runs the entire length of the east side of the island. The configuration of the shoreline has shifted over the years, reflecting the dynamic nature of the shore of a barrier island. The varying shorelines have been mapped and in 1991 the outline of the north end in different years was sketched by the former Coastal Conservation Commission.

The beachfront is backed by a stone sea wall in the far north end and in most areas by a bulkhead at varying elevations at or about 11' NGVD1929. South of 34th Street there are two or more bulkheads, with the most recent timber bulkhead with stone revetment having been put in place after the March 1962 storm. Eleven stone jetties are in place from the northern end of the island to 9th Street. A boardwalk at approximately elevation 14' NGVD stretches 2.5 miles from St. James Place south to 23rd Street.

In 1992, after years of eroding beaches and local efforts to renourish the beachfront using back bay dredging, the Federal Government, through the Army Corps of Engineers, and the State of New Jersey began a 50-year beach renourishment program on the beaches from the northernmost groin to 36th Street. The sand “borrow area” is a mile off the shore east of the Great Egg Harbor inlet. The North End has received funding and will be replenished in the Winter/Spring of 2010.

Easements and some city ownership of beach properties were obtained and a dune system was constructed from the Great Egg Harbor inlet to 59th Street, a distance of almost seven miles, starting in 1993. The official city-owned beach acreage as shown on the city tax maps is about 260 acres, but the actual size changes with the status of the beach renourishment projects. The dune system has grown from low lying sand piles with fencing in 1993 to well-vegetated, substantial height and width dunes in many areas. Access to the beach is through or over the dune system at every street end and at other locations between street ends in the area from 6th to 12th Street.

The littoral drift is usually from north to south on the East Coast. However, in the area from about 5th to 10th Streets in Ocean City, a “node” is evident, possibly because the underwater beach is steeper in that area. The sand erodes very quickly, building to both the north and the south, and is evident against the jetties in the area. Over the years various plans have been proposed to alleviate this erosion, but none has succeeded. Thus the beach erodes much more quickly in this area than in the rest of the renourishment area.

The beach is the backbone of the recreational and tourist economy in Ocean City as well as the protection for the development on the island. The on-going beach fill, a commitment by the city, the state and the federal government for 50 years from 1992, is key to the economy and lifestyle of Ocean City. With sea level rise measured at 14 inches over the past century at the Atlantic City water height monitor station #8534720, it can be expected that the beachfront will be more and more vulnerable to storm damage as the waves build on an ever-higher level of water. Pursuit of methods to reduce wave impact and therefore wave damage to the vulnerable renourished beach will allow the beach to function for years longer than might otherwise be expected.

RECOMMENDATION: OBTAIN OWNERSHIP OR EASEMENT RIGHTS FOR BEACH AND DUNE BUILDING AND MAINTENANCE FOR ALL PROPERTIES ON THE BEACH EAST OF THE BULKHEAD THAT ARE NOT YET IN CITY OWNERSHIP.

RECOMMENDATION: STUDY INNOVATIVE METHODS OF REDUCING WAVE DAMAGE TO THE BEACH DUE TO SEA LEVEL RISE.

2.1.4 BAYFRONT & HARBORS

The bay front, including a number of manmade lagoons in both private and city or state ownership, is bulkheaded from the north end of the island to 36th Street by the property owners.

The elevations of the bulkheads vary, allowing storm tide water to enter the city and produce flooding. A 1999 ordinance requires that the top of any new non-oceanfront bulkhead be at elevation 8.2' NGVD in order to prevent flooding in storms less than the 100-year storm and to prepare for rising sea level. All city street end bulkheads are built to this elevation.

The Intracoastal Waterway runs the length of the island and is maintained by dredging by the Army Corps of Engineers. The lagoons are maintained by dredging by the City of Ocean City in conjunction with the waterfront property owners and were last dredged in 2004-2005. The challenge of finding areas to collect and de-water dredge materials since the elimination of their use on the beach for beach fill has been met in several ways. The city has purchased a private spoils area in Block 3350, west of Roosevelt Boulevard, and also uses other private sites under contract. The northeast portion of the Route 52 causeway right-of-way has been used for dredge materials, and when the new causeway-bridge is complete, an area will continue to be available for materials. The Great Egg Harbor Inlet is not maintained by the Army Corps of Engineers since it is not considered "navigable".

Development along the bay front and lagoons is heavily residential, with private and public marina operations located on the bay at Tennessee Avenue, from 2nd to 9th Streets, at 10th Street, and at 34th Street. Most bay front and lagoon-front property owners have boat slips and docks. The use of the water is regulated by the State of New Jersey under the CAFRA regulations, including marina operations. The use of adjoining uplands is regulated by both CAFRA and local zoning, including the 2008 revisions to the Marine Harbor Village Zone allowing only commercial uses. The only publicly owned bay front access is at Bayside Center, 520 Bay Avenue; Tennessee Avenue boat launch and parking lot; under the bridge at 34th Street; and along the Route 52 causeway. Street ends are public and are used for fishing. All bay front street ends are publicly owned and open.

The City has applied for County Open Space and State Green Acres funding to purchase bay front property at 2nd Street and Bay Avenue.

2.1.5 WETLANDS & MARSHES

The western portion, bayside, of the island is coastal tidal wetlands cut by creeks and channels created by the Cape May County Mosquito Commission. A total of 1,210 acres of this coastal wetlands area, including the bay islands, are owned by the City of Ocean City. (see Fig. 2.6.1(a)) Several hundred more acres are owned by the State of New Jersey, and the remainder is in private hands. The property is subdivided on the tax map, but it is most likely unbuildable due to its wetland status. A few lots along West Avenue from 40th Street south are vacant wetlands lots, in private ownership, and are the subject of periodic efforts to get state permits to fill for development.

Freshwater wetland areas are scattered around the city, with the largest being the 16-acre city-owned Howard Stainton Wildlife Refuge, a wetlands mitigation site between 26th and 30th Streets for the associated residential development. This property was a part of a 1960s

residential development planned for filled lots that was stopped from further development by the Freshwater Wetlands Regulations in 1990. A wetlands mitigation site was required to be established as part of a court settlement so that the Stoeco Company could continue development of a portion of the remaining lots. The Refuge was determined to be functioning and was turned over the City in 2004 as part of a larger land transfer.

Single lots in Merion Park, which were filled and built in the 1960s, are undeveloped and may still be wetlands. With land at a premium, efforts to fill and build on these lots continue. State determination of wetland status is required.

The freshwater wetlands maps from NJDEP show that the city airport, golf course, and associated properties are filled wetlands and as such are subject to regulation by NJDEP. The City of Ocean City works with NJDEP to assure that changes to these properties are planned with the filled wetland status in mind. Coastal wetlands can be viewed at www.state.nj.us/dep/gis/newmapping.htm, click on I-Map NJ DEP and then launch I-Map. The layers are listed on the left side and the key is on the right. Select Landscape Project (emergent wetlands) to see the extent of wetlands.

The 2001 Land Use Element of the Master Plan and its associated zoning map do not delineate the coastal wetlands and bay islands as any zone. Although they probably cannot be developed under any wetlands rules, the lack of a designation makes it difficult to answer questions about lots that are mapped in the typical grid pattern of subdivision.

RECOMMENDATION: ESTABLISH COASTAL WETLANDS/BAY ISLANDS AS A ZONING DISTRICT, PERHAPS BY DEFINITION, AND PROHIBIT DEVELOPMENT OF ANY KIND.

2.1.6 LAND ELEVATIONS

Information on the at-grade elevations of the streets and properties in Ocean City has been gathered in various ways. A street-by-street survey of curb height elevations was done in the 1930s, and the information from that chart has been transferred to a computer program on a scanned tax map. The map is printed out on a large format and is available to view in City Hall. Elevations on the island range from Mean Sea Level of about 1.5'NGVD along the beach to 4'NGVD along Haven Avenue to about 11'NGVD, with the higher elevations occurring in the north end of the city and parallel to the beach in the areas where the original dune system was located. Elevations of the streets are low in some locations and street flooding occurs during high tides or heavy rainstorms due to a backup of tidal waters from the bay. Elevations of the curbs on almost all of Haven Avenue and Simpson Avenue and on the majority of West Avenue are lower than 6'NGVD. The height of a 10-year storm is calculated as being 6.2'NGVD and the 5-year storm as 5.7'NGVD; thus, the likelihood of bay water entering the streets is great in the lower areas. As sea level rises, the frequency of the higher-level storms will increase and the water will flood an increasing area.

A second set of information about at-grade elevations is being accumulated from Flood Elevation Certificates that come in with final building approvals and are collected by the Construction Office for the Community Rating System program of the National Flood Insurance Program. This information, which numbers in the thousands of records, is a lot-by-lot snapshot of topography and could be transferred to a GIS layer and used in conjunction with the curb height information for flood predictions.

RECOMMENDATION: CONTINUE TO WORK WITH DEVELOPERS TO RAISE PROPERTIES, SO THAT AS ROADS ARE RE-PAVED, THE ELEVATION CAN BE INCREASED.

RECOMMENDATION: USE THE AT-GRADE ELEVATION DATA AS A GIS LAYER FOR FLOOD PREDICTIONS.

2.1.7 SPECIAL FLOOD HAZARD AREA

Ocean City entered the National Flood Insurance Program in 1970, and the entire island has been determined to be in the Special Flood Hazard Area for the 100-year storm as determined in 1984 by the National Flood Insurance Program (NFIP) with an A-zone Base Flood Elevation (BFE) of either 9' or 10' NGVD and a V-zone BFE of 11-14' on the beach. All properties are required to be newly constructed or substantially repaired in accordance with NFIP rules in effect since 1970 and updated from time to time. The Construction Official is responsible for compliance with the NFIP rules.

A Repetitive Loss property is one that has had two flood losses of more than \$1,000 within a 10-year period. With 480 repetitive flood loss properties, most of which were built prior to 1970, the city has participated in the Community Rating System (CRS) program of the National Flood Insurance Program since 1991, with a current (2005) classification of 7 and a flood insurance premium discount of 15%. A Floodplain Management Plan was completed in 1997 and the Action Plan from that time is reviewed and updated each year by the Floodplain Management Plan Committee. The city has been recertified each year in the CRS program since 1991.

2.1.8 COASTAL ZONE MANAGEMENT

Ocean City is in the CAFRA (Coastal Area Facilities Review Act of the State of New Jersey, a Coastal Zone Management law) zone, and all waterfront areas are subject to CAFRA rules and permits, including beach and dune maintenance, as administered by the New Jersey Department of Environmental Protection. CAFRA rules are also in effect since 1994 for land development within 150' of the waterside of the bulkhead or the back of the dune. Development of commercial facilities, large residential projects, or increased parking spaces, trigger CAFRA review on the remainder of the island.

All development in the tidal areas is also subject to CAFRA rules. The Tidelands maps of 1998 show a large amount of tideland, that area now or formerly flowed by high tide, in the City. The

coastal wetlands areas are regulated by the Federal Government through the Army Corps of Engineers and development is severely limited in those areas.

Fresh water wetlands, located in several interior areas around 28th Street, are regulated by the State of New Jersey.

The Coastal Zone Management rules NJAC 7:7E-5B.3 indicate that Ocean City is a *Coastal Regional Center*.

2.1.9 ORIENTATION

The island is oriented in a northeast to southwest line. The Great Egg Harbor Inlet at the north end of the island is open to the ocean from the northeast, and winds from that direction, frequently during storms, tend to push tidal water into the Great Egg Harbor Bay, causing high tides in the bay that do not evacuate well until the wind shifts. Winds from the east and southeast hit the beachfront of the island with full force. Winds from the west and north can batter the bay side of the island, causing damage to docks and boats. Hurricanes and nor'easters have inflicted damage over the years, with the March 1962 storm being the best-known of them.

On a hot summer day, the breeze from the ocean makes this mid-Atlantic coastal city about 10 degrees cooler than the mainland areas just two miles away. Nighttime breezes cool the island further.

2.1.10 WATERSHED

All of New Jersey has been divided into watersheds and subwatersheds for planning purposes. Ocean City is located in two watersheds, with the dividing line at 34th Street. The northern half of the island is in Management Area 15, Great Egg Harbor River Watershed. The river empties into the Great Egg Harbor Bay along with the Tuckahoe, Patcong and Middle Rivers, and all of their tributaries. The south end of the island is the Cape May Watershed Area 16. The tidal areas south of 34th Street empty into the tidal creeks and then into Corson's Inlet at the south end of the island. City representatives worked with watershed planning agencies when work was underway to actively plan on this basis. Watershed Management Areas can be viewed at www.state.nj.us/dep/gis/newmapping.htm, click on I-Map NJ DEP and then launch I-Map. The layers are listed on the left side and the key is on the right. Select Watershed Management Areas.

Information from NOAA indicates that the mean annual precipitation in Ocean City, as measured in Atlantic City, is about 38 inches, most in the form of rain and often in the form of downpours. All runoff from the city's roofs, sidewalks, parking lots and streets goes to the ocean or the bay through an "over and under" storm water collection system. Most of the system takes storm water to the bay, but along the beachfront from the north end to 29th Street, large storm water pipes take water from the underground system across the beach and into the ocean. A survey of

the Storm Water System in accordance with the Sewage Infrastructure Improvement Act was done in the early 1990s and 221 outfalls to the ocean, bay and wetlands were identified and mapped on large maps that are available in the Public Works department or on a disk. These are mapped symbolically at www.capemaycountyims.net, Maps, Shellfish. Zoom to see the legend on the right side that include storm drain inlets and outfalls. These represent a large potential for land-based water pollution.

The City in its zoning ordinance requires a limit on impermeable surface in all zones, and enforcement of this requirement is active. In addition, there is a requirement for vegetation in the curb strip, which serves as a buffer for runoff that may carry pollutants such as pet waste, fertilizers and pesticides.

An updated Stormwater Management Ordinance is pending adoption in accordance with NJAC 7:8, and addresses reduced water pollution from runoff and land-based activities.

2.1.11 POPULATION

According to the 2000 Census, the year-round population of Ocean City in 2000 was 15,378, a decrease of several hundred people since 1990. Approximately 37% of the 20,298 residential dwelling units are occupied year-round, with the other 63% being rented or owner-occupied seasonally. As a summer resort, the population of the island can increase by a factor of 10 on a hot, busy summer weekend when all the seasonal rentals, hotels and guest houses are full and visitors are in town for the day at the beach. The decrease occurring in the year-round population can be explained in part by the redevelopment occurring in the housing stock, which combined with the increase in investment and seasonal use, reduces the availability of lower cost year-round housing.

2.1.12 STATE DEVELOPMENT & REDEVELOPMENT PLAN STATUS

A key component of the State Plan is the Policy Map. This Map – created by the NJ Office of State Planning – identifies Ocean City as an *Environmentally Sensitive/Barrier Island Planning Area* with a *Planned Regional Center* overlay. The bay islands are shown as *Environmentally Sensitive Planning Area*. In order to be designated as a regional center, the City must continue with the Plan Endorsement process.

Ocean City was an active participant in the Cross-Acceptance III process and contributed significantly to the final report submitted to the State by Cape May County in February 2005. A City Council resolution adopted in June marked the City's formal involvement in Plan Endorsement.

The City's primary objective regarding Plan Endorsement is to formalize the Regional Center designation for the urbanized areas of the island. The Regional Center designation is consistent with the City's Master Plan, as well as the existing built and natural environments, and will enable the City to properly plan for the future consistent with the goals, policies and strategies

contained in the State Plan. The City's master plan, development regulations and Action Plan recognize and respond to the following State Plan objectives for barrier islands:

- accommodating growth in Centers;
- protecting and enhancing the existing character of barrier island communities;
- minimizing the risks from natural hazards;
- providing access to coastal resources for public use and enjoyment;
- maintaining and improving coastal resource quality; and
- revitalizing cities and towns.

2.2 GEOLOGY

2.2.1 STRATIGRAPHY

Geologic factors can determine the bearing strength for structures and the availability of ground water. A 2001 study of Cape May County water supplies, called "Hydrogeologic Framework, Availability of Water Supplies and Saltwater Intrusion, Cape May County, New Jersey", by Pierre J. Lacombe and Glen B. Carleton, contains information regarding the geology of the area (available as an Adobe document at <http://water.usgs.gov/pubs/wri/wri014246/pdf/wri01-4246.pdf>).

Starting at the top of the ground, the geologic units on the island are: alluvial deposits, beach sand and gravel, Cape May Formation (Holly Beach water bearing zone), Bridgeton Formation, Cohansey Formation (estuarine sand aquifer; Cohansey aquifer), Kirkwood Formation (Rio Grande water-bearing zone, Atlantic City 800-foot sands). The aquifers are separated by "confining" clay layers that limit movement of water between aquifers. Precipitation passes through and is stored in the aquifers, but in Ocean City the top aquifers are contaminated with salt water and other pollutants. In Ocean City, impermeable surfaces, typically including streets and buildings, limit the amount of precipitation that is absorbed into the ground; most runs off through the storm sewer system and into the bay and ocean.

The southern one-third of the island is designated Tc, an undefined Cape May bedrock formation, and the northern two-thirds is Tch, Cohansey formation. Information on bedrock geology and aquifers is available at www.state.nj.us/dep/gis/newmapping.htm. Choose I-MapNJ Geology and choose Launch I-MapNJ Geology. Choose from the list on the left.

2.2.1a SOILS

The bearing strength of the soils for structures varies on the island. The soils on the island are listed on the Cape May County Soils Survey. They are: Cu (Coastal beach-urban land complex) and FM (Fill land, sandy organic substratum). In general the north end is sand and does not

require pilings. Most of the rest of the island does require pilings. The sandy soils are very stable and permeable while the organic soils, from dredge material fill and from underlying marsh muck and clay, are unstable. Both are naturally low fertility, affecting the variety of native vegetation. The coastal wetlands areas are soil type TD (tidal marsh) with areas of FM, locations of dredge materials piles.

2.2.2 POTABLE WATER

Potable water in Ocean City is provided by 11 wells drawing from the Lower Kirkwood – Cohansey Aquifer system (the Atlantic City 800 foot Sands Aquifer). The capacity of these wells is 11.4 million gallons per day (MGD) and a firm capacity of 9.36 MGD.

Capacity Information is attached as an appendix.

The water serves dwellings and businesses and is also used to water landscaping during the naturally hot, dry summer. The USGS has done an extensive study of Cape May County for purposes of determining the status of the potable ground water (see <http://water.usgs.gov/pubs/wri/wri014246/pdf/wrir01-4246.pdf>, Fig. 65 and following) Water enters the Atlantic City 800-foot sands aquifer in Cumberland and western Atlantic counties. Prior to development the water flowed from west to east in the aquifer, discharging into the Atlantic Ocean and Delaware Bay under enough pressure that the saltwater did not enter the aquifer. In 1990, when the study was done, the water was being withdrawn by wells in Atlantic and Cape May counties at a faster rate than it is being replaced from the west. That allows the saltwater to flow radially into the aquifer to fill the vacuum. The lines of the 250mg/L chloride concentration and the 50mg/L sodium concentration, which are the limits of potable water, have moved inland, as measured in test wells in various locations. However, the USGS has concluded that the rate of advance of salt water intrusion is such that the Ocean City wells will remain potable for the next century at least, given the current rate of withdrawal.

The locations of wells and the rate of withdrawal are all key to the rate of movement of the saltwater lines. The locations of wells in Ocean City can be viewed at www.state.nj.us/dep/gis/newmapping.htm, click on I-Map NJ DEP and then launch I-MapNJ DEP. The layers are listed on the left side and the key is on the right. Click on Public Community Water Supply Wells to see the locations.

The water supplied by New Jersey American Water Company is considered low in susceptibility for pathogens, nutrients, pesticides, volatile organic compounds, inorganics, radionuclides, and radon. It is considered high in susceptibility for disinfection byproduct precursors; however, the system does not use surface water to which this category of contaminants refers. Information on the water quality may be found at www.nj.gov/dep/swap/creport.htm. New Jersey American Water Company's report on the water in the Ocean City system for 2007 may be found <http://www.amwater.com/files/NJ-CapeMay2007web.pdf>.

The City does not promote xeriscape landscaping or require low-water plants in new development, although the use of native vegetation is favored in the zoning ordinances relative to the requirement to install irrigation in new development. No investigation of alternate water sources for outside watering has been done, although the Ocean City Wastewater Treatment Plant treated and discharged 1160.929 mg of secondary treated wastewater in 1999 and 1113.979 mg in 2004. The treated water is discharged through a pipe 6,000 feet into the ocean off of 46th Street.

RECOMMENDATION: SUPPORT AQUIFER-WIDE AND REGIONAL PLANNING TO CONTROL DEVELOPMENT SO THAT THE WATER USAGE LEVEL DOES NOT EXCEED CURRENT LEVELS TO MAINTAIN POTABLE WATER FOR AS LONG AS POSSIBLE.

RECOMMENDATION: INVESTIGATE ALTERNATE SOURCES OF WATER USED FOR LANDSCAPE IRRIGATION.

RECOMMENDATION: REQUIRE LOW-WATER OR NATIVE PLANTINGS IN NEW DEVELOPMENT.

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2.2.3 SURFACE WATER

The natural surface of the island is beach sand, gravel, and alluvial deposits. Much dredging of the back bay areas has been done and the dredge materials, primarily silt and small amounts of sand, were used to fill in both coastal and freshwater wetlands areas for development prior to regulation. The natural surface freshwater, most evident at the Howard Stainton Wildlife Refuge on Bay Avenue at 30th Street, a freshwater wetlands mitigation site, is brackish. Small isolated vernal pools develop in early spring, hosting spring peepers. The remainder of the wetlands are coastal and tidal, with salt water flowing freely in and out of small waterways as the tide rises and falls. The depth to groundwater below the surface varies depending on the tides, but in some low areas it can be as little as 18".

The island has a number of contaminated sites; a list from 2001 has 34 entries. The locations in Ocean City may also be viewed at www.state.nj.us/dep/gis/newmapping.htm, click on I-Map NJ DEP and then launch I-MapNJ DEP. The layers are listed on the left side and the key is on the right. Click on Known Contaminated Sites List to see the locations.

Shellfishing requires clean water for the filter feeding oysters, clams and mussels. Shellfish areas are designated by the state as year-round, seasonal, special restricted and prohibited, depending on the chance for pollution. The quality of the ocean water off of Ocean City is anecdotally reported to be cleaner and clearer every year, with the area surrounding the sewage discharge pipe at 46th Street and the entire beachfront listed as "prohibited" due to possible pollution from sanitary sewage or storm water pollution. Most of the back bay waters are approved for year round shellfishing. "Seasonal" areas are off-limits in the warm weather, and "special restricted" areas are limited to taking of shellfish under a special license. All marinas, man-made lagoons, anchorages or other places where docking or mooring facilities are

provided for boats are “prohibited.” Taking of shellfish requires a state license obtained from the City Clerk; a map of the designated areas is provided. The information is available on www.capemaycountyims.net. Select Maps and then Shellfish.

2.3 CLIMATE

The weather data for Ocean City are collected by NOAA at the Atlantic City International Airport, at elevation 50’ above sea level and about 10 miles west-northwest inland from the Atlantic Ocean. Another source of information is taken at the Atlantic City marina. For both, according to the NOAA website, the climate is principally continental, with the moderating influence of the Atlantic Ocean being apparent throughout the year, though more evident in Atlantic City than at the airport. As a result, the summers are relatively cooler and winters more mild than elsewhere at the same latitude. Breezes from ocean cooling retard the spring and prolong the fall.

Information for this section is found at <http://www.weather.com/outlook/homeandgarden/lawn/climatology/monthly/08226>. This information corresponds to that collected at the Atlantic City International Airport by NOAA. The marina data are used where available since they more accurately reflect Ocean City conditions.

2.3.1 TEMPERATURES

The location of the barrier island produces a humid, temperate climate with a moderate temperature range and generally mild winters. The average January temperature is 35 degrees while the average July temperature is 75 degrees. The ocean water temperature ranges from an average of 35 degrees in February to 73 degrees in the second half of August. Information on ocean water temperatures, including the current temperature measured at the Atlantic City buoy is available at <http://www.nodc.noaa.gov/>

The chance (in Cape May) of a spring freeze is about 10% by April 28, and the chance of a fall freeze is 90% by November 15. A large amount of climatic data is available at www.ncdc.noaa.gov. Freeze/frost dates are available at <http://www.ncdc.noaa.gov/oa/documentlibrary/freezefrost/freezefrost.pdf>.

2.3.2 WINDS

Winds are prevailing from the southwest in the summer and from the northwest in the winter. Northeasterly winds are common during low pressure storms. (See Orientation).

2.3.3 PRECIPITATION

The average precipitation in a year is about 38 inches, falling mostly as rain and fairly evenly over the year. Occasional snow storms are experienced with occasional storms dumping over 6 inches of snow at a time. Many winters have little measurable snow.

2.3.4 FOG

Fog occurs when the water areas are cooler or warmer than the moisture-laden air. It is very prevalent in the spring and in the late summer, blowing in off the ocean for a block or more.

2.3.5 AIR QUALITY

The air quality in Ocean City is naturally clean and clear, swept by the winds, but the power plant located across the bay in Beesley's Point to the west produces particulate and other pollution that blows over the bay front and city on west winds. Air monitoring information is available at www.state.nj.us/dep/airmon/ and click on Southern Coastal Region. The nearest monitoring station is in Somers Point.

2.4 VEGETATION

2.4.1 HISTORY

Ocean City is a barrier island that was used as a cattle grazing area and a logging source in the early settlement days of the 1800s. The naturally growing marsh grasses in the wetlands areas and the great Atlantic white cedars in the maritime forests in the center of the island were abundant. With the advent of first seasonal and then year-round settlement and development, much of the native vegetation was removed and replaced over the years with concrete, asphalt, lawn and non-native trees and shrubs. The low fertility and permeability of the native soils limit the range of native vegetation to what grows in somewhat droughty and salt air conditions. However, patches of native vegetation remain in water bodies, dunes and beach, coastal wetlands, freshwater wetlands, parks, and on private properties.

2.4.2 WATER BODIES

A variety of vegetation usually referred to as seaweed grows in the saline waters of the bay and ocean. Easily identifiable are: rockweed, sea lettuce and slippery tangleweed.

2.4.3 DUNE AND BEACH

Large stands of American Beachgrass have been planted to stabilize the constructed dunes. Coastal panicgrass, bayberry, winged sumac, staghorn sumac, bitter panicgrass, poison ivy, Virginia creeper, rugosa rose, seaside goldenrod, camphorweed, and yucca grow freely on the dunes. The beach has specimens of sandbur, common cocklebur, seaside spurge, saltwort, and other plants. In 2004, seabeach amaranth, an endangered species, was discovered on the beach.

2.4.4 COASTAL WETLANDS

Spartina patens and *spartina alterniflora*, along with phragmites and shrub poison ivy flourish in the coastal wetlands.

2.4.5 FRESHWATER WETLANDS MITIGATION SITE

The freshwater wetlands mitigation site (Howard Stainton's Wildlife Refuge) with a variety of vegetation suitable for the varying brackish wetland areas was planted in 1998 to simulate a natural freshwater wetlands. Over the years, some of it has flourished and some has died; phragmites control remains a problem. The remainder is growing into a refuge that supports wild ducks and birds.

2.4.6 PARKS AND TRAFFIC ISLANDS

The city parks used for active recreation have sod, dirt or asphalt for playing surfaces. The passive recreation parks such as Veterans Memorial Park and Lake Memorial Park have grass, shrubs and trees with walks and benches. The city streets have a large number of park-like areas at corners, triangles and medians, including the Gardens Parkway that sports a spectacular display of watermelon-colored crape myrtle in the early summer. Many of the newer trees and shrubs have been planted through the New Jersey Community Forestry grant program that is overseen by the Shade Tree Committee. This appointed Committee meets monthly to review development proposals, discuss tree issues, and work on the Community Forestry Management Plan goals.

2.4.7 PRIVATE PROPERTIES

Many residential properties in Ocean City, particularly in the area north of 5th Street, have large native trees that were either planted or alive in the early days of the city around 1879. They are primarily red cedars and American holly, perhaps the remnants of the maritime forest that existed in the higher central areas of the city. These trees are not identified or protected by ordinance and many are being removed along with other mature trees as redevelopment takes place.

The small lots (often no more than 3000 sq. ft.) and large homes of recent years have reduced the amount of available space for migrating bird and butterfly habitat. A tendency to replace grass with stone, or to nurture grass with fertilizers and pesticides, has created an environment that is not conducive to wildlife. However, a number of property owners have begun to join a National Wildlife Federation movement to certify their backyard habitats. Information is available at <http://www.nwf.org/backyardwildlifehabitat/habitatmeter.cfm>.

RECOMMENDATION: IDENTIFY AND LIST LARGE MATURE TREES ON PRIVATE PROPERTIES.

RECOMMENDATION: CONSIDER AN INITIATIVE THAT ENCOURAGES PLANTINGS THAT PROVIDE HABITAT TO MIGRATING BIRDS AND BUTTERFLIES.

2.4.8 STREET TREES

Ocean City's streets support a growing urban forest of trees as a result of Shade Tree Committee tree sales and of development ordinances requiring street trees to be planted in conjunction with new development. A walking assessment of the tree inventory was done in 1999 and updated in 2005 as part of the Community Forestry Management Plan.

As a result, a list of recommended street trees was developed and is distributed by the Shade Tree Committee. A separate list is available with trees recommended for planting in the block closest to the ocean, where the salt air and winds make the environment more harsh; these lists were also updated in 2005.

Redevelopment plans can take place quickly, with mature street trees being removed at the same time that demolition takes place. Inventory and identification of these trees on the public right of way was done in 2005 by the Shade Tree Committee in conjunction with the 2005 Community Forestry Management Plan.

Planting street trees is a difficult task with narrow grass areas or concrete removal required. The holes for the trees often are limited in size and restrict the root ball size and the water available to the tree.

The autumn leaf fall presents a challenge to Ocean City as the urban forest grows. Many seasonal properties are untended and the leaves are not raked but instead fall or blow into the gutter where they are washed to the storm water inlets. If they are not collected, they can block the storm water inlets, producing flooding and ultimately water pollution.

RECOMMENDATION: PREPARE TO PURCHASE EQUIPMENT TO COLLECT LEAVES FROM GUTTERS IN THE FALL.

2.4.9 INTEGRATED PEST MANAGEMENT (IPM)

In 2002 the City adopted an Integrated Pest Management Policy that is in effect for all city-owned buildings and grounds. The Policy directs management of pests using “environmental information with available pest control methods to prevent unacceptable levels of pest damage by the most economical means, with the least possible hazard to people, property, and the environment.”

In a report to City Council in 2005, the effects of using IPM were outlined. The city has placed outdoor locations in categories according to guidelines for use of pesticides. Only the golf course is included in Category 1, “apply pesticides as needed.” The largest number of sites are in Category 3, “no pesticides applied.” The list of properties and their categories is attached. Indoor facilities are monitored and if infestation is discovered, baits are set in inaccessible places. Remedial measures are taken to reduce the chance of reinfestation. The results are considered to be functionally and aesthetically acceptable, as well as being less costly.

2.5 WILDLIFE

2.5.1 MAMMALS & REPTILES

The variety of wildlife in Ocean City is wider than might be expected, due to the varied habitats. The following list was supplied by George Loder, the city’s animal control officer for many years: Gray squirrel, Chipmunk, Red Fox, Whitetail Deer, Cottontail Rabbit, House Mouse, Norwegian

Rat, Box Turtle, Opossum, Muskrat, Raccoons, Meadow Vole, River Otter. Also salamander, Fowler's toad and black snake.

The vernal pools on the island are home to the spring peepers.

Those who frequent the south end oceanfront or north end inlet early in the morning say it is not unusual to see red fox in the water or with their young. They also inhabit the dune areas from 19th to 31st Street, dining on small mammals, the remains of fish on the beach, and on the chicks of the beachnesting birds, presenting a serious problem for the protection program for these endangered species. They also can be found in the wetlands areas.

The back bays support the diamondback terrapin, with the females making their way onto land in the spring to lay eggs and in the process often making a perilous crossing of city streets south of 23rd St. Although not listed as threatened or endangered, the species is being watched carefully by the Wetlands Institute in Stone Harbor, and the Ocean City Bayside Center has an educational display about the terrapins.

2.5.2 BIRDS

Cape May County and Ocean City are on the Atlantic Flyway, although the main stream of birds is more likely to migrate over the mainland or the ocean probably due to a lack of available habitat. Lists of bird species that have been identified have been developed from several sources. The USGS North American Breeding Bird Survey may be found at <http://www.mbr-pwrc.usgs.gov/cgi-bin/rtena23.pl?59030>, New Jersey Route #30 with the summary found at <http://www.pwrc.usgs.gov/bbs/retrieval/menu.cfm>. Choose Species list, New Jersey and route #30.

Users may also check www.birdsource.org for the results of the Great Backyard Bird Count held each year. In addition, ring-necked pheasant have been spotted in the 46th Street wetlands area.

Ocean City is fortunate to be located in the same county as the Cape May Bird Observatory in Cape May Point and Goshen, with many experts available to assist with bird-related questions. Information is available at the website <http://www.njaudubon.org/Centers/CMBO/>.

2.5.3 ENDANGERED BEACHNESTING BIRDS

Three beachnesting bird species have made their nests on the replenished beaches since 1993. They are the New Jersey Endangered piping plover and least tern and the New Jersey Threatened black skimmer. The population sizes wax and wane, but all are located and protected by the NJDEP Endangered and Non-Game Species Program. The rope fences and signs on the beaches in the north inlet and from 15th to 30th Streets are now familiar sights to tourists; these areas are identified in beachnesting bird management documents. During the nesting season, from mid-April to August, the piping plovers and least terns present a challenge to the beach users, but in 12 years the beach management practices needed to protect the species have become routine for the Ocean City Public Works department. Locations of the habitat for

these birds may be accessed at www.state.nj.us/dep/gis/imapnj/imapnj_about.htm. Launch iMap and zoom in until the list on the left side includes Landscape Project-beach. Mark it “visible” to see the locations in Ocean City that include the inlet, the center of the city, and Corson’s Inlet State Park.

2.5.4 LONG-LEGGED COLONIAL WADING BIRDS

The bay islands with uplands are nesting areas for colonies of colonial wading birds, some endangered or protected. Cowpen’s Island is designated a wildlife sanctuary by Ocean City ordinance 4-29, off-limits to visitors except by permission of City Council, and the eastern uplands parts of the island which contain the Route 52 causeway visitor center are also off-limits and are roped and fenced by the NJDEP during nesting season. Black-crowned and yellow-crowned night herons, both on the New Jersey Threatened Species list, are found on the islands, along with Great Blue, Little Blue, tricolored and green herons, great egrets, cattle and snowy egrets, white ibis and glossy ibis. The reconstruction of Route 52, was planned with full knowledge and protection for these birds. The new Visitor’s Center should provide a viewing point for the rookery.

2.5.5 FISH AND SHELLFISH

The Great Egg Harbor Bay is well-known for its fishing and shellfishing. Charter boats and private boats ply the waters in season with regulars and day-trippers, hoping for a fish to take home for dinner. The waters along the immediate bayfront are closed seasonally for shellfishing, due to possible pollution from land use, but the Rainbow Channel is approved for shellfish year-round. Hard clams and blue crab are favorites, and an occasional lobster is reported. The list of fish likely to be caught in the bay includes striped bass, flounder (both summer and winter), perch, bluefish, weakfish, tautog, and shark.

Along the oceanfront, up to 3 miles out in New Jersey state waters, fishing is also a favorite pastime, with many standing on the beach to do surf fishing. The fish caught in this area include bluefish and striper as well as weakfish, tautog, shark, king mackerel, Pollock, red drum, kingfish, Spanish mackerel, black drum, cobia, cod and haddock. Shellfish may be taken only from approved areas that are not affected by possible stormwater or wastewater pollution.

Regulations on fishing may be found at the NJDEP website. Maps may be found at www.capemaycountyims.net, Maps, Shellfish. Legend is on the right.

2.5.6 MARINE MAMMALS

The presence of marine mammals off the coast of Ocean City is one of the thrills that ocean watchers wait for each year. In June the Atlantic Bottlenose Dolphin migrate north in families often very close to shore, much to the delight of beachgoers. Humpback whales were in the vicinity in 1992 and provided a wonderful experience for thousands who witnessed their playful antics as they breached to feed on the bait fish close to shore. Pilot whales are seen more often.

Marine mammals strand on the shores in all seasons, ranging from harbor seals to harbor porpoise. Although not marine mammals, sea turtles are found stranded on occasion. The Marine Mammal Stranding Center in Brigantine is the local organization empowered to work with these protected species, and they come to Ocean City very regularly.

2.6 OPEN SPACE AND RECREATION

2.6.1 OPEN SPACE

The total acreage within the municipal boundaries of Ocean City is about 7000 acres, or 10.9 square miles. About 2578 acres is water, in the bays and creeks, leaving about 4422 acres of non-water. Of that, about 2600 acres is developed, including the beach and developed recreation areas. About 1800 acres is undeveloped.

The City of Ocean City owns about 1645 acres of open space. A summary of the totals of city-owned open space acreage in 2008 is as follows:

Developed recreation: 74.97

Beaches 259.17

Coastal wetlands 1210.24

Freshwater wetlands 16.42

Other Open Space uses 83.44

TOTAL 1645 acres

The State of New Jersey owns about 236 acres in the Corson's Inlet State Park and the wetlands wildlife management areas, and Cape May County owns two parcels. The rest of the open space is in private ownership, primarily in small wetlands lots. The city participates in the New Jersey Green Acres Open Space program and has an ongoing inventory of city-owned properties dedicated to Green Acres that cannot be developed without permission of the NJDEP.

A Recreation and Open Space Inventory was completed in 2008, and is included as an Appendix. Recent actions have taken place that affect the amount of Open Space include:

1. In 2003 the freshwater wetlands mitigation project known as the Howard Stainton Wildlife Refuge on Bay Avenue between 23rd and 30th Streets was turned over to the City as a part of a negotiation to acquire areas for dredge materials deposition. The acreage of this property is about 16 acres.
2. In addition, the City acquired Block 3350, Lot 17 for dredge material disposal, a bay island of 80.73 acres.

3. A number of small, primarily wetlands properties were donated totaling 17.5 acres between May 1, 1997 and Dec. 31, 2000.

4. Small beach parcels acquired and unlisted total about 11 acres.

5. In 2001 the City acquired a property for soccer fields and recreation with Green Acres funding. The acreage for this property is 2.19 acres and a smaller parcel is .13 acres. This property is being sold to Cape May County and will become a part of the county open space, operated by Ocean City.

6. In 2002-03, the city and the school district traded properties for the purpose of building a new high school and new tennis courts.

The locations of all of these Green Acres inventory properties will be included in the GIS maps as a separate layer in the future.

STATE AND COUNTY-OWNED OPEN SPACE

The State of New Jersey owns a large amount of open space. Corson's Inlet State Park, about 42 acres, and the Marmora Wildlife Management Area, about 236 acres, both at the south end of the island, are managed by NJDEP. Corson's Inlet State Park encompasses both beachfront and inlet access, with a parking lot and boat launch off of Ocean Drive by the Rush Chatten Bridge. The Marmora Wildlife Management Area is passively managed. Open Space owned by the State of New Jersey can be viewed at www.state.nj.us/dep/gis/newmapping.htm, click on I-Map NJ DEP and then launch I-Map. The layers are listed on the left side and the key is on the right. Select Open Space to see the state-owned open space.

In 1995, Cape May County purchased the former 1.35 acre Wheaton Estate at 520 Bay Avenue, with county Open Space and Farmland Preservation funds. The upkeep and operation of the property was turned over to the City and it was renamed Bayside Center. The house is a multiuse building, housing an environmental education room, a lifeguard museum, a collection of ship models by Stephen Hutsko, and several meeting spaces. The grounds host summer environmental camps as well as rowing and other water-related activities. The building was elevated in 1998 using FEMA funds and the bulkhead was replaced in 2003, at City expense.

RECOMMENDATION: IN ORDER TO RECOGNIZE AND PRESERVE UNDEVELOPABLE LANDS (INCLUDING THE BACK BAY ISLANDS AND WETLANDS), DELINEATE THOSE AREAS ON THE ZONING MAP AS PART OF THE (EXISTING) CONSERVATION DISTRICT.

2.6.2 RECREATION

Ocean City prides itself on having something to enhance everyone's recreation and leisure time.

Throughout the island there are well equipped playgrounds, maintained for safety and fun. There are baseball, softball, football, soccer, field hockey and multi-purpose fields. Numerous basketball, tennis, street hockey, shuffleboard and volleyball courts complete the array of active recreation sites, many of them lighted for added hours of enjoyment.

Ocean City's beachside skate park attracts skate board and roller blade enthusiasts of all ages and abilities. The City's twelve hole par three golf course provides hours of enjoyment in a scenic meadow setting. Children can choose from a variety of fun and educational programs throughout the year. Adults can take part in the full array of programs at the Aquatic and Fitness Center, as well compete in such activities as softball and volleyball.

Ocean City is also home to the Cape May County Dog Park. The dog park is located at 45TH Street and Haven Avenue.

Below is a listing of municipal recreational facilities by type.

FACILITY/PROPERTY	LOCATION	TYPE
1 INDOOR RECREATION:		
1.1 Sports and Civic Center	6 th and Boardwalk	Indoor facility
1.2 Aquatic & Fitness Center	1735 Simpson Avenue	Indoor facility
1.3 Bayside Center	520 Bay Avenue	Indoor facility
1.4 8 th Street Recreation Center	8 th and Haven	Indoor facility
2 OUTDOOR PARKS/RECREATION:		
2.1 Carey Field	5th-6th and Atlantic Ave.	outdoor/active rec
2.2 5th St. Baseball/Softball Complex	5th-6th and Bay Ave.	outdoor/active rec
2.3 Tennessee Ave. Soccer Complex	Tenn. Ave.	outdoor/active rec
2.4 Palmer Park	15th St. and Haven Ave.	outdoor/active rec
2.5 Harry Vanderslice Youth Baseball Complex	35th and Haven ave.	outdoor/active rec
2.6 North St. Basketball Court	North St. and Haven Ave.	outdoor/active rec
2.7 6th St. Basketball Courts	6th Street	outdoor/active rec
2.8 8th St. Basketball Court	8th St. and Haven Ave	outdoor/active rec
2.9 15th St. Basketball Court	15th St. and Bay Ave	outdoor/active rec
"2.10 34th St. Basketball Court	34th Street and Asbury Ave	outdoor/active rec
2.11 52nd Street basketball/hockey	52nd St. and Haven Ave	outdoor/active rec
2.12 Golf Course	26th St. and Bay Ave	outdoor/active

2.13	Memorial Park	5th St. and Wesley Ave	rec outdoor/passive rec
2.14	Wesley Avenue Park	400 Block Wesley Ave.	outdoor/passive rec
2.15	Gateway Park	9th Street and West Ave	outdoor/passive rec
2.16	18th Street tennis / Basketball Courts	18th St. and Haven Avenue	outdoor/active rec
3 PLAYGROUNDS:			
3.1	Northend beach	Longport Bridge	play area
3.2	North Street Playground	North St. and Haven Ave	playground
3.3	6th St Playground	Carey Field	play area
3.4	6th St. and Haven Playground	6th St. and Haven Ave	play area
3.5	8th St. Playground	8th St. and Haven Ave	playground
3.6	15th St. Playground	15th St. and Bay Ave	playground
3.7	Airport Playground	26th St. and Bay Ave	playground
3.8	29th St. Playground	29th St. and West Ave	playground
3.9	34th St. Playground	34th Street and West Ave	playground
3.10	52nd St. Playground	52nd St. and Haven Ave.	playground
3.11	58th St. Beach	58th St. & Beach	play area
4 MISCELLANEOUS:			
4.1	Tennessee Avenue Boat Ramp	Tennessee and bay	misc.
4.2	34th St. boat ramp	34th St. Bridge	misc.

A recreation facilities map has been created and is available at the planning office. In addition, a user-friendly bike map containing all the recreational facilities is available at www.bikeocnj.us.

The City has continually engaged in an implementation strategy to protect, preserve, manage and improve the open space and recreation resources important to the municipality. Currently, three park and playground facilities are completing renovations including the replacement of treated lumber with metal and plastic playground equipment; new benches, pavers, landscaping, ground surfaces, fencing, water fountains, and more.

The Community and Cultural Center, which houses the Aquatic and Fitness Center is undergoing major renovation. The Bayside Center is also in the design stage of a renovation. There are landscape improvements to public lands planned and budgeted. Many other plans are in the design stage. The City continues to pursue grant funding to supplement the capital budget.

Public acquisition of the last undeveloped bayfront property will take place in June, 2009 through County Open Space and Green Acres funding. The site is planned to be developed into a recreational use.

A Municipal Recreation Board was established and meets at least six times per year. Its duties include acting in an advisory capacity to the Governing Body of the City and making

recommendations to them in connection with all recreational activities engaged in on the municipal playgrounds, building, tennis courts and the golf course.

Also adopted by ordinance is the Mayor's Council on Physical Fitness, responsible for advocating the following goals:

- Develop, endorse or co-sponsor health and fitness activities, and to encourage wider public participation in good health practices.
- Conduct health and fitness related workshops, clinics, conferences, and other special interest activities and public information programs.
- Distribute information on health, fitness and sports.
- Encourage and assist the private sector to organize fitness programs and to provide support for community health and sports activities.
- Provide recommendations and suggestions to the Mayor and Governing Body from time to time to better manage and operate the recreation facilities, including but not limited to playgrounds, recreational buildings, tennis courts and golf course, within the City of Ocean City.

This Council has been extremely active in establishing Ocean City as a bike-friendly community. They meet at least ten (10) times per year.

Clearly, recreational activities and facilities are a priority for this community, and improvements will continue to be funded through the capital plan and grants.

2.7 HISTORICAL AND CULTURAL

2.7.1 HISTORICAL

Ocean City was founded officially in 1879, after a number of years of seasonal occupation and before that, Native American summer occupation. The city was founded on the principles of a Methodist Christian community, with small-lot development suited to a summer religious retreat. The Tabernacle Association held the rights to much of the land and many deeds today continue to include prohibitions on activities that were prohibited by the religious practices of the times. Until about 1980, Sunday blue laws were in effect. Even today, the sale of alcoholic beverages and the consumption of those beverages except in private is not allowed. Official information about Ocean City may be found at <http://www.ocean-city.nj.us/>.

The streets were laid out in a grid, with many of them being given the names of familiar Philadelphia streets. The block between 5th and 6th Streets, from the ocean to the bay, was reserved for public uses and today houses a city parking lot, the Ocean City High School and its fields, Veteran's Memorial Park, recreation areas, the Tabernacle, the Fire Headquarters and Construction Code Offices, the Ocean City Primary School, and the Bayside Center.

The Ocean City Historical Museum and the Ocean City Free Public Library, both located in the 1700 block of Simpson Avenue, have large collections of Ocean City history, memorabilia and books about Ocean City. The collection at the library may be searched from the website <http://oceancitylibrary.org/>. The wreck of the sailing ship Sindia on the Ocean City beach in December 1901 is featured at the Museum. The museum's website is <http://www.ocnjmuseum.org/>.

2.7.2 HISTORIC DISTRICT

As the 1980's progressed and redevelopment became the norm, older buildings were being lost at an ever-increasing rate. An inventory of properties in a wide area of Ocean City was undertaken in 1988 and determination of the historic status of each of the buildings was done. The inventory is located at 115 E. 12th Street in the Planning and Engineering Department. Based on this inventory, hearings were held and a Certified Local Government (CLG) historic district ordinance was passed in 1989, with the final boundaries of the district determined in 1992.

In 2003, a re-survey was done and a smaller National Register district was also established. A walking tour of the Historic District is outlined in a brochure published by the Historic Preservation Commission.

The Historic Preservation Element of the Master Plan was last adopted in 1989 and does not reflect changes and modifications to the CLG nor the National Register district.

The Historic Preservation Commission is established in Chapter 25-1800 of the Ocean City codes in accordance with the Municipal Land Use Law and has a wide range of responsibilities and powers. Two sections are reprinted from the ordinance and are included herein, regarding the powers and duties and also the kinds of development actions requiring review before permits are issued. The ordinance is also found at the Coded Systems website: http://68.15.49.6/oceancity_nj/lpext.dll?f=templates&fn=site_main-j.htm&2.0. The Commission meets monthly or as needed to review proposals for demolitions, changes or new construction in the CLG Historic District.

RECOMMENDATION: UPDATE THE HISTORIC PRESERVATION PLAN ELEMENT OF THE MASTER PLAN.

RECOMMENDATION: DO GIS MAPPING OF HISTORIC DISTRICTS, DESIGNATING KEY, CONTRIBUTING AND NON-CONTRIBUTING SITES.

2.7.3 HISTORIC SITES

The NJDEP Historic Preservation Office in February 2004 listed 12 sites in Ocean City. They are:

1. Bayside Center, 520 Bay Avenue: SHPO Opinion letter
2. City Hall, 861 Asbury Avenue: State and National Register
3. Dockside Café and Marina (SHPO Opinion letter) Demolished 2004
4. Ocean City 10th Street Station: State and National Register
5. Ocean City 34th Street Station: State and National Register, Demolished
6. Ocean City Residential Historic District 3rd -8th, Central to Ocean Ave: State and National Register
7. Ocean City-Longport Bridge: SHPO Opinion letter, demolished
8. Saint Peter's United Methodist (called Episcopal by DEP) Church, 501 E. 8th St.: COE 1997
9. "Sindia" Shipwreck Site, beach at 16th Street: DOE, SHPO Opinion letter
10. Tabernacle Baptist Church, 8th & West, SHPO Opinion
11. U.S. Lifesaving Station, 4th & Atlantic Ave. COE 2001
12. WWI Memorial Bridge, Route 52 over Ship Channel, SHPO Opinion letter.

For more information on historic sites, visit www.state.nj.us/dep/hpo . Link to Identify, New Jersey and National Register of Historic Places, (Current Listings), Cape May County and then Ocean City.

2.7.4 NEIGHBORHOODS

Today the city has distinct neighborhoods characterized by building styles and uses. The Boardwalk, Asbury Avenue, West Avenue, 34th Street and 55th Street all have commercial areas. A hotel-motel zone parallels the boardwalk in the middle of the city. The north end of the city, north of 5th Street is residential, with single family residential predominating west of Atlantic Avenue. The middle areas and the south end have two-family and multifamily predominantly. Several single family neighborhoods have been established on filled areas: Merion Park, Bay Landings, and Ocean City Homes. The bayfront Riviera area, between 14th and 23rd Streets, has manmade bulkheaded lagoons that are lined with one and two-family homes. Throughout the city, seasonal use predominates, with 2/3 of the total residential dwelling units vacant except seasonally, according to the 2000 census. Anecdotally, the single family areas tend to have a more uniform population year round. That creates a small town atmosphere in the off-season quite different from the busy summer season. Starting in 2001, Master Plan changes and zoning ordinance revisions reflect these neighborhood characteristics.

2.7.5 CULTURAL

Ocean City has several city-owned cultural venues. They are:

1. The Ocean City Community and Cultural Center, located between 17th and 18th Streets on Simpson Avenue. This building, opened in 1990, houses the Ocean City Free Public

Library, the Ocean City Historic Museum, and the Ocean City Arts Center; under the same roof is the Aquatic & Fitness Center with a pool. The library and the Aquatic & Fitness Center are operated by city employees; the others are operated by not-for-profit organizations.

Currently, an expansion and renovation of the center is underway. The project includes a 10,000 square foot expansion of the Ocean City Library, the construction of a new Senior Center, expansion of the Aquatic & Fitness Center and a new central lobby that will join all of the uses in the building.

2. The Ocean City Music Pier, on the boardwalk at Moorlyn Terrace between 8th and 9th Streets, is the center for many cultural events. The large auditorium that extends eastward over the beach was upgraded in the early 1990's with an Arts Council Grant and for a long time has been the home for the Ocean City Pops orchestra, a seasonal small orchestra comprised of professionals from the local and Philadelphia area. All of the orchestra members and the director are Ocean City employees. On the evenings when the Pops is not playing, other musical and theatrical presentations are staged. The Music Pier is busy almost every evening during the summer season and in recent years has been used throughout the year on an increasingly frequent basis. Nationally known performers appear on a regular basis.

3. In addition, cultural events on a small scale take place at the Bayside Center, which is owned by Cape May County and operated by the city, and at churches and other locations, both public and private, throughout the city. Recently, a group called the Ocean City Fine Arts League has formed and is presenting cultural events in the downtown. The city has a well-known oratorical choir as well as other singing groups. An Art Walk takes place once a month on Asbury Avenue and two art shows a year are exhibited on the Boardwalk.

4. The light side of culture is also well represented in the fun-filled activities that are sponsored by the city for the benefit of visitors and residents alike. From the zany welcome to spring called the Doodah Parade in April, where anything goes, through the Martin Z. Mollusk day and Miss Crustacean Contest, to the decorated boat parade on the bay in July known as Night in Venice, the Baby Parade in August and First Night on New Year's Eve, with a large number of events in between, the city has made a concerted effort to welcome and entertain folks. The flavor is a cross between seashore casual and Philadelphia, and it is uniquely Ocean City. The calendar of events for Ocean City may be found at <http://www.ocnj.com/>.

2.7.6 ECOTOURISM

As it is pointed out in the Introduction, the basis of the economy in Ocean City is the sand, the sun and the water. The beach has opportunities for swimming, boating, fishing, parasailing and more. The bay offers boating and fishing opportunities of all kinds.

However, away from the more crowded venues there are many other kinds of enjoyment, many based on the environmental resources of the island, which do not receive the same kind of publicity.

Birds of all kinds are sighted in the wetlands south of 34th Street. Butterflies come to gardens. Kayakers alone and in small groups put in all along the back bay where they are able to quietly paddle through the small waterways, watching long-legged wading birds and other wildlife. The sunsets over the wetlands to the west are as beautiful as the sunrises over the ocean.

Ocean City has several locations especially suitable for wildlife viewing: Corson's Inlet State Park, Howard Stainton Wildlife Refuge, Cape May Coastal Wetlands Wildlife Management Area, and, of course, 7 miles of beautiful beaches. Ocean City's open water Peck Bay, Great Egg Harbor Bay, and adjacent saltmarsh habitat environment supports a variety of plant and animal life. Ocean City is located within the world famous birding region of the Cape May peninsula, between Edwin B. Forsythe National Wildlife Refuge and Cape May Point.

Bicycling is very popular in Ocean City, and the City continues to develop a series of networks for bicyclist. Haven Avenue was designated a shared roadway, with a reduced speed limit, along with sharrows and signage. Grant funds will be used to further develop this into a safe route for bikes, linking to the transportation center, the Route 52 Causeway, which when complete will have shared bikeway as well.

Ocean City was rated the #1 beach for Ecotourism in May 2009 by the New Jersey Marine Sciences Consortium/New Jersey Sea Grant and the Richard Stockton College Coastal Research Center.

RECOMMENDATION: CONTINUE TO MAKE INFORMATION ON ECOTOURISM MORE READILY AVAILABLE THROUGH THE WEBSITE, CHANNEL 2, INFORMATIONAL BROCHURES AND WORKSHOPS.

RECOMMENDATION: ESTABLISH TRAILS, WITH MILE MARKERS THAT IDENTIFY NATURAL RESOURCES SUCH AS NATIVE PLANTS.

2.8 WASTE DISPOSAL AND DISCHARGE SITES

2.8.1 SOLID WASTE

Solid waste disposal for the City of Ocean City is done at the Cape May County MUA Landfill in Woodbine. Trash, recycling (paper and commingled plastic, glass and metal containers) and grass and leaves are picked up at every address in the city by a contractor or a private collector and trucked directly to the solid waste complex; there is no trash transfer station in the city. Recycling is required by New Jersey state law, and a variety of materials such as brush and wood is also collected at the Shelter Road Recycling Center off of Tennessee Avenue, maintained by the Department of Public Works, during open hours.

A revised recycling ordinance was adopted in 2008, and specifies the law regarding recycling. Information about the CMCMUA is at their website www.cmcmua.com.

RECOMMENDATION: DEVELOP A RECYCLING PLAN ELEMENT OF THE MASTER PLAN PER NJSA 40:55

2.8.2 SANITARY SEWER DISCHARGE

Sanitary sewage is collected in the system owned and operated by the New Jersey American Water Company, and treated by the Cape May County Municipal Treatment Facility located in Ocean City west of West Avenue at 46th Street. The outfall for the secondary-treated discharge is located about 1.1 miles out in the ocean off of 46th Street. The plant processed 1,215,962,000 gallons of sewage in 2002, and 1,113,979 gallons in 2004, some of which is infiltration from the storm sewer system during floods and hard rains. Inflow and infiltration in the collector lines are being addressed by the New Jersey American Water Company. There are no septic systems in Ocean City.

2.9 ENERGY

Ocean City is supplied with electricity by Atlantic City Electric and with natural gas by the South Jersey Gas Company. In Ocean City, the Utilities Advisory Commission, an appointed advisory board, is very active in oversight of these utilities.

2.9.1 ELECTRICITY

The power company has two substations in Ocean City, at 10th and West and at 35th Street. The 10th Street substation is scheduled to go off-line in the near future, leaving only the 35th Street substation with its two feeder lines coming across the 34th Street bridge. The Merion Park substation at 35th Street was upgraded in 2004 in conjunction with installation of the new lines from the mainland.

2.9.2 NATURAL GAS

The gas company has two lines into Ocean City, coming north from Avalon and entering the city in the vicinity of the Rush Chatten Bridge at 59th Street; and just south of the 34th Street bridge. Not all of Ocean City is served by natural gas, and some areas use liquid propane.

RECOMMENDATION: PROMOTE THE USE OF ALTERNATIVE POWER INCLUDING SOLAR POWER.
RECOMMENDATION: UPDATE THE UTILITY SERVICES PLAN ELEMENT OF THE MASTER PLAN.

Attachment to Ocean City Natural Resource Inventory to address Plan Endorsement

1. Steep slopes: none in municipality.
2. Beaches, dunes, coastal bluffs: the city has 7 miles of ocean beaches, almost 7 miles of dunes, but no coastal bluffs. See ERI 2.1.3
3. Information on open space, public lands is contained in the ERI. All bay islands are natural areas. Cowpen's Island is a bird sanctuary, wildlife refuge owned and protected by Ocean City. The NJDEP owns the Marmora Wildlife Refuge (Cape May Wetlands North). Wetlands properties owned by private conservation organizations may have conservation easements but that information is not available locally. See ERI 2.6.
4. The beach in the north inlet and from 15th to 30th Streets, as well as in Corson's Inlet State Park, is habitat for endangered piping plovers, least terns and black skimmers. Seabeach amaranth, an endangered beach plant, has been located on the beach at about 30th Street. Cowpen's Island and the visitor's center island are habitat for colonial nesting birds, some endangered. See ERI 2.5.
5. There are no water supply protection areas, although a Category I drainage area is located in Corson's Inlet State Park.
6. Shellfish harvesting areas are located in the Great Egg Harbor Bay in special restricted, seasonal and approved areas. See ERI 2.5.
7. Wetlands are shown on the Freshwater Wetlands Maps. Coastal wetlands are located on the western side of the island south of 23rd Street. See ERI 2.1, 2.4.
8. No transition areas for freshwater wetlands are located on the island to this writer's knowledge.
9. Geology and soils are outlined in the ERI 2.2.
10. There is no forest cover except for the urban forest.
11. Hydrography is addressed in the ERI 2.2. There are no rivers with Wild and Scenic designations in the city.

Appendices

- Recreation and Open Space Inventory
- Water Capacity Analysis from New Jersey American Water Company
- Maps
 - Zoning Map
 - Wetlands
 - Watersheds
 - New Jersey Geology
 - Public Community Supply Wells
 - Ocean City Historic District Map

**EXHIBIT 1 to DECLARATION
RECREATION AND OPEN SPACE INVENTORY**

Local Unit: City of Ocean City of Ocean CityCounty: Cape May

NOTE: All lands held for recreation and conservation purposes (1) must be described by their block and lot identification numbers as shown on the current, official tax map and (2) keyed to a current, legible, official map of the Local Unit and current tax map of Local Unit. The official map used for this ROSI is named OFFICAL TAX MAP and is dated December 14, 2006.

Developed and Partially Developed Lands Held for Recreation and Conservation Purposes
(*If necessary, use the first page following & after Page 4 for additional developed and partially developed lands)

Key	Municipal Location	Name	Block	Lot	Acres	Funded or Unfunded	Tax or Key Map
1	North Point -- near bridge	N/A	70.61	1	0.36	Unfunded	4
2	North St. & Haven Avenue	North St. Playground	12	2	1.08	Unfunded	11
3	6th St. & Atlantic Avenue ¹	6th St. Recreation Field	500	1.02	11.22 ¹	Funded	12
4	5th St. & Bay Avenue	5th & Bay Recreation Area	506	1	3.56	Funded	14
				2	3.16	Funded	
5	8th St. & Haven Avenue	8th St. Community Center	709	1	0.77	Unfunded	14
6	15th St. & Bay Avenue	15th & Bay Playground	1408	1	0.66	Unfunded	17
7	Tennessee Ave. & Bay Ave.	Golf Course & Soccer Field	3350	13 (part)	32.91	Unfunded	2
8	34th St. & Asbury Avenue	34th St. Playground	3403	1	1.03	Tennis -- F	28
				2	1.15	Plygrd -- UF	
				Alley	0.17		
9	35th St. & Haven Avenue	35th St. Little League	3505	1	1.58	Unfunded	33
				2	1.58	Unfunded	
				Alley	0.17		
10	53rd and Haven Avenue	52nd St. Playground	5204	Lots 1 thru 12	1.32	Unfunded	38
11	Tennessee Ave. & the bayfront	Tennessee Ave. Boat Ramp	3350	14	0.92	Unfunded	Condo Sheet #302
12	59th St. and the Beachfront	59th St. Fishing Pier	5800	1	0.41	Funded	40
				2	0.14	Funded	
				2.01	0.14	Funded	
				3	0.69	Funded	
			5801	1	2.71	Funded	
13	5th to 6th Sts. Between Wesley and Ocean Avenues	Veteran's Memorial Park	502	1	2.93	Funded	13
14	520 Bay Avenue	Bayside Center	508	2	1.32	Unfunded	14
15	29th St. & West Avenue	29th St. Playground	2903	11 (part)	0.23	Unfunded	26
16	15 th and Simpson Avenue	Emil Palmer Park	1506	2	2.19	Funded	19
17	5th St. & Atlantic Avenue ¹	5th St. Tennis Courts	501	1	3.15 ¹	Funded	13
18	18th St. and Simpson Avenue ¹	18th St. Tennis Courts	1806	1.01	1.64 ¹	Funded	19

Subtotal of Acres on this page77.19

Total Acres of developed and partially developed lands from all pages of this ROSI.....77.19

Total Acres of Wholly undeveloped land from all pages of this ROSI.....1,639.02

Total Acres.....1,716.21

Note: ¹SHC Agreement No.0508004

**EXHIBIT I to DECLARATION
RECREATION AND OPEN SPACE INVENTORY**

Local Unit: City of Ocean CityCounty: Cape May

NOTE: All lands held for recreation and conservation purposes (1) must be described by their block and lot identification numbers as shown on the current, official tax map and (2) keyed to a current, legible, official map of the Local Unit and current tax map of Local Unit. The official map used for this ROSI is named OFFICAL TAX MAP and is dated December 14, 2006.

Wholly Undeveloped Lands Held for Recreation and Conservation Purposes

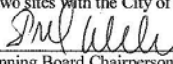
(*If necessary, use the second page following & after Page 4 for additional wholly undeveloped lands)

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
A	Islands -- Great Egg Harbor Bay	850	1	44.23	1	Unfunded
			2	38.00		
			3	88.41		
			4	70.01		
			5	14.22		
B		850.01	6	26.22		
C		1750	6	1.34		
			7	5.29		
			8	2.37		
			9	14.40		
			10	2.90		
			11	81.52		
			12	1.74		
D		1750.01	13	1.08		
			14	1.30		
			15	0.04		
E		1750.02	5	8.41		
F		1750.03	2	22.05		
			3	1.42		
			4	2.07		
G		1750.04	1	1.32	Cont. on : page 5 of 14	

Beach and Beachfront Total Acreage =	262.36
Total (wetlands) Undeveloped Acreage =	1376.66
Total Undeveloped Acreage =	1639.02
Total Developed and Partially Developed Acreage =	77.19
Total Acres on this ROSI	1716.21

CERTIFICATION: I HEREBY CERTIFY that this Exhibit I to Declaration, comprising 14 total pages, is a complete and accurate listing of all lands held by the Local Unit, as of this 28th day of August, 2008, for recreation and conservation purposes during the time of receipt of Green Acres funding. This ROSI is being submitted to Green Acres as part of the project entitled ADA Access Surfaces and Safety Surfaces in conjunction with other park and playground improvement at two sites with the City of Ocean City.

Chief Executive Officer of Local Unit
Date: August 27, 2008



Planning Board Chairperson (or equivalent)
Date: August 27, 2008

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
Y	3900 HAVEN & SIMPSON AVE.-- VACANT	3905	1, 18 2, 3, 4, 5, 6, 20, 21, 22, 23, 24	0.24 0.55 0.57	33	
Z	3900 SIMPSON & BAY AVE. -- VACANT	3906	1, 19 2, 3, 4, 5, 6 20, 21, 22, 23 24	0.24 0.53 0.42 0.13		
AA	4000 HAVEN AVE. -- VACANT LAND	4004	1	0.13	36	
BB	4000 SIMPSON AVE.-- VACANT LAND	4005	1,2	2.64		
CC	4000 BAY AVE. -- VACANT LAND	4006	3, 3.01, 3.02, 3.03, 3.04, 3.05, 4	1.32		
DD	4100 HAVEN AVE.-- VACANT LAND	4104	6, 7, 8, 9, 10, 11, 12 5			
EE	4100 HAVEN & SIMPSON AVE. -- VACANT	4105	2, 3 1, 1.01, 1.02, 1.03, 4, 4.01, 4.02,	1.74 0.90		
FF	4100 SIMPSON & BAY AVENUES	4106	3 1, 1.01, 1.02, 1.03, 2, 2.01, 2.02 THRU 2.07 4, 4.01, 4.02, 4.03	0.87 1.32 0.45	36	
GG	4200 HAVEN & SIMPSON AVENUES	4205	1, 2	2.64		
HH	4200 SIMPSON & BAY AVENUES	4206	1, 2	2.64		
II	4300 HAVEN AVE -- VACANT LAND	4304	1	1.32		
JJ	4300 HAVEN & SIMPSON AVENUES	4305	1, 2	2.64		
KK	4300 SIMPSON & BAY AVENUES	4306	1, 2	2.64	36	
LL	4400 HAVEN AVENUE	4404	1	1.32		
MM	4600 HAVEN & SIMPSON AVENUES	4605	1, 2	1.32	37	
NN	4600 SIMPSON & BAY AVENUES	4606	1, 2	1.32		
OO	4700 HAVEN AVENUE	4704	1 THROUGH 12	1.32		
PP	4700 HAVEN & SIMPSON AVENUES	4705	1, 2	1.32		
QQ	4700 SIMPSON & BAY AVENUES	4706	1, 2	1.32		
RR	4800 HAVEN & SIMPSON AVENUES	4805	1, 1.01, 1.02, 1.03, 1.04, 1.05 2, 2.01 THRU 5, 5.01 THRU 5.03 2.05, 5.04	0.66 0.95 0.26		
SS	4800 BAY AVE. -- VACANT LAND	4806	1, 1.01, 1.02, 1.03 1.04, 1.05, AND 4, 4.01, 4.02, 4.03, 4.04, 4.05 2, 2.01, 2.02, 2.03 2.04, 2.05 AND 3, 3.01, 3.02, 3.03 3.04, AND 3.05	1.32 1.32	37	

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Wholly Undeveloped Lands
ROSI 8/26/2008

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
TT	5000 HAVEN AVE. -- VACANT LAND	5005	1	1.27	38	
UU	5000 SIMPSON AVE.-- VACANT LAND	5006	1, 3, 5, 6 2, 2.01, 2.02, 2.03	2.11 0.42		
VV	5100 HAVEN AVE. -- VACANT LAND	5105	23 24	0.11 0.13		
WW	5100 BAY AVENUE -- IN THE BAY	5106.01	6 7, 8, 9, 10, 11, 12 13, 14, 15, 16, 17, 18	0.77 0.57		
XX	In the BAY -- WEST OF BAY AVENUE VICINITY OF 40TH ST. VICINITY OF 57TH ST.	5150 5150.01	5, 6, 9, 11, 17, 18 4 1, 2	301.60 86.07 102.39	3 3	
ZZ	5600 HAVEN AVE -- VACANT LAND	5604	1 5 2, 3, 4, 6, 7, 8, 9, 10	0.13 0.11 0.85		
AAA	5600 HAVEN & SIMPSON AVENUES	5605	1, 3, 5, 6 2, 4	2.42 0.22	40	
BBB	5600 SIMPSON & BAY AVENUES	5606	1, 2, 4 3	2.54 0.11		
CCC	5700 HAVEN AVENUE	5704	1 THRU 12	1.32		
DDD	5700 HAVEN & SIMPSON AVENUES	5705	1, 2	2.64		
EEE	5700 SIMPSON 7 BAY AVENUES	5706	1, 2	2.64		
FFF	5800 HAVEN AVENUE	5804	1 THRU 12	1.32		
GGG	5800 HAVEN & SIMPSON AVENUES	5805	1, 2	2.64		
HHH	5800 SIMPSON & BAY AVENUES	5806	1,2	2.64		
Total Wetlands Acreage =				1376.66		
III	Beach and Beachfront	70.62	1	18.80	4	
JJJ		70.49	15	4.50	5	
KKK		70.50	14	4.59	5	
VVV		70.51	10	4.16	5	
WWW		70.52	3	2.42	5	
XXX		72.01	1	56.13	6 and 9 & 12, &15	FUNDED
		72.02	1	56.13	18	
YYY	Beach and Beachfront	70.44	8 9.01 19 21	1.00 0.09 0.31 0.63	6	
ZZZ		70.43	1	2.20	6	

Pg. 7 of 14

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
AAAA		70.42	1	0.51	6	
			2	0.13		
			3	0.36		
			6	0.34		
BBBB		70.99	1	3.94	5	
			3	0.83		
			2.01	2.96		
CCCC		3	12	0.11		
DDDD		100	6, 6.01	0.18	9	
EEEE		202	8	0.30	9	
FFFF	Beach and Beachfront	301	7	0.37	9	
GGGG		400	10	0.27	9	
			11	0.09		
HHHH		1101	5, 7, 15	0.02	15	
		1201	7	0.01	15	
IIII		1801	12	0.33	18	
			13	0.31		
JJJJ		1901	4.01	0.04	18	FUNDED
KKKK		2300	3.01	0.29	23	FUNDED
LLLL		2600	9	0.30	25	
MMMM		2900	1, 2, 5	1.76		
			3	0.29		
			4	0.15		FUNDED
NNNN		3000	4	0.57	27	
OOOO		3100	4	0.52	27	
			2	0.14		
			6	0.16		FUNDED
PPPP		3200	1	1.03		
			3	0.26		
QQQQ		3300	1	1.43		
			2	0.14		
RRRR		3400	3	0.14		
			2	0.14		FUNDED
SSSS	Beach and Beachfront	3500	4, 6	0.42	33	
			1	0.41		
			3, 5	0.42		FUNDED
TTTT		3600	1, 3	0.56		
			2	0.28		
			5	0.14		FUNDED
UUUU		3700	1, 4, 7	0.56		
			2, 2.01, 3, 6	0.56		
			5	0.14		FUNDED
VVVV		3800	3	0.55		
			1, 1.01, 4	0.41		
			2, 5, 5.01	0.41		FUNDED

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
WWWW		3801	16, 19, 22 20, 21	0.41 0.28	33	FUNDED
XXXX		3900	1	1.38		
YYYY		3901	15 17, 19 16	0.11 0.42 0.11		FUNDED
ZZZZ		4000	1	0.55	36	
		4001	11, 13 12	0.46 0.23		FUNDED
YYYY	Beach and Beachfront	4100	1, 4 2, 3	1.54 0.51	36	FUNDED
ZZZZ		4101	14, 18 11, 12, 15, 16	0.28 0.83		FUNDED
AAAAA		4200	1 2 12	0.18 1.65 0.00		FUNDED
BBBBB		4201	12 13	0.14 1.24		FUNDED
CCCCC		4300	1 2	0.33 1.51		FUNDED
DDDDD		4301	14 13, 13.01	1.13 0.25		FUNDED
EEEEE		4400	1	1.84		
FFFFF		4401	13	1.38	36	
GGGGG	Beach and Beachfront	4500	1	1.38	37	
HHHHH		4501	12	1.38		
IIIII		4600	1	1.38		
JJJJJ		4601	13	1.38		
KKKKK		4700.01	1	0.36		
LLLLL		4700.02	1	0.36		
MMMMM		4700.03	4	0.36		
NNNNN		4701.01	1	0.40		
OOOOO	Beach and Beachfront	4701.02	3	0.40	37	
PPPPP		4701.03	1	0.40		
QQQQQ		4800	1 2 3	0.58 0.11 0.70		FUNDED
RRRRR		4801	12, 12.01, 15 14, 16, 17	0.35 0.91		FUNDED
SSSSS		4900	1, 1.01, 1.02 2	0.49 0.89		FUNDED

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
TTTTT		4901	14, 16, 17 13.01, 13.02, 15, 15.01	0.70 0.45	37	FUNDED
UUUUU		5000	1, 3 2	1.27 0.11	38	
VVVVV		5001	13, 14, 15, 17 16	1.27 0.11		
WWWWW		5100	1, 2, 3 1.01	0.84 0.55		
XXXXX		5101	11, 12, 12.01, 13, 15 14	1.24 0.14		
YYYYY	Beach and Beachfront	5200	1, 2, 3, 4	1.38	38	
ZZZZZ		5201	19, 20, 21	1.38	38	
AAAAA		5300	1	1.38		
BBBBB		5301	13	1.38		
CCCCC		5400	1	1.38		
DDDDD		5401	12	1.38		
EEEEEE		5500	1, 1.01, 3, 5 2, 4	1.10 0.28	40	FUNDED
FFFFFF		5501	15, 17 1, 3 13, 13.01, 14	0.83 0.00 0.41	40	FUNDED
GGGGG		5600	1, 2, 3	1.38		
HHHHH	Beach and Beachfront	5601	13 14 15	0.55 0.14 0.69	40	
IIIII		5700	1, 2, 3	1.38		
JJJJJ		5701	1	2.71		
KKKKK		5900	1	1.38		
LLLLL		5901	1 2	1.15 1.38	41	
MMMMM		611.01	1,2,3, AND 4	0.30	6	
NNNNN		611.02	5	0.09		
OOOOO		611.03	7	0.04		
PPPPP		611.04	11	0.03	9	
QQQQQ		611.1	24	0.04	25	
RRRRR		611.11	25, 26, 29, AND 30 54 AND 61 63 65 72	0.50 0.07 0.14 0.04 0.03	27	FUNDED FUNDED Pg 10 of 14

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
RRRRRR	Beach and Beachfront	611.11	78	0.04	27	FUNDED
			81	0.12		
			82	0.32		
			84	0.09		
			85	0.10		
			98	0.10		
			99	0.35		
			118	0.04		
			119	0.04		
			128	0.04		
			128, C2	0.00		
			137	0.11		
			138	0.14		
RRRRRR	Beach and Beachfront	611.11	140	0.05	33	FUNDED
			141	0.05		
			142	0.09		
			143	0.09		
			144	0.09		
			142	0.00		
			145, C1 AND C2	0.02		
			146, C1 AND C2	0.04		
			150	0.04		
			155	0.04		
			156	0.02		
			157	0.11		
			158	0.09		
			159	0.09		
			160	0.09		
			163	0.04		
			170	0.04		
			171, C1	0.04		
			171, C2	0.00		
			180	0.11		
			181	0.09		
			182	0.04		
			183	0.04		
			184	0.04		
			185	0.04		
			186	0.04		
			187	0.04		
			188	0.04		
			195	0.02		
			196	0.04		
			203	0.11		
			204	0.04		
			205	0.04		
			206	0.04		
			207	0.13		
			208	0.04		
			209	0.04		
			210	0.04		
			211	0.11		
			212	0.02		
			213	0.04		
			216	0.04		
			219	0.04		
			220	0.04		
			221	0.04		
			222	0.04		
			223	0.11		
			224	0.11		
			225	0.45		
			226	0.11		
			232	0.03		
			234	0.09		
			237	0.04		
			238	0.11		
			239	0.11		
			240	0.22		
			243	0.11		
			244	0.07		
			245	0.07		
			246	0.07		
			252	0.13		

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
RRRRRR	Beach and Beachfront	611.11	253	0.27	36	FUNDED
			254	0.06		
			255	0.06		
			256	0.05		
			257	0.13		
			258	0.11		FUNDED
			259	0.04		FUNDED
			260	0.04		FUNDED
			261	0.04		FUNDED
			263	0.04		
			264	0.04		
			263	0.00		
			264	0.00		
			265	0.04		FUNDED
			266	0.04		FUNDED
			267	0.04		
			268	0.11		
			269	0.13		FUNDED
			270	0.04	36	FUNDED
			271	0.41		
			272	0.13		
			273	0.11		FUNDED
			274	0.41		FUNDED
			275	0.11		
			276	0.11		
			277	0.13		FUNDED
			278	0.08		FUNDED
			279	0.37		
			280	0.13		
			281	0.11		FUNDED
			282	0.04		FUNDED
			283	0.03		FUNDED
			284	0.37		
			285	0.11		
RRRRRR	Beach and Beachfront	611.11	286	0.13	36	
			287	0.45		
			288	0.13		
			289	0.11		
			290	0.45	37	
			291	0.11		
			292	0.11		
			293	0.45		
			294	0.11		
			295	0.11		
			296	0.45		
			297	0.11		
			298	0.11		
			299	0.11		
			300	0.11		
			301	0.11		
			302	0.45		
			303	0.11		
			304	0.11		
			305	0.11		
			306	0.09	37	
			307	0.11		
			308	0.11		
			309	0.09		
			310	0.09		
			311	0.11		
			312	0.09		
			313	0.09		
			314	0.11		
			315	0.09		
			316	0.09		
			317	0.11		
			318	0.11		
			319	0.09		
			320	0.11		
			321	0.11		
			322	0.11		
			323	0.19		
			324	0.04		
			325	0.22		

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
RRRRRR	Beach and Beachfront	611.11	326	0.11	37	
			327	0.11		FUNDED
			328	0.04		FUNDED
			329	0.03		FUNDED
			331	0.07		
			332	0.03		FUNDED
			333	0.07		
			334	0.15		
			335	0.11		
			336	0.11		FUNDED
			337	0.08		FUNDED
			338	0.03		FUNDED
			338.01	0.03		FUNDED
			339	0.29		
			340	0.11		
			343	0.03		FUNDED
			344	0.03		FUNDED
			345	0.07		
			346	0.03		FUNDED
			347	0.03		FUNDED
			348	0.07		
			349	0.08		
			350	0.11		
RRRRRR	Beach and Beachfront	611.11	351	0.11	38	
			352	0.34		
			353	0.03		
			354	0.07		
			355	0.11		
			356	0.11		
			357	0.09		
			358	0.03		
			359	0.22		
			360	0.03		
			361	0.07		
			362	0.11		
			363	0.11		
			364	0.09		
			365	0.09		
			366	0.18		
			367	0.09		
			368	0.11		
			369	0.11		
			370	0.09		
			371	0.04		
			372	0.04		
			373	0.13		
			374	0.04		
			375	0.09		
RRRRRR	Beach and Beachfront	611.11	376	0.11	38	
			377	0.11		
			378	0.04		
			379	0.13		
			380	0.04		
			381	0.22		
			382	0.11		
			383	0.11		
			384	0.18		
			385	0.04		
			386	0.22		
			387	0.11		
			388	0.11	38	
			389	0.46		
			390	0.11		
			391	0.11		
			392	0.45		
			393	0.11		
			394	0.11		
			395	0.45		
			396	0.11		

Key	Municipal Location and Comments	Block	Lot	Acres	Tax Map	Funded or Unfunded
RRRRRR	Beach and Beachfront	611.11	397	0.11	38	
			398	0.45		
			399	0.11		
			400	0.11	40	
			401	0.04		
			402	0.04		
			403	0.04		FUNDED
			404	0.04		
			406	0.22		
			407	0.11		
			408	0.11		
			409	0.04		
			410	0.04		
			411	0.04		FUNDED
			412	0.04		
			414	0.22		
			415	0.11		
			416	0.11		
			417	0.04		
			418	0.04		
			419	0.36		
			420	0.11		
			421	0.11		
			422	0.18		
			423	0.04		
			424	0.22		
			425	0.11		
			427	0.11		
			428	0.09		
			429	0.02		
			430	0.34		
			431	0.11		
			432	0.06		
			433	0.11		
			434	0.45		
			435	0.11		
			436	0.06		
			437	0.11		
			438	0.13		
			439	0.04		
			440	0.04		
			441	0.22		
			442	0.11		
			443	0.06		
			444	0.11		
RRRRRR	Beach and Beachfront	611.11	445	0.13	40	
			446	0.04		
			447	0.04		
			448	0.22		
			449	0.11		
			450	0.06		
			451	0.11		
			452	0.17		

Beach and Beachfront Total Acreage = 262.36
 Total (wetlands) Undeveloped Acreage = 1376.66
 Total Undeveloped Acreage = 1639.02

Appendix

Water Capacity Analysis New Jersey American Water



RECEIVED
COMMUNITY DEV. ADMIN.

2009 APR 23 A 11:55

New Jersey American Water P 856-824-2582
213 Carriage Lane F 856-764-4331
Delran, NJ 08075
vincent.monaco@amwater.com

April 20, 2009

Elizabeth A. Terenik
Acting Director of Planning and Engineering
City of Ocean City
115 East 12th Street
Ocean City, New Jersey 08226

Re: Ocean City Plan Endorsement - Information Request

Dear Ms. Terenik:

Your recent request to Dave Gelona of our Atlantic/Cape May District has been referred to the Engineering Department for a response.

New Jersey American Water (NJAW) owns and operates the public water system and the public wastewater collection system serving Ocean City.

The water system comprises of a distribution system, storage facilities and 11 wells drawing from the Lower Kirkwood - Cohansey Aquifer System (the Atlantic City 800 foot Sands Aquifer). These wells have an overall capacity of 11.4 MGD and a firm capacity 9.36 MGD. The water allocation monthly and annual diversion limits are 294.5 MGM and 1,474 MGY, respectively. The current water supply surpluses for the Ocean City water system are as follows:

Firm Capacity:	2.54 MGD (million gallons per day)
Water Allocation	
Monthly	84.8 MGM (million gallons per month)
Yearly	363.7 MGY (million gallons per year)

The wastewater system comprises of a sewer collection system with 8 sewer pump stations. The collected sewage is sent to the Cape May County Municipal Utilities Authority (CMCMUA). We have no restrictions within our wastewater collection system. We have no information on the available treatment capacity within CMCMUA.

If you have any questions or would like to discuss any other planning issues, please feel free to contact Ken Seelig at (856) 824-2564 or call me at (856) 824-2582.

Sincerely,

Vincent Monaco, P.E.
Engineering Manager – Asset Planning

c: Kevin Brown
Ken Seelig
Dave Gelona

NJ AMERICAN - OCEAN CITY

PWSID: 0508001
County: Cape May

Last Updated: 03/12/08 / 4/1/09 NJAW rev.

► [Glossary of Terms Listed Below](#)

Water Supply Firm Capacity: 9.792 MGD

Available Water Supply Limits

	Allocation	Contract	Total
Monthly Limit	294.500 MGM	N/A MGM	294.500 MGM
Yearly Limit	1474.000 MGY	N/A MGY	1474.000 MGY

Water Demand

	Current Peak	Date	Committed Peak	Total Peak
Daily Demand	6.709 MGD	07/2007	0.044 MGD	6.753 MGD
Monthly Demand	207.966 MGM	07/2007	0.682 MGM	208.648 MGM
				209.69MGM
Yearly Demand	1096.815 MGY	2007	5.353 MGY	1102.168 MGY
				1,110.3 MGY

Water Supply Deficit or Surplus

Firm Capacity	Water Allocation Permit
3.039 MGD / 2.54 MGD	85.852 MGM / 84.8 MGM
	371.832 MGY / 363.7 MGY

Note: Negative values (a deficit) indicate a shortfall in firm capacity and/or diversion privileges or available supplies through bulk purchase agreements.

Bureau of Water System and Well Permitting Comments:
Updated with Permit # WCP080001 Marmora Shopping Center

Bureau of Water Allocation Comments:
no comments provided

Source: NJDEP, Division of Water Supply website as of 4/17/09 with last update on 3/12/08.

NJAW editing is highlighted to reflect current conditions as of 4/1/09.

Firm Capacity and Water Allocation Analysis

Each applicant for a permit to construct or modify a public community water system must demonstrate that the proposed water system improvement, extension or connection will not exceed firm capacity, as defined below, or the water diversion limits contained in an applicable water allocation permit. An outline of the methodology used to calculate this information also appears below.

"Firm Capacity" means adequate pumping equipment and/or treatment capacity (excluding coagulation, flocculation, and sedimentation) to meet peak daily demand, as defined below, when the largest pumping station or treatment unit is out of service.

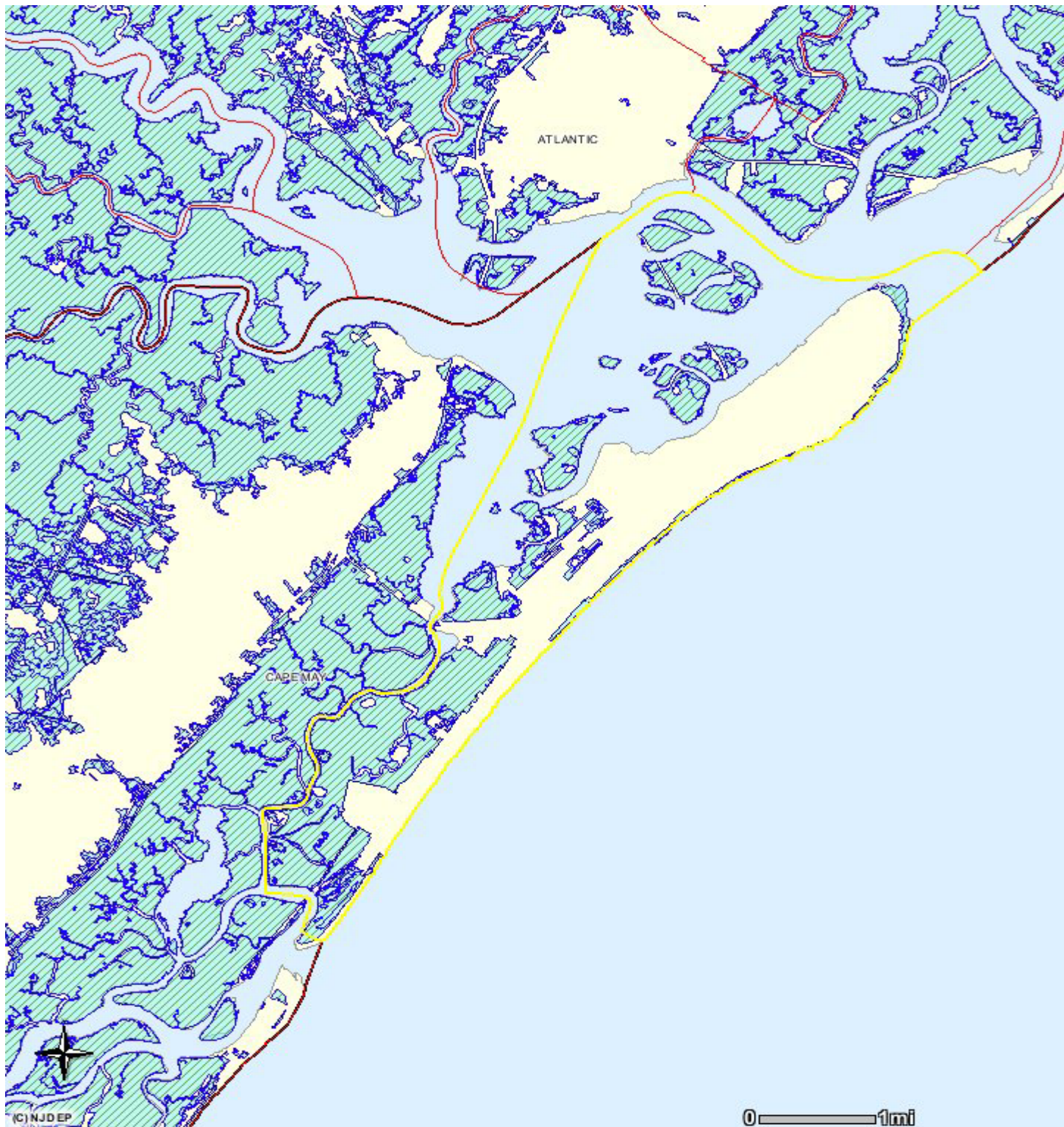
"Peak daily demand" means:

- i. For modification to or extension of an existing water system, the average daily demand as recorded in the peak month of the prior five years, plus an estimation of the anticipated peak daily water demand calculated as follows:
 - Residential – Average daily demand according to DCA's Residential Site Improvement Standards (RSIS), N.J.A.C. 5:21-5.2(d);
 - Non-residential – Average daily demand according to N.J.A.C. 7:10-12.6(b), Table 1;
 - The sum of the above multiplied by a peaking factor of three (3)
- ii. For a proposed new water system, an estimation of the anticipated peak daily water demand calculated for residential and non-residential development, per the above.

The Firm Capacity and Water Allocation Analysis consists of two (2) components:

1. Firm Capacity: The proposed water system has adequate firm capacity to meet all of the following:
 - Existing peak daily demand
 - Anticipated peak daily demand from both of the following –
 - Previously approved but not yet constructed DEP-permitted water main extensions or connections; and
 - Non DEP-permit water main extensions/connections committed to, but not yet completed by, the water supplier
 - Anticipated peak daily demand from the subject application.
2. Water Allocation: The applicant possesses a valid water allocation permit with sufficient monthly and annual diversion limits and/or bulk purchase agreements to meet existing and estimated demand, as follows:
 - Monthly – Average daily demand calculated for residential and non-residential development as above, multiplied by a peaking factor of 1.5, and then multiplied by 31 (days/month)
 - Annual – Average daily demand calculated for residential and non-residential development as above, multiplied by 365 (days/year)
 - The estimated peak monthly and annual demand shall be added to the respective, existing demand figures and then compared to the applicable water allocation permit limits.

Appendix: Maps



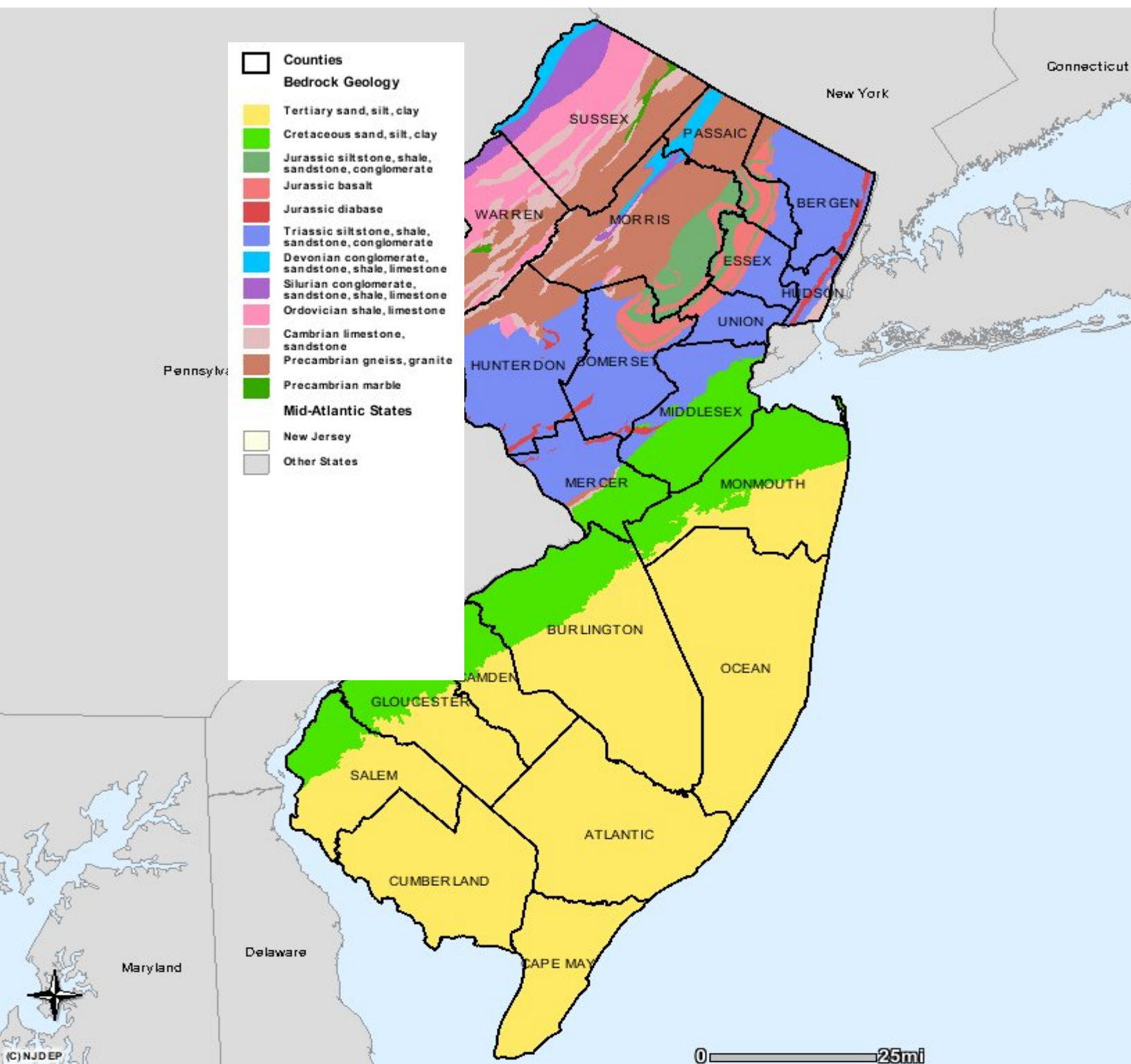
Wetlands

http://njgin.state.nj.us/dep/DEP_iMapNJDEP/viewer.htm



Watersheds

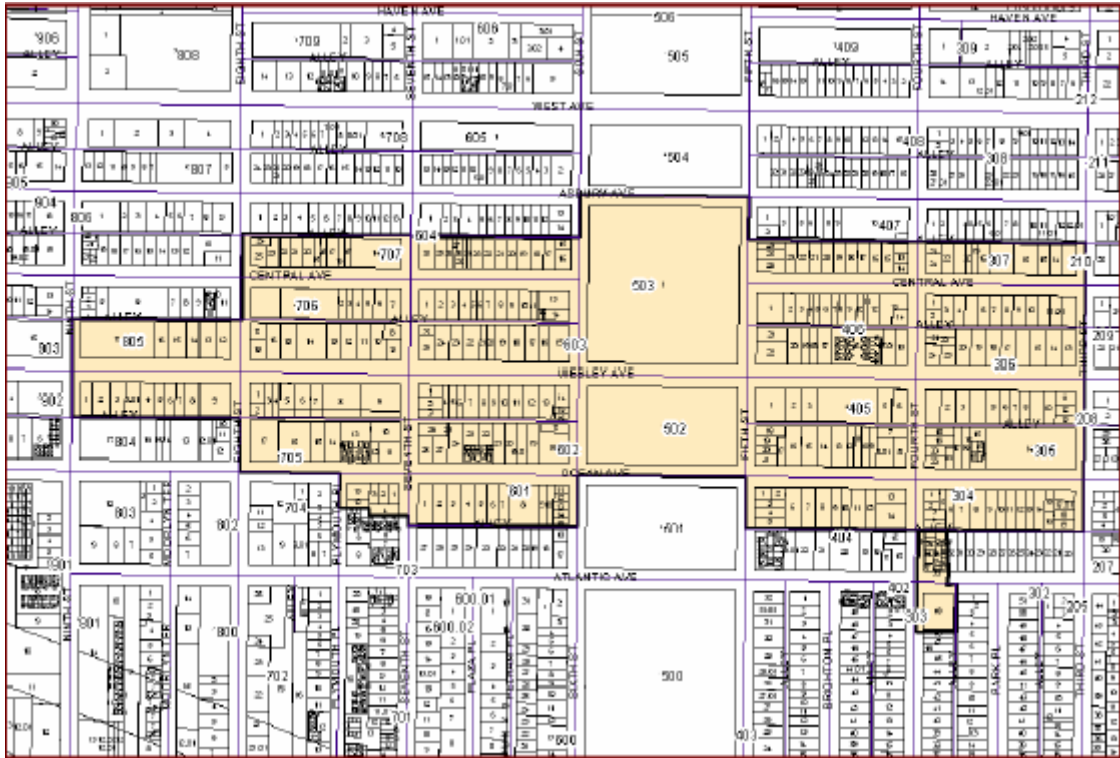
http://njgin.state.nj.us/dep/DEP_iMapNJDEP/viewer.htm



New Geology

http://njgin.state.nj.us/dep/DEP_iMapNJGeology/viewer.htm





City of Ocean City Historic District