



Chatham County, GA Natural Floodplain Functions Plan

May 2018



Introduction

Floodplains are areas adjacent to rivers, ponds, lakes, and oceans that are periodically flooded at different points in time. Floodplains are hydrologically important, environmentally sensitive, and ecologically productive areas that perform many natural functions. They contain both cultural and natural resources that are of great value to society. Flooding occurs naturally along every river and coastal area. Flood waters can carry nutrient-rich sediments which contribute to a fertile environment for vegetation. Floodplains are beneficial for wildlife by creating a variety of habitats for fish and other animals. In addition, floodplains are important because of storage and conveyance, protection of water quality, and recharge of groundwater.

These natural processes influence human activities and are, in turn, affected by our activities. They represent important natural functions and beneficial resources and provide both opportunities and limitations for particular uses and activities. Traditionally, while much attention has been focused on the hazards associated with flooding and floodplains, less attention has been directed toward the natural and cultural resources of floodplains or to evaluation of the full social and economic returns from floodplain use. The natural and cultural values associated with floodplain resources can be categorized in a variety of ways. Floodplain values can be thought of in terms of environmental quality values such as fish and wildlife habitat and water quality. They can also be thought of in terms of socioeconomic values, which are more easily understood by some because these values provide either dollar savings (related to flood and storm damage protection, for example) or financial profit (related to increased production from floodplain use). A document initially prepared by the U.S. Water Resources Council in 1979 titled *A Unified National Program for Floodplain Management* divides riverine and coastal floodplain resources into three categories: 1) water resources, 2) living resources (habitat), and 3) cultural resources.

Humans have always been attracted to floodplains because of their many sustaining attributes; however, human development and industrialization take a toll on the natural functions of the floodplains. Development in the floodplains causes decreases in water quality, loss of wildlife habitats, and an increase in severity and frequency of flood losses. In many cases, the communities responsible for decisions about growth, development, and flood protection do not understand the natural processes that take place in riverine and coastal areas and lack adequate tools to deal with the flooding issues they face. Floodplain management decisions often are made outside of the context of regional or watershed-level planning and without appreciation of the complexities of the water-based ecosystem.

Understanding the importance of maintaining the natural functions of floodplains can lead to better floodplain management approaches that will better protect the natural and beneficial functions of floodplains. The goal of this plan is to aid in the understanding of floodplain natural resources and functions and to examine strategies and tools to help protect, preserve and/or restore these resources.

Some benefits of natural floodplains or relatively undisturbed floodplains can be reduced or moderated flooding conditions, reduced erosion and sedimentation, reduced or lessened waves or wave action from coastal storms, better water quality including the recharge of groundwater and provision of fish and wildlife habitat to name a few.

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Purpose and Background

Chatham County is an active participant in the National Flood Insurance Program's (NFIP) Community Rating System (CRS), and currently qualifies for a Class 5 Rating within the program. The CRS program recognizes and encourages community floodplain management activities that exceed the minimum standards defined by the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that (1) reduce flood losses, (2) facilitate accurate insurance ratings, and (3) promote the awareness of flood insurance. Through the County's participation in the NFIP and a Class 5 rating with the CRS, owners of properties in the County's Special Flood Hazard Area (SFHA) are entitled to a 25% discount on their flood insurance premiums. In addition, homeowners in non SFHA's receive a 10% discount on flood insurance premiums.

The CRS encourages communities to implement effective floodplain management activities, including those intended to improve natural floodplain functions. The current definition of "natural floodplain functions" in the CRS Glossary (Section 120) reads:

- a) The functions associated with the natural or relatively undisturbed floodplain that moderate flooding, retain flood waters, reduce erosion and sedimentation, and mitigate the effects of waves and storm surges from storms; and
- b) Other significant beneficial functions, which include maintenance of water quality, recharge of groundwater, and provision of fish and wildlife habitat.

The CRS Program is primarily concerned with reducing flood losses to insurable buildings and there are several reasons why protecting natural floodplain functions supports that goal. Studies show that natural floodplain features can be more effective at controlling or attenuating flooding and can be less expensive over the long run than traditional human-made flood control structures. Therefore, there is a direct, supportive relationship between protecting natural floodplain functions and the CRS's goal of reducing flood losses to insurable buildings. Natural floodplain functions are not limited to locations in the mapped floodplain. Floodwaters come from the watershed and there are many watershed features and functions that affect flooding and water quality.

The goal of this plan is to aid in the understanding of floodplain natural resources and functions and to examine strategies and tools to protect, preserve and/or restore these resources. **This plan covers the unincorporated areas of Chatham County including the special flood hazard areas, but does not include incorporated areas within the County.**

Natural and Beneficial Floodplain Resources and Functions

Undeveloped floodplain land provides many natural resources and functions of considerable economic, social, and environmental value. A fairly well accepted (but not necessarily comprehensive) list and descriptions are included within this section. The resources and functions have been loosely grouped into two categories, and the categories have been labeled according to the primary recipient of the benefit or its relationship to a larger system. “Water resources” include those resources and functions of floodplains that are part of or provide a benefit to the hydrologic cycles on the earth’s surface and sub-surface, including natural moderation of floods, water quality maintenance, and groundwater recharge. “Biologic resources” are floodplain resources and functions that benefit large and diverse populations of plants and animals.

Water Resources

Natural Flood Storage and Erosion Control

The characteristics of the floodplain and of flooding are essentially interdependent. Floods shape floodplain topography and soils and influence ecology. In turn, the physical characteristics of the floodplain shape flood flows. Floodplains provide a broad area to spread out and temporarily store stormwater from rain events. This reduces flood peaks and velocities and the potential for erosion. Flood storage is particularly important in urbanized areas where even small floods resulting from heavy rainstorms can cause severe flood damage. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Vegetation also reduces shoreline erosion. In coastal areas, beaches, bars, dunes, and wetlands act as natural barriers to dissipate waves and protect back-lying areas from flooding and erosion.

Water Quality Maintenance

Floodplains serve important functions in protecting water quality. Water that runs off quickly over the surface, as over a barren floodplain, is capable of carrying with it large amounts of sediment and debris to the main water body. Vegetated floodplains have important filtering capabilities for slowing and intercepting surface-water runoff from higher dry land before the runoff reaches open water. As the runoff water passes through, the floodplains retain excess nutrients and some pollutants, and reduce sediment that would clog waterways and affect fish and amphibian egg development. Another example of water quality maintenance is the beneficial shading effect of riparian (streambank) vegetation, which helps to avoid temperature stress on natural biota. Natural floodplain systems can further serve to reduce or avoid the environmental and economic costs associated with wastewater treatment and water quality maintenance.

Groundwater Recharge

In addition to improving water quality through filtering, some floodplains maintain stream flow during dry periods, and many replenish groundwater. The slowing of runoff across the floodplain allows additional time for the runoff to infiltrate and recharge available groundwater aquifers, when there is unused storage capacity. The slowing of runoff provides the additional benefit of natural purification of water as local runoff or overbank floodwater infiltrates through the floodplain alluvium. Natural purification comes from filtration, ion exchange, adsorption, absorption, and aerobic and anaerobic biological action.

Biological Resources

Biological Productivity

The nation's coastal and riverine floodplains support large and diverse populations of plants and animals. In addition, they provide habitat and critical sources of energy and nutrients for organisms in adjacent and downstream terrestrial and aquatic ecosystems. The wide variety of plants and animals supported directly or indirectly by floodplains constitutes an extremely valuable, renewable resource important to economic welfare, enjoyment, and physical well-being. The floodplain is biologically important because it is the place where land and water meet and the elements of both terrestrial and aquatic ecosystems mix. Riparian floodplain ecosystems are distinct associations of soil, flora and fauna occurring along a river, stream, or other body of water and depend for survival upon high water tables and occasional flooding.

Fish and Wildlife Habitats

Due to the abundance of water and vegetation, floodplains provide wetland, riparian and other habitat (including shelter and food sources) for large and diverse populations of fish and wildlife species. More than one-third of the United States' threatened and endangered species live only in wetlands, and nearly half use wetlands at some point in their lives. Many other animals and plants depend on wetlands for survival.

Estuarine and marine fish and shellfish, various birds, and certain mammals must have coastal wetlands to survive. Most commercial and game fish breed and raise their young in coastal marshes and estuaries. Menhaden, flounder, sea trout, spot, croaker, and striped bass are among the more familiar fish that depend on coastal wetlands. Shrimp, oysters, clams, and blue and Dungeness crabs likewise need these wetlands for food, shelter, and breeding grounds.

For many animals and plants, like wood ducks, muskrat, cattails, and swamp rose, inland wetlands are the only places they can live. Beaver may actually create their own wetlands. For others, such as striped bass, peregrine falcon, otter, black bear, raccoon, and deer, wetlands provide important food, water, or shelter. Many of the U.S. breeding bird populations-- including ducks, geese, woodpeckers, hawks, wading birds, and many song-birds-- feed, nest, and raise their young in wetlands. Migratory waterfowl use coastal and inland wetlands as resting, feeding, breeding, or nesting grounds for at least part of the year. Indeed, an international agreement to protect wetlands of international importance was developed because some species of migratory birds are completely dependent on certain wetlands and would become extinct if those wetlands were destroyed.

Natural Resource Inventory

Under natural conditions, a flood causes little or no damage to floodplains. Nature ensures that floodplain flora and fauna can survive the more frequent inundations. This is the case with the local marshlands within Chatham County. They are flooded daily during high tide and yet life exists without damaging the environment. Historic floodplain areas include canals and green spaces such as community parks, nature preserves and wildlife refuges. Such areas reduce flood damage by allowing flood water to spread over a large area. This reduces flood velocities and provides flood storage to reduce peak flows downstream. Natural and historic floodplains reduce wind and wave impacts and their vegetation stabilizes soils during flooding.

Chatham County has barrier islands such as Little Tybee, Ossabaw, Cabbage and Wassaw Islands. These islands serve as a natural protective barrier to forces from incoming storms such as wave attack, and serve to reduce tidal and wind energies. These islands serve as natural aquatic habitats, wetlands, marshes and estuaries.

Floodplains

The area adjacent to a channel is the floodplain, as shown below. A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current. Floodplains are made when floodwaters exceed the capacity of the main channel or escape the channel by eroding its banks. When this occurs, sediments (including rocks and debris) are deposited that gradually build up over time to create the floor of the floodplain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream.

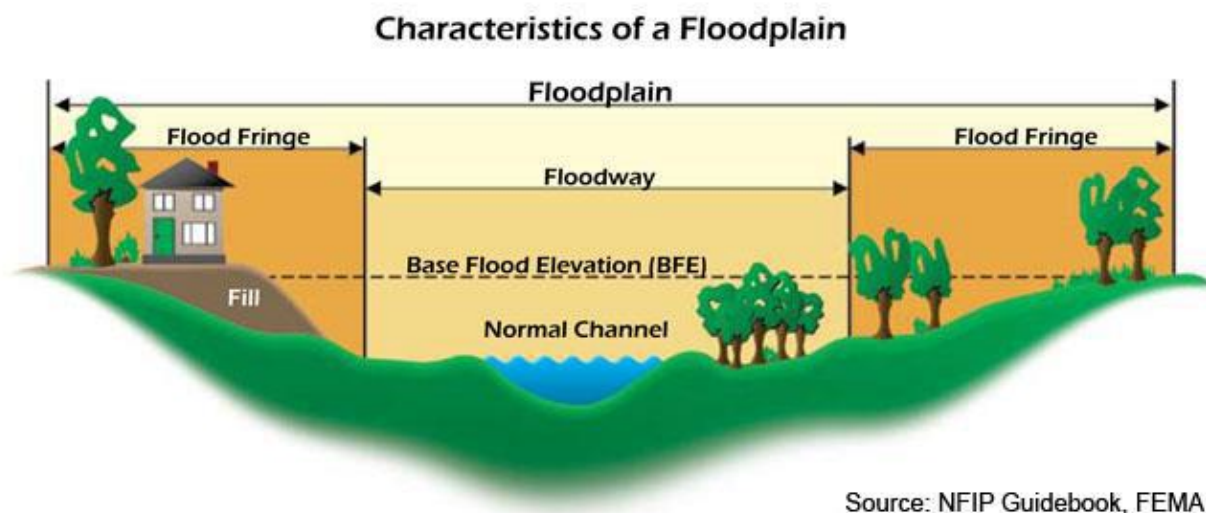


Figure 1 - Characteristics of a Floodplain

In its common usage, the floodplain most often refers to the area that is inundated by the 100-year flood, the flood that has a 1% chance in any given year of being equaled or exceeded. The 100-year flood is the national minimum standard to which communities regulate their floodplains through the NFIP. The 500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

Figure 2 illustrates the special flood hazard areas within Unincorporated Chatham County. Over 80% of the land area within Unincorporated Chatham County is considered high risk for flooding according to FEMA's Flood Insurance Rate Maps (FIRMs). Nearly 42% of the County is designated as a VE zone. Most of these areas are located in the eastern portion of the County in and around the various islands. Slightly less than 40% of the County falls within an A zone. These areas are also mainly located in the islands on the eastern part of the County as well as areas adjacent to local waterways such as the Savannah River, Ogeechee River, and the Little Ogeechee River. Only about 5% of the County falls within the moderate risk zone (500-year or shaded X). Lastly, 13% is designated as low risk or unshaded X.

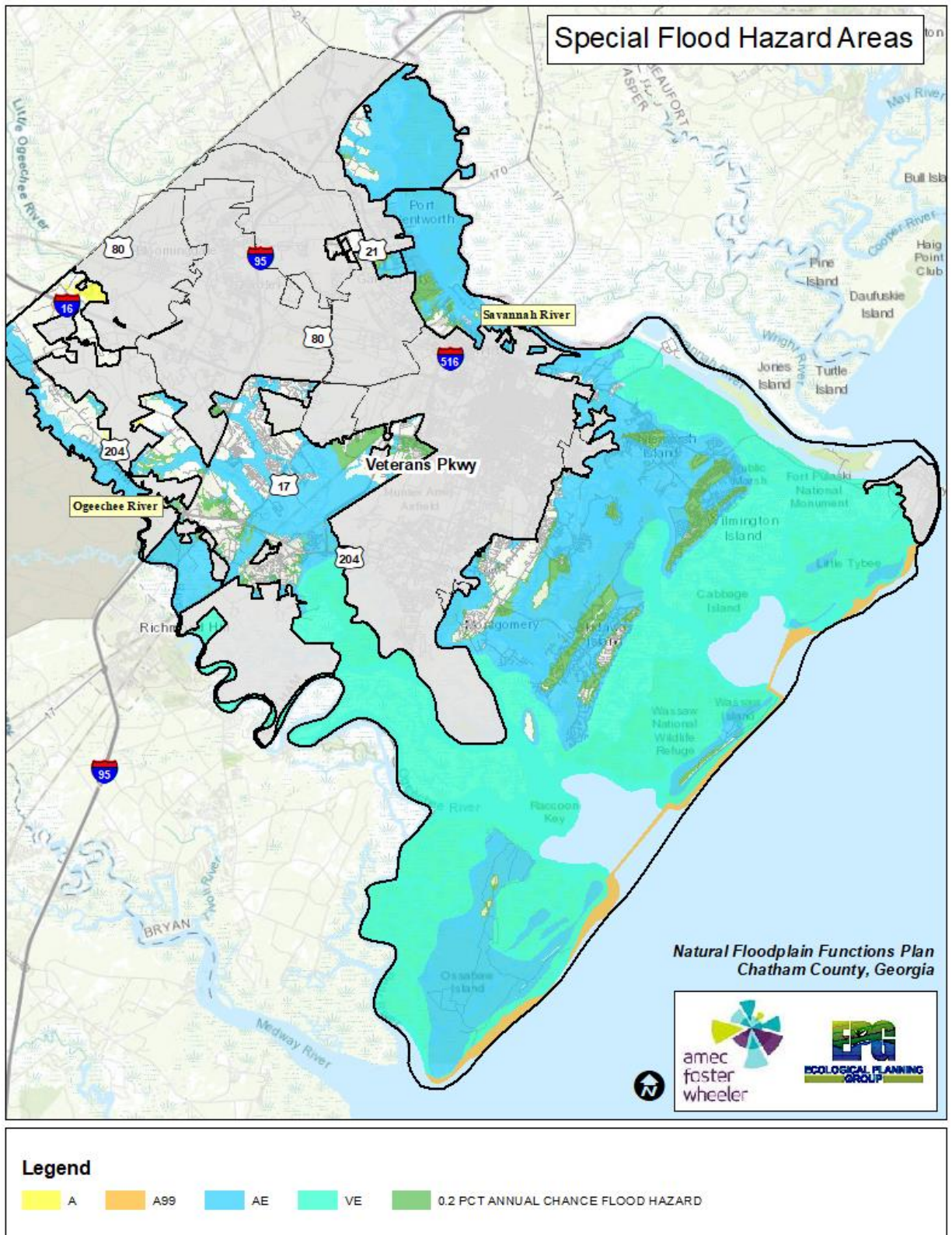


Figure 2 - Special Flood Hazard Areas

Wetlands

The benefits of wetlands are hard to overestimate. They provide critical habitat for many plant and animal species that could not survive in other habitats. They are also critical for water management as they absorb and store vast quantities of storm water, helping reduce floods and recharge aquifers. Not only do wetlands store water like sponges, they also filter and clean water as well, absorbing toxins and other pollutants. Wetlands are often found in floodplains and topographically depressed areas of a watershed.

The coast of Georgia comprises a vast array of wetlands ranging from freshwater non-tidal and tidal wetlands to estuarine wetlands, or saltmarshes. With approximately 100 linear miles of coastline, Georgia boasts approximately 348,000 acres of estuarine tidal marsh. These marshes are ecologically significant as habitat for aquatic organisms, including fish, shellfish, waterfowl, and other wildlife species. In addition to serving as habitat for specific organisms, saltmarshes also function as feeding grounds for terrestrial vertebrates, as a buffer to protect against coastal storm surge, and as a natural filtration system to improve water quality, transform nutrients and retain sediment. Table 1 and Figure 3 below detail the types and acreage of wetlands that exist within Chatham County.

Table 1 - Wetland Acreage

Class	Total Acreage	Percent
Estuarine - Open Water - Intertidal	76,441.29	59%
Estuarine - Open Water - Subtidal	25,155.34	20%
Lacustrine - Open Water - Limnetic	330.51	0%
Marine - Open Water - Intertidal	173.59	0%
Marine - Open Water - Subtidal	14.27	0%
Palustrine - Aquatic Bed	15.58	0%
Palustrine - Emergent Wetland	5,987.08	5%
Palustrine - Forested Wetland	13,788.25	11%
Palustrine - Scrub-Shrub Wetland	1,680.85	1%
Palustrine - Unconsolidated Bottom	866.30	1%
Palustrine - Unconsolidated Shore	18.83	0%
Riverine - Aquatic Bed	19.71	0%
Riverine - Open Water	2,002.95	2%
Not Classified	2,326.95	2%

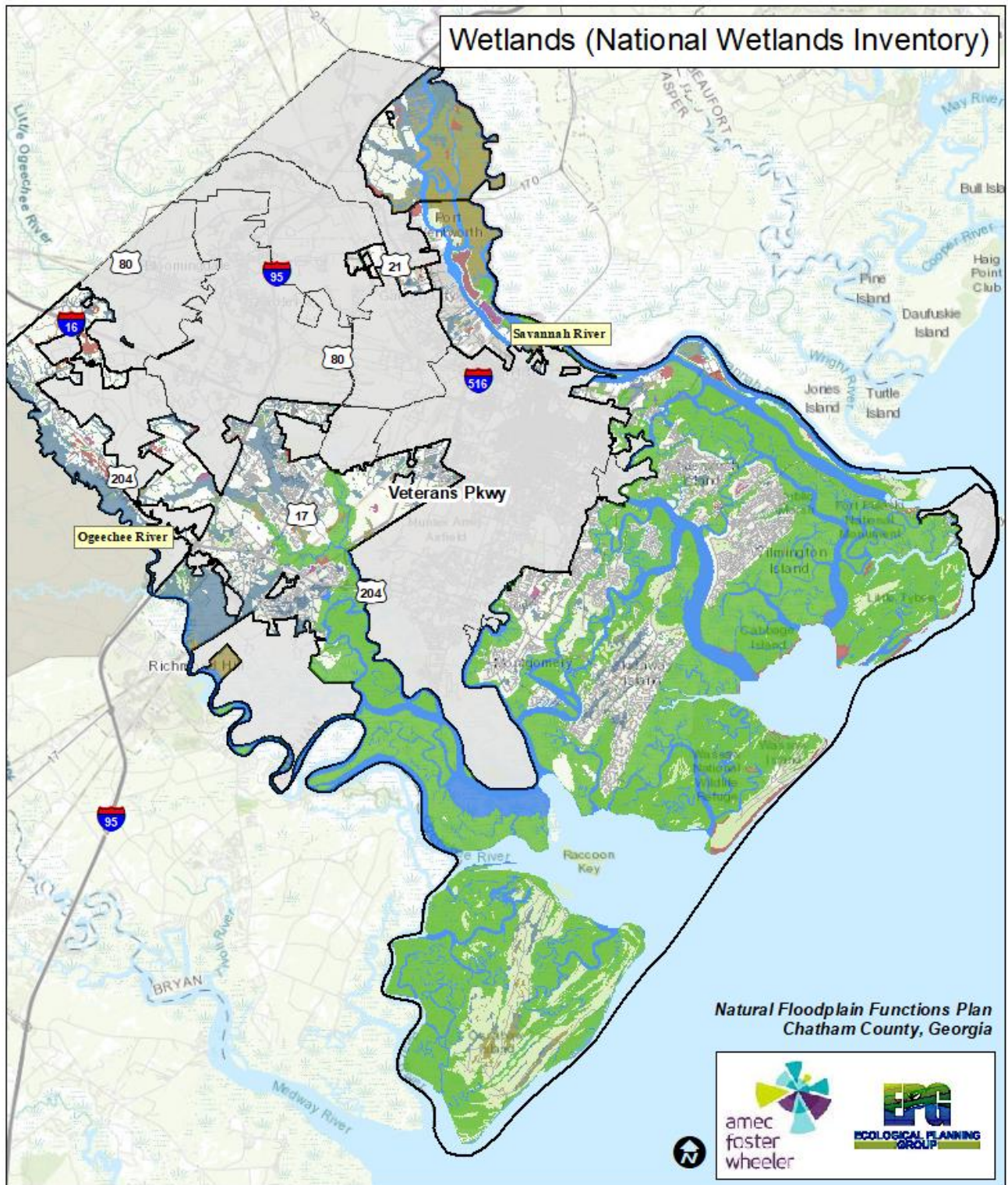


Figure 3 - Wetlands

Water Features

A stream can be defined as a body of concentrated flowing water in a natural low area or natural channel on the land surface. There are three stream types: ephemeral, intermittent, and perennial.

Ephemeral streams are features that only carry stormwater in direct response to precipitation. They may have a well-defined channel and they typically lack the biological, hydrological, and physical characteristics commonly associated with intermittent or continuous conveyances of water. These features are typically not regulated.

Intermittent streams have a well-defined channel that contains water for only part of the year (typically during winter and spring). The flow may be heavily supplemented by stormwater. When dry, they typically lack the biological and hydrological characteristics commonly associated with continuous conveyances of water. These features are typically regulated by State and Federal agencies.

Perennial streams have a well-defined channel that contains water year-round during a year with normal rainfall. Groundwater is the primary source of water, but they also carry stormwater. They exhibit the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water. These features are regulated by State and Federal agencies.

Perennial and intermittent watercourses are typically identified through site inspection and US Geological Survey (USGS) maps. Perennial streams are those which are depicted on a USGS map with a solid blue line. Intermittent streams are those which are depicted on a USGS map with a dotted blue line. The USGS map for Chatham County is shown on the following page in Figure 4.

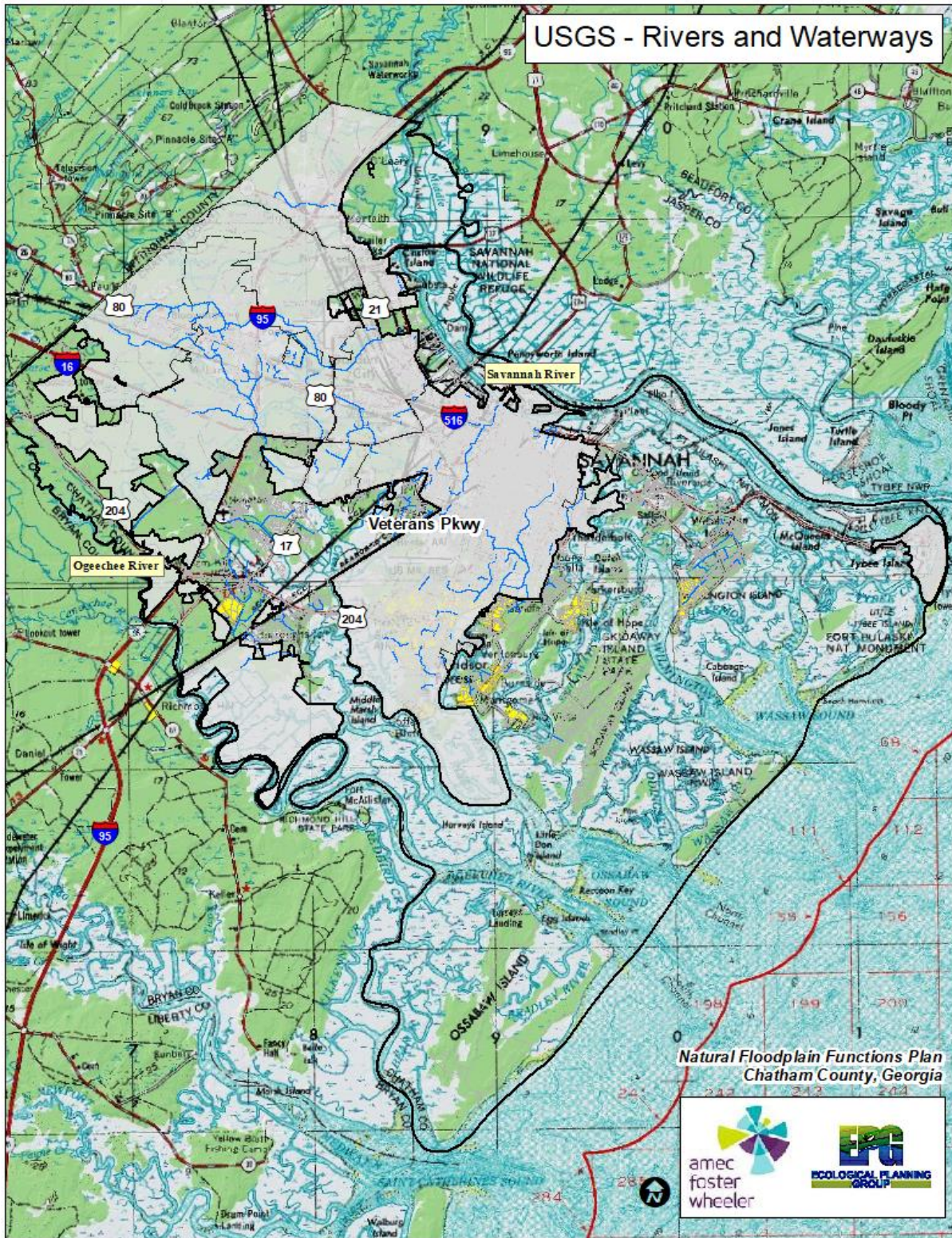







Figure 4 - USGS Rivers and Waterways

Parks, Open Space, and Recreation Amenities

The Chatham County Parks and Recreation Department operates and maintains a variety of parks and recreational amenities within the County. A list of these community features is included in the table below. More information about each of the amenities listed can be obtained by clicking on the link or visiting the County's parks and rec page.

Table 2 - County Parks and Recreation Amenities

	Park	Type	Address
	Bells Landing	Boat Ramps and Fishing Piers	Apache Ave Savannah GA 31406
	Frank Downing Fishing Pier	Boat Ramps and Fishing Piers	Diamond Causeway Savannah, GA 31406
	Frank W Spencer	Boat Ramps and Fishing Piers	Island Expressway Savannah, GA 31404
	Kings Ferry	Boat Ramps and Fishing Piers	Hwy 17 South Savannah, GA 31419
	Lazaretto Creek	Boat Ramps and Fishing Piers	Hwy 80 Savannah, GA 31410
	Rodney J Hall	Boat Ramps and Fishing Piers	25 Diamond Causeway Savannah, GA 31406
	Salt Creek	Boat Ramps and Fishing Piers	Hwy 17 South at Salt Creek Rd Savannah, GA 31419
	Thunderbolt	Boat Ramps and Fishing Piers	Macco Dr Savannah, GA 31404
	Turner Creek	Boat Ramps and Fishing Piers	Johnny Mercer Blvd Savannah GA 31404
	Tybee Island Fishing Pier and Pavilion	Boat Ramps and Fishing Piers	Tybee Island Tybee Island, GA 31328
	Frank G Murray	Community Centers	160 Whitemarsh Rd Savannah, GA 31410
	L Scott Stell	Community Parks	195 Scott Stell Community Park Savannah, GA 31419
	Lake Mayer	Community Parks	1850 E. Montgomery Crossroads Savannah, GA 31406
	Mother Mathilda Beasley	Community Parks	500 E. Broad Street Savannah, GA 31401
	Runaway Point	Community Parks	240 Riverview Rd Savannah, GA 31404
	Tom Triplett	Community Parks	100 Tom Triplett Rd Pooler, GA 31322
	Wilmington Island	Community Parks	Cohen Ave at Walthour Rd Savannah, GA 31410
	Al Henderson Golf Club	Golf Courses	1 Al Henderson Dr Savannah, GA 31419
	McQueen Island Rails to Trails	Multipurpose Trails	Hwy 80 East Savannah, GA 31410
	Old Savannah Ogeechee Canal	Multipurpose Trails	Bush Rd Savannah, GA 31419
	Robert McCorkle Bike Trail	Multipurpose Trails	Wilmington Island, Savannah, GA 31419

	Park	Type	Address
	Bungard Conservation Area	Nature Preserves	Basin Rd. Savannah, GA 31419
	Whitemarsh Preserve	Nature Preserves	Wilmington Island, Savannah, GA 31419
	Frank O Williamson Lake	Nature Preserves	Sallie Mood Drv. Savannah, GA 31406
	Ogeechee Trail	Nature Preserves	Fort Argyle rd. Savannah GA 31419
	Burroughs	Neighborhood Parks	Chevis Rd Savannah, GA 31419
	Grays Subdivision	Neighborhood Parks	Reita St Savannah, GA 31410
	Hodge Turner Park	Neighborhood Parks	Shipyards Rd Savannah, GA 31406
	Isle of Hope	Neighborhood Parks	Cornus Dr Savannah, GA 31406
	JC Cannon Fields	Neighborhood Parks	Lang St Savannah, GA 31410
	Lamarville	Neighborhood Parks	ACL Blvd Savannah, GA 31405
	Ogeechee Farms	Neighborhood Parks	Yemessee Rd Savannah, GA 31419
	Pin Point	Neighborhood Parks	Pinpoint Rd Savannah, GA 31406
	Rio Vista	Neighborhood Parks	Island Rd Savannah, GA 31406
	Westlake	Neighborhood Parks	West Lake Rd Savannah, GA 31405
	Ambuc Park	Sports Facilities	7230 Sallie Mood Dr Savannah, GA 31406
	Charlie C Brooks Park	Sports Facilities	Between Johnny Mercer Blvd and Concord Rd Savannah, GA 31410
	Abolt Obrien Soccer Field	Sports Facilities	Concord Rd Savannah, GA 31410
	Hodge Turner Ballfield	Sports Facilities	Shipyards Rd Savannah, GA 31406
	Jim Golden Complex	Sports Facilities	195 Scott Stell Rd Savannah, GA 31419
	Memorial Stadium	Sports Facilities	101 John J. Scott Dr Savannah, GA 31406
	Jennifer Ross Soccer Complex	Sports Facilities	7221 Sallie Mood Dr Savannah, GA 31406
	Chatham County Aquatic Center	Swimming Pools	7240 Sallie Mood Dr Savannah, GA 31406
	Anderson - Cohen Weightlifting Center	Weight Lifting Centers	7230 Varnedoe Dr Savannah, GA 31406

Trees

The Savannah Tree Foundation is a not-for-profit urban and community forestry organization dedicated to preserving, protecting and planting canopy trees in Savannah and Chatham County, Georgia. The Savannah Tree Foundation's tree planting program encompasses not only planting canopy trees within the community, but also their aftercare through mulching and ongoing tree maintenance activities. The Foundation aims to plant 200 trees per year.

Canopy trees are different from other trees in that they tend to grow larger and provide more shade than the typical ornamental or understory tree; they also provide better measurable benefits, including

stormwater absorption, carbon dioxide storage, reduction in heat island effects, less energy consumption for heating & cooling, and more.

Savannah Tree Foundation plants trees in public spaces throughout Chatham County, which means on property that is owned by the public or held in trust for public access. The Foundation typically plants on city or county property, in public parks and at other venues including those owned by nonprofit organizations and government entities. Trees benefit communities in the following ways:

Energy Savings

- Streets with little or no shade need to be re-paved twice as often as those with 30% tree canopy cover
- Just three strategically placed trees can decrease utility bills by 50%
- Trees reduce the amount of water runoff from rain and clean the water that does run off, saving billions of dollars otherwise needed for storm water control and water treatment facilities

Economic Improvement

- Residential property values can increase 5 - 12% if landscaping includes trees
- Workers with views of green spaces from their desks report 23% fewer instances of illness

Environmental Health

- Each year an acre of trees absorbs the amount of carbon produced by driving a car for 26,000 miles
- Trees cool city heat islands by 10 – 20 degrees, thus reducing ozone levels

Social Benefits and Safety for Residents

- Crime rates decrease by an average of 52% in areas with more greenery
- Access to green areas reduces stress and aggression for people who live in urban environments
- Residents who live near green spaces enjoy more social activities, know more of their neighbors, and have a stronger sense of belonging, resulting in stronger social ties

Educational

- Children who have a view of greenery in their lives perform better in school
- Increased exposure to nature enhances the ability of children to follow directions
- Access to green spaces relieves the symptoms of attention deficit disorder (ADD), resulting in better concentration

Climate Change

- By creating shade, trees moderate temperatures both globally and in the micro-climates of cities and counties
- One acre of forest absorbs six tons of carbon dioxide annually and puts out over four tons of oxygen
- Trees increase humidity in dry climates through evaporation of water from their leaves into the atmosphere

Greenways

Chatham County received a Coastal Incentive Grant from the Department of Natural Resources to complete a Greenway Implementation Study. The purpose of the study was to determine the viability of developing county maintained drainage canals as greenway trails. To ensure that the trail systems and adjacent habitats were properly addressed and preserved, a “best management practices for canal greenway maintenance” as also produced as part of this grant.

Ten drainage canals and retired rail corridors were selected to be evaluated as potential greenways based on a variety of criteria that included; proximity to existing trails or bike paths, connectivity, safety, ease of maintenance, flood plain considerations, regional appeal, as well as other criteria.

Chatham County Greenway Implementation Study

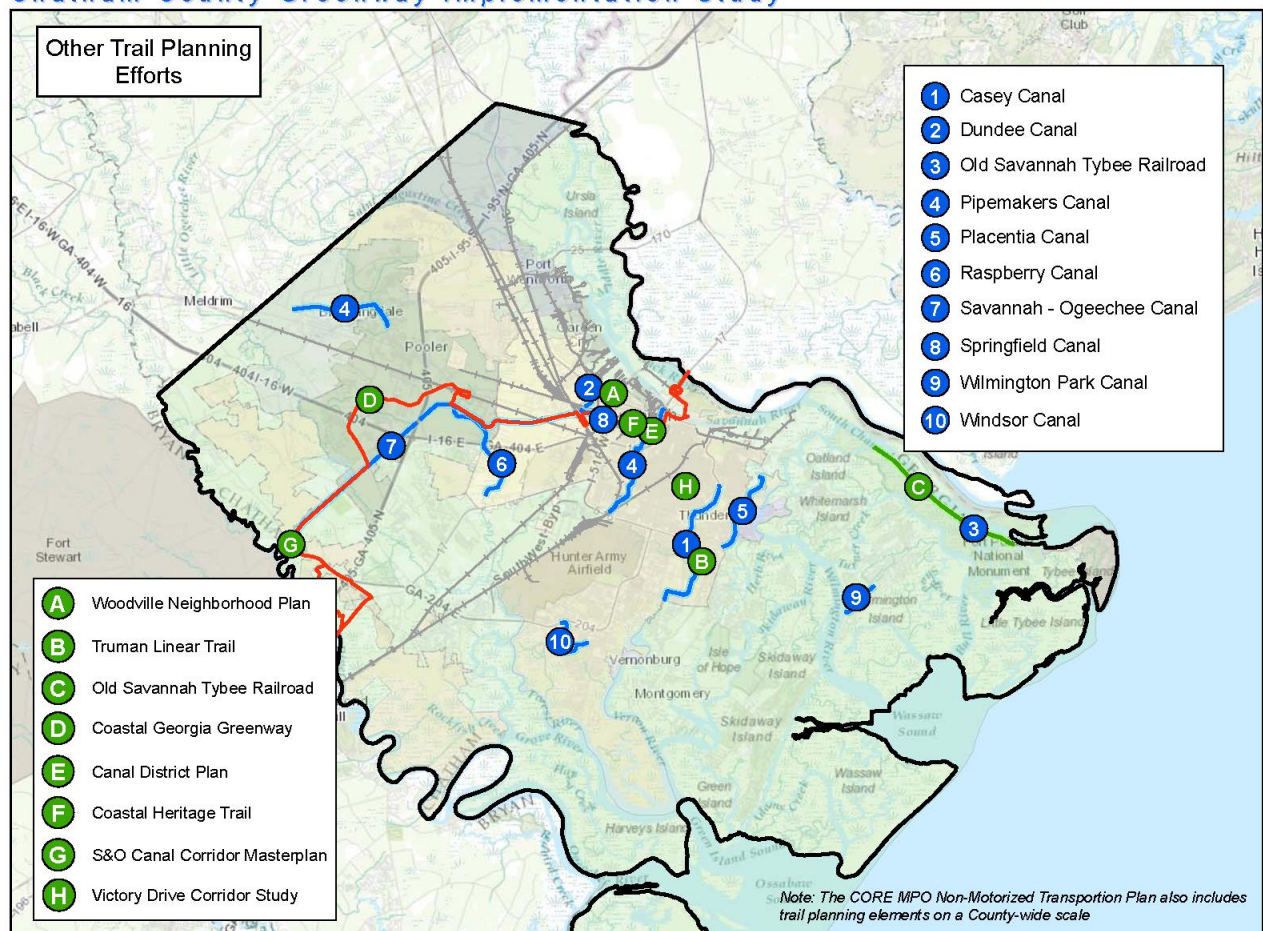


Figure 5 - Chatham County Greenway Implementation Study

Threatened & Endangered Species

According to the U.S. Fish & Wildlife Service Information Planning and Conservation System (IPaC) and the Georgia Department of Natural Resources (GADNR), there are known occurrences for 36 threatened, endangered, or candidate species within the Unincorporated Chatham County as shown in the table below.

Table 3 - Chatham County Threatened and Endangered Species

Common Name	Species Name	Status
Amphibians		
Striped Newt	Notophthalmus perstriatus	Candidate
Frosted Flatwoods Salamander	Ambystoma cingulatum	Threatened
Brimley's Chorus Frog	Pseudacris brimleyi	Unknown
Many-lined Salamander	Stereochilus marginatus	Unknown
Carpenter Frog	Lithobates virgatipes	Unknown
Birds		
Piping Plover	Charadrius melodus	Endangered
Red Knot	Calidris canutus rufa	Threatened
Red-cockaded Woodpecker	Picoides borealis	Endangered
Wood Stork	Mycteria americana	Threatened
Bald Eagle	Haliaeetus leucocephalus	Threatened
Least Tern	Sternula antillarum	Rare
Barn owl	Tyto alba	Unknown
Swallow-tailed Kite	Elanoides forficatus	Rare
Fishes		
Shortnose Sturgeon	Acipenser brevirostrum	Endangered
Atlantic Sturgeon	Acipenser oxyrinchus	Endangered
Mammals		
North Atlantic Right Whale	Eubalaena glacialis	Endangered
Manatee	Trichechus manatus	Threatened
Reptiles		
Eastern Indigo Snake	Drymarchon corais couperi	Threatened
Gopher Tortoise	Gopherus polyphemus	Candidate
Green Sea Turtle	Chelonia mydas	Threatened
Kemp's Ridley Sea Turtle	Lepidochelys kempii	Endangered
Leatherback Sea Turtle	Dermochelys coriacea	Endangered
Loggerhead Sea Turtle	Caretta	Threatened
Common Rainbow Snake	Farancia erytrogramma	Unknown
Spotted Turtle	Clemmys guttata	Unusual
Diamondback Terrapin	Malaclemys terrapin	Unusual
Eastern Diamond-backed Rattlesnake	Crotalus adamanteus	Unknown
Vascular Plants		

Common Name	Species Name	Status
Pondberry	Lindera melissifolia	Endangered
Pineland Dropseed	Sporobolus pinetorum	Unknown
Hooded Pitcherplant	Sarracenia minor var. minor	Unusual
Swamp Hibiscus	Hibiscus grandiflorus	Unknown
Georgia Indigo Bush	Amorpha georgiana	Endangered
Pineland Beaksedge	Rhynchospora punctata	Unknown
Wild Yellow Cowpea	Vigna luteola	Unknown
Mellichamp's Skullcap	Scutellaria mellichampii	Unknown
Yellow Anise-tree	Illicium parviflorum	Unknown

Amphibian & Reptile Habitat

The longleaf pine ecosystem provides habitat for amphibians and reptiles. The longleaf pine ecosystem is characterized by open-canopied stands of stately pines covering a carpet of grasses and other herbaceous vegetation. Over 20 federally-listed endangered species inhabit longleaf pine including the red-cockaded woodpecker (*Picoides borealis*), the eastern indigo snake (*Drymarchon corais couperi*), several plant species, and the gopher tortoise (*Gopherus polyphemus*). The eastern indigo snake is closely associated with the gopher tortoise as it commonly nests and dens in gopher tortoise burrows. The snake is primarily threatened by habitat loss.

The longleaf pine exists throughout Chatham County with exception of the tidal estuarine wetlands. However, there are specific areas in the County where the longleaf pine is more concentrated. The Diamond Back Terrapin habitat exists primarily in the tidal estuarine wetland areas.

Habitat Preservation

Suitable habitat requires ample herbaceous ground cover, open canopy conditions, and relatively low basal area (timber density) in merchantable stands. These key habitat parameters can be influenced by tree stocking rates, prescribed fire, pre-commercial and commercial thinning, and chemical control of hardwood vegetation where necessary.

Options for conserving habitat include establishment of a conservation bank, financial incentives to protect existing habitat, and on-site mitigation. A conservation bank could serve as a mitigation site for loss of habitat that occurs in the County. As mitigation for the destruction of habitat, developers could be required to contribute funds to the purchase of preserve areas. An alternative to the conservation bank is to offer financial incentives to private land owners with tracts containing habitat or habitat that is readily restorable. The U.S. Fish and Wildlife Service does have some funding available that could be directed to this purpose. A third alternative is to require on-site mitigation on the parcel where habitat loss occurs. The County can work with the Savannah Tree Foundation to encourage the preservation of the longleaf pine for protection of this habitat. The County can also consider setbacks and buffers as protective measures for this habitat. All development permits should conform to local and federal requirements including Fish and Wildlife habitat conservation requirements.

Recommendations

These recommendations are incorporated as detailed actions later in the plan:

- 1) Consider creating a conservation bank to replace the taking of habitat or consider financial incentives for private land owners with tracts containing habitat.
- 2) Work with the Savannah Tree Foundation for protection of the longleaf pine.
- 3) Expand riparian impervious surface setbacks including a 35' setback on coastal marshland and wetlands.
- 4) Work with the Nature Conservancy to find willing participants to dedicate land to the "Private Lands" database to ensure parcels are maintained and not further developed.

Preserved or Increased Habitat

The above recommendations, if implemented, can lead to both habitat preservation and an increase in the number of long-leaf pines within Chatham County. In economic terms, according to American Forests (www.americanforests.org), more than half of the US drinking water generates in forests, one large tree can capture and filter 36,500 gallons of water each year, a square kilometer of forest can support more than 1,000 species and the red-cocked Woodpecker requires 500 acres to live.

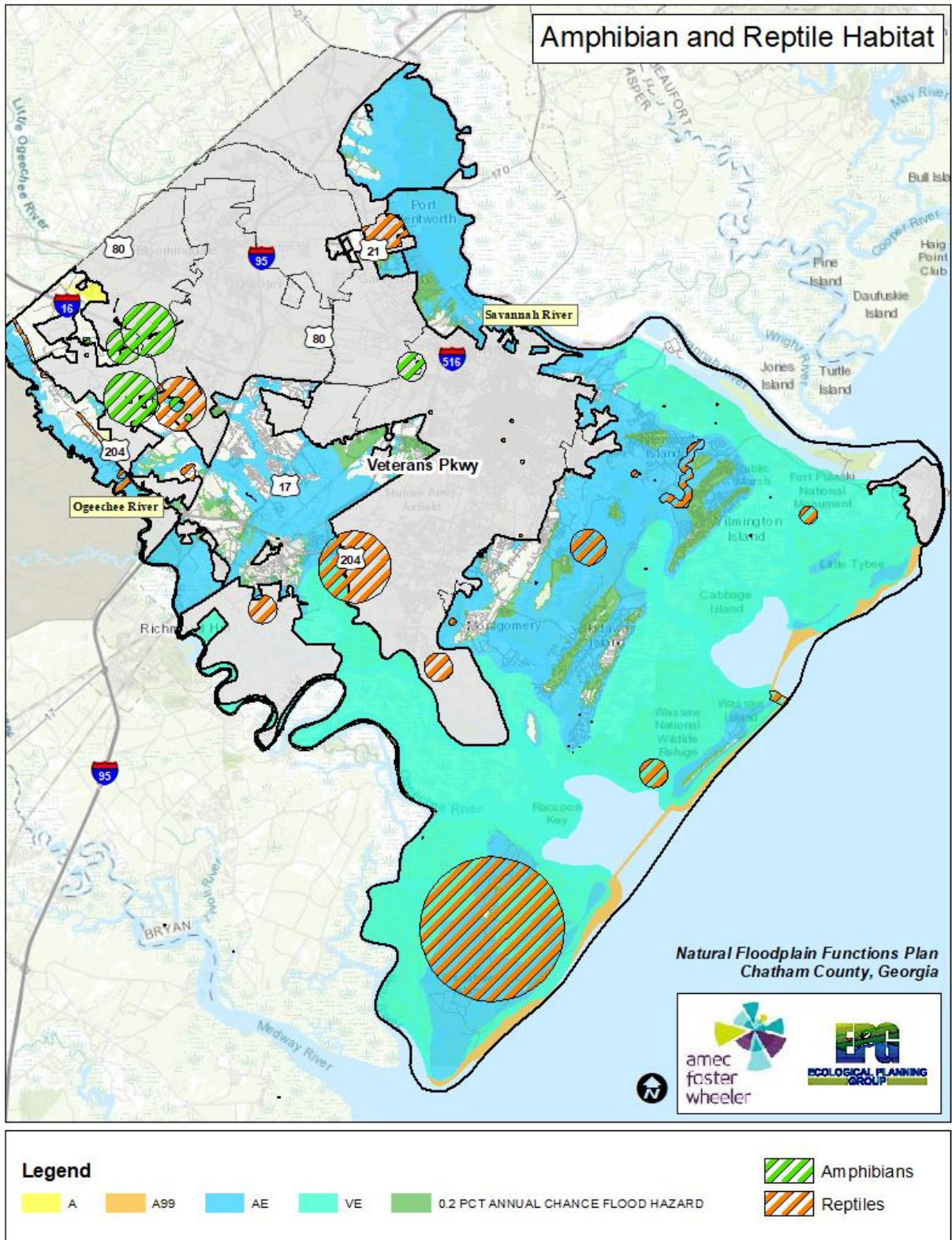


Figure 6- Amphibian and Reptile Habitat

Bird Habitat

While some birds such as the red-cockaded woodpecker (*Picoides borealis*) prefer longleaf pine habitat discussed above, other birds such as the Wood Stork use a variety of freshwater and estuarine wetlands for nesting, feeding and roosting. Freshwater colony sites must remain inundated throughout the nesting cycle to protect against predation and abandonment. Foraging sites occur in shallow, open water where prey concentrations are high enough to ensure successful feeding. Limiting factors include loss of feeding habitat, water level manipulations affecting drainage, predation and/or nest tree regeneration, human disturbance and pesticides or other chemical pollutants.

This habitat exists in both freshwater and estuarine wetland areas in the County.

Habitat Preservation

Mere preservation of wetland acreage does not necessarily preserve the processes necessary for the production of a strong prey base for wading birds. Wetlands must be managed to maintain or recover the dynamic wetland processes that create and make available the abundance of food required by nesting birds. Continuous habitat assessment and protection, and population monitoring will best assure that protection objectives are being met.

The County should identify important foraging and roosting habitat and develop a prioritization scheme to focus efforts on site with the greatest degree of threat. Property owners having priority foraging and roosting sites should also be informed and encouraged to comply with regulatory mechanisms. Property owner assistance can be provided in the form of written material explaining BMPs, site visits, and local recognition. Educational materials could be developed for use in schools and to educate policymakers and elected officials on the importance of maintaining and protecting wetland habitats.

Chatham County should continue to acquire land for habitat preservation or restoration, focusing on sites with the greatest potential. Nesting habitat should be protected from disturbance and human alteration. The County should also work with the Savannah Tree Foundation to encourage the preservation of the tree canopy for protection of this habitat.

Recommendations

These recommendations are incorporated as detailed actions later in the plan:

- 1) Expand riparian impervious surface setbacks including a 35' setback on coastal marshland and wetlands.
- 2) Work with the Savannah Tree Foundation for protection of the tree canopy.
- 3) Work with the Nature Conservancy to find willing participants to dedicate land to the "Private Lands" database to ensure parcels are maintained and not further developed.

Preserved or Increased Habitat

The above recommendations, if implemented, can lead to both habitat preservation and an increase in the number of long-leaf pines which is home to the red-cockaded woodpecker and the estuarine wetland areas which is home to the wood stork. Preservation of critical lands is essential to the protection of these habitat. In fact according to the American Forests organization the red-cocked Woodpecker requires 500 acres of wooded area to live <http://www.americanforests.org/explore-forests/forest-facts/>.

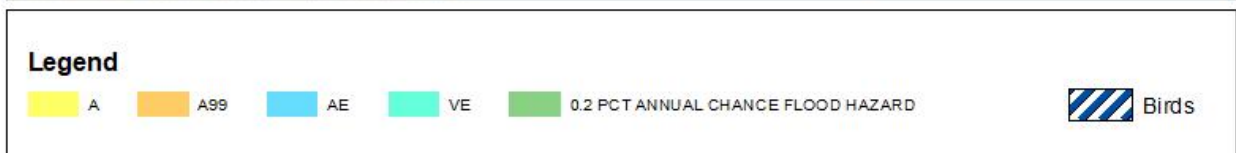
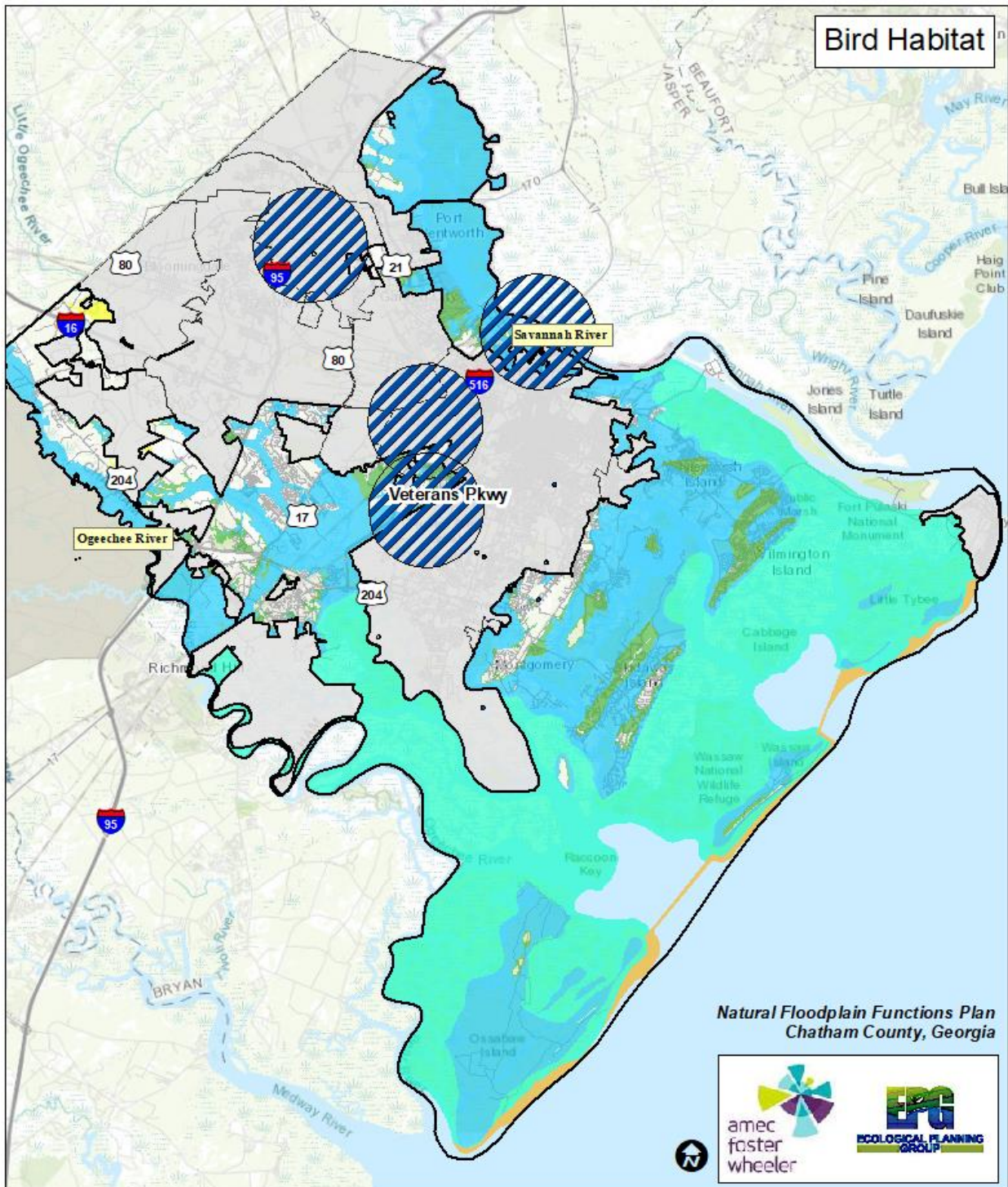


Figure 7 - Bird Habitat

Fish & Mammal Habitat

Mammals such as the West Indian Manatee lives in freshwater, brackish and marine habitats. Submerged, emergent, and floating vegetation are their preferred food. In the southeastern United States, manatees occur primarily in Florida and southeastern Georgia. These areas include many habitat types (including vegetated freshwater bottoms, salt marshes, sea grass meadows, and many others) where manatees ably exploit the many resources found in these areas. As herbivores, manatees feed on the wide range of forage that these habitats provide. In addition, manatees utilize many other resources found in these areas, including: (1) springs and deep water areas for warmth; (2) springs and freshwater runoff sites for drinking water; (3) quiet, secluded tributaries and feeder creeks for resting, calving, and nurturing their young, (4) open waterways and channels as travel corridors, etc.

Shortnose sturgeon inhabit the main stems of their natal rivers, migrating between freshwater and mesohaline river reaches. Spawning occurs in upper, freshwater areas, while feeding and overwintering activities may occur in both fresh and saline habitats.

Habitat Preservation

Manatee habitats are affected by human activities. Dredge and fill activities, polluted runoff, propeller scarring, and other actions have resulted in the loss of vegetated areas and springs. Quiet backwaters have been made more accessible to human activities, and increasing levels of vessel traffic have made manatees increasingly vulnerable to boat collisions in travel corridors. Manatees seem to have adapted to some of these changes. For example, industrial warm-water discharges and deep-dredged areas are now used as wintering sites, stormwater pipes and freshwater discharges in marinas provide manatees with drinking water, and the imported exotic plant, hydrilla (which has replaced native aquatic species), has become an important food source at wintering sites.

The first component of preserving manatee habitat is to first identify where manatees are roaming. In coordination with GADNR who has ample material on Manatee protection and conservation, the County should create outreach materials directing residents to report manatee sightings. The information will enhance knowledge of the endangered animal's distribution in the state. The County should also create outreach materials and signage urging boaters to slow down. Heeding low-speed and no-wake zones, particularly around docks where manatees eat algae growing on the structures, will reduce collision risks. Finally, the County should work in concert with GADNR and other agencies to identify lands that can be purchased and conserved as manatee habitat.

Habitat degradation or loss of the shortnose sturgeon (resulting, for example, from dams, bridge construction, channel dredging, and pollutant discharges), and mortality (for example, from impingement on cooling water intake screens, dredging, and incidental capture in other fisheries) are principal threats to the species' survival. Water quality of the Savannah River and its tributaries along with responsible bridge construction and demolition projects can help to protect this habitat.

Recommendations

These recommendations are incorporated as detailed actions later in the plan:

- 1) Create outreach materials to educate residents on spotting and reporting of manatees.
- 2) Create outreach materials and signage educating residents on how boat speeds impact the manatee.
- 3) Identify restricted areas in order to keep boats and humans from interacting with the manatee population.

- 4) Work with the Nature Conservancy to identify critical paths and connectivity between freshwater and marine habitats and to protect lands to allow for rainwater recharge to help grow seagrass.

Preserved or Increased Habitat

The above recommendations, if implemented, may not necessarily preserve or increase habitat, but it could result in a safer habitat which may increase the survival rate of the manatee. One important way to preserve and/or increase the manatee population is to work hand-in-hand with the Nature Conservancy to protect lands to allow for rainwater to recharge springs which is critical to helping seagrass beds to survive and multiply since this is their primary source of food. Unrestricted and connected waterways between freshwater and marine habitats are necessary so that the manatee populations can survive.



Aerial view of manatee feeding on sea grass

Source: USGS

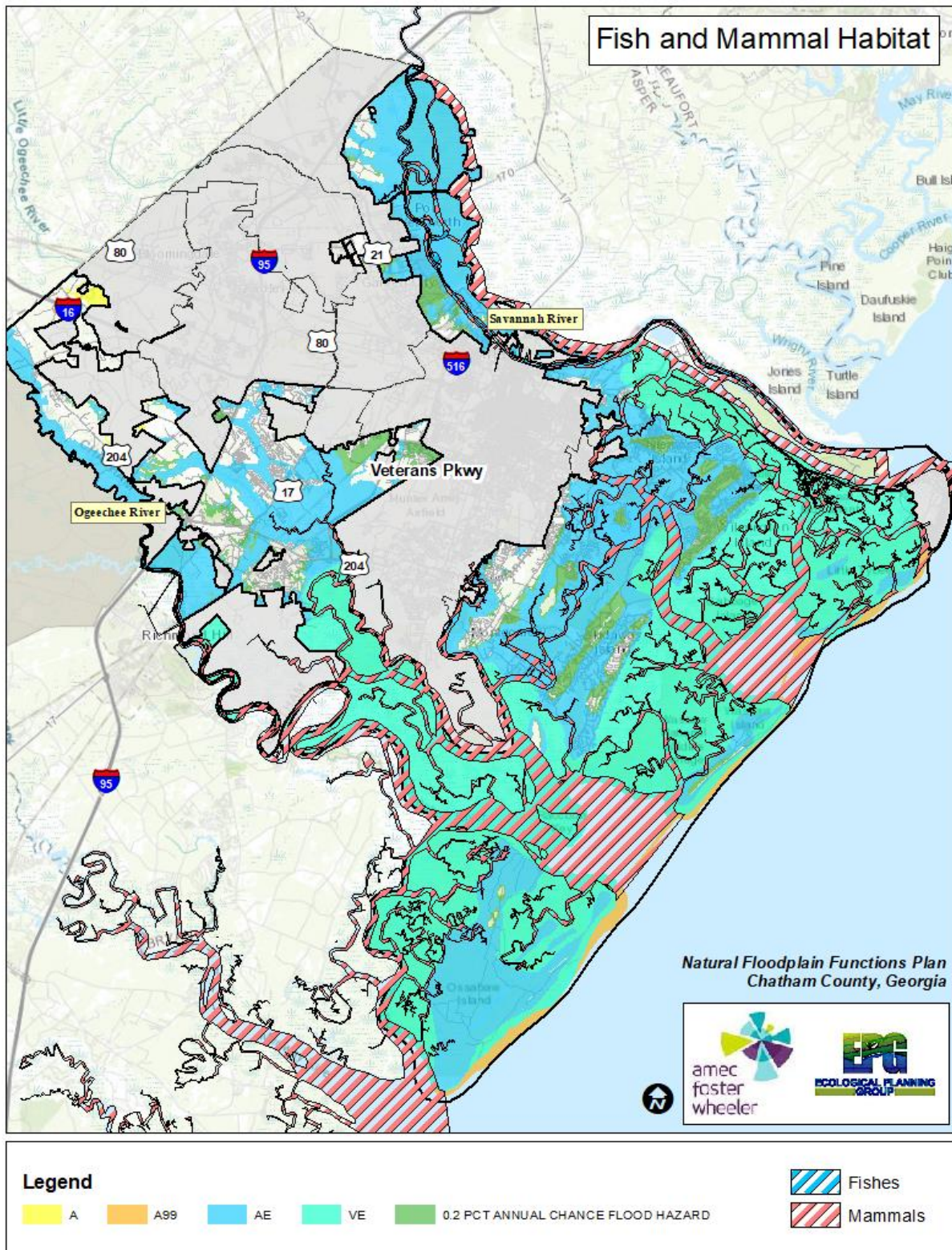


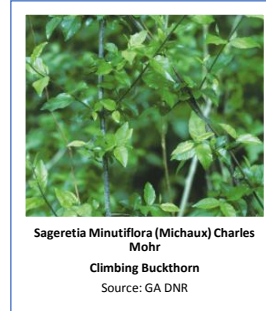
Figure 8 - Fish and Mammal Habitat

Vascular Plant Habitat

Habitat for rare plants such as the Florida Wild Privet includes coastal/maritime forests and shrub-scrub areas over shell mounds on or near barrier islands or bordering salt marshes. The Climbing Buckthorn can be found on calcareous rocky bluffs, forested shell middens on barrier islands, and evergreen hammocks along banks of streams and coastal marshes.

Habitat Preservation

Threats to this habitat include clearing and development in coastal habitats, digging and destruction of shell mounds, and exotic pest plants. Conservation and management recommendations include protecting coastal forests from clearing and development; protecting shell mounds from digging, clearing, dredging and spoil deposition; and eradication of exotic pest plants.



Recommendations

These recommendations are incorporated as detailed actions later in the plan:

- 1) Work with the Metropolitan Planning Commission on the Chatham County Greenway Master Plan to direct trails and recreation activity away from rare, threatened, or endangered plant habitat.
- 2) Promote a local education program on the benefits of protecting the Florida Wild Privet and the Climbing Buckthorn.
- 3) Work with the Nature Conservancy to find willing participants to dedicate land to the “Private Lands” database to ensure parcels are maintained and not further developed

Preserved or Increased Habitat

The above recommendations, if implemented, may protect these plant species and their habitat. Additionally on all county or state owned lands additional plantings of the species will help preserve and/or increase the habitat. For example, 100 seeds of the Florida Wild Privet can be purchased for approximately \$42.00.

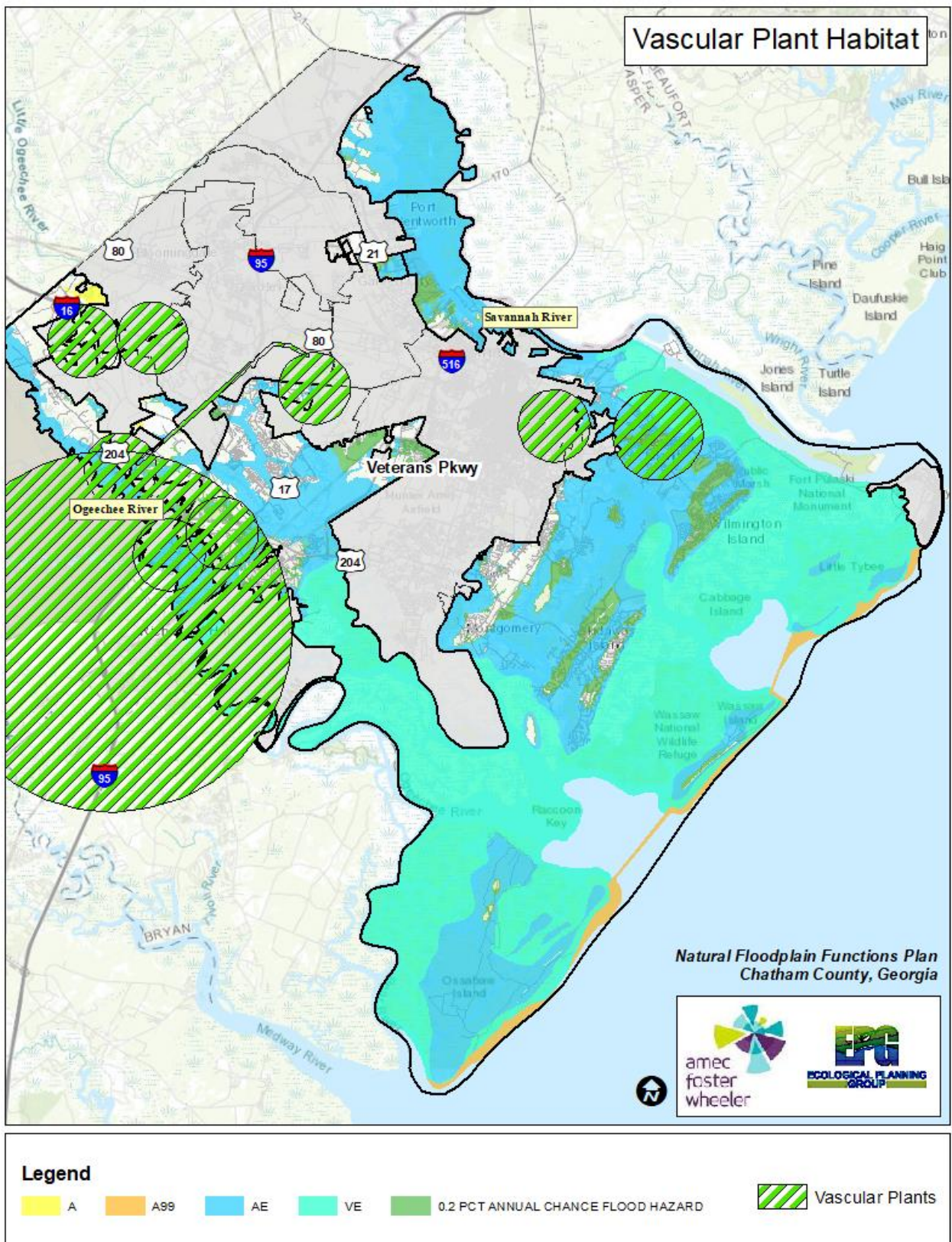


Figure 9 - Plant Habitat

Preservation Capability Assessment

Prevention measures like planning, land acquisition and regulations help modify development in floodplains in order to reduce susceptibility to flood damage. Comprehensive and Capital Improvement Plans can be used to identify floodplain and wetland areas to be preserved by zoning, acquisition and other means. A Comprehensive Plan, in broad terms, is a policy statement that guides a community's growth and development. It is the basis for a community's zoning, subdivision and design regulations and a community's official maps and amendments to the zoning, subdivision and design ordinances. A Capital Improvement Plan (CIP) is a community planning and fiscal management tool used to coordinate the location, timing and financing of capital improvements over a multi-year period.

Planning and zoning activities should direct development away from floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation. Planning and zoning activities can also provide benefits by simply allowing developers more flexibility in arranging improvements on a parcel of land through the planned development approach.

Local Planning Mechanisms

Metropolitan Planning Commission

The Metropolitan Planning Commission is a joint planning agency for the City of Savannah and Chatham County. Each governmental body appoints seven members to the board. Two of these members are the City and County Managers. These fourteen members serve without pay and represent government, private enterprise, and citizens' interest groups. Commissioners are appointed for three-year overlapping terms. The MPC meets every three weeks to consider matters of zoning and land use, as well as other studies and issues for which it has responsibility. Planning Meetings are held as needed to discuss planning issues.

The Chatham County – Savannah Comprehensive Plan developed by the MPC was adopted in 2006 by the Chatham County Board of Commissioners and the Mayor and Aldermen of the City of Savannah.

Capital Improvement Program

The Chatham County Department of Engineering manages and administers a Capital Improvement Program, which is funded by the 1% Special Local Option Sales Tax (SPLOST). The includes but is not limited to project design, environmental permitting, utility relocation, right-of-way acquisition, and construction management. The department also coordinates projects with local, state, and federal agencies.

Coastal Georgia Regional Commission

The Coastal Georgia Regional Commission (CRC) is a multi-county planning and development agency that serves municipal and county governments. The CRC serves 10 counties and 35 cities and encompasses the six coastal counties in Georgia. The CRC provides local and regional comprehensive planning services as well as specialized planning services in transportation, water resources, and historic preservation.

Coastal Georgia Indicators Coalition

The Coastal Georgia Indicators Coalition is comprised of community members and advocates working together through a comprehensive, coordinated approach for planning and accountability and serves as a resource for agencies addressing overall health and well-being while leveraging resources for community initiatives. The purpose of the Coalition is to improve community well-being by engaging and leading the community to work collectively in its development of strategic priorities that guide policy, programs, and resource allocation.

Local Preservation Initiatives

Savannah Tree Foundation

The Savannah Tree Foundation (detailed in Section 3) promotes, through direct action and education, an awareness of trees as vital environmental resources and an important part of cultural heritage.

Comprehensive Plan

Environmental protection priorities identified in the Land Use Element of the Chatham County-Savannah Comprehensive Plan are as follows:

- Continue to use SPLOST funds for acquisition of sites for environmental protection;
- Refine the Environmental Overlay District adopted by Chatham County in 2001 and extended in 2003;
- Enhance marsh buffer protection with the use of Low Impact Development strategies and standards;
- Create new hammock protection by reducing development densities; and
- Provide incentives for countywide conservation subdivisions similar to those in the Environmental Overlay District.

Coastal Marshlands Protection Act

In 1970, the State of Georgia established the Coastal Marshlands Protection Act (CMPA) to protect the marsh and estuarine areas, and to regulate the activities within these public trust lands that are held for the citizens of Georgia. Through the Georgia Department of Natural Resources, Coastal Resources Division (GADNR-CRD), the CMPA is enacted to protect the estuarine area. Activities and structures in the coastal marshlands are regulated to ensure that the values and functions of the coastal marshlands are not impaired. GADNR-CRD allows for the sustainable use of the estuarine area through permits and other methods of authorization that will preserve the condition of the marsh while still allowing for its enjoyment.

Coastal Georgia Regional Commission

The Coastal Georgia Regional Commission prepared a Regional River Corridor Protection Plan that describes the ten local governments and the associated rivers that are affected by the River Corridor Protection Act, and puts forward a regional plan for the protection of river corridors. The plan provides for construction of road crossings, acceptable uses of river corridors, maintenance of a vegetative buffer along rivers for a minimum of 100 feet from the river's edge (residential structures are allowed within the buffer zone), timber production standards, wildlife and fisheries management, recreation, and other uses. Chatham County is one of the eight coastal counties affected by the River Corridor Protection Act and therefore, as required, has adopted a Regional River Corridor Protection Plan for the Savannah River. The maintenance of a 100-foot natural vegetative buffer, often referred to as a "riparian buffer", on both sides of any protected river is required under the River Corridor Protection Act. Similarly, under the State of

Georgia Erosion and Sedimentation Act, one provision requires that land-disturbing activities shall not be conducted within 25 feet of the banks of any State waters, thus mandating a riparian buffer 25 feet in width.

Stormwater Ordinance

Chatham County's Stormwater Management Ordinance requires that all stormwater management systems be designed to comply with the requirements of the latest Local Design Manual and comply with the latest edition of the Coastal Stormwater Supplement to the Georgia Stormwater Management Manual. The County's Local Design Manual requires stormwater runoff reduction and stormwater water quality BMPs. Post-construction stormwater management and site planning and design criteria must be applied to all new development and redevelopment activities that are subject to the Stormwater Management Ordinance. The criteria include a natural resources inventory, use of Green Infrastructure/Low Impact Development practices, stormwater runoff reduction, stormwater quality management and protection, aquatic resource protection and energy dissipation, overbank flood protection, and extreme flood protection.

Nature Conservancy

The Nature Conservancy is the leading conservation organization working to protect ecologically important lands and waters for people both nature and people. One important attribute is the Private Lands Conservation Program as the Conservancy works with landowners, communities, cooperatives and businesses to establish local groups who can protect land. Some of the tools include Land Trusts, conservation easements, private reserves and incentives. The Conservancy has helped to protect more than 21 million acres in the United States alone. One of the primary conservation areas in the state of Georgia is in the Savannah River Basin which runs throughout Chatham County. Some of the Conservancy lands that are protected are in Chatham County.

Action Plan

This action plan is intended to protect the threatened and endangered species identified above as well as preserve open space, tree cover and natural floodplain areas. The detailed actions summarize who is responsible for implementing each of the prioritized actions as well as when and how the actions will be implemented.

It should be noted that the actions included in this plan are subject to further review and refinement; alternatives analyses; and reprioritization due to funding availability and/or other criteria. The County is not obligated by this document to implement any or all of these projects. Rather this action plan represents the desires of the County to preserve and/or restore critical habitat within the floodplain.

	Project	Background	Timeframe	Responsible Party	Cost	Potential Funding source	Benefit
1	Expand riparian impervious surface setback including a 35 foot setback on coastal marshlands and wetlands.	Expansion of the setback is an effort to protect the natural and beneficial functions of the salt water marsh, wetlands, and floodplain. This setback would align with the County's 35' riparian buffer requirement on properties adjacent to the marsh in the Environmental Overlay District (EOD).	Within 60 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget	Habitat preservation
2	Work with the Metropolitan Planning Commission on the Chatham County Greenway Master Plan to direct trails and recreation activity away from rare, threatened, or endangered plant habitat.	Greenway plans provide natural and beneficial functions of the floodplain by protecting certain areas of the city from development. Connectivity of green space (open space) benefits both Savannah and Chatham County. Working together to provide for additional greenways or open space provides not only a recreation benefit but an ecological benefit of protected land from development and intrusion into sensitive areas. Trails and recreational spaces should be directed away from rare, threatened or endangered species habitat.	Within 12 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget and potential state funding Rails to Trails Program	Habitat preservation
3	Develop a local education program on the benefits of protecting the Florida Wild Privet and the Climbing Buckthorn.	Threats to this vascular plant habitat include clearing and development in coastal habitats and digging and destruction of shell mounds. Conservation recommendations include educating the public on how to identify the habitat; protecting coastal forests from clearing and development; and protecting shell mounds from digging, clearing, dredging and spoil deposition.	Within 24 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget	Raise awareness; preserve habitat
4	Use the Land Use Element of the Chatham County-Savannah Comprehensive Plan to direct development away from floodplains and wetlands.	Planning and zoning activities should direct development away from floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation.	Within 24 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget	Habitat preservation
5	Conserve vacant low-lying/flood-prone/wetlands areas for open space through comprehensive planning, regulatory enhancements and future acquisitions. Develop a program for property acquisition within the floodplain.	Open space can provide valuable habitat and natural water management functions. Property acquisition followed by open space preservation can protect the natural and beneficial functions of the salt water marsh, wetlands, and floodplain.	Within 60 months	Chatham County - Savannah Metropolitan Planning Commission in cooperation with the Nature Conservancy	Staff time	County operating budget	Habitat preservation; increase in habitat
6	Consider creating a conservation bank to replace the taking of habitat or consider financial incentives for private land owners with tracts containing habitat.	The longleaf pine ecosystem provides habitat for amphibians and reptiles. Suitable habitat requires ample herbaceous ground cover, open canopy conditions and relatively low timber density. Habitat areas should either be preserved through development restrictions or replaced in an alternate location when development does occur.	Within 60 months	Chatham County - Savannah Metropolitan Planning Commission In cooperation with the Nature Conservancy	Staff time	County operating budget and private funding	Habitat preservation; increase in habitat

	Project	Background	Timeframe	Responsible Party	Cost	Potential Funding source	Benefit
7	Review the Floodplain Damage Prevention Ordinance to propose improvements regarding floodplain management.	Regulations help to control development in floodplains in order to reduce susceptibility to flood damage. The Flood Damage Prevention Ordinance can be used to limit development within the floodplain and ensure that development results in a minimal impact to habitat.	Within 12 months	Chatham County Engineering Department	Staff time	County operating budget	Habitat preservation
8	Work with the Nature Conservancy to develop a private lands database to protect and conserve environmentally sensitive lands.	Private lands conservation is a tactic that leverages the increasing interest of the private sector to take part in conservation. The Conservancy works with landowners, communities, cooperatives and businesses to establish local groups that can protect land. Some of the main tools used to achieve these goals include land trusts, conservation easements, private reserves and incentives	Within 60 months	Chatham County - Savannah Metropolitan Planning Commission In cooperation with the Nature Conservancy	Staff time	County operating budget and private funding	Habitat preservation; increase in habitat
9	Review the County's Local Design Manual to propose improvements that will increase the use of Green Infrastructure / Low impact design principles for development projects.	Green Infrastructure/Low Impact development results in more green space and less impervious area. Vegetation in the urban environment provides habitat for birds, mammals, amphibians, reptiles, and insects. By reducing erosion and sedimentation, green infrastructure improves habitat in small streams. Green Infrastructure also helps to facilitate wildlife movement and connect wildlife populations between habitats.	Within 24 months	Chatham County Engineering Department	Staff time	County operating budget	Increase in habitat
10	Work with the Savannah Tree Foundation on tree canopy preservation projects.	The longleaf pine ecosystem provides critical habitat for amphibians, reptiles and birds. The mission of the Savannah Tree Foundation is to preserve, protect and plant canopy trees in Chatham County. The Savannah Tree Foundation promotes, through direct action and education, an awareness of trees as vital environmental resources.	Within 36 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget and Savannah Tree Foundation	Habitat preservation; increase in habitat
11	Create outreach materials to educate residents on spotting and reporting of manatees.	The first component of preserving manatee habitat is to identify where manatees are roaming which will enhance knowledge of the animal's distribution in the County.	Within 24 months	Chatham County - Savannah Metropolitan Planning Commission and Chatham County Engineering	Staff time	County operating budget	Provide safer habitat; increase survival rate
12	Create outreach materials and signage educating residents on how boat speeds impact the manatee.	Manatees are vulnerable to boat collisions. Heeding low-speed and no-wake zones will reduce collision risks.	Within 24 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget	Provide safer habitat; increase survival rate
13	Identify restricted areas in order to keep boats and humans from interacting with the manatee population.	Industrial warm-water discharge areas and deep-dredged areas are used as wintering sites and stormwater pipes and freshwater discharges in marinas provide manatees with drinking water. These areas should be monitored for manatee activity and restricted from human and boating activity.	Within 24 months	Chatham County - Savannah Metropolitan Planning Commission	Staff time	County operating budget	Provide safer habitat; increase survival rate

Plan Adoption

The purpose of formally adopting this plan is to secure buy-in from the Chatham County elected officials, raise awareness of the plan, and formalize the plan's implementation. The Chatham County Commission has adopted the Natural Floodplain Protection Plan by passing a resolution. A copy of the executed resolution is shown below.

Note to Reviewers: *When this plan has been reviewed and approved, the adoption resolution will be signed and added here.*

Plan Maintenance

Implementation and maintenance of the plan is crucial to the overall success of this Natural Floodplain Protection Plan. This section provides an overview of the strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan.

Implementation

Once adopted, the plan must be implemented in order to be effective. Implementation will be accomplished by adhering to the schedules identified for each action and through constant, pervasive, and energetic efforts to network and highlight the multi-objective, win-win benefits to each program and the community. This effort is achieved through the routine actions of monitoring agendas, attending meetings, and promoting a sustainable community. Simultaneous to these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. When funding does become available, the County will be in a position to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, state and federal earmarked funds, benefit assessments, and other grant programs, including those that can serve or support multi-objective applications.

Responsibility for Implementation of Actions

Officials appointed to head community departments and community staff are charged with implementation of various actions in the plan. During the annual review as described later in this section, an assessment of progress on each of the actions in the plan will be determined and noted. At that time, recommendations will be made to modify timeframes for completion of activities, funding resources, and responsible entities.

Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized.

Maintenance Schedule

The Chatham County Engineering Department is responsible for initiating plan reviews. In order to monitor progress, the County will revisit this plan annually. Furthermore, the plan must be updated at least once every 10 years. The update must include a review of any changes to conditions as well as progress made since the original plan was prepared. With this plan update anticipated to be fully approved and adopted in 2017, the next plan update for the County will occur in 2027. Any changes to the adopted plan must be approved by the County Commission.

Incorporation into Existing Planning Mechanisms

Another important implementation mechanism that is highly effective and low-cost is incorporation of the Natural Floodplain Protection Plan actions into other plans and mechanisms. Where possible, plan participants will use existing plans and/or programs to implement actions. As described in this plan's capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. These existing mechanisms include:

- Chatham County Pre- and Post-Disaster Mitigation Plans
- Chatham County – Savannah Comprehensive Plan
- Ordinances
- Flood/stormwater management/master plans
- Other plans, regulations, and practices with a mitigation focus

Those involved in these other planning mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, programs, etc., as appropriate. As described above, implementation and incorporation into existing planning mechanisms will be done through the routine actions of:

- Monitoring other planning/program agendas;
- Attending other planning/program meetings;
- Participating in other planning processes; and
- Monitoring community budget meetings for other community program opportunities.

Efforts should continuously be made to monitor the progress of mitigation actions implemented through other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this Natural Floodplain Protection Plan.