STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
New Jersey State Forestry Services

Hereby presents the

Certificate of Approval

awarded to

Ocean City

For the successful completion of an approved
3rd 5-year Community Forestry Management Plan in accordance with the
New Jersey Shade Tree and Community Forestry Assistance Act,
P.L. 1996, Chapter 135.

State Forester
Approved No. 83
January 8, 2015

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

New Jersey State Forestry Services
Mail Code 501-04
P.O. Box 420
Trenton, NJ 08625
Tel. # 609-292-2532
FAX# 609-984-0378

Steven Longo
Department of Public Works
861 Asbury Avenue
Ocean City, NJ 08226

January 23, 2015

Dear Steven Longo:

Congratulations! I am pleased to advise you that after our review, the New Jersey Forest Service has concluded that Ocean City's third 5 year Community Forestry Management Plan meets the standards set forth by the State and New Jersey Community Forestry Council and is approved for 2014 through the 2018 calendar year.

The major goal of the state's Community Forestry Program is to educate all municipalities and counties in the state about the benefits of developing their own distinctive Community Forestry Management Plan. As these plans develop, the health of the tree cover will improve, the number of trees will increase and the awareness of our state's residents will rise.

As you know, a management plan is an essential guide to successfully achieving a healthy and safe community forest. The approval of your third 5 year Community Forestry Management Plan is a great accomplishment, and a testament to the growth and sustainability to your shade tree program. We look forward to continuing this partnership with you and your community, and your continued success.

If you are a participant of the Forest Service grant program, the next step would be to submit your expenditure report and financial documentation for reimbursement within 30 days. Please find the enclosed certificate of approval and a signed certification by the State Forester within your management plan.

Sincerely,

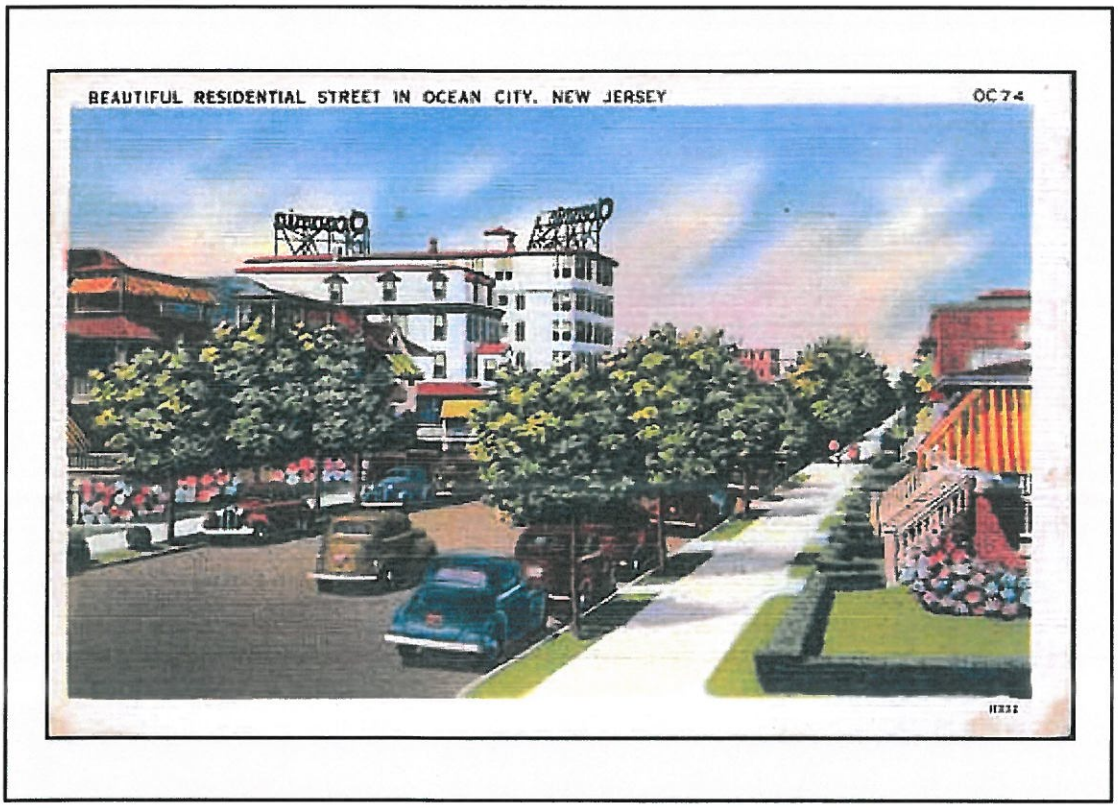
Alexander J McCartney
Forester
Community Forestry

Attachment
c: file, Mayor

OCEAN CITY COMMUNITY FOREST MANAGEMENT PLAN

Shade Tree Committee

COMMUNITY FORESTRY PLAN III



2014–2018

CITY OF OCEAN CITY, NJ

861 Asbury Avenue, Ocean City, New Jersey • 1 800-Beach-NJ • www.ocnj.us

Guidelines for a Community Forestry Plan

I. Municipal Information Form

Municipality:	The City of Ocean City
County:	Cape May
Address:	City Hall 861 Asbury Avenue Ocean City, NJ 08226
Contact Name and Title:	Mr. Steve Longo
Phone Number:	609.399.6111 Ext. 9731
Organization Name:	Shade Tree Committee of Ocean City
Mayor's Signature:	X _____
Submission Date:	December 5, 2014

Official Use Only

The above named community has made formal application the the New Jersey Forest Service. I am pleased to advise that after our review, the NJ Forest Service has concluded that this plan meets the standards set forth by the State and NJ Community Forest Council and is approved for the period covered.

Signed: _____ *Date:* 1/26/15

Community Stewardship Incentive Program (CSIP) practices

Identified in this Plan					
Y	#	CSIP Practice	Y	#	CSIP Practice
√	1	Training	√	9	Insect & Disease Management
√	2	Community Forest Ordinance Establishment	√	10	Wildfire Protection
√	3	Public Education and Awareness	√	11	Tree Planting
√	4	Arbor Day	√	12	Tree Recycling
√	5	Tree Inventory	√	13	Sidewalk Maintenance Program
√	6	Hazard Tree Assessment	√	14	Storm Water Management
√	7	Storm Damage Assessment	√	15	Trees as art form
√	8	Tree Maintenance and Removals			

Table 1 List of CSIP Practices addressed in this plan.

COMMUNITY FORESTRY PLAN III

2014–2018

CITY OF OCEAN CITY, NJ

by Mark Demitroff, NJ Certified Tree Expert #285 • Buckhorn Garden Service, Inc. • December, 2014

INDEX

II. Introduction

A. Mission Statement

To promote a sustainable and effective community shade tree resource plan for Ocean City, and explain how its implementation will optimize environmental and economic benefits to local merchants, tourists, and residents

B. Overall Goals and Objectives

This section outlines the goals of Ocean City's Shade Tree Management Program, and the means to accomplish these goals:

1) To continue to assure that any person constructing, reconstructing, converting, or enlarging any new building(s) or residence(s) within the City shall provide landscaping including pollution-resistant trees as required in subsection 25-1700.38.2.

2) To quantify and qualify tree resources by:

   a. updating the walking assessment from 2000 and 2005 to determine the condition of and changes to tree resources on Ocean City public land, including their continued existence, vigor, and problems;

   b. reviewing and updating the tree index for risk assessment and health maintenance;

   c. creating an inventory of large and otherwise exceptional trees on public lands.

3) To increase the amount of, and the species diversity of shade trees on the island by:

   a. pursuing tree planting grants;

   b. pursuing private funding sources for trees;

   c. more fully implementing the use of the recommended tree list generated after careful review of data contained within the 1999 and 2005 walking assessments.

4) To refine tree establishment standards by:

   a. refining tree ordinance as a whole to avoid conflicting regulations;

   b. promoting tree stewardship through planting and tree-care guide development.

5) To protect existing trees by:

   a. finding ways to minimize Plant People Pressures by reducing vehicle damage to trees trees and reducing "lawn mower blight" to trunk bark on public grounds.

   b. developing a storm and floodwater preparedness program.

   c. continue training programs for Shade Tree Committee members and municipal employees.

   d. reaching out to developers to find innovative ways incorporate larger existing trees on private properties during their redevelopment.

6) To acquaint, and encourage support from, the public about the value of trees by:

   a. Promoting Arbor Day festivities;

   b. Expanding the Shade Tree Committee web page, which is linked to the City website.

7) To maximize public safety in association with trees by:

   a. training of key individuals in tree hazard identification;

   b. and elimination of tree species and cultivars prone to structural and other safety-related defects (Bradford pears, hybrid polars).

C. Liability Statement

Although street trees greatly enhance Ocean City's rather barren sands, it is inevitable that they mature and require care, maintenance and eventually replacement. Care and maintenance, in addition to planting "the right tree in the right place," help to insure that community trees not only contribute to the environmental and economic vitality of Ocean City, but also reduce the potential hazards to public safety. "A street tree cannot, of course, be expected to be completely free from defects or potential hazards. Such a state is simply unattainable" is a principle established by the German Federal Court, and it has relevance the world over. Ocean City tries to achieve a reasonable budget that may not be able to meet each and every need of the community forest immediately. Therefore it is the intent of this plan to focus available resources to the greatest need and step by step work towards a healthy forest with commensurate reduced risks to public safety.

The Shade Tree Committee of Ocean City feels, by taking logical steps outlined in the plan, we will garner public support for plan implementation and demonstrate the longterm benefits to the environment and public safety. We also want to become more pro-active in the management and care of our trees. Through inventory and hazard assessment, we will position our Shade Tree Committee to take corrective action prior to structural tree failure and other hazardous tree related conditions. It is acknowledged that not all hazardous conditions can or will be predicted. Good maintenance and care will reduce the probability, but unexpected events will occur. Following this plan will demonstrate that the City of Ocean City is devoting reasonable levels of resources in a planned manner to reduce the number of tree related accidents and thereby reduce its exposure to liabilities and increase public safety.

III. Community Overview

A. Maritime Heritage

Ocean City is first described as an island "well timbered" in 1698 (Thomas, 1698). It was a series of low dunes considerably clothed in eastern redcedar, American holly, and various oaks including blackjack, spanish, white, willow, and post. Common were black cherry, Atlantic whitecedar, common hackberry, and shadblow serviceberry. Lesser quantities of sweetbay magnolia, common sassafras, pitch pine, American persimmon, and both black and American sweet gum added to the thick woods (Cook, 1857; Stone, 1911; Harshberger, 1916). High dunes were not present. Much of the meadow bordering the forest has been filled with dredgings, adding at least a third to the original acreage (Lee, 1965).

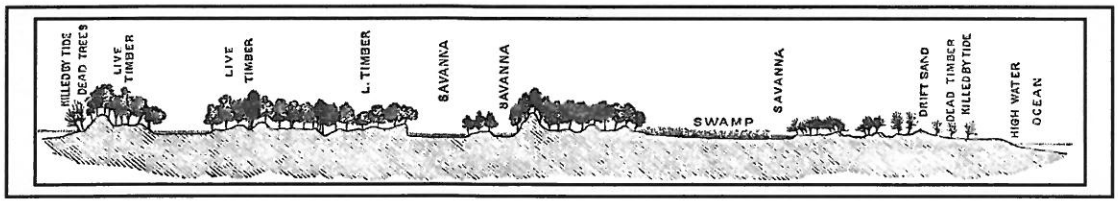


Figure 1 Landscape section across a barrier island (bay to ocean) showing original timber, meadows, and dunes (Cook, 1857: 52). Ocean City was once heavily wooded upland dunes with broad swaths of interdunal lowland swamps and grassy savannah.

The seven miles of island is merely a windblown pile of sand, a recent geologic formation. Its creation has a very complex history, and is constantly in change. The strand would migrate towards the shoreline, if it were not for engineered intervention. Silica sands are the product of long, continuous cycles of weathering, abrasion and winnowing. Softer materials have long ago been washed away. Here the sand is particularly fine in size, with a predominance of hornblende, and it contains about 2% heavy metals (McMaster, 1954). It is composed of recent (Holocene-aged) beach sand and gravel and manmade fill (waste rock, sand, gravel, silt, clay, trash, ash). Some of the beach is is manmade dredging and pumping sediments. Windblown sand is commonplace (Newell *et al.*, 2000).

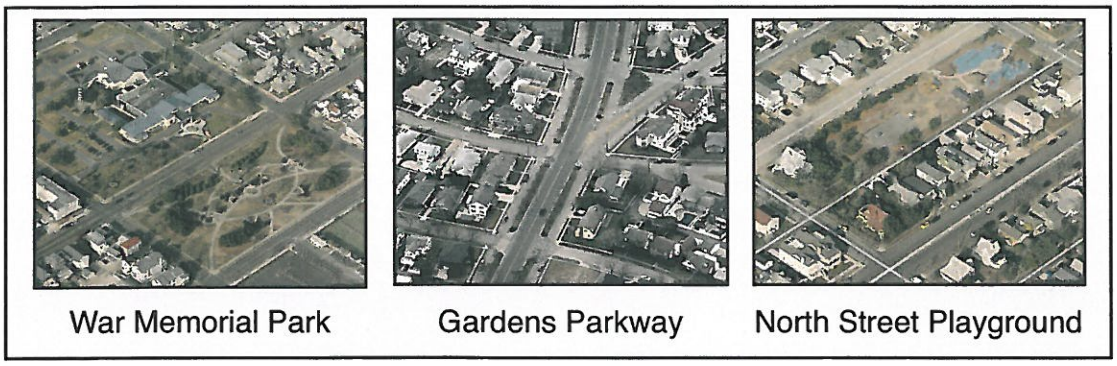


Figure 2 Oblique aerials of The City of Ocean City showing the relationship of the tree stock and the built environment (Pictometry, 2013).

Much of the tree planting ground is considered fill material, often obtained from dredging operations. The higher ground towards the coastline is designated USPSBR—Urban land-Psamments, wet substratum complex, 0 to 8 percent slopes, rarely flooded. Lower ground towards the bayside is designated USPSAS—Urban land-Psamments, sulfidic substratum complex, 0 to 2 percent slopes, occasionally flooded. Lowland flats to the east and southeast of the airport is designated PstAt—Psammaquents, sulfidic substratum, 0 to 3 percent slopes, frequently flooded (Soil Survey Staff, 2013). This medium is very low in organic matter, low in available water capacity, rapidly permeable, and excessively drained. Another limitation is flooding from brackish water. Concentrations of methane and hydrogen sulfide gas can fill soil pore space, a byproduct of decay from buried vegetation. Forest Productivity data is not provided but is low today.

Historically this has not been the case. The north end of Ocean City was particularly well endowed with timber, later cut when the dunes were leveled for development in the 1880's (Lee, 1965). This grove provided excellent shelter for cattle which were pastured on the island's meadows (Stevens, 1897). Some cattle were raised in the Pine Barrens, and were brought by cattle-drive to overwinter in the holly thickets when the season high water-table flooded them out of their meadow grazing grounds. Cow-Pens Island probably got its name from cattle that swam or were ferried over from what is today Atlantic County (Demitroff, 2007). A few old eastern redcedars and American hollies on the north end of the island are possibly relicts from this ancient forest.

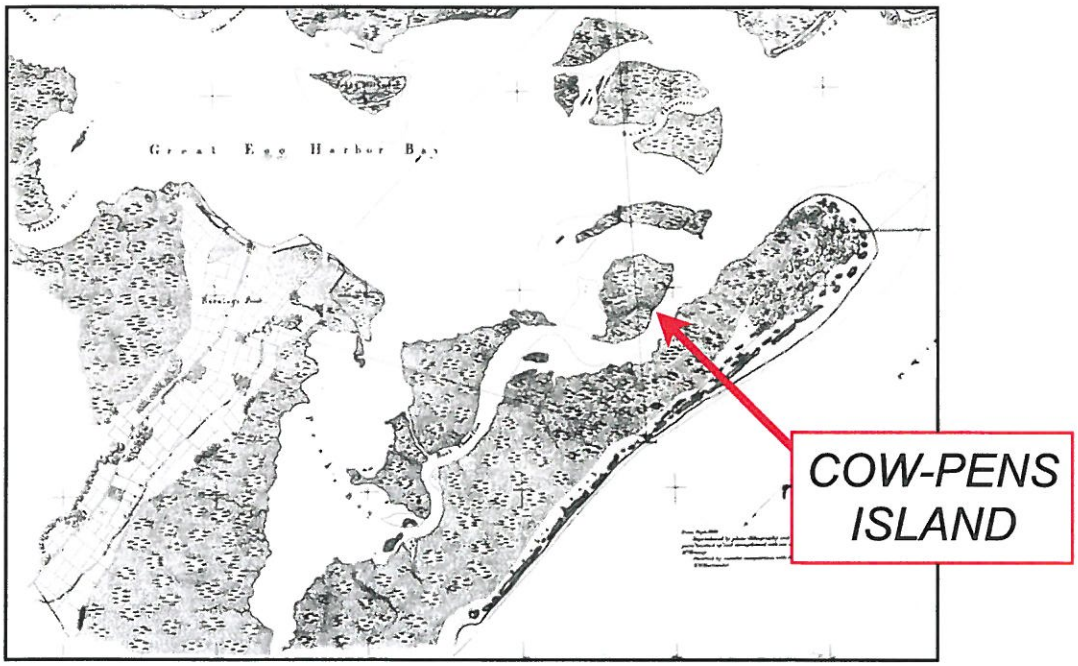


Figure 3 Early coastal survey map showing location of Cow-Pens Island. Also shown is the original dune area (white), forest area (north end) and hummocky marsh (Hassler and Bache, 1862: Map 16).

B. Shade Tree Committee

Founded in 1980, the Ocean City Shade Tree Committee was active for its first decade, and then its activity waned. Interest re-bloomed in 1995, and the Committee has been energetic ever since. The Shade Tree Committee meets on the fourth Wednesday of the month at the Henry S. Knight Building in the 2nd floor conference room. The management of the city's tree resources is not addressed in the Master Plan at this time. Greater than 95% of Ocean City's buildable land is developed.

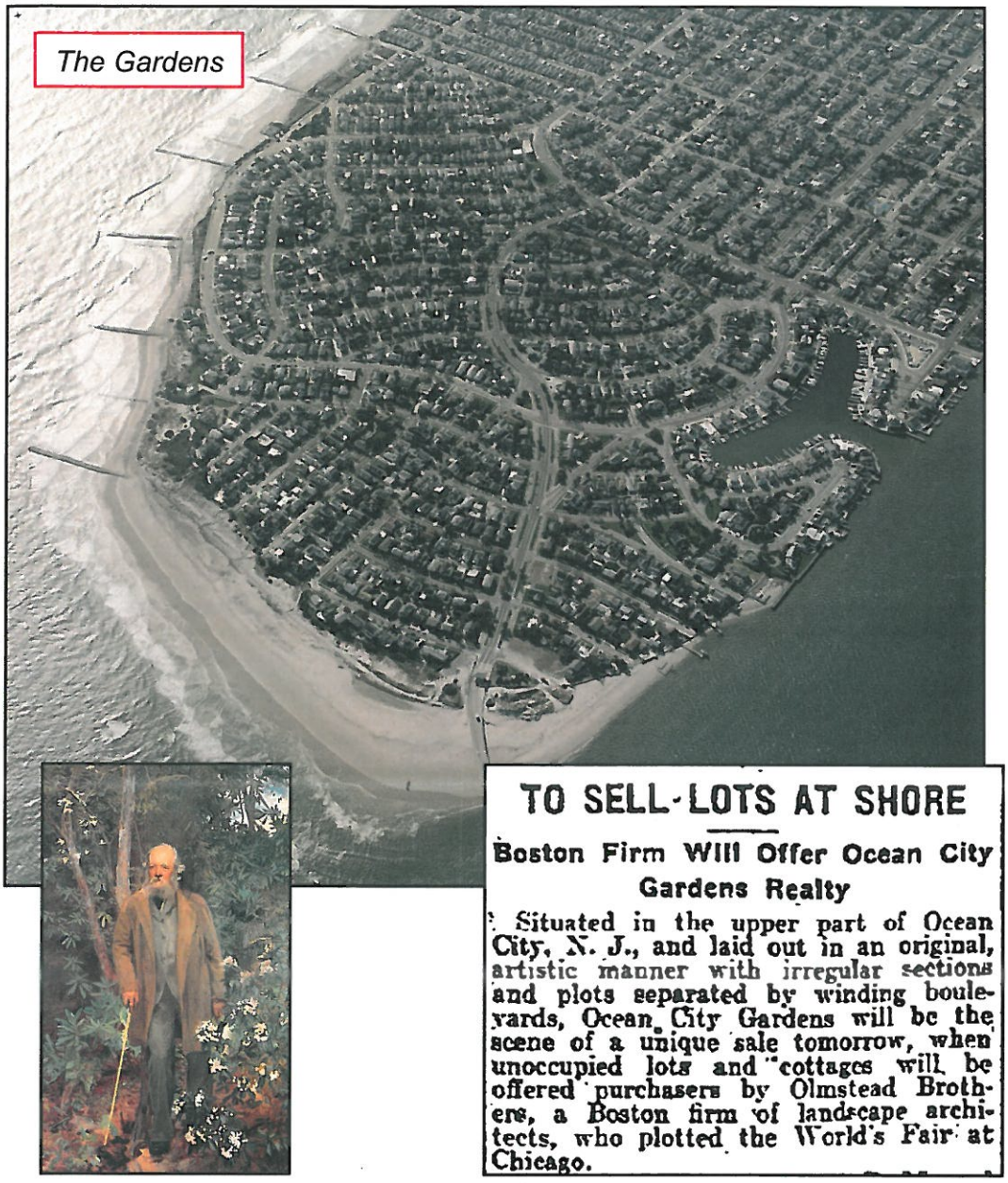


Figure 4 While doing shade tree planning research (with the assistance of Historian Paul Schopp), it was discovered that the City's Gardens section was designed by the famed Olmsted Brothers architectural firm from Boston. Based on a review of the Guide to the Olmsted Brothers papers, the firm first laid out a plan for Ocean City Gardens in 1907 and continued working on it until 1917. Other Olmsted projects include Stanford University Park, Fenway Park, Arnold Arboretum, Central Park, Biltmore Estates, the US Capital, and (surprisingly) nearby Parvin State Park. Insets (left) oil painting of Frederick Law Olmsted, Sr. by Sargent (1895) from Wikipedia and (right) advertisement from the *Philadelphia Inquirer.* Oblique aerial is by Pictometry (2007).

C. Five-Year Management Plan II

- Develop a tree liability index: partially complete. This initiative resulted in significant updates to Ocean City's recommended tree lists.
- Tree inventory using GIS: incomplete. A full accounting of the island's tree stock via geographic information systems remains untenable for several reasons. First, coastal conditions are rigorous, resulting in greater tree inventory turnover than in inland environments. Second, most properties are owned by absentee landlords, so on site tree stewardship is incomplete compounding tree turnover. Finally, the municipal staff is overburdened with Sandy reconstruction issues, leaving little time for tree monitoring.
- Pursue tree planting grants: complete. Ocean City was awarded $25,000 as part of the Cool Cities Grant that was used to support efforts to plant close to 100-trees along the 8th and 9th Street cross streets in the heart of the downtown business sector to enhance and beautify the area. A follow up inspection was conducted by State Forester Joe Bennett in August of 2009 and shortly thereafter a reimbursement check was provided to Ocean City for the towns' efforts in completing this important community project.
- Develop a recommended tree list: complete. Five separate recommended tree lists were developed by a NJ Certified Tree Expert and are available in web and print published formats (Tables 13–17).
- Revamp tree ordinances: complete. In its continuing effort to improve existing tree statutes, the Shade Tree Committee was instrumental in the implementation of Ordinance Number 12-03 An Ordinance Amending and Supplementing Chapter II Administration, and Chapter XXV Zoning and Land Development.
- Develop tree planting guidelines: complete. A six-part concise guide to tree planting was developed by a NJ Certified Tree Expert and published (Figure 9).
- Develop a plan to educate about how "people pressures" affect trees: incomplete. While these issues were addressed early on in during Management Plan II, seminars on this topic have waned and need revisitation.
- Train Shade Tree Committee members about tree hazards, pruning, maintenance, and pest control: complete. The City of Ocean City and local volunteers that are members of the local Shade Tree Committee have been attending yearly training at the annual Shade Tree Federation since the mid-nineties.

- Train Public Works employees about tree hazards, pruning, maintenance, and pest control: complete. The City of Ocean City and local volunteers that are members of the local Shade Tree Committee have been attending yearly training at the annual Shade Tree Federation since the mid-nineties.
- Use Public Relations Office resources to celebrate Arbor Day: complete. The Shade Tree Committee annually engages Public Relations to maximize coverage of Arbor Day events.
- Establish a dedicated Ocean City Shade Tree Committee web page: incomplete. While a dedicated page was established, it is no longer maintained at the latest iteration of the Official Municipal Website, "Welcome to Ocean City New Jersey: America's Greatest Family resort™."

D. Five-Year Management Plan III

- Training for shade tree members & municipal employees.
  - ☑ *continue to attend annual Shade Tree Federation training.*
  - ☑ *resurrect the once popular Bayside Center public tree care forum.*
- Training for local tree-care professionals & general public.
  - ☑ *resurrect the once popular Bayside Center public tree care forum.*
  - ☑ *continue to re-certify to keep the Tree City USA designation.*
- Hone existing tree legislation.
  - ☑ *review street tree size specifications in terms of tree survivability, tree availability, and economic realities.*
- Celebrate Ocean City's forest heritage.
  - ☑ *promote the value of trees by reaching out to other organizations through guest talks (e.g., historical society, environmental commission).*
- Design and publish tree care pamphlets.
  - ☑ *design and publish the long-planned Tree Maintenance pamphlet companion to the Tree Planting pamphlet.*
- Plan tree events like Arbor Day festivities.
  - ☑ *coordinate Arbor Day programs through the local elementary school.*
  - ☑ *use the Public Relations office to bolster the message that Ocean City values trees.*
  - ☑ *reach out the the environmental commission for assistance in Arbor Day festivities.*
- Initiate a post Sandy walking tree inventory.
  - ☑ *reassess Ocean City's tree stock for salt and flooding hardiness.*
  - ☑ *reassess Ocean City's tree stock for signs of wind damage susceptibility.*
- Revisit methods of making tree hazard assessments.
  - ☑ *resurrect the once popular Bayside Center public tree care forum.*
  - ☑ *use the post Sandy walking tree inventory for an opportunity to reassess the sustainability/safety of ubiquitous Bradford pears, which actually fared well on close scrutiny during the 2nd walking tree inventory.*

- Develop a storm damage mitigation plan.

  ☑ *have a NJ certified tree expert review review storm-related literature from the Southeast Atlantic and Lower Gulf States where salt-water intrusion occurred in the past (e.g., Hugo, Katrina).*

- Continue to facilitate public tree maintenance & removal.
- Develop an index of risk assessment & health maintenance.

  ☑ *use the post Sandy walking tree inventory for an opportunity to evaluate identify tree problems and address their reparation.*

- Ban wood chip mulch along busy roads.

  ☑ *lit cigarette butts tossed from passing vehicles have caused planting beds to catch fire.*

- Seek tree planting grants.

  ☑ *find creative ways to seek out private and public tree funding opportunities.*

- Locate tree-stock sources for the public & landscape trade.

  ☑ *approach South Jersey nurseries to open dialog about hard-to-find desired yet obscure specimens placed on the City's recommended tree lists. Create a wholesale/retail availability and contact sheet to facilitate the use of scarcer native and lesser known salt and/or flood tolerant species.*

- Promote tree-stock diversity through the web and public lectures.

  ☑ *approach South Jersey nurseries to open dialog about hard-to-find desired yet obscure specimens placed on the City's recommended tree lists. Create a wholesale/retail availability and contact sheet to facilitate the use of scarcer native and lesser known salt and/or flood tolerant species.*

- Encourage the reintroduction (reuse) of native tree stock over exotics.

  ☑ *Sea level has steadily risen with climate amelioration since the Late Glacial Maximum some 18,000 years ago. For thousands of years, the island's indigenous vegetation and its attendant faunal community was able to adapt to changeable conditions associated with sea level rise. It is hoped that a better understanding of past adaptive ecology will help Ocean City plan for future conflicts related to these issues.*

- Investigate Ocean City's stake in climate change dynamics.

  ☑ *Ocean City must adapt to the reality of coastwise living in a changing environment, and must learn how to readjust its vision of what a community forest might look like on a barrier island.*

  ☑ *plan for increased frequency and duration of salt- and freshwater flooding and/or inundation having an effect on tree stock sustainability.*

- Reaffirm through reconnaissance that sidewalk maintenance is not a tree-related problem.

  ☑ *Ocean City is remarkably free from sidewalk damage due to tree root expansion. This phenomenon, or lack thereof, may be related to the local soil composition. This is a barrier island, with a substrate made up of loose windblown quartz sand. As tree roots expand beneath a sidewalk, the enclosing loose sand will yield much more readily than the harder concrete above. As a result, roots grow downward and sidewalk heave is rare.*

- Celebrate the aesthetic qualities of trees.

  ☑ *Ocean City is a playground for many artists, writers, and poets. Arboriculture is a science, a practice, and an art form Towards the latter the Shade Tree Committee will try to find synergy between the humanities and urban forestry. They will open dialogue with Richard Stockton College's burgeoning South Jersey Culture and History Center and Ocean City's Arts Center to help celebrate the grandness of nature as a whole.*

E. Ocean City's Master Plan

Ocean City's Master Plan is a comprehensive document that includes conservation plan and land use plan elements. The conservation plan was updated in 2009 to include an inventory of recreation environmental resources. The land use plan was updated in 2001.

Ocean City has recently completed a Master Plan Open Space and Recreation Plan (OSRP) element. This document was funded in part with a Sustainable Land Use Planning Grant from the Association of New Jersey Environmental Commissions. The OSRP is consistent with the requirements of the Municipal Land Use Law, NJSCORP and the Green Acres program. This Plan contains goal statements, a full inventory of recreation facilities, needs analysis, recommendations and implementation strategies.

The **Community Forestry Management Plan** is consistency with the following Open Space and Recreation Plan goals:

- Enhance the quality of life in Ocean City by developing and maintaining a high quality, balanced and diverse system of accessible public parks, active and passive recreational facilities, and open space which promote year-round healthy living and active lifestyles for all ages and abilities, and support the economic needs of the City.

  ☑ *high quality parks are dependent in part on the introduction and management of landscaping and tree resources as identified in the Community Forestry Management Plan.*

- Continuously work to improve the health and integrity of environmental resources and open space and reduce the costs of mitigating adverse consequences.

  ☑ *the Shade Tree Management Program's attention to risk assessment and health maintenance of tree resources will serve to maintain the health and integrity of environmental resources.*

- Promote protection of open space, important habitats, and environmentally sensitive areas through public and private action in order to maintain and improve the City's biodiversity, and improve protection from sea level rise and severe storm events.

  ☑ *the Shade Tree Management Program's public outreach, training and on-going assessments will advance the goal to protect open space, important habitats and environmentally sensitive areas.*

- Protect and improve the existing system of open spaces throughout the city through capital rehabilitation, maintenance, programming, and other system operations.

  ☑ *the Shade Tree Management Program's tree maintenance protocols will serve to protect and improve the City's existing system of open spaces.*

- Provide outreach to increase awareness of the City's open space and recreational assets, and inform the community about the need for open space protection and good stewardship.

  ☑ *the Shade Tree Management Program's public outreach and training initiatives will enhance efforts to educate the public regarding the importance of environmental stewardship.*

- Establish design and performance standards that will protect environmentally sensitive and critical habitat lands including floodplains, wetlands, sand dunes and beaches.

  ☑ *the Shade Tree Management Program identifies adherence to the City's landscaping requirements as important elements for the continued protection of sensitive areas and critical habitats.*

F. CFMP Relationship to Ocean City's Master Plan

Ocean City's Master Plan is a comprehensive document that includes Conservation Plan and Land Use Plan elements. The conservation plan was updated in 2009 to include an inventory of recreation environmental resources. The Land Use Plan was updated in 2001. The City Master Plan contains a number of objectives that refer directly or indirectly to the preservation, conservation and utilization of natural resources.

The following Master Plan Objectives create a common link with the City's **Community Forestry Management Plan (CFMP):**

- To provide adequate light, air and open space.

  ☑ *the CFMP's Shade Tree Management Program advocates the planting of trees when properties are redeveloped.*

- To promote the establishment of appropriate population densities that will contribute to the well-being of persons, neighborhoods and preservation of the environment.

  ☑ *the CFMP's Shade Tree Management Program proposes an on-going program to assess the condition, conduct risk assessments and monitor the health of tree resources on public lands.*

- To promote the conservation of open space through protection of wetlands, stream corridors and valuable natural resources and prevent degradation of the environment.

  ☑ *the CFMP's Shade Tree Management Program risk assessments and health maintenance will serve to 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.

  ☑ *the CFMP's Shade Tree Management Program's proposal to protect existing trees will result in the preservation of sites that are historically significant due in part to their tree resources.*

- To promote public acquisition and enhancement of open space and recreation areas.

  ☑ *the CFMP's Shade Tree Management Program's tree planting and maintenance recommendations will enhance open space and recreation areas.*

The Master Plan contains the following recommendations that demonstrate a connection to the **Community Forestry Management Plan**:

- Identify and list large mature trees on private properties.
- Consider an initiative that encourages plantings that provide habitat for migrating birds and butterflies.

IV. Community Forestry Program Administration

A. Shade Tree Committee Members – 2014

AUTHORITY - Ordinance 80-2. Mayor appoints seven (7) members for four (4) year terms with advice and consent of Council.

2014 Members				
Member	Appointment Date	Term Length	Expires	Oath
Chairman Rick Mendham 9 E. – 31st Street 609.391.1145	12/13/12 R.12-49-073 1/15/09 R.09-45-282	4 Years 2nd Full Term 4 Years 1st Full Term	12/31/2016 12/31/2012	YES
Secretary Mary Louise Hayes 9 31st Street 609.391.1145	1/14/10 R.10-46-275 7/22/06 R.09-46-126	4 Years 1st Full Term 4 Years (To fill the unexpired term of Jeanne Clunn)	12/31/2013 12/31/2009	YES
City Representative Steve Longo 609.525.9261 ext. 31				YES
Marie Knight 500 Bay Avenue, Apt. 5095 609.399.4646	1/14/10 R.10-46-275 1/12/06 R. 06-43-011	4 Years 2nd Full Term 4 Years 1ST Full Term	12/31/2013 12/31/2009	YES
Steve Moran 3506 Simpson Avenue 609.399.8272	12/20/11 R.11-48-158	4 Years 1st Full Term	12/31/2015	YES
Pete Probasco 228 W Inlet Road 609.398.9672	12/13/12 R.12-49-073 1/14/10 R.10-46-275	4 Years 1st Full Term 4 Years (To fill the unexpired term of Susan Hafsrud)	12/31/2016 12/31/2012	YES
Janet Staneruck 2913 Haven Avenue	6/28/12 R.12-48-329	4 Years (To fill the Unexpired Term of Angelina Smith)	12/31/2014	YES

2014 Members				
Vacant Joseph Clark 212 North Point Road 609.398.8145 (H) 609.271.5528 (C) 609.525.9354 (W)	1/15/09 R.09-45-282 12/21/04 R.04-42-114	4 Years 2nd Full Term 4 Years 1ST Full Term	12/31/2012 12/31/2008	YES

Table 2 List of Shade Tree Committee Members for 2013.

B. Shade Tree Committee Activity

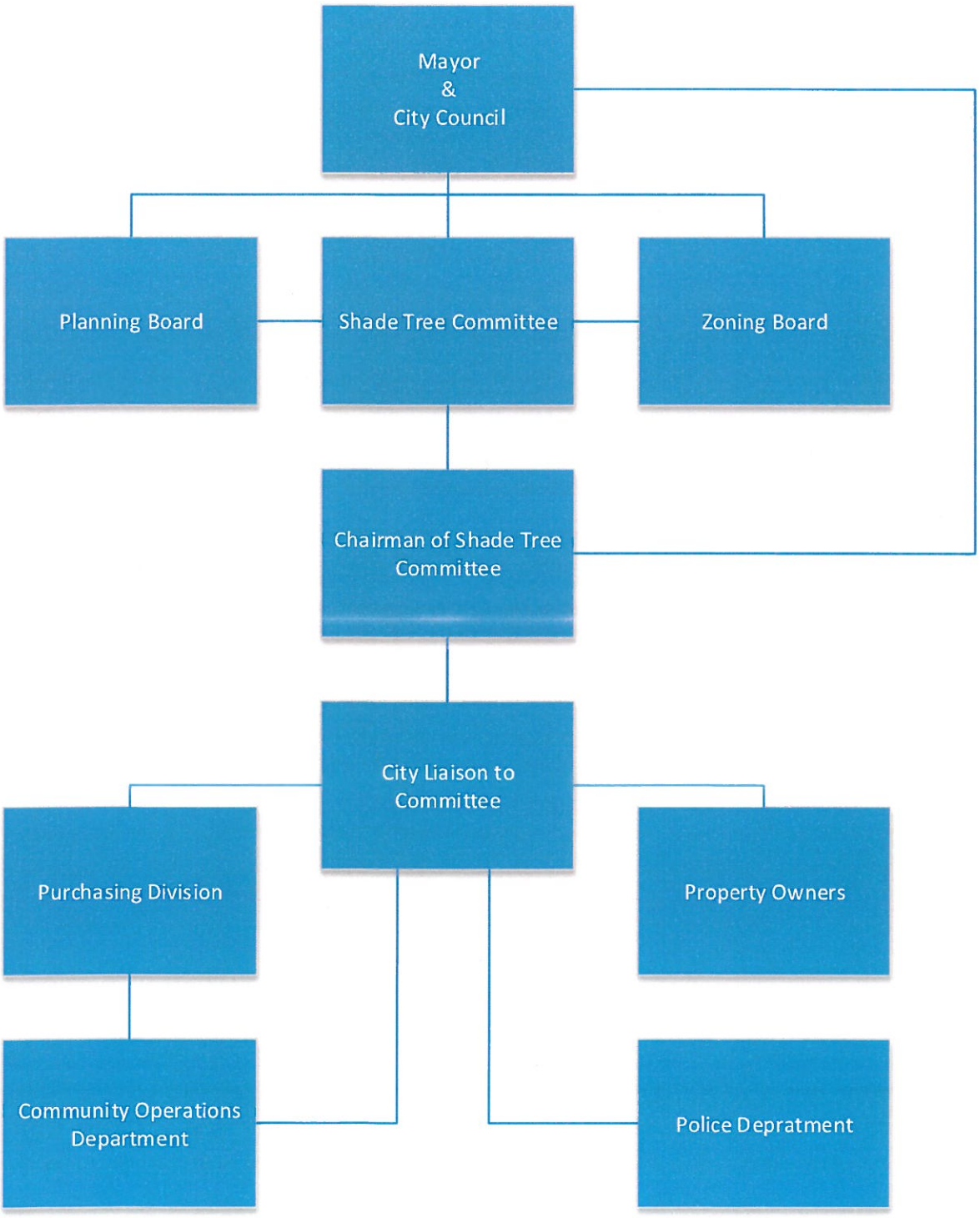


Figure 5 Organizational chart showing management of Ocean City's tree resources.

A. Ocean City Now and Then

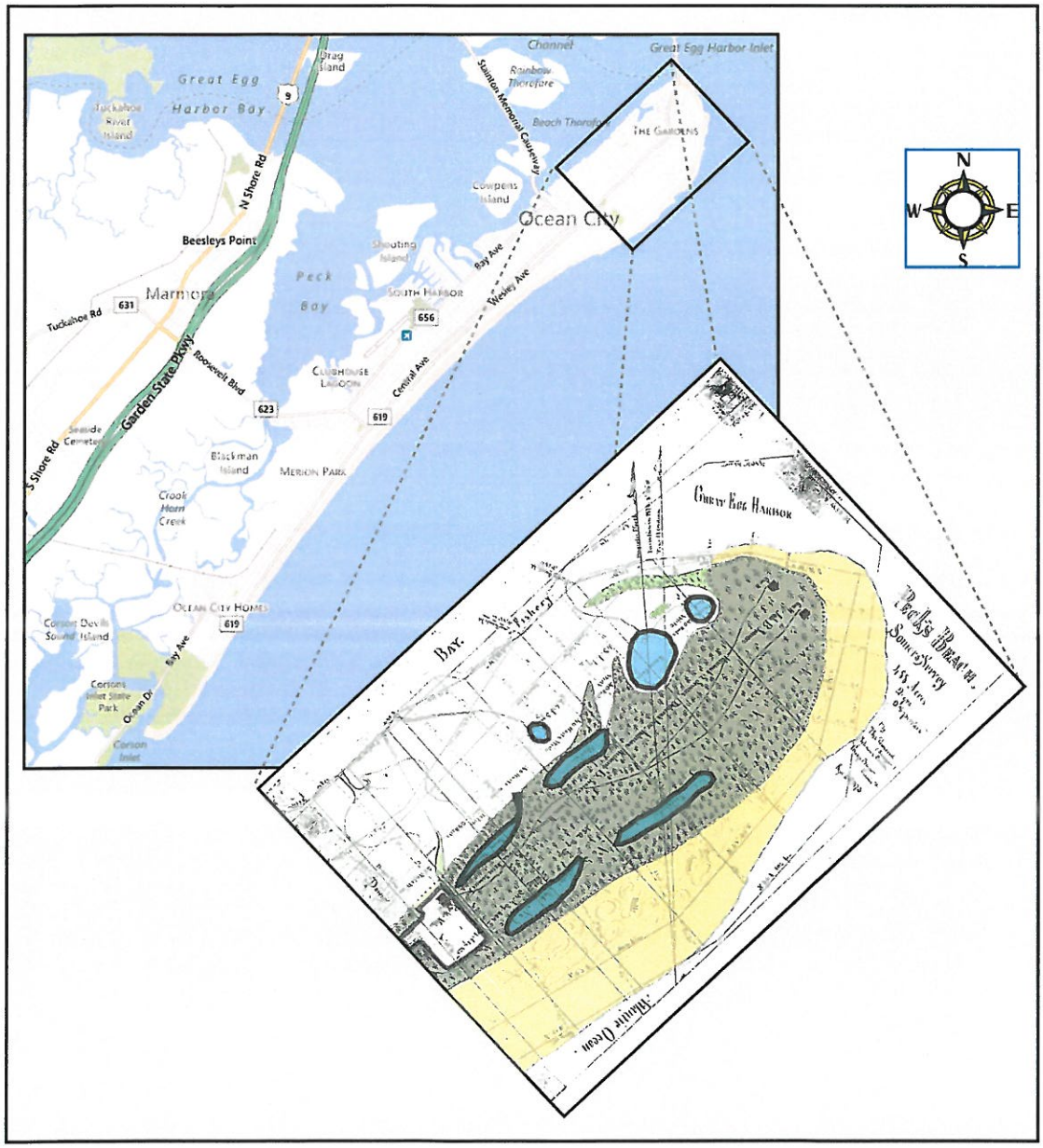


Figure 6 Map of modern Ocean City (Bing © and © 2013 Microsoft Corporation via Pictometry). The inset is the Peck's Beach Somers' Survey of 488 acres by Thos. Townsend (surveyor), September 28, 1873. Color has been added for contrast to illustrate the extent of original forest and wetland habitat.

B. Planning Ahead

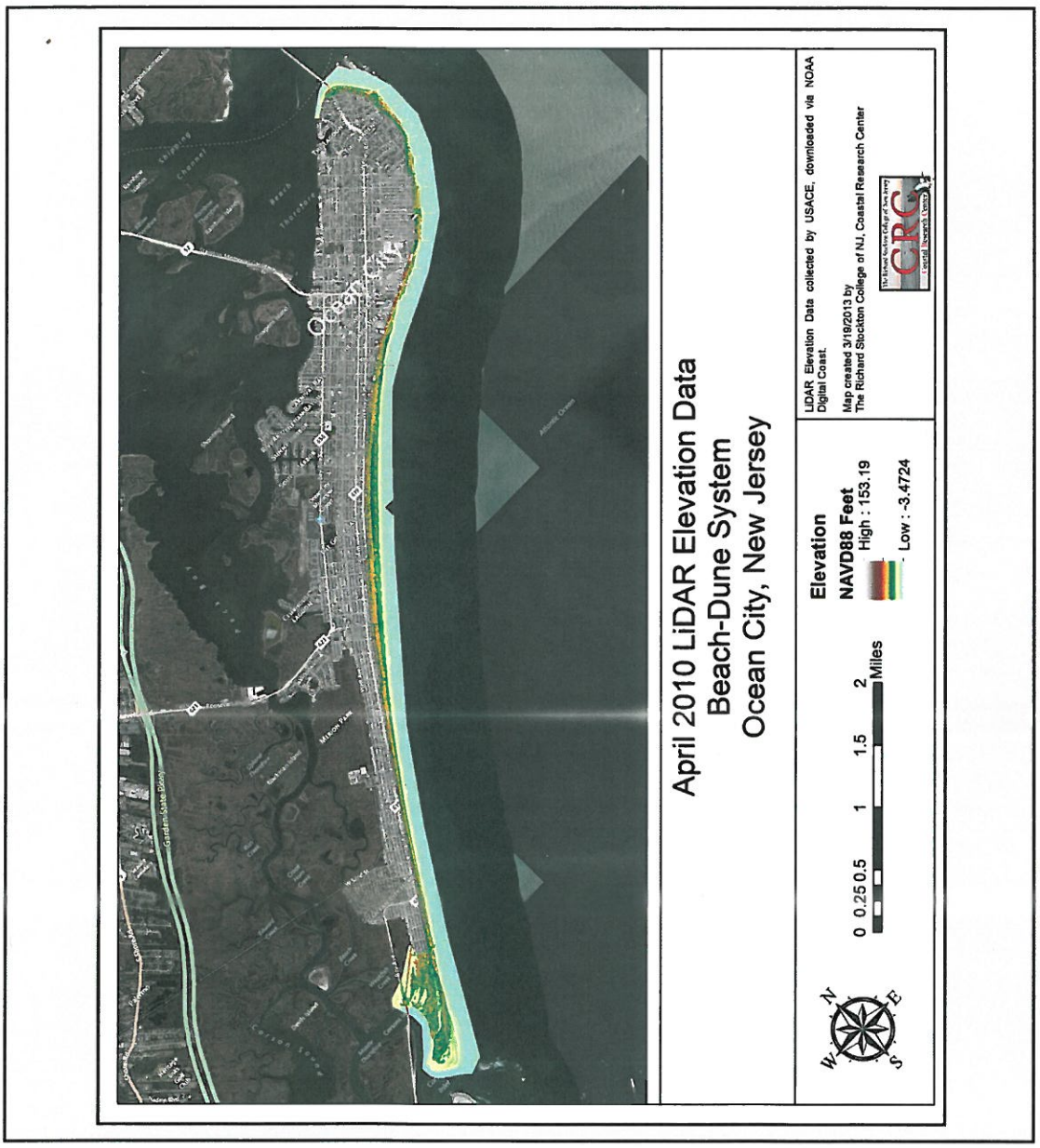


Figure 7 LiDAR-based digital elevation model of the City of Ocean City. A narrow strand of sand with dunes protects the island from Atlantic storms. According to Steven Hafner of the Richard Stockton Coastal Research Center, "The dune system is the most important feature on barrier islands for providing storm protection and natural habitat" (Nevitt, 2013).

Figure 8 NJ Flood Mapper image captured to represent inundation levels at high tide should sea level rise by two feet. Areas hydrologically connected with the bay or ocean are shown in shades of blue (darker blue = greater depth). Low-lying areas not hydrologically connected but may flood are shown in green (CRSSA, 2013)

VI. Training Plan

A. Shade Tree Federation

Training continues for volunteers and city team members through various forms, but the most consistent is received during the annual Shade Tree Federation meeting. Several city employees attend this training with local volunteers to obtain valuable information on tree maintenance procedures, proper safety techniques and equipment, determining tree hazards, the appropriate tree selections based on specific areas of the Ocean City and direction on sustaining tree health. Equally important is the continuing education received and the CEU's that are obtained and important components in maintaining the state compliancy that relates to the Community Forestry Management Plan. Additional training is scheduled on an annual basis for city employees through courses offered supported by the NJAES Office of Continuing Professional Education at Rutgers University in northern New Jersey. The primary funding for this and the annual Shade Tree Federation meeting is provided through the Ocean City Shade Tree Trust Fund, an account that is funded by waivers for property owners that for various reasons cannot plant shade trees on their properties. Each waiver results in a $350 fee deposited into the trust account. Additional educational funds are sought through the various grants that become available through the state.

VII. Public Education–Awareness–Outreach*

A. Storm Water Management

With climate change, flooding and inundation concerns are of prime concern (Figure 8). On October 29, 2012 Ocean City sustained major damage when Hurricane "Superstorm" Sandy came ashore. During high tides most of the island's landmass was inundated with brackish water when ocean met bay. In response, the City of Ocean City hired a certified tree expert to report back on building a roadmap to tree recovery post Sandy. In brief:

- The consensus is that early plant response is not indicative of what will happen in the long run. Accounts from the Carolinas and the Gulf States indicate storm injury may slowly kill Ocean City trees for many months to come. Salt-water inundation is a long-term response;
- Salt-water flooding closes pores called stomata, pores that help in photosynthesis and other plant processes. Sandy's timing may result in low energy stores, since October is the time trees transfer carbohydrates to the roots;
- Flood tolerant species will do better. Pond and baldcypress are supposedly exceptions, so we will see if the ones planted by Ocean City have read the scientific literature and know they should live;
- Ocean City has two types of salt-water intrusion to worry about: 1) chronic, like that associated with sea-level rise; and 2) acute, like that associated with a hurricane;
- Gypsum does no good. According to the agronomists it only works well for the "Sodic" soils out west. In NJ its application supposedly will only increase soil salinity. The Delaware extension service says that abundant irrigation (natural or man-made) is the only way to get salts out;
- The worst thing to do is to fertilize trees in low energy from Sandy. It is feared that many homeowners will Miracle-Gro their trees, and only hasten their demise. Fertilizer is not plant food (*see* Shigo 1986: 45–46).

The roadmap to recovery is in the process of being formulated into a preparedness pamphlet for public and tree trade use. Current recommended tree selection lists indicate salt- and flood-tolerant species, species which will be given preference over other in flood-ravaged locations. A tree survey update will help to fine tune the 2010 recommended tree list to help determine the best of the hardiest survivors as field tested by Sandy.

B. Educational Pamphlets

The local Shade Tree Committee reviewed their tree planting rules and recommendations disparate and cumbersome. In response, the initiated the design of a handy tree planting guide with the aid of a New Jersey Tree Expert with long-term island experience. The color trifold provides concise information on recommended tree species, their edaphic attributes, size standards, locational standards, and establishment tips (Figure 9).

C. Arbor Day Festivities

Arbor Day is celebrated annually by having a tree or trees planted on public property throughout the city. The event is publicized on the city's website and on the local access television channel. Members of the Shade Tree Committee typically attend, photos are taken and an official proclamation is voted on and provided by the City Council.

D. Shade Tree Inventory

The last tree inventory was completed in 2008-2009 by a NJ Certified Tree Expert and is included as a component in the 2nd 5-year Community Forestry Management Plan. During 2010, the City used the updated information in the latest inventory to update their recommended tree lists:

- Class #1 – Preferred List for Street Tree Planting Use (Table 13);
- Class #2 – List of Street Tree Acceptable for Planting Trial Within the First Ocean Block (Table 14);
- Class #3 – Preferred List for Yard Tree Use (Table 15);
- Class #4 – Provisional Yard-Use Trees, Having Limitations that Negate Their Widespread Planting in Ocean City (Table 16);
- Ocean City's Recommended Hedgerow List (Table 17).

* It is important to remember that Ocean City is a family resort community, one of tourists and second homes. The city's resident population has been in gradual decline. Families continue to migrate off island to the mainland. Stewardship of the island's shade tree stock is largely contracted out to maintenance professionals and public works. Community volunteerism plays a secondary role in overall tree stock management, so volunteers play a lesser role here than on the mainland.

VIII. Statement of Tree Budget

A. Budget Narrative

The main funding for the committee continues to come from a dedicated trust account. The Department of Administration and the Community Operations Department continue to oversee the account jointly. The disbursements fund an array of needs including the acquisition of certified tree expert services, the purchase of trees and all related equipment and material required to sustain healthy trees throughout the community.

B. 2007 Budget Details

The following is a detailed breakdown of the dollars spent on 2007 shade tree related efforts:

2007 Shade tree budget	
EXPENSES	
a) 25% DPW (buildings & grounds employees' salaries expended on tree care)	$ 116,000
• 7 employees assigned to grounds branch of buildings & grounds	
b) Shade Tree Funding	$ 2,365
• Annual Membership	
• NJ Shade Tree Federation Annual Meeting	
• NJ Certified Tree Expert Consulting Services	
• Tree-Nursery Acquisition Expenses	
c) Capital Account Project Funding	
• Trees Planted (parking lot reconstruction)	$ 20,000
• Trees Planted (park construction)	
d) Operational Expense Account	$ 3,600
• Trees (purchase & delivery)	
• Topsoil	
• Mulch	
• Peat Moss	
• Fertilizer	
TOTAL SHADE TREE EXPENDITURES	$ 141,965

Table 3 2007 Shade Tree Budget for Ocean City, NJ.

C. 2008 Budget Details

The following is a detailed breakdown of the dollars spent on 2007 shade tree related efforts:

2008 Shade tree budget	
EXPENSES	
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)	$ 124,150
• 7 employees assigned to grounds branch of buildings & grounds	
b) Shade Tree Funding	$ 2,339
• Annual Membership	
• NJ Shade Tree Federation Annual Meeting	
• NJ Certified Tree Expert Consulting Services	
• Tree-Nursery Acquisition Expenses	
c) Capital Account Project Funding	
• Trees Planted (supplemented by Cool Cities Grant – $25 k)	$ 40,000
d) Operational Expense Account	$ 4,646
• Trees (purchase & delivery)	
• Topsoil	
• Mulch	
• Peat Moss	
• Fertilizer	
TOTAL SHADE TREE EXPENDITURES	$ 171,135

2008 Shade tree budget	
REVENUES	
a) Shade Tree Trust Fund Contributions	$ 22,400
TOTAL SHADE TREE REVENUES	$ 22,400

Table 4 2008 Shade Tree Budget for Ocean City, NJ.

D. 2009 Budget Details

The following is a detailed breakdown of the dollars spent on 2007 shade tree related efforts:

2009 Shade tree budget	
EXPENSES	
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)	$ 132,000
• 7 employees assigned to grounds branch of buildings & grounds	
b) Shade Tree Funding	$ 15,000
• Annual Membership	
• NJ Shade Tree Federation Annual Meeting	
• NJ Certified Tree Expert Consulting Services	
• Tree-Nursery Acquisition Expenses	
c) Capital Account Project Funding	
• Trees Planted (supplemented by Cool Cities Grant – $25 k)	$ 7,025
d) Operational Expense Account	$ 5,000
• Trees (purchase & delivery)	
• Topsoil	
• Mulch	
• Peat Moss	
• Fertilizer	
TOTAL SHADE TREE EXPENDITURES	$ 159,025

2009 Shade tree budget	
REVENUES	
a) Shade Tree Trust Fund Contributions	$ 22,922
TOTAL SHADE TREE REVENUES	$ 22,922

Table 5 2009 Shade Tree Budget for Ocean City, NJ.

E. 2010 Budget Details

The following is a detailed breakdown of the dollars spent on 2010 shade tree related efforts:

2010 Shade tree budget	
EXPENSES	
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)	$ 136,000
• 8 employees assigned to grounds branch of buildings & grounds	
b) Shade Tree Funding	$ 22,100
• Annual Membership	
• NJ Shade Tree Federation Annual Meeting	
• NJ Certified Tree Expert Consulting Services	
• Tree-Nursery Acquisition Expenses	
TOTAL SHADE TREE EXPENDITURES	$ 158,100

2010 Shade tree budget	
REVENUES	
a) Shade Tree Trust Fund Contributions	$ 37,922
b) Grant Funding	
• Business Stimulus Fund (BSF) Grant	$ 4,895
TOTAL SHADE TREE REVENUES	$ 42,817

Table 6 2010 Shade Tree Budget for Ocean City, NJ.

F. 2011 Budget Details

The following is a detailed breakdown of the dollars spent on 2011 shade tree related efforts:

2011 Shade tree budget	
EXPENSES	
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)	$ 155,648
• 8 employees assigned to grounds branch of buildings & grounds	
b) Shade Tree Funding	$ 12,303
• Annual Membership	
• NJ Shade Tree Federation Annual Meeting	
• NJ Certified Tree Expert Consulting Services	
• Tree-Nursery Acquisition Expenses	
TOTAL SHADE TREE EXPENDITURES	$ 167,951

2011 Shade tree budget	
REVENUES	
a) Shade Tree Trust Fund Contributions	$ 5,301
b) Grant Funding	
• Business Stimulus Fund (BSF) Grant	$ 3,000
TOTAL SHADE TREE REVENUES	$ 8,301

Table 7 2011 Shade Tree Budget for Ocean City, NJ.

G. 2012 Budget Details

The following is a detailed breakdown of the dollars spent on 2012 shade tree related efforts:

2012 Shade tree budget		
EXPENSES		
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)		$ 208,033
b) Professional Tree Maintenance Services (The Tree Man– tree removal)		
• 02/27/12 – P.O. # 12-00560 closed	$ 3,010	
• 04/12/12 – P.O. # 12-00895, closed	$ 900	
• 05/17/12 – P.O. # 12-01286, closed	$ 975	
• 08/30/12 – P.O. # 12-02320, closed	$ 945	
• 11/20/12 – P.O. # 12-02985, closed	$ 4,350	
• 12/19/12 – P.O. # 12-03177, open	$ 1,583	
P.O. Total	$ 11,763	$ 11,763
c) Tree Purchases/Membership Fees		$ 7,595
TOTAL SHADE TREE EXPENDITURES		$ 227,391
REVENUES		
a) Shade Tree Trust Fund Contributions		
• 01/20/12 – 85 W Seventeenth Street (Block 1709, Lot 29)	$ 700	
• 03/22/12 – 505/507 Thirty-Fifth Street (Block 3401, Lot 10)	$ 350	
• 04/12/12 – 3 Gilbert Lane (Block 2213, Lot 13)	$ 350	
• 04/20/12 – 416 Fifty-Eighth Street (Block 5802, Lot 14)	$ 350	
• 05/02/12 – 49 Morningside Road	$ 350	
• 05/23/12 – 2 Kingston Lane (Block 2211, Lot 11)	$ 350	
• 06/11/12 – 4941/4943 Central Avenue	$ 700	
• 06/14/12 – 16 Harbor Road (Block 70.15, Lot 7)	$ 350	
• 06/17/12 – 16 Harbor Road (Block 70.15, Lot 7)	$ 350	
• 11/16/12 – 8 Caroline Avenue	$ 350	
• 12/07/12 – 2 Tobago Lane (Block 2111, Lot 1)	$ 700	
• 12/10/12 – 105 Pinnacle Road (Block 70.32, Lot 1.04)	$ 350	
• 12/12/12 – 200 Beach Road (Block 70.36, Lot 1)	$ 1,050	
• 12/19/12 – 37 Morningside Road (Block 70.38, Lot 10)	$ 350	
Total Trust Fund Contributions	$ 6,650	$ 6,650
TOTAL SHADE TREE REVENUES		$ 6,650

Table 8 2012 Shade Tree Budget for Ocean City, NJ.

H. 2013 Budget Details

The following is a detailed breakdown of the dollars spent on 2013 shade tree related efforts:

2013 Shade tree budget		
EXPENSES		
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)		$ 216,215
b) Professional Tree Maintenance Services (The Tree Man– tree removal)		
• 02/15/13 – Arbor Day Foundation	$ 15	
• 02/15/13 – NJ Shade Tree Fed	$ 145	
• 03/01/13 – Richard Haydinger	$ 1,050	
• 05/17-13 – Suran's Nursery	$ 973	
• 11/08/13 – Lucas Greenhouses	$ 1,710	
• 11/08/13 – Lucas Greenhouses	$ 60	
• 11/08/13 – NJ Shade Tree Fed	$ 700	
• 11/14/13 – Tuckahoe Nurseries	$ 1,875	
• 11/14/13 – Lang's Garden Market	$ 803	
• 11/14/13 – Lang's Garden Market	$ 80	
• 11/22/13 – NJ Shade Tree Fed	$ 100	
• 11/25/13 – The Tree Man	$ 1,640	
• 12/03/13 – The Tree Man	$ 980	
• 12/12/13 – The Tree Man	$ 245	
• 12/12/13 – Arbor Day Foundation	$ 15	
• 12/16/13 – Lang's Garden Market	$ 480	
• 12/16/13 – Tuckahoe Nurseries	$ 75	
P.O. Total	$ 10,946	
c) Tree Purchases/Membership Fees	$ 10,946	$ 10,946
TOTAL SHADE TREE EXPENDITURES		$ 227,161

REVENUES		
a) Shade Tree Trust Fund Contributions		
• 01/29/13 – Gilbert Lane	$ 350	
• 02/05/13 – 110 Beach Road	$ 2,450	
• 02/05/13 – 1408 Ocean Avenue	$ 350	
• 02/05/13 – 108 Fifty Fourth Street	$ 350	
• 04/16/13 – 29 Sindia Road	$ 350	
• 05/07/13 – 63 Simpson Road	$ 2,100	
• 05/09/13 – 63 Simpson Avenue	$ 350	
• 05/21/13 – 833 Delancy Place	$ 350	
• 05/31/13 – 801 Second Street	$ 350	
• 06/13/13 – 29 W Fifteenth Street	$ 350	
• 06/27/13 – 2316 West Avenue	$ 350	
• 09/25/13 – 200 Beach Road	$ 1,050	
• 11/04/13 – 701 North Street	$ 700	
• 11/19/13 – 220 Cresent Road	$ 350	
Total Trust Fund Contributions	$ 9,800	$ 6,650
TOTAL SHADE TREE REVENUES		$ 6,650

Table 9 2013 Shade Tree Budget for Ocean City, NJ.

I. 2014 Budget Details

The following is a detailed breakdown of the dollars spent on 2014 shade tree related efforts:

2014 Shade tree budget		
EXPENSES		
a) 25% DPW (Buildings & Grounds Employees' salaries expended on tree care)		$ 228,318
b) Professional Tree Maintenance Services (The Tree Man– tree removal)		
• 02/15/13 – Arbor Day Foundation	$ 15	
	$ 145	
	$ 1,050	
	$ 973	
	$ 1,710	
	$ 60	
	$ 700	
	$ 1,875	
	$ 803	
	$ 80	
	$ 100	
	$ 1,640	
	$ 980	
	$ 245	
	$ 15	
	$ 480	
	$ 75	
P.O. Total	$ 10,946	
c) Tree Purchases/Membership Fees	$ 10,946	$ 10,946
TOTAL SHADE TREE EXPENDITURES		$ 239,264

REVENUES		
a) Shade Tree Trust Fund Contributions		
• 01/29/13 – Gilbert Lane	$ 350	
• 02/05/13 – 110 Beach Road	$ 2,450	
• 02/05/13 – 1408 Ocean Avenue	$ 350	
• 02/05/13 – 108 Fifty Fourth Street	$ 350	
• 04/16/13 – 29 Sindia Road	$ 350	
• 05/07/13 – 63 Simpson Road	$ 2,100	
• 05/09/13 – 63 Simpson Avenue	$ 350	
• 05/21/13 – 833 Delancy Place	$ 350	
• 05/31/13 – 801 Second Street	$ 350	
• 06/13/13 – 29 W Fifteenth Street	$ 350	
• 06/27/13 – 2316 West Avenue	$ 350	
• 09/25/13 – 200 Beach Road	$ 1,050	
• 11/04/13 – 701 North Street	$ 700	
• 11/19/13 – 220 Cresent Road	$ 350	
Total Trust Fund Contributions	$ 9,800	$ 6,650
TOTAL SHADE TREE REVENUES		$ 6,650

Table 10 2014 Shade Tree Budget for Ocean City, NJ.

IX. Shade Tree Management Plan Implementations

2014 – 2018					
Task	2014	2015	2016	2017	2018
1. Training for Shade Tree members	√	√	√	√	√
2. Training for Municipal employees	√	√	√	√	√
3. Training for professionals & public	√	√	√	√	√
4. Honing tree legislation	√		√		√
5. Celebrate island's forest heritage	√	√	√	√	√
6. Promote trees through talks	√	√	√	√	√
7. Design and publish tree care pamphlet		√		√	
8. Celebrate Arbor Day	√	√	√	√	√
9. Initiate third walking tree inventory		√			
10. Assess tree hazards	√	√	√	√	√
11. Develop storm damage mitigation plan	√	√	√		
12. Facilitate public tree maintenance & removal	√	√	√	√	√
13. Develop tree risk & health index			√	√	√
14. Ban wood mulch as a fire hazard in certain instances.	√	√	√	√	√
15. Seek tree planting grants	√	√	√	√	√
16. Locate tree-stock sources	√	√	√	√	√
17. Promote tree-stock diversity	√	√	√	√	√
18. Encourage the reintroduction of native trees	√	√	√	√	√
19. Investigate climate change dynamics	√	√	√	√	√
20. Reaffirm status of tree/sidewalk conflicts	√	√	√	√	√

Table 11 Synopsis of Ocean City's five-year shade tree management plan (2014–2018).

X. Community Stewardship Incentive Program (CSIP)

CSIP Practices Addressed in Community Forestry Plan III			
Action	Comments	Referenced	
		section	page
#1 Training			
•Training for shade tree members & municipal employees	continue to attend annual Shade Tree Federation training.	III, C III, D VI, A	12, 13 14 27
	resurrect the once popular Bayside Center public tree care forum.		
•Training for local tree-care professionals & general public	resurrect the once popular Bayside Center public tree care forum.	III, D	14
	continue to re-certify to keep the Tree City USA designation.		
#2 Community Forestry Ordinance Establishment			
•Hone existing tree legislation	review street tree size specifications in terms of tree survivability, tree availability, and economic realities.	III, D	14
#3 Public Education and Awareness			
•Celebrate Ocean City's Forest Heritage	promote the value of trees by reaching out to other organizations through guest talks (*e.g.*, historical society, environmental commission).	III, D	14
•Design and publish tree care pamphlets.	design and publish the long-planned Tree Maintenance pamphlet companion to the Tree Planting pamphlet.	III, C III, D	12 14
#4 Arbor Day			
•Plan tree events like Arbor Day festivities	coordinate Arbor Day programs through the local elementary school.	II, B III, C VII, C	6 13, 14 29
	use the Public Relations office to bolster the message that Ocean City values trees.	"	"
	reach out the the environmental commission for assistance in Arbor Day festivities.	"	"

CSIP Practices Addressed in Community Forestry Plan III			
#5 Tree Inventory			
•3rd "Post Sandy" Walking Tree Inventory	reassess Ocean City's tree stock for salt and flooding hardiness.	II, B II, C III. C III, E III, F VII, A	5 7 12, 14, 15 17 19 29
	reassess Ocean City's tree stock for signs of wind damage susceptibility.	III, C	14
#6 Tree Hazard Assessment			
•Revisit methods of making tree hazard assessments	resurrect the once popular Bayside Center public tree care forum	III, C	14
	use the post Sandy walking tree inventory for an opportunity to reassess the sustainability/ safety of ubiquitous Bradford pears.	III, C VII, A	14, 15 28
#7 Storm Damage Assessment			
•Develop a storm damage mitigation plan.	have a NJ Certified Tree Expert review storm-related literature.	III, C VII, A	15 28
	develop an index of risk assessment & health maintenance.	II, B III, C III, E	5 15
#8 Tree Maintenance and Removals			
•Continue to facilitate public tree maintenance & removal.	continue to engage public works in tree care dynamics.	III, C	15
#9 Insect and Disease Management			
•Develop an index of risk assessment & health maintenance.	use the post Sandy walking tree inventory for an opportunity to evaluate identify tree problems and address their reparation.	III, C VII, A	15 28
#10 Wildfire Protection			
•Ban wood chip mulch along busy roads.	cigarette butts tossed from passing vehicles have caused planting beds to catch fire.	III, C	15
#11 Tree Planting			
•Seek tree planting grants	find creative ways to seek out private and public tree funding opportunities.	II, B III, C VI, A	5 12, 15 27

CSIP Practices Addressed in Community Forestry Plan III			
• Locate tree-stock sources for the public & landscape trade	approach South Jersey nurseries to open dialog about hard-to-find desired yet obscure specimens placed on the City's recommended tree lists.	III, C	15
• Promote tree-stock diversity through the web and public lectures.	approach South Jersey nurseries to open dialog about hard-to-find desired yet obscure specimens placed on the City's recommended tree lists.	III, C	15
#12 Tree Recycling			
• Encourage the reintroduction (reuse) of native tree stock over exotics.	it is hoped that a better understanding of past adaptive ecology will help Ocean City plan for future conflicts related to these issues.	III, C XI, A	15 44, 45
#13 Sidewalk Maintenance Program			
• Not a problem in Ocean City	Ocean City is remarkably free from sidewalk damage due to tree root expansion. As tree roots expand beneath a sidewalk, the enclosing loose sand will yield much more readily than the harder concrete above. As a result, roots grow downward and sidewalk heave is rare.	III, C	16
#14 Storm Water Management			
• Investigate Ocean City's stake in climate change dynamics.	Ocean City must adapt to the reality of coastwise living in a changing environment, and must learn how to readjust its vision of what a community forest might look like on a barrier island.	III, C V, B VII, A	15, 16 25, 26 28
	Plan for increased frequency and duration of salt- and freshwater flooding and/or inundation having an effect on tree stock sustainability.	III, A III, C V, B VII, A	9 14, 15 25, 26 28
#15 Trees as Art Form			
• Celebrate the aesthetic qualities of trees.	Ocean City will open dialogue with local cultural organizations to help celebrate the grandness of nature as a whole.	III, C	16

Table 12 Compilation of CSIP practices addressed in Community Forest Plan III.

XI. ADDENDA

A. Ocean City's Recommended Tree Lists

Ocean City's Shade Tree Committee updated list (*cf.* 2006) of trees amenable to the formidable environmental conditions encountered in Ocean City (*e.g.*, salt injury, droughty soils, strong winds). During 1999 and 2005, Buckhorn Garden Service, Inc. evaluated and inventoried the entire island's tree stock. The firm has designed for, and planted, thousands of trees in this municipality for a broad suite of private and public projects. After careful consideration, a "Recommended Tree Lists for Ocean City" (Demitroff, February 28, 2006) was commissioned by now-retired Dennis Campbell. It has been amended to reflect new insight gained since its earlier iterations (Demitroff, January 14, 2010).

Class #1 (**Preferred List for Street Tree Planting**) is a suggested list of trees for general shade-tree use along most of the city's streets. Class #2 (**List of Street Tree Acceptable for Planting Trial Within the First Ocean Block**) recognizes the unique challenges one encounters within the first block of the strand, and so is a bit more resourceful in the planting palette. Class #3 (**Preferred List for Yard Tree Use**) provides a suggested list of shade trees for general yard use, but some possess qualities that restrict their broad use directly along streets (*i.e.*, low branching, messy fruit). Class #4 (**Provisional Yard-Use Trees, Having Limitations that Negate Their Widespread Planting in Ocean City**) considers potentially serviceable yard trees, which do not have an adequate track record to gauge their long-term "coastwise" sustainability.

Although comprehensive for biodiversity's sake (Savard *et al.*, 2000), these lists are by no means complete. Ocean City's shade-tree dynamics are humbling. It is not easy to provide site specific tree recommendations in such a complex landscape. Periodic revision of the City's tree list is strongly recommended. For example, in theory the shadblow serviceberry (*Amelanchier canadensis)* is a stellar street-tree choice, but what is now often sold as *A. canadensis* in the local nursery trade isn't correctly labeled. Only the true species, a native to Ocean City's dunes, has proven itself adaptable. Once a suitable (*i.e.*, reliable) purveyor is found, *A. canadensis* can again be added to Classes 1 & 2.

Another example is changes to the region's climate and sea-level (Clark *et al.*, 2004; Stanley *et al.*, 2004; Cooper *et al.*, 2008; Engelhart *et al.*, 2009). Wichansky *et al.* (2006; 2008) noted that salt-laden offshore winds have increased in both frequency and speed over the the last century. Places where certain trees thrived a few decades ago are now marginal due to this change in wind pattern. Note that the tree-descriptive term "flood" tolerant has been amended to "wet" tolerant. (Stone, 1911; Harshberger, 1916; Chrysler, 1930; Martin, 1959; Menninger, 1964; Wyman, 1965; Foley, 1965; Graetz, 1973; Stalter,

1979; Flint, 1983; Duncan and Duncan, 1987; Hightshoe, 1988; Schmidt, 1989; Griffiths, 1994; James, 1995; Dirr, 1998).

Class #1 – Preferred List for Street Tree Planting Use:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Acer	*griseum*	Paperbark Maple	
Acer	*pseudoplatanus*	Sycamore Maple	D, S
Alnus	*glutinosa*	European Alder	S, W
Betula	*nigra*	River Birch	N (NJ), W
Broussonetia	*papyrifera*	Paper Mulberry	D, S
Carpinus	*betulus*	European Hornbeam	
Carpinus	*caroliniana*	American Hornbeam	N (NJ)
Chamaecyparis	*thyoides*	Atlantic Whitecedar	N (OC), S, W
Celtis	*occidentalis*	Common Hackberry	D, N (OC), S
Ginkgo	*biloba* (male cvs.)	Maidenhairtree (male cultivars only)	D, S
Gleditsia	*triacanthos*	Honeylocust	D, S
Lagerstroemia	*indica* (tree-form cvs.)	Crapemyrtle cultivars (single trunk, tree-form)	D, S
Liquidambar	*styraciflua*	American Sweetgum	N (OC), W
Maackia	*amurensis*	Amur Maackia	D
Morus	fruitless cvs.	Mulberry fruitless cultivars	D, S
Nyssa	*sylvatica*	Black Gum	N (OC), S, W
Prunus	spp./cvs.	species & cultivars of Ornamental Cherries, Plums	D, S
Pyrus	*calleryana* cvs.	Pear cultivars, except Bradford	D, S
Quercus	*alba*	White Oak	D, N (OC)
Quercus	*coccinea*	Scarlet Oak	N (OC)
Quercus	*falcata*	Southern Red Oak	D, N (OC)
Quercus	*imbricaria*	Shingle Oak	D, N (OC)
Quercus	*marilandica*	Blackjack Oak	D, N (OC), S

Class #1 – Preferred List for Street Tree Planting Use:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Quercus	*palustris*	Pin Oak	**D, N (OC)**
Quercus	*phellos*	Willow Oak	**D, N (OC), W**
Quercus	*prinus*	Chestnut Oak	**D, N (OC)**
Quercus	*stellata*	Post Oak	**D, N (OC) S**
Quercus	*velutina*	Black Oak	**D, N (OC)**
Sassafras	*albidum*	Sassafras	**D, N (OC), S**
Sophora	*japonica*	Japanese Pagodatree	**D**
Taxodium	*ascendens*	Pondcypress	**W**
Taxodium	*distichum*	Common Baldcypress	**N*, W** ***Wildwood?**
Tilia	*tomentosa*	Silver Linden	
Ulmus	*parviflora*	Lacebark Elm	**D, S**

D = Drought Tolerant **N (NJ)** = Native to N.J. **N (NJ)** = Native to O.C. **S** = Salt Tolerant **W** = Wet Tolerant

Table 13 Preferred street tree list developed under Five-Year Management Plan II.

Class #2 – List of Street Tree Acceptable for Planting Trial Within the First Ocean Block:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Acer	*pseudoplatanus*	Sycamore Maple	**D, S**
Alnus	*glutinosa*	European Alder	**S, W**
Albizia	*julibrissin*	Mimosa	**D, S**
Betula	populifolia	Gray Birch	**D, N (OC), S**
Celtis	*occidentalis*	Common Hackberry	**D, N (OC), S**
X *Cupressocyparis*	*leylandii*	Leyland Cypress	**S**
Cupressus	*arizonica*	Arizona Cypress	**D, S**
Elaeagnus	*angustifolia*	Russian-olive	**D, S**
Hibiscus	*syriacus*	Rose-of-Sharon (tree-form)	**D, S**
Hydrangea	*paniculata*	Panicle Hydrangea (tree-form)	**S**
Ilex	*opaca*	American Holly 'Wyetta', 'William Paca' and other narrow-growing cultivars	**D, N, S**
Juniperus	*chinensis*	Chinese Juniper	**D, S**
Juniperus	*virginiana*	Eastern Redcedar	**D, N (OC), S, W**
Lagerstroemia	*indica* (tree-form cvs.)	Crapemyrtle cultivars (single trunk, tree-form)	**D, S**
Myrica	*cerifera*	Southern Waxmyrtle	**D, N (OC), S**
Populus	*alba*	Silver-leaved Poplar, and other smaller growing Poplar species.	**S, W**
Prunus	*caroliniana*	Carolina Cherrylaurel, 'Bright 'N Tight' or 'Compacta' narrow, upright forms	**D, S**
Pyrus	*calleryana* cvs.	Pear cultivars, except Bradford	**D, S**
Salix	*caprea*	Goat Willow (tree-form), and other smaller growing Willow species	**D, S, W**
Tamarix	*ramosissima*	Five-stamen Tamarix	**D, S**

Class #2 – List of Street Tree Acceptable for Planting Trial Within the First Ocean Block:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Taxus	*cuspidata*	Japanese Yew (tree-form)	**D, S**
Yucca	*thompsoniana*	Thompson's Beaked Yucca	**D, S**

D = Drought Tolerant **N (NJ)** = Native to N.J. **N (NJ)** = Native to O.C. **S** = Salt Tolerant **W** = Wet Tolerant

Table 14 Trial street tree list for use near ocean developed under Five-Year Management Plan II.

Class #3 – Preferred List for Yard Tree Use:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Abies	*homolepis*	Nikko Fir	
Abies	*nordmanniana*	Nordmann Fir	
Acer	*buergerianum*	Trident Maple	
Acer	*griseum*	Paperbark Maple	
Acer	*palmatum*	Japanese Maples	**S**
Acer	*pseudoplatanus*	Sycamore Maple	**D, S**
Albizia	*julibrissin*	Mimosa	**D, S**
Alnus	*glutinosa*	European Alder	**S, W**
Amelanchier	*canadensis*	Shadblow Serviceberry	**N (OC), S**
Betula	*nigra*	River Birch	**N (NJ), S, W**
Betula	*utilis* var. *jacquemontii*	Himalayan Birch	**S**
Betula	*populifolia*	Gray Birch	**D, N (OC), S**
Broussonetia	*papyrifera*	Paper Mulberry	**D, S**
Calocedrus	*decurrens*	California Incensecedar	
Carpinus	*betulus*	European Hornbeam	
Carpinus	*caroliniana*	American Hornbeam	**N (NJ)**
Catalpa	*bignonioides*	Southern Catalpa	**D, N* (NJ), S *precontact**
Catalpa	*speciosa*	Northern Catalpa	**D, N* (NJ) *precontact**
Celtis	*occidentalis*	Common Hackberry	**D, N (OC), S**
Cedrus	*deodara*	Himalayan Cedar	**S**
Cedrus	*libani*	Cedar-of-Lebanon	**D, S**
Cedrus	*libani* ssp. *atlantica*	Atlas Cedar	**D, S**
Cedrus	*libani* ssp. *brevifolia*	Cyprus Cedar	**D, S**
Cercis	*canadensis*	Eastern Redbud	**N (NJ)**

Class #3 – Preferred List for Yard Tree Use:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Chamaecyparis	*lawsoniana*	Port Orford Cedar	**S, W**
Chamaecyparis	*pisifera*	Sawara Falsecypress	**S**
Chamaecyparis	*thyoides*	Atlantic Whitecedar	**N (OC), S, W**
Chionanthus	*virginicus*	White Fringetree	**N (NJ), S, W**
Cotinus	*coggygria*	Smoketree	**D**
Crataegus	*phaenopyrum*	Washington Hawthorn	**D, N (NJ)**
Crataegus	*viridis* 'Winter King'	Winter King Hawthorn	**D**
Cryptomeria	*japonica*	Japanese-cedar	
Cunninghamia	*lanceolata*	Chinafir	
X *Cupressocyparis*	*leylandii*	Leyland Cypress	**S**
Cupressus	*arizonica*	Arizona Cypress	**D, S**
Elaeagnus	*angustifolia*	Russian-olive	**D, S**
Fraxinus	*nigra*	Black Ash	**N (NJ)**
Ginkgo	*biloba* (male cvs.)	Maidenhairtree (male cultivars only)	**D, S**
Gleditsia	*triacanthos*	Honeylocust	**D, S**
Hibiscus	*syriacus*	Rose-of-Sharon	**D, S**
Hydrangea	*paniculata*	Panicle Hydrangea	**S**
Ilex	*opaca*	American Holly	**N (OC), S, W**
Ilex	*pedunculosa*	Longstalk Holly	
Juniperus	*chinensis*	Chinese Juniper	**D, S**
Juniperus	*virginiana*	Eastern Redcedar	**D, N (OC), S, W**
Lagerstroemia	*indica*	Crapemyrtle	**D, S**
Liquidambar	*styraciflua*	American Sweetgum	**N (OC), W**
Maackia	*amurensis*	Amur Maackia	**D**
Magnolia	*grandiflora*	Southern Magnolia	**S, W**

Class #3 – Preferred List for Yard Tree Use:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Magnolia	spp./cvs.	Magnolia species/cultivars	(N), S
Magnolia	*virginiana*	Sweetbay Magnolia	N (OC), S, W
Morus	spp./cvs.	Fruitless & Fruited Mulberry species and cultivars	D, S
Myrica	*cerifera*	Southern Waxmyrtle	D, N (OC), S
Nyssa	*sylvatica*	Black Gum	N (OC), S, W
Phellodendron	*amurense*	Amur Corktree	D
Picea	*abies*	Norway Spruce	S
Picea	*pungens*	Colorado Spruce	D, S
Picea	*pungens f. glauca*	Colorado Blue Spruce	D, S
Picea	*glauca*	White Spruce	D, S
Pinus	*cembra*	Swiss Stone Pine	D
Pinus	*rigida*	Pitch Pine	D, N (OC), W
Pinus	*strobiformis*	Southwestern White Pine	D
Populus	*alba*	Silver-leaved Poplar, and other smaller growing Poplar species	S, W
Prunus	*caroliniana*	Carolina Cherrylaurel, 'Bright 'N Tight' or 'Compacta' narrow, upright forms	D, S
Prunus	*cerasifera*	Purpleleaf Cherry Plum	D, S
Prunus	spp./cvs.	Ornamental & Edible species & cultivars of Cherries, Plums	D, S
Pseudotsuga	*menziesii*	Douglasfir	
Pyrus	*calleryana* cvs.	Pear cultivars, except Bradford	D, S
Quercus	*alba*	White Oak	D, N (OC)
Quercus	*imbricaria*	Shingle Oak	D, N (OC)
Quercus	*marilandica*	Blackjack Oak	D, N (OC), S

Class #3 – Preferred List for Yard Tree Use:			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Salix	*caprea*	Goat Willow (tree-form), and other smaller growing Willow species	**D, S, W**
Sassafras	*albidum*	Sassafras	**D, N (OC), S**
Sophora	*japonica*	Japanese Pagodatree	**D**
Taxodium	*ascendens*	Pondcypress	**W**
Taxodium	*distichum*	Common Baldcypress	**N*, W *Wildwood?**
Taxus	*cuspidata*	Japanese Yew (tree-form)	**D, S**
Thuja	*plicata*	Giant Arborvitae	**S, W**
Thuja	*standishii*	Japanese Arborvitae	**S, W**
Tilia	*tomentosa*	Silver Linden	
Ulmus	*glabra*	Scotch Elm	**D, S**
Ulmus	*parviflora*	Lacebark Elm	**D, S**
Ulmus	*procera*	English Elm	**D, S**
Yucca	*thompsoniana*	Thompson's Beaked Yucca	**D, S**

D = Drought Tolerant **N (NJ)** = Native to N.J. **N (NJ)** = Native to O.C. **S** = Salt Tolerant **W** = Wet Tolerant

Table 15 Preferred yard tree list developed under Five-Year Management Plan II.

Class #4 – Provisional Yard-Use Trees, Having Limitations that Negate Their Widespread Planting in Ocean City			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Abies	*concolor*	White Fir	
Acer	*negundo*	Box-elder	N (NJ), S, W
Acer	*platanoides*	Norway Maple	
Acer	*rubrum*	Red Maple	N (OC), W
Amelanchier	spp./cvs., except *alnifolia, canadensis*	Serviceberry species and cultivars	
Asimina	*triloba*	American Pawpaw	N* (NJ) *precontact
Betula	*lenta*	Black Birch	N (NJ), W
Carya	spp.	Hickory species	N (NJ)
Crataegus	*crus-galli*	Cockspur Hawthorn	N (NJ), S
Diospyros	*virginiana*	American Persimmon	D, N (OC), S
Elaeagnus	*angustifolia*	Russian-olive	D, S
Ficus	*carica*	Common Fig	D, S
Franklinia	*alatamaha*	Franklin Tree	
Fraxinus	*americana*	White Ash	N (NJ)
Fraxinus	*pennsylvanica*	Green Ash	N (NJ), W
Halesia	*tetraptera*	Carolina Silverbell	
Hamamelis	*virginiana*	Common Witchhazel	N (NJ)
Hippophae	*rhamnoides*	Sea-buckthorn	S
Ilex	X *attenuata*	Foster-type Holly	D, S
Ilex	X 'Nellie R. Stevens'	Nellie R. Stevens Holly	D, S
Koelreuteria	*paniculata*	Panicled Goldenraintree	
Liriodendron	*tulipifera*	Tuliptree	N (NJ), W
Malus	*domestica*	Culinary Apple	D

Class #4 – Provisional Yard-Use Trees, Having Limitations that Negate Their Widespread Planting in Ocean City			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Malus	spp./cvs.	Crab Apple species & cultivars (disease resistant only)	**D**
Morus	*alba*	White Mulberry	**D, S**
Morus	*rubra*	Red Mulberry	**D, S**
Photinia	X *fraseri*	Fraser Photinia	**D, S**
Photinia	*villosa*	Oriental Photinia	**D**
Pinus	*densiflora*	Japanese Red Pine	**D**
Pinus	*flexilis*	Limber Pine	**D**
Pinus	*echinata*	Shortleaf Pine	**D, N (NJ)**
Pinus	*sylvestris*	Scots Pine	**D, N**
Pinus	*taeda*	Loblolly Pine	**D, N (NJ) S**
Pinus	*thunbergiana*	Japanese Black Pine	**D, S**
Pinus	*virginiana*	Virginia Pine	**D, N (NJ)**
Pistacia	*chinensis*	Chinese Pistache	**D**
Platanus	X *acerifolia*	London Planetree	**D, S, W**
Platanus	*occidentalis*	American Sycamore	**D, N (NJ), S, W**
Platycladus	*orientalis*	Oriental Biota	**D, S, W**
Prunus	X *domestica*	Damson Plum	**S**
Prunus	*persica*	Domestic Peach	**S**
Pyrus	*communis*	Culinary Pear	**S**
Quercus	*bicolor*	Swamp White Oak	**D, N (NJ), W**
Quercus	*nigra*	Water Oak	**N (NJ), W**
Quercus	*robur*	English Oak	
Rhus	*typhina*	Staghorn Sumac	**D, N (NJ), S**
Robinia	*pseudoacacia*	Black Locust	**D, N*, S** ***precontact**

Class #4 – Provisional Yard-Use Trees, Having Limitations that Negate Their Widespread Planting in Ocean City			
GENUS	**SPECIES**	**COMMON NAME**	**ATTRIBUTES**
Sambucus	*canadensis*	Elderberry	**N (OC), W**
Sorbus	*aucuparia*	European Mt. Ash	**S**
Stewartia	spp.	Stewartia species	
Syringa	*reticulata*	Japanese Tree Lilac	
Tamarix	*ramosissima*	Five-stamen Tamarix	**D, S**
Thuja	*occidentalis*	Eastern Arborvitae	**S, W**
Tilia	*cordata*	Littleleaf Linden	
Viburnum	*prunifolium*	Blackhaw Viburnum	**D, N (NJ), S**

D = Drought Tolerant **N (NJ)** = Native to N.J. **N (NJ)** = Native to O.C. **S** = Salt Tolerant **W** = Wet Tolerant

Table 16 Provisional yard tree list developed under Five-Year Management Plan II

B. Ocean City's Recommended Hedgerow List

N = NATIVE E = EVERGREEN SE = SEMI-EVERGREEN

Acer campestre ..... Hedge Maple

an outstanding, low growing tree with corky bark and very distinct and interesting foliage. Slow grower. Excellent in dry locations and under overhead wires.

Acer tataricum ssp. *ginnala* ..... Amur Maple

Dense and compact in habit, has bright scarlet fall foliage, is very hardy and fits into close quarters, fragrant flowers. Excellent in dry locations and under overhead wires. Tree form and shrub form available

Cornus mas ..... Corneliancherry Dogwood

a handsome small tree or large shrub. Covered with showy yellow flowers throughout March. Bright cherry-red fruit in July. Develops a flaking gray brown to rich brown bark as the tree matures.

Crataegus phaenopyrum ..... Washington Hawthorn

colorful foliage in the fall, varies from orange to scarlet through purplish. Makes an excellent hedge or thorny barrier. White flowers in June are followed by brilliant red berries lasting late into winter.

X *Cupressocyparis leylandii* ..... Leyland Cypress (E)

a bi-generic hybrid. Pleasant evergreen, dense foliage on erect slender branches. It grows rapidly to form a large, narrow pyramid and has a very formal, noble appearance.

Ilex opaca ..... American Holly (N,E)

The native American Holly which forms a dense pyramid of spiny evergreen leaves. The bright red berries are carried on female plants.

Ilex pedunculosa ..... Longstalk Holly (E)

very lustrous dark green foliage looks similar to a Mountain Laurel. A large shrub of dense habit. Beautiful long hanging clusters of bright red fruit from October to November.

Juniperus virginiana..... Eastern Redcedar (N,E)

dark green foliage highlights the informal, rugged, densely pyramidal form of this medium sized evergreen tree. Handsome reddish-brown bark.

Magnolia grandiflora ..... Southern Magnolia (N,E)

a medium sized evergreen tree; pyramidal branching form with large, deep green, glossy leaves; very large cup-shaped fragrant white flowers in early summer; one of the select hardy cultivars.

Picea abies ..... Norway Spruce (E)

a large pyramidal evergreen tree with pendulous branches. Lustrous dark green needles. A quick grower.

Picea omorika ..... Serbian Spruce (E)

the most beautiful of all spruces! Forms a narrow pyramid of cascading branches, with a remarkably slender trunk. Dark green needles are silver on the undersides.

Pinus cembra ..... Swiss Stone Pine (E)

a slow growing, compact columnar pine with dense blue-green needles, and it shines with a steely blue cast. A picturesque and handsome slow growing tree that never needs trimming.

Pinus koraiensis ..... Korean Pine (E)

a slow growing pine tree with a loose pyramidal outline. Lovely bluish-green needles. The large seeds are edible, and sought after by gourmets.

Pinus rigida ..... Pitch Pine (N, E)

open, irregular pyramid in youth, becoming gnarled and more irregular with age. Not highly ornamental, but excellent for poor soils, wilderness, and solitary places.

Pinus strobiformis ..... Southwestern Border Pine (E)

soft textured blue-green needles, 2-3" long. Informal loose open growth habit. Good as an individual specimen or group plantings for screening purposes.

Pinus strobus ..... Eastern White Pine (N,E)

a fast growing, large tree having a symmetrical pyramidal form when young, becomes umbrella-shaped with age. Long, light green to blue-green, soft needles.

Pinus virginiana ..... Virginia Pine (N,E)

a broad open pyramid, becoming flat topped, the branching springing irregularly from the stem; finally low, straggling, scrubby, with long outstretched limbs. Does well in poor, dry soils. Short dark green needles.

Prunus 'Hally Jolivette' ..... Hally Jolivette Cherry

a rounded, dense branching, shrubby tree. Pink in bud, the double flowers open to white and flower over a long period from April to May.

Thuja X 'Green Giant' ..... Green Giant Arborvitae (E)

a new hybrid arborvitae that grows quickly, and features a uniform, tightly pyramidal to conical habit, reaches 40 to 60' and 12 to 15' wide; the glossy, rich green foliage last through winter.

Thuja occidentalis 'Techny' ..... Techny Arborvitae (E)

a large evergreen shrub with a narrow columnar form. Excellent dark green foliage does not brown-out in winter.

Thuja plicata 'Atrovirens' ..... Dark Green Giant Arborvitae

an outstanding pyramidal evergreen. Unsurpassed for rapid, uniform growth and long useful life. A solid, glossy green wall, aromatic in summer and developing a golden-bronze tint in winter.

Table 17 Preferred hedgerow list developed under Five-Year Management Plan II

Acceptable Street Trees – Oceanfront Block –

Acer pseudoplatanus	Sycamore Maple
Alnus glutinosa	European Alder
Albizia julibrissin	Mimosa
*Betula nigra**	River Birch
*Celtis occidentalis***	Common Hackberry
*Chamaecyparis thyoides***	Atlantic Whitecedar
Cupressocyparis leylandii	Leyland Cypress
Cupressus arizonica	Arizona Cypress
Hibiscus syriacus (tree-form only)	Rose-of-Sharon
Hydrangea paniculata (tree-form only)	Panicle Hydrangea
*Ilex opaca*** (narrow-growing cultivars only; do not use 'Greenleaf,' which is not an *Ilex opaca* cultivar)	American Holly
Juniperus chinensis	Chinese Juniper
*Juniperus virginiana***	Eastern Redcedar
Lagerstroemia (single trunk, tree-form only)	Crapemyrtle
Prunus caroliniana (narrow-growing cultivars only)	Carolina Cherrylaurel
Pyrus calleryana cvs. (except Bradford)	Callery Pear
Salix caprea (tree-form only, and other smaller-growing Willows)	Goat Willow
Tamarix ramosissima	Five-stamen Tamarix
Yucca thompsoniana	Beaked Yucca

* native to N.J. ** native to Ocean City

SALT, SAND & WIND

Ocean City is a barrier island. Oceanfront blocks are directly exposed to rigorous coastal conditions, tough areas for tree establishment. This resourceful list contains the best of the hardiest "coastwise" selections. We would love to hear of your tree successes and failures to adjust our lists accordingly.

brochure prepared by Mark Demitroff, NJLTE #265

Permitted Street Trees

Acer pseudoplatanus	Sycamore Maple
Alnus glutinosa	European Alder
*Betula nigra**	River Birch
Broussonetia papyrifera	Paper Mulberry
Carpinus betulus	European Hornbeam
*Celtis occidentalis***	Common Hackberry
*Chamaecyparis thyoides***	Atlantic Whitecedar
Ginkgo biloba (male cultivars only)	Maidenhairtree
Gleditsia triacanthos	Honeylocust
Lagerstroemia (single trunk, tree-form only)	Crapemyrtle
*Liquidambar styraciflua***	American Sweetgum
Maackia amurensis	Amur Maackia
Morus spp., cvs. (fruitless cultivars only)	Mulberry
*Nyssa sylvatica***	Black Gum
Prunus spp., cvs. (ornamental cultivars only)	Cherry, Plum
Pyrus calleryana cvs. (except Bradford. all cultivars can be invasive)	Callery Pear
*Quercus alba***	White Oak
*Quercus coccinea***	Scarlet Oak
*Quercus falcata***	Southern Red Oak
*Quercus imbricaria***	Shingle Oak
*Quercus marilandica***	Blackjack Oak
*Quercus palustris***	Pin Oak
*Quercus phellos***	Willow Oak
*Quercus prinus***	Chestnut Oak
*Quercus stellata***	Post Oak
*Quercus velutina***	Black Oak
*Sassafras albidum***	Sassafras
Sophora japonica	Japanese Pagodatree
Taxodium ascendens	Pondcypress
Taxodium distichum?*	Common Baldcypress
Tilia tomentosa	Silver Linden
Ulmus parviflora	Lacebark Elm

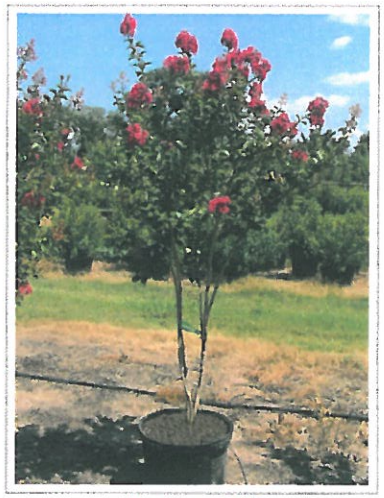
* native to N.J. ** native to Ocean City

Shade Tree Committee

Planting Guide

City of Ocean City, NJ

861 Asbury Avenue, Ocean City, NJ 08226
(609) 399-6111
www.ocnj.us/shadetree



Tonto Crapemyrtle

Rows of fuchsia-red blossoms along the Gardens Parkway welcome visitors to Ocean City. Tonto (*Lagerstoemia* 'Tonto') is a Gold Medal Winner cultivar chosen by the City for its summer-long floral display that contrasts well against its dark green, disease-resistant foliage. Tonto's leaves often turn red during autumn. Its bark becomes a rich patchwork of red, tan, and brown with age, adding much winter interest. Crapemyrtle come in a wide range of vibrant colors from white to pink to red to purple. The Gardens section was laid out in artistic manner by the Olmsted Brothers (1914), the famed landscape architects who designed Central Park, Prospect Park, and the Biltmore Estate.

photo kindly provided by Larry Craig, OC Tree Farms, LLC

Figure 9 Trifold Tree Planting Guide developed under Five-Year Management Plan II.

Special Attributes

DROUGHT TOLERANT

Sycamore Maple	Mulberry
Paper Mulberry	Cherry
Common Hackberry	Plum
Maidenhairtree	Callery Pear
Honeylocust	Oaks
Crapemyrtle	Japanese Pagodatree
Amur Maackia	Lacebark Elm

WET TOLERANT

Sycamore Maple	Black Gum
European Alder	Willow Oak
River Birch	Pondcypress
Atlantic Whitecedar	Common Baldcypress
American Sweetgum	

SALT TOLERANT

Sycamore Maple	Black Gum
Paper Mulberry	Cherry
Atlantic Whitecedar	Plum
Common Hackberry	Callery Pear
Maidenhairtree	Blackjack Oak
Honeylocust	Post Oak
Crapemyrtle	Sassafras
Mulberry	Lacebark Elm

Ball Standards

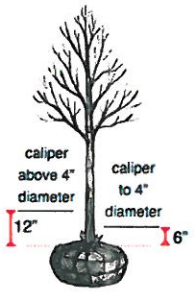
SHADE TREES		
caliper (in)	weight (lb)	min. root ball diameter (in)
1 1/2	200	20
1 3/4	250	22
2	300	24
2 1/2	550	28
3	700	32

EVERGREENS		
height (ft)	weight (lb)	min. root ball diameter (in)
4	200	20
5	250	22
6	300	24
7	475	26
8	550	28

Size Standards

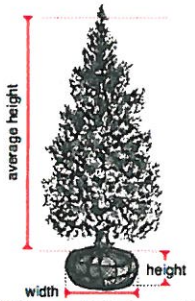
SHADE TREES

Broad-leafed trees are sized by trunk diameter (*i.e.*, "caliper") at six (6) inches above ground for up to and including four (4) inch caliper trees. If more, take at twelve (12) inches.

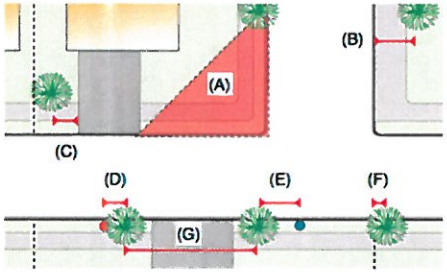


EVERGREENS

Coniferous evergreens are sized by height above ground as measured to its midpoint between the uppermost whorl and the tip of the leader. Ball size standards are also shown.



Location Standards



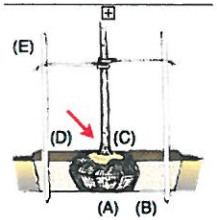
Location Diagram

(A) outside street or alleyway sight triangles;
(B) no more than ten [10] feet away from curbline;
(C) five [5] feet from driveways;
(D) five [5] feet from fire hydrants;
(E) ten [10] feet away from utility and light poles;
(F) two [2] feet from property lines;
(G) and between fifteen- and thirty-feet apart "on-center."

Establishment

PLANTING

Shade tree decline and failure are often a result of poor planting technique. Tree survivability will increase by carefully adhering to the following recommendations.



Planting Diagram

(A) dig the hole at least two [2] feet wider than ball width and no deeper to even slightly less than ball depth;
(B) backfill with existing soil without amendments so that the root flair (red arrow ↘) is even with to slightly higher than existing grade and tamp so no air pockets remain;
(C) fully expose root flair by opening its burlap covering and if possible remove a wire basket entirely or at least cut away its upper portion;
(D) apply a ring of hardwood mulch [*see right*];
(E) optional staking [*see right*],

- watering [*see right*].
- the optimal planting seasons are spring and fall, although success is possible at any time with proper plant care;
- do not fertilize the first planting season.

MULCHING

Maintaining a 3" layer of organic mulch will help your tree grow quicker and healthier. It conserves moisture, moderates soil temperatures, discourages weeds, and adds organic matter. Keep mulches 6" away from the trunk for aeration!

STAKING

A correctly planted tree with a properly-sized rootball usually needs no staking, as the process can actually weaken a tree. If you choose to stake, be sure supports are removed 6–12 months after planting.

IRRIGATION

A long, slow soaking (*i.e.*, 30 to 60 minutes) is more effective than light, frequent sprinkling. Thorough soakings one or twice a week is usually sufficient. Permanent or temporary (*e.g.*, emitters, watering bags) drip systems are most effective. Continue to water transplants for the first year and during periods of drought thereafter.

OUR WEBSITE

Visit Ocean City Shade Tree Committee online to learn even more about the establishment, care, and lore of trees.

Sustaining our island with coastwise trees.

www.ocnj.us/shadetree

XII. References

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